



AccuStandard®

Table of Contents

Organic Single Analytes, Select Mixtures and Methods 1-264

Persistent Organic Pollutants (POP)	3-68
Polychlorinated biphenyls (PCBs) and Metabolites	3-20
Halogenated Aromatics (other than PCBs and PBDEs)	21-22
Dibenzo-p-dioxins	23-24
Dibenzofurans	25
Flame Retardants (BFRs), Polybrominated Diphenyl Ethers (PBDEs) and Metabolites	28-41
Polynuclear Aromatic Hydrocarbons (PAHs) and Derivatives	42-46
Nitrogen Containing Compounds	47
Pesticides and Herbicides	48-68
Volatiles (VOCs)	69-72
Analytes by Functional Group	73-82
Alcohols	73
Aldehydes and Derivatives	73-74
Ketones and Derivatives	74
Phenols	75-76
Amines, Anilines and other Amino Compounds	76-78
Ethers	79
Haloethers	79
Haloacetic Acids	79
Phthalates	80-82
Analytes by Application	83-113
Explosives and Firearm Discharge	84-87
Fuels and Hydrocarbons	310-313
Plastic Additives and Bisphenol Analogs, Imidazoles	88-95
Food Analytes (Lipids, Vitamins and Preservatives)	95-99
Fatty Acid Methyl and Ethyl Esters (FAMES, FAEEs)	98-99
Cannabis Standards	100-101
Allergens (Personal Care Products)	102-107
Dyes	108-109
Perfluorinated Compounds (PFCs)	110
Odor Standards	110
Irritant Standards	110
Refrigerants	111
Qualitative Analysis Kits	112-113
EPA Methods	117-242
Individual Analytes from EPA Methods	117-127
CLP (Contract Laboratory Program)	128-141
500 Series - For Drinking Water	143-170
600 Series - For Waste Water	171-182
1300 Series - TCLP (Toxicity Characteristic Leaching Procedure)	183-184
1600 Series - PBDEs, Pesticides, Pharmaceutical Waste Discharge & PCBs	185-196
8000 Series - For Solid Waste, Appendix IX and Explosives	197-242
Methods other than EPA	243-264
Regional Methods - Canada, Europe, Asia, USA States, Municipalities	243-258
Biocides - EU Directive 98/8/EC (BPD)	259-262
Halobenzoquinones, ASTM 7065-6, 7485 Nonylphenols, Alkyl-Phenol-Metabolites, USP 467, F-List	263-264

Petrochemical

265-327

ASTM Listing and Cross References	266-267
Physical Properties	268-269
Sulfur Standards	270-271
PIANO	272-273
Detailed Hydrocarbon Analysis and SIM DIS	274-275
ASTM Reference Standards	276-303
Diisocyanates	298
UOP Standards	304
Miscellaneous: Skinner List, Fire Debris, Biocide in Fracking Fuel	305
Biofuels	306-309
TPH, Fuels and Hydrocarbons	310-313
Brownfield Regulation and ISO/DIS 9337	313
LUFT/LUST (UST) Methods - State Specific, GRH, DRH - TPH	314-327
Oil, Grease and TPH - EPA Methods 1664, 413.2/418.1 and 8440	327
Wear Metals (Organometallics) and Lubricating Oils	368-374

Inorganic

328-374

Single Element	331-337
ICP	331-334
ICP/MS	335-336
AA	337
Matrix Modifiers / GFAA Multi's	337
Ion Chromatography (includes Multi's)	338-341
Wet Chemicals	342-343
TPH, Oil and Grease	344
ICP Multi-Element	345-362
QC, SDWA, TCLP, MISA, CLP, SW-846, EPA 200.7 and 6010	345-354
Alternate Source - Agilent/Varian, Perkin Elmer, Horiba/Jobin Yvon, Teledyne, Merck	355-362
ICP/MS Multi-Element	364-367
Organometallics (Wear Metals)	368-374
Lubricating Oils	372-374
ASTM Methods	363

Custom Synthesis

Can't find what
you need?
see page 26

Custom Formulations

Organic and
Inorganic
see back of catalog

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PAPER



In Memory of our Founder Michael Bolgar

Starting a new company at the age of 55 exemplifies the perseverance, passion and love of chemistry Michael had. He was one of the pioneers in the Reference Standard industry, taking great pride in AccuStandard's significant accomplishment of being the first to make all 209 PCB congeners. Through his guidance and inspiration, AccuStandard continued on with many other firsts in the industry.

He wanted his company to be a place where he would be happy to work. By taking care of his employees, he created a positive work environment for all. He was very proud of all of the employees at AccuStandard for their commitment and dedication for excellence. AccuStandard truly is a family company that works as a team.

Michael had a love for all art, inspired by Dr. Alfred Bader, founder of Aldrich. Michael had a special attachment to alchemical art, this is reflected through the covers of our catalogs, starting in 1996.

He was a founder, leader and true inspiration to many people. Michael was highly respected and relied upon for his expansive knowledge by all of us at AccuStandard and in the Chemical Reference Standard industry. We are grateful for his guidance, he was an example to us all.



He will always be with us, forever alive in our hearts and minds. He is truly missed.



About AccuStandard

AccuStandard, Inc., founded in 1986, is a leading manufacturer of Certified Reference Materials (CRMs) and Reference Materials (RMs). The company was pioneered by Michael Bolgar and his wife, Alice Bolgar. In 1998 AccuStandard outgrew its original facility at Science Park in New Haven, Connecticut, USA and moved across town to its current facility of over 37,000 square feet, which houses our offices, warehouse, and several laboratories.

AccuStandard offers a comprehensive selection of Organic, Inorganic and Petroleum Reference Standards for chemical analysis and serves the global market. With distributors in more than 85 countries, AccuStandard is able to provide products to scientists around the world.

The company is renowned for its recognition of environmental concerns and rapid introduction of standards to the market place. Among the more recent introductions are a comprehensive cannabis product line, hydroxy and methoxy PBDE congeners, as well as bromo/chloro hydroxy and methoxy diphenyl ethers, organophosphate flame retardants, biofuels, plastic additives, and rare explosives.

AccuStandard's synthesis department is able to provide unique and emerging products and product lines. The department has successfully synthesized all 209 PCB and PBDE congeners, created a line of fluorinated PBDE congeners (used as internal standards), and produced many halogenated dioxins, dibenzofurans, PAHs and pesticides. They have also synthesized tetradecabromodiphenoxy benzene (TDBDPB) and many of its metabolites, which are of concern as break-down products.

AccuStandard is accredited as a Reference Material Producer and maintains a robust quality system. For current accreditations and certificates please refer to our website www.accustandard.com

The company prides itself and owes its success to the excellence, loyalty and dedication of its staff. We thank our loyal customers and look forward to serving the environmental community for many years to come.

Officers



Amy Harvey
President



Susan Meronek
General Manager



Matt Bolgar
Vice President



Jack Hubball
Technical Director

Technical Service

Eric
New Product Development

Sue
Tech. Service / Quality Manager



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Organic Tech. Service

Tom
Inorganic Product Manager



Bob
Organic Tech. Service



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Lee
Organic Tech Service



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Brandon
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Document Control



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Customer Service Manager



Customer Service

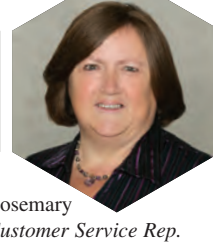
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International Coordinator



Patty
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Customer Service Rep.



Rosemary
Customer Service Rep.

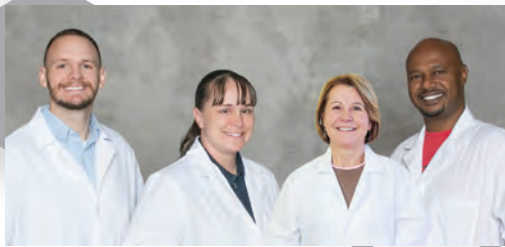


Lisa
Customer Service Rep.



Linda
Customer Service Rep.

AccuStandard, At Your Service



Synthesis



*Organic and Inorganic
Quality Control*



*Organic and Inorganic
Production*



Assembly / Shipping

Certificate of Analysis

Sample: Multi-component Organic COA

125 Market Street
New Haven, CT 06513
USA



AccuStandard® Inc.

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www.AccuStandard.com

CERTIFICATE OF ANALYSIS

Catalog No: PCB-DUTCH7
Description: Dutch Seven PCBs Standard
Lot: 216071187

Date Certified: Jul 19, 2016

Expiration: Jul 19, 2026

Sample Size: 1 mL

Components: 7

Solvent: Isooctane

Hazards: **HIGHLY FLAMMABLE** - Refer to SDS for safety info

Storage Condition: Ambient (>5 °C)

GHS safety information



Danger 2

Component	CAS #	Purity % (GC/MS)	Prepared Concentration ¹ (µg/mL)	Certified Analyte Concentration ² (µg/mL)
2,4,4'-Trichlorobiphenyl	7012-37-5	100.0	10.01	10.01
2,2',5,5'-Tetrachlorobiphenyl	35693-99-3	99.4	10.06	10.00
2,2',4,5,5'-Pentachlorobiphenyl	37680-73-2	100.0	10.09	10.09
2,3',4,4',5'-Pentachlorobiphenyl	31508-00-6	100.0	10.07	10.07
2,2',3,4,4',5'-Hexachlorobiphenyl	35065-28-2	100.0	10.02	10.02
2,2',4,4',5,5'-Hexachlorobiphenyl	35065-27-1	99.9	10.01	10.00
2,2',3,4,4',5,5'-Heptachlorobiphenyl	35065-29-3	99.0	10.00	9.90

CAS Number to easily identify compound

We use only high purity starting materials.

Concentration calculated by using the purity of the starting material

Compounds assembled into a standard based on method requirements and customer formulation request - all reviewed for solubility and coelution potential prior to manufacture.

NIST Traceability

QC management approval

A product with a suffix (-1A, -2B, etc. or -01, -02, etc.) on its lot number has had its expiration date extended and is identical to the same lot number without the suffix.

¹ All weights are traceable through NIST, Test No. 822-275872-11

² Certified Analyte Concentration = Purity x Prepared Concentration. The Uncertainty associated with the gravimetric values reported on this certificate is ±0.24%. The CRM Uncertainty calculated for this product is ±5%. These values are the expanded uncertainty and represent an estimated standard deviation equal to the positive square root of the total variation of the uncertainty of components. A normal distribution is assumed and a coverage factor of K=2 is chosen using approximately a 95% confidence level.

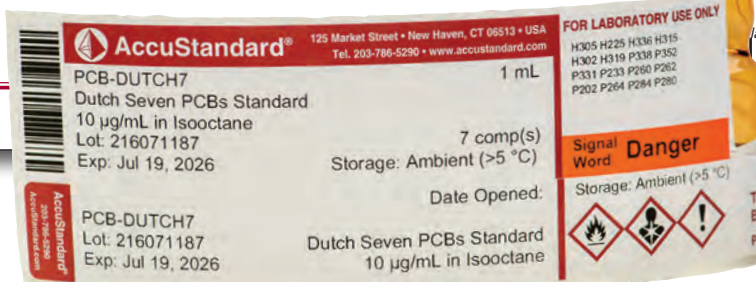
Labels and certificates follow U.S. Conventions in reporting numerical values: A comma (,) is used to separate units of one-thousand or greater. A period (.) is used as a decimal place marker.

See reverse side for additional information

Uncertainty reported for statistical confidence.

Certified By: 
Larry Decker, Organic QC Manager

Page 1 of 1



laboratory analysis.

OR-ORG/INO-001
Rev. 7/11

Custom Formulations

- ✓ Fast Turnaround
- ✓ 30-Plus Years Custom Formulation Experience
- ✓ Custom Standards are a cost and time saving alternative

Custom QC options

1. Gravimetric/Volumetric Certification:

Each compound is measured gravimetrically and QC verified instrumentally (where applicable). Every component in the Standard will be within +/- 0.5% of the requested value unless otherwise stated on the Certificate of Analysis. The solutions are diluted to volume using Class A glassware. A Certificate of Analysis accompanies each Standard and documents the gravimetric values used.

2. Full Quantitative Certification:

This QA/QC method includes extended GC, GC/MS or LC analysis using both internal calibration standards plus statistical analysis.



Custom Quotation Requests

Custom formulations can be requested by contacting
Technical Service: techservice@accustandard.com or
using our website AccuStandard.com.

See back of the catalog for detailed information

For additional information, contact our Technical Department
203-786-5290 or visit AccuStandard.com

Organic Single Analytes and Select Mixtures

Persistent Organic Pollutants (POPs)

POPs are chemical substances that persist in the environment, bioaccumulate through the food web, posing a risk of causing adverse effects to human health and the environment. A specific list of POPs was defined in 1995 by the United Nations and was the center of the Stockholm Convention in 2001. The list originally included “the dirty dozen” and was expanded to include other pesticides, PBDEs, and some chemicals used in industrial processes.

Individual analytes used in EPA
Methods are listed on page 117-127

Can't find what your looking for?

Custom Synthesis Services
on page 26



Table of Contents

Persistent Organic Pollutants (POP)	3-68
Polychlorinated biphenyls (PCBs) and Metabolites	3-20
Halogenated Aromatics (other than PCBs and PBDEs)	21-22
Dibenzo-p-dioxins	23-24
Dibenzofurans	25
Polybrominated Diphenyl Ethers (PBDEs) and Metabolites	28-41
Polynuclear Aromatic Hydrocarbons (PAHs) and Derivatives	42-46
Nitrogen Containing Compounds	47
Pesticides and Herbicides	48-68
Volatiles Organic Compounds (VOCs)	69-72
Analytes by Functional Group	73-82
Alcohols	73
Aldehydes and Derivatives	73-74
Ketones and Derivatives	74
Phenols	75-76
Amines, Anilines and other Amino Compounds	76-78
Ethers	79
Haloethers	79
Haloacetic Acids	79
Phthalates	80-82
Analytes by Application	83-113
Explosives and Firearm Discharge	84-87
Fuels and Hydrocarbons (Petrochemical Section)	310-313
Plastic Additives, Bisphenol Analogs and Imidazoles	88-95
Food Analytes (Lipids, Vitamins and Preservatives)	95-99
Fatty Acid Methyl and Ethyl Esters (FAMES, FAEEs)	98-99
Cannabis Standards	100-101
Allergens (Personal Care Products)	102-107
Dyes	108-109
Perfluorinated Compounds (PFCs)	110
Odor Standards	110
Irritant Standards	110
Refrigerants	111
Qualitative Kits	112-113



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Reference Information

Indices	375-414
CAS Number	375-380
Organic Analyte	381-394
Catalog Number	395-414
Safety, Storage and Packaging	I
Solvent Miscibility Table, Density and Boiling Pt.	II
Alchemist Gallery and Periodic Table	III
Contact / Ordering Info	back cover



History of PCBs

Legacy

Polychlorinated biphenyls (PCBs) were manufactured worldwide for a large number of technical applications. The chemical stability of PCB's made them exceptionally suitable as coolants and insulating fluids for transformers and capacitors. Other applications included carbonless copy paper, paints, hydraulic fluids, plasticizers, plastic additives and flame retardants. Estimates suggest that the total global production volume of PCBs exceeded 1.5 million tons. As late as 1984, about 758 million pounds were still in use in the United States alone.

The toxicity associated with PCBs was already documented in medical cases in the 1920's and 30's. Factory workers involved in the manufacturing of PCBs exhibited detrimental health effects like severe skin conditions. In 1968, Japan reported the first of over 1200 patients, many of them children, who developed acne-type skin eruptions (chloracne) and other clinical symptoms. The contamination of rice oil (Yusho) with industrial PCBs (Kannechlor 400) was the source of this malady, later termed Yusho Disease. The average amount of actual PCBs consumed by the victims was estimated at two grams. By 1973, 22 of the 1200 victims had died, 41% from malignant tumors, suggesting a possible link to PCB ingestion.

One of the first signals of the effect of PCBs on the environment in the United States was noted in 1970, on Great Gull Island at the entrance to Long Island Sound. Scientists observed a sharp increase in the number of abnormalities found in young sea gulls such as feather loss, crossed beaks and four legs. In addition, the egg shells were extremely thin.

By 1979 the production of PCBs was banned in the United States. In 2001, PCBs were added to the list of Persistent Organic Pollutants by the Stockholm Convention of Persistent Organic Pollutants.

The high persistency and ubiquitous distribution through prior use, disposal and leakages have caused global contamination of soils, air, rivers and other waterways that will affect our food and water supplies for years to come. Although PCB concentrations in the environment are slowly decreasing, a constant, low-level human PCB exposure via dietary intake and inhalation of contaminated indoor air is still of concern. Numerous studies have linked PCBs, even at low levels, to toxic effects such as endocrine disruption, neurotoxicity, immunotoxicity and carcinogenesis.

Toxicity and molecular structure

There are 209 PCB congeners containing one to ten chlorine atoms. Technical mixtures like Aroclors contain about 130 of these congeners.

The toxicity and environmental impact of the congeners correlate to their substitution pattern and fall into two general categories: coplanar (or non-ortho-substituted) and noncoplanar (or ortho-substituted).

Congeners that contain no chlorine substitutions in the ortho positions are structurally more rigid because the two phenyl rings remain in the same plane (coplanar). This makes them dioxin-like not only structurally but also regarding their toxicity. They are more toxic than those having chlorine atoms in the ortho positions (noncoplanar). The most toxic PCBs are the tetra, penta and hexachlorobiphenyl congeners that are unsubstituted in the ortho position.

PCB Metabolites

PCBs are metabolized in vivo to hydroxyl and sulfur compounds. They can be formed in different organisms, including humans and birds of prey. Many studies suggest that these metabolites can be more toxic than the parent compounds.

AccuStandard offers a variety of hydroxyl-/methoxy-PCBs as well as methylsulfonyl-PCB congeners.

Analytical Methods and Reference Materials

To obtain meaningful analytical data, the PCB congeners need to be formulated into groupings of solutions that are all resolved on a gas chromatographic column. The single column on which all 209 congeners are separated has, to date, eluded all GC column manufacturers.

There are some columns that are closest to achieving the status of separating all the PCB congeners. They are Agilent DB-XLB and SGE's HT 8 which resolve all but four pairs of significant congeners and five pairs of minor congeners.

Earlier work by George Frame and his co-workers at General Electric Company have coordinated a seminal study of specially formulated PCB groups - five of which are composed of the congeners contained in Aroclors, the remaining four mixtures contain those congeners generally absent in Aroclors. AccuStandard prepared and supplied the nine mixtures used in Dr. Frame's study from its inventory of the 209 pure congeners.

These nine mixtures were then tested on 17 different columns by independent laboratories and column manufacturers. The resulting chromatographic retention time and response data was compiled and published. This information has proven invaluable for identification and quantification of the different Aroclors as well as for congener specific analysis.

In the course of the investigations, it was determined that some of the 209 congeners that constitute the industrial PCB product behave differently than others. Therefore it is very helpful, even essential, to the scientific and regulatory communities, that individual congeners be available. For this reason, the EPA permits the synthesis and distribution of small quantities for research purposes.

To facilitate the availability and distribution of PCBs, the EPA granted manufacturing and export exemptions to a few select standards manufacturers.

The Founder of AccuStandard, Inc. was the first to obtain this exemption. AccuStandard is the leader in synthesizing PCBs. Indeed, it is the first - and so far the only - manufacturer to have synthesized all 209 congeners. Our expertise can assist you in your PCB investigations.



In 1993, AccuStandard completed the syntheses of all 209 congeners (with 99+% purity).



Table of Contents

209 PCB Congeners (NEAT and SOLUTION)	2-7
Method 1668 - Mixes for Congener Specific PCB Analysis	8-9
Congener Specific PCB Analysis	10-13
Canadian Methods	10
Integrated Atmospheric Deposition Network (IADN)	11
PCB Congener Content Evaluation	11
Formulation for Toxicity and Abundance Studies	12
Miscellaneous PCB Analysis Mixtures	13
PCB Congener Calibration Mixtures	14-17
9 Mixes, 209 Congeners Present/Not Present in Aroclors	14-15
Method 680 - PCB Congener Calibration Mixtures	16
Method 8082 - PCB Congener Mixtures	17
Instrument Test Solutions	16
Aroclors	18
PCB Metabolites	19-20
Hydroxy PCBs	19
Methoxy PCBs	20
Methylsulfonyl PCB Congeners	20
Hydroxybiphenyls	20
Other Halogenated Aromatics	21-22
Polychlorinated Terphenyls	21
Perchlorinated Aromatics	21
Halogenated Aromatics (other than PCBs)	21
Polychlorinated Naphthalenes	22
Chlorodiphenyl Ethers	22
Dibenzo-p-dioxins	23-24
Dibenzofurans	25

Technical Literature



Visit our website to view

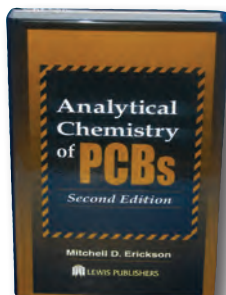
PCB related papers

Physical, Spectral and Chromatographic Properties of All 209 Individual PCB Congeners
Chemosphere, Vol. 31. 2, pp. 2687-2705, 1995. Michael Bolgar, James Cunningham, Russell Cooper, Richard Kozloski and Jack Hubball

GC Elution Order Data, Design & Employment of 9 PCB Congener Mixtures for Conducting Comprehensive, Quantitative Congener-Specific (QCS) PCB Analyses
Close Elutions of PCB Congeners in 9 Mixes on 12 Phases, Capillary GC System Characteristics, Researchers and Aroclor PCB Coelutions and System Resolving Power, GC Column Injection, Column Pressure and Temp. Parameters, Distribution of PCB Congeners into 9 Mixes for Calibration on 12 GC Columns, Elution Order Tables. By Dr. George Frame

Analytical Chemistry of PCBs

The Second Edition of this book is a comprehensive review of the analytical chemistry of PCBs. The book is an invaluable resource for both chemists with no experience in PCB analysis and seasoned PCB researchers.



PCB Book

Analytical Chemistry of PCBs
BOOK-PCB-001



Chlorobiphenyl Congeners (PCBs)



209 Solutions in a Set **EXCLUSIVE**

C-35-SET 35 µg/mL in Isooctane
C-100-SET 100 µg/mL in Isooctane

209 x 1 mL
209 x 1 mL

Purity 99+%

Other solvents, concentrations and quantities are available upon request.

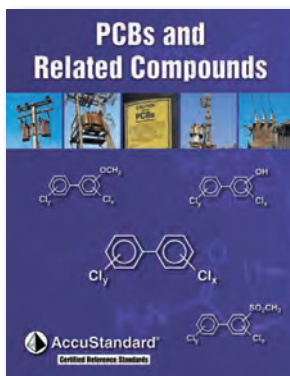
PCBS

Chlorobiphenyl Congeners (PCBs)

No.	Compound	CAS No.	NEAT		SOLUTION	
			Cat. No.	Unit	35 µg/mL Cat. No.	100 µg/mL Cat. No.
1	2-Chlorobiphenyl	2051-60-7	C-001N	50 mg	C-001S	C-001S-TP
2	3-Chlorobiphenyl	2051-61-8	C-002N	50 mg	C-002S	C-002S-TP
3	4-Chlorobiphenyl	2051-62-9	C-003N	50 mg	C-003S	C-003S-TP
4	2,2'-Dichlorobiphenyl	13029-08-8	C-004N	25 mg	C-004S	C-004S-TP
5	2,3-Dichlorobiphenyl	16605-91-7	C-005N	50 mg	C-005S	C-005S-TP
6	2,3'-Dichlorobiphenyl	25569-80-6	C-006N	5 mg	C-006S	C-006S-TP
7	2,4-Dichlorobiphenyl	33284-50-3	C-007N	25 mg	C-007S	C-007S-TP
8	2,4'-Dichlorobiphenyl	34883-43-7	C-008N	25 mg	C-008S	C-008S-TP
9	2,5-Dichlorobiphenyl	34883-39-1	C-009N	50 mg	C-009S	C-009S-TP
10	2,6-Dichlorobiphenyl	33146-45-1	C-010N	25 mg	C-010S	C-010S-TP
11	3,3'-Dichlorobiphenyl	2050-67-1	C-011N	50 mg	C-011S	C-011S-TP
12	3,4-Dichlorobiphenyl	2974-92-7	C-012N	50 mg	C-012S	C-012S-TP
13	3,4'-Dichlorobiphenyl	2974-90-5	C-013N	5 mg	C-013S	C-013S-TP
14	3,5-Dichlorobiphenyl	34883-41-5	C-014N	50 mg	C-014S	C-014S-TP
15	4,4'-Dichlorobiphenyl	2050-68-2	C-015N	10 mg	C-015S	C-015S-TP
16	2,2',3-Trichlorobiphenyl	38444-78-9	C-016N	5 mg	C-016S	C-016S-TP
17	2,2',4-Trichlorobiphenyl	37680-66-3	C-017N	5 mg	C-017S	C-017S-TP
18	2,2',5-Trichlorobiphenyl	37680-65-2	C-018N	25 mg	C-018S	C-018S-TP
19	2,2',6-Trichlorobiphenyl	38444-73-4	C-019N	5 mg	C-019S	C-019S-TP
20	2,3,3'-Trichlorobiphenyl	38444-84-7	C-020N	5 mg	C-020S	C-020S-TP
21	2,3,4-Trichlorobiphenyl	55702-46-0	C-021N	25 mg	C-021S	C-021S-TP
22	2,3,4'-Trichlorobiphenyl	38444-85-8	C-022N	5 mg	C-022S	C-022S-TP
23	2,3,5-Trichlorobiphenyl	55720-44-0	C-023N	5 mg	C-023S	C-023S-TP
24	2,3,6-Trichlorobiphenyl	55702-45-9	C-024N	10 mg	C-024S	C-024S-TP
25	2,3',4-Trichlorobiphenyl	55712-37-3	C-025N	5 mg	C-025S	C-025S-TP
26	2,3',5-Trichlorobiphenyl	38444-81-4	C-026N	25 mg	C-026S	C-026S-TP
27	2,3',6-Trichlorobiphenyl	38444-76-7	C-027N	5 mg	C-027S	C-027S-TP
28	2,4,4'-Trichlorobiphenyl	7012-37-5	C-028N	10 mg	C-028S	C-028S-TP
29	2,4,5-Trichlorobiphenyl	15862-07-4	C-029N	50 mg	C-029S	C-029S-TP
30	2,4,6-Trichlorobiphenyl	35693-92-6	C-030N	50 mg	C-030S	C-030S-TP
31	2,4',5-Trichlorobiphenyl	16606-02-3	C-031N	25 mg	C-031S	C-031S-TP
32	2,4',6-Trichlorobiphenyl	38444-77-8	C-032N	5 mg	C-032S	C-032S-TP
33	2',3,4-Trichlorobiphenyl	38444-86-9	C-033N	10 mg	C-033S	C-033S-TP
34	2',3,5-Trichlorobiphenyl	37680-68-5	C-034N	5 mg	C-034S	C-034S-TP
35	3,3',4-Trichlorobiphenyl	37680-69-6	C-035N	5 mg	C-035S	C-035S-TP
36	3,3',5-Trichlorobiphenyl	38444-87-0	C-036N	5 mg	C-036S	C-036S-TP
37	3,4,4'-Trichlorobiphenyl	38444-90-5	C-037N	5 mg	C-037S	C-037S-TP
38	3,4,5-Trichlorobiphenyl	53555-66-1	C-038N	5 mg	C-038S	C-038S-TP
39	3,4',5-Trichlorobiphenyl	38444-88-1	C-039N	5 mg	C-039S	C-039S-TP

Technical Note

For specific applications (e.g. toxicological studies) that require absolute dioxin and furan free PCBs contact Technical Service.



**PCB and Related
Compounds Brochure**
Visit our website to download

Chlorobiphenyl Congeners (PCBs)



Purity 99+%

NEATS as stated, SOLUTIONS in Isooctane

Chlorobiphenyl Congeners (PCBs)

No.	Compound	CAS No.	NEAT		SOLUTION		
			Cat. No.	Unit	35 µg/mL Cat. No.	100 µg/mL Cat. No.	1 mL
40	2,2',3,3'-Tetrachlorobiphenyl	38444-93-8	C-040N	50 mg	C-040S		C-040S-TP
41	2,2',3,4-Tetrachlorobiphenyl	52663-59-9	C-041N	5 mg	C-041S		C-041S-TP
42	2,2',3,4'-Tetrachlorobiphenyl	36559-22-5	C-042N	5 mg	C-042S		C-042S-TP
43	2,2',3,5-Tetrachlorobiphenyl	70362-46-8	C-043N	5 mg	C-043S		C-043S-TP
44	2,2',3,5'-Tetrachlorobiphenyl	41464-39-5	C-044N	25 mg	C-044S		C-044S-TP
45	2,2',3,6-Tetrachlorobiphenyl	70362-45-7	C-045N	5 mg	C-045S		C-045S-TP
46	2,2',3,6'-Tetrachlorobiphenyl	41464-47-5	C-046N	5 mg	C-046S		C-046S-TP
47	2,2',4,4'-Tetrachlorobiphenyl	2437-79-8	C-047N	50 mg	C-047S		C-047S-TP
48	2,2',4,5-Tetrachlorobiphenyl	70362-47-9	C-048N	5 mg	C-048S		C-048S-TP
49	2,2',4,5'-Tetrachlorobiphenyl	41464-40-8	C-049N	20 mg	C-049S		C-049S-TP
50	2,2',4,6-Tetrachlorobiphenyl	62796-65-0	C-050N	5 mg	C-050S		C-050S-TP
51	2,2',4,6'-Tetrachlorobiphenyl	68194-04-7	C-051N	5 mg	C-051S		C-051S-TP
52	2,2',5,5'-Tetrachlorobiphenyl	35693-99-3	C-052N	10 mg	C-052S		C-052S-TP
53	2,2',5,6'-Tetrachlorobiphenyl	41464-41-9	C-053N	25 mg	C-053S		C-053S-TP
54	2,2',6,6'-Tetrachlorobiphenyl	15968-05-5	C-054N	50 mg	C-054S		C-054S-TP
55	2,3,3',4-Tetrachlorobiphenyl	74338-24-2	C-055N	5 mg	C-055S		C-055S-TP
56	2,3,3',4'-Tetrachlorobiphenyl	41464-43-1	C-056N	5 mg	C-056S		C-056S-TP
57	2,3,3',5-Tetrachlorobiphenyl	70424-67-8	C-057N	5 mg	C-057S		C-057S-TP
58	2,3,3',5'-Tetrachlorobiphenyl	41464-49-7	C-058N	5 mg	C-058S		C-058S-TP
59	2,3,3',6-Tetrachlorobiphenyl	74472-33-6	C-059N	5 mg	C-059S		C-059S-TP
60	2,3,4,4'-Tetrachlorobiphenyl	33025-41-1	C-060N	5 mg	C-060S		C-060S-TP
61	2,3,4,5-Tetrachlorobiphenyl	33284-53-6	C-061N	50 mg	C-061S		C-061S-TP
62	2,3,4,6-Tetrachlorobiphenyl	54230-22-7	C-062N	5 mg	C-062S		C-062S-TP
63	2,3,4',5-Tetrachlorobiphenyl	74472-34-7	C-063N	5 mg	C-063S		C-063S-TP
64	2,3,4',6-Tetrachlorobiphenyl	52663-58-8	C-064N	5 mg	C-064S		C-064S-TP
65	2,3,5,6-Tetrachlorobiphenyl	33284-54-7	C-065N	25 mg	C-065S		C-065S-TP
66	2,3',4,4'-Tetrachlorobiphenyl	32598-10-0	C-066N	20 mg	C-066S		C-066S-TP
67	2,3',4,5-Tetrachlorobiphenyl	73557-53-8	C-067N	5 mg	C-067S		C-067S-TP
68	2,3',4,5'-Tetrachlorobiphenyl	73575-52-7	C-068N	5 mg	C-068S		C-068S-TP
69	2,3',4,6-Tetrachlorobiphenyl	60233-24-1	C-069N	5 mg	C-069S		C-069S-TP
70	2,3',4',5-Tetrachlorobiphenyl	32598-11-1	C-070N	10 mg	C-070S		C-070S-TP
71	2,3',4',6-Tetrachlorobiphenyl	41464-46-4	C-071N	5 mg	C-071S		C-071S-TP
72	2,3',5,5'-Tetrachlorobiphenyl	41464-42-0	C-072N	25 mg	C-072S		C-072S-TP
73	2,3',5',6-Tetrachlorobiphenyl	74338-23-1	C-073N	5 mg	C-073S		C-073S-TP
74	2,4,4',5-Tetrachlorobiphenyl	32690-93-0	C-074N	5 mg	C-074S		C-074S-TP
75	2,4,4',6-Tetrachlorobiphenyl	32598-12-2	C-075N	5 mg	C-075S		C-075S-TP
76	2',3,4,5-Tetrachlorobiphenyl	70362-48-0	C-076N	5 mg	C-076S		C-076S-TP
77	3,3',4,4'-Tetrachlorobiphenyl	32598-13-3	C-077N	25 mg	C-077S		C-077S-TP
78	3,3',4,5-Tetrachlorobiphenyl	70362-49-1	C-078N	5 mg	C-078S		C-078S-TP
79	3,3',4,5'-Tetrachlorobiphenyl	41464-48-6	C-079N	5 mg	C-079S		C-079S-TP
80	3,3',5,5'-Tetrachlorobiphenyl	33284-52-5	C-080N	5 mg	C-080S		C-080S-TP
81	3,4,4',5-Tetrachlorobiphenyl	70362-50-4	C-081N	5 mg	C-081S		C-081S-TP
82	2,2',3,3',4-Pentachlorobiphenyl	52663-62-4	C-082N	5 mg	C-082S		C-082S-TP
83	2,2',3,3',5-Pentachlorobiphenyl	60145-20-2	C-083N	5 mg	C-083S		C-083S-TP
84	2,2',3,3',6-Pentachlorobiphenyl	52663-60-2	C-084N	5 mg	C-084S		C-084S-TP
85	2,2',3,4,4'-Pentachlorobiphenyl	65510-45-4	C-085N	5 mg	C-085S		C-085S-TP
86	2,2',3,4,5-Pentachlorobiphenyl	55312-69-1	C-086N	5 mg	C-086S		C-086S-TP
87	2,2',3,4,5'-Pentachlorobiphenyl	38380-02-8	C-087N	10 mg	C-087S		C-087S-TP
88	2,2',3,4,6-Pentachlorobiphenyl	55215-17-3	C-088N	5 mg	C-088S		C-088S-TP
89	2,2',3,4,6'-Pentachlorobiphenyl	73575-57-2	C-089N	5 mg	C-089S		C-089S-TP
90	2,2',3,4',5-Pentachlorobiphenyl	68194-07-0	C-090N	5 mg	C-090S		C-090S-TP
91	2,2',3,4',6-Pentachlorobiphenyl	68194-05-8	C-091N	5 mg	C-091S		C-091S-TP
92	2,2',3,5,5'-Pentachlorobiphenyl	52663-61-3	C-092N	5 mg	C-092S		C-092S-TP
93	2,2',3,5,6-Pentachlorobiphenyl	73575-56-1	C-093N	5 mg	C-093S		C-093S-TP
94	2,2',3,5,6'-Pentachlorobiphenyl	73575-55-0	C-094N	5 mg	C-094S		C-094S-TP
95	2,2',3,5',6-Pentachlorobiphenyl	38379-99-6	C-095N	5 mg	C-095S		C-095S-TP
96	2,2',3,6,6'-Pentachlorobiphenyl	73575-54-9	C-096N	5 mg	C-096S		C-096S-TP
97	2,2',3',4,5-Pentachlorobiphenyl	41464-51-1	C-097N	10 mg	C-097S		C-097S-TP
98	2,2',3',4,6-Pentachlorobiphenyl	60233-25-2	C-098N	5 mg	C-098S		C-098S-TP
99	2,2',4,4',5-Pentachlorobiphenyl	38380-01-7	C-099N	5 mg	C-099S		C-099S-TP
100	2,2',4,4',6-Pentachlorobiphenyl	39485-83-1	C-100N	5 mg	C-100S		C-100S-TP
101	2,2',4,5,5'-Pentachlorobiphenyl	37680-73-2	C-101N	10 mg	C-101S		C-101S-TP
102	2,2',4,5,6-Pentachlorobiphenyl	68194-06-9	C-102N	5 mg	C-102S		C-102S-TP
103	2,2',4,5',6-Pentachlorobiphenyl	60145-21-3	C-103N	10 mg	C-103S		C-103S-TP
104	2,2',4,6,6'-Pentachlorobiphenyl	56558-16-8	C-104N	5 mg	C-104S		C-104S-TP
105	2,3,3',4,4'-Pentachlorobiphenyl	32598-14-4	C-105N	5 mg	C-105S		C-105S-TP
106	2,3,3',4,5-Pentachlorobiphenyl	70424-69-0	C-106N	5 mg	C-106S		C-106S-TP

PCBS

Chlorobiphenyl Congeners (PCBs)
continued on next page



Chlorobiphenyl Congeners (PCBs)

PCBs

Chlorobiphenyl Congeners (PCBs)

No.	Compound	CAS No.	NEAT		SOLUTION		
			Cat. No.	Unit	35 µg/mL Cat. No.	1 mL	100 µg/mL Cat. No.
107	2,3,3',4',5'-Pentachlorobiphenyl	70424-68-9	C-107N	5 mg	C-107S		C-107S-TP
108	2,3,3',4,5'-Pentachlorobiphenyl	70362-41-3	C-108N	5 mg	C-108S		C-108S-TP
109	2,3,3',4,6'-Pentachlorobiphenyl	74472-35-8	C-109N	5 mg	C-109S		C-109S-TP
110	2,3,3',4',6'-Pentachlorobiphenyl	38380-03-9	C-110N	5 mg	C-110S		C-110S-TP
111	2,3,3',5,5'-Pentachlorobiphenyl	39635-32-0	C-111N	5 mg	C-111S		C-111S-TP
112	2,3,3',5,6'-Pentachlorobiphenyl	74472-36-9	C-112N	5 mg	C-112S		C-112S-TP
113	2,3,3',5',6'-Pentachlorobiphenyl	68194-10-5	C-113N	5 mg	C-113S		C-113S-TP
114	2,3,4,4',5'-Pentachlorobiphenyl	74472-37-0	C-114N	5 mg	C-114S		C-114S-TP
115	2,3,4,4',6'-Pentachlorobiphenyl	74472-38-1	C-115N	5 mg	C-115S		C-115S-TP
116	2,3,4,5,6'-Pentachlorobiphenyl	18259-05-7	C-116N	10 mg	C-116S		C-116S-TP
117	2,3,4',5,6'-Pentachlorobiphenyl	68194-11-6	C-117N	5 mg	C-117S		C-117S-TP
118	2,3',4,4',5'-Pentachlorobiphenyl	31508-00-6	C-118N	5 mg	C-118S		C-118S-TP
119	2,3',4,4',6'-Pentachlorobiphenyl	56558-17-9	C-119N	5 mg	C-119S		C-119S-TP
120	2,3',4,5,5'-Pentachlorobiphenyl	68194-12-7	C-120N	5 mg	C-120S		C-120S-TP
121	2,3',4,5',6'-Pentachlorobiphenyl	56558-18-0	C-121N	5 mg	C-121S		C-121S-TP
122	2',3,3',4,5'-Hexachlorobiphenyl	76842-07-4	C-122N	5 mg	C-122S		C-122S-TP
123	2',3,4,4',5'-Hexachlorobiphenyl	65510-44-3	C-123N	5 mg	C-123S		C-123S-TP
124	2',3,4,5,5'-Hexachlorobiphenyl	70424-70-3	C-124N	5 mg	C-124S		C-124S-TP
125	2',3,4,5,6'-Hexachlorobiphenyl	74472-39-2	C-125N	5 mg	C-125S		C-125S-TP
126	3,3',4,4',5'-Hexachlorobiphenyl	57465-28-8	C-126N	5 mg	C-126S		C-126S-TP
127	3,3',4,5,5'-Hexachlorobiphenyl	39635-33-1	C-127N	5 mg	C-127S		C-127S-TP
128	2,2',3,3',4,4'-Hexachlorobiphenyl	38380-07-3	C-128N	20 mg	C-128S		C-128S-TP
129	2,2',3,3',4,5'-Hexachlorobiphenyl	55215-18-4	C-129N	5 mg	C-129S		C-129S-TP
130	2,2',3,3',4,5'-Hexachlorobiphenyl	52663-66-8	C-130N	5 mg	C-130S		C-130S-TP
131	2,2',3,3',4,6'-Hexachlorobiphenyl	61798-70-7	C-131N	5 mg	C-131S		C-131S-TP
132	2,2',3,3',4,6'-Hexachlorobiphenyl	38380-05-1	C-132N	5 mg	C-132S		C-132S-TP
133	2,2',3,3',5,5'-Hexachlorobiphenyl	35694-04-3	C-133N	5 mg	C-133S		C-133S-TP
134	2,2',3,3',5,6'-Hexachlorobiphenyl	52704-70-8	C-134N	5 mg	C-134S		C-134S-TP
135	2,2',3,3',5,6'-Hexachlorobiphenyl	52744-13-5	C-135N	5 mg	C-135S		C-135S-TP
136	2,2',3,3',6,6'-Hexachlorobiphenyl	38411-22-2	C-136N	20 mg	C-136S		C-136S-TP
137	2,2',3,4,4',5'-Hexachlorobiphenyl	35694-06-5	C-137N	5 mg	C-137S		C-137S-TP
138	2,2',3,4,4',5'-Hexachlorobiphenyl	35065-28-2	C-138N	5 mg	C-138S		C-138S-TP
139	2,2',3,4,4',6'-Hexachlorobiphenyl	56030-56-9	C-139N	5 mg	C-139S		C-139S-TP
140	2,2',3,4,4',6'-Hexachlorobiphenyl	59291-64-4	C-140N	5 mg	C-140S		C-140S-TP
141	2,2',3,4,5,5'-Hexachlorobiphenyl	52712-04-6	C-141N	5 mg	C-141S		C-141S-TP
142	2,2',3,4,5,6'-Hexachlorobiphenyl	41411-61-4	C-142N	5 mg	C-142S		C-142S-TP
143	2,2',3,4,5,6'-Hexachlorobiphenyl	68194-15-0	C-143N	5 mg	C-143S		C-143S-TP
144	2,2',3,4,5',6'-Hexachlorobiphenyl	68194-14-9	C-144N	5 mg	C-144S		C-144S-TP
145	2,2',3,4,6,6'-Hexachlorobiphenyl	74472-40-5	C-145N	5 mg	C-145S		C-145S-TP
146	2,2',3,4',5,5'-Hexachlorobiphenyl	51908-16-8	C-146N	5 mg	C-146S		C-146S-TP
147	2,2',3,4',5,6'-Hexachlorobiphenyl	68194-13-8	C-147N	5 mg	C-147S		C-147S-TP
148	2,2',3,4',5,6'-Hexachlorobiphenyl	74472-41-6	C-148N	5 mg	C-148S		C-148S-TP
149	2,2',3,4',5',6'-Hexachlorobiphenyl	38380-04-0	C-149N	5 mg	C-149S		C-149S-TP
150	2,2',3,4',6,6'-Hexachlorobiphenyl	68194-08-1	C-150N	5 mg	C-150S		C-150S-TP
151	2,2',3,5,5',6'-Hexachlorobiphenyl	52663-63-5	C-151N	5 mg	C-151S		C-151S-TP
152	2,2',3,5,6,6'-Hexachlorobiphenyl	68194-09-2	C-152N	5 mg	C-152S		C-152S-TP
153	2,2',4,4',5,5'-Hexachlorobiphenyl	35065-27-1	C-153N	10 mg	C-153S		C-153S-TP
154	2,2',4,4',5,6'-Hexachlorobiphenyl	60145-22-4	C-154N	5 mg	C-154S		C-154S-TP
155	2,2',4,4',6,6'-Hexachlorobiphenyl	33979-03-2	C-155N	50 mg	C-155S		C-155S-TP
156	2,3,3',4,4',5'-Hexachlorobiphenyl	38380-08-4	C-156N	5 mg	C-156S		C-156S-TP
157	2,3,3',4,4',5'-Hexachlorobiphenyl	69782-90-7	C-157N	5 mg	C-157S		C-157S-TP
158	2,3,3',4,4',6'-Hexachlorobiphenyl	74472-42-7	C-158N	5 mg	C-158S		C-158S-TP
159	2,3,3',4,5,5'-Hexachlorobiphenyl	39635-35-3	C-159N	5 mg	C-159S		C-159S-TP
160	2,3,3',4,5,6'-Hexachlorobiphenyl	41411-62-5	C-160N	5 mg	C-160S		C-160S-TP
161	2,3,3',4,5',6'-Hexachlorobiphenyl	74472-43-8	C-161N	5 mg	C-161S		C-161S-TP
162	2,3,3',4',5,5'-Hexachlorobiphenyl	39635-34-2	C-162N	5 mg	C-162S		C-162S-TP
163	2,3,3',4',5,6'-Hexachlorobiphenyl	74472-44-9	C-163N	5 mg	C-163S		C-163S-TP
164	2,3,3',4',5',6'-Hexachlorobiphenyl	74472-45-0	C-164N	5 mg	C-164S		C-164S-TP
165	2,3,3',5,5',6'-Hexachlorobiphenyl	74472-46-1	C-165N	5 mg	C-165S		C-165S-TP
166	2,3,4,4',5,6'-Hexachlorobiphenyl	41411-63-6	C-166N	5 mg	C-166S		C-166S-TP
167	2,3',4,4',5,5'-Hexachlorobiphenyl	52663-72-6	C-167N	5 mg	C-167S		C-167S-TP
168	2,3',4,4',5',6'-Hexachlorobiphenyl	59291-65-5	C-168N	5 mg	C-168S		C-168S-TP
169	3,3',4,4',5,5'-Hexachlorobiphenyl	32774-16-6	C-169N	5 mg	C-169S		C-169S-TP

Significant discounts are available on larger quantities of selected congeners.

Chlorobiphenyl Congeners (PCBs)



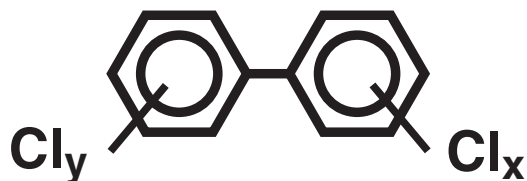
Purity 99+%

NEATS as stated, SOLUTIONS in Isooctane

Chlorobiphenyl Congeners (PCBs)

No.	Compound	CAS No.	NEAT		SOLUTION		
			Cat. No.	Unit	35 µg/mL Cat. No.	1 mL	100 µg/mL Cat. No.
170	2,2',3,3',4,4',5-Heptachlorobiphenyl	35065-30-6	C-170N	5 mg	C-170S		C-170S-TP
171	2,2',3,3',4,4',6-Heptachlorobiphenyl	52663-71-5	C-171N	5 mg	C-171S		C-171S-TP
172	2,2',3,3',4,5,5'-Heptachlorobiphenyl	52663-74-8	C-172N	5 mg	C-172S		C-172S-TP
173	2,2',3,3',4,5,6-Heptachlorobiphenyl	68194-16-1	C-173N	5 mg	C-173S		C-173S-TP
174	2,2',3,3',4',5,6-Heptachlorobiphenyl	38411-25-5	C-174N	5 mg	C-174S		C-174S-TP
175	2,2',3,3',4,5',6-Heptachlorobiphenyl	40186-70-7	C-175N	5 mg	C-175S		C-175S-TP
176	2,2',3,3',4,6,6'-Heptachlorobiphenyl	52663-65-7	C-176N	5 mg	C-176S		C-176S-TP
177	2,2',3,4,4',5,6-Heptachlorobiphenyl	52663-70-4	C-177N	5 mg	C-177S		C-177S-TP
178	2,2',3,3',5,5',6-Heptachlorobiphenyl	52663-67-9	C-178N	5 mg	C-178S		C-178S-TP
179	2,2',3,3',5,6,6'-Heptachlorobiphenyl	52663-64-6	C-179N	5 mg	C-179S		C-179S-TP
180	2,2',3,4,4',5,5'-Heptachlorobiphenyl	35065-29-3	C-180N	5 mg	C-180S		C-180S-TP
181	2,2',3,4,4',5,6-Heptachlorobiphenyl	74472-47-2	C-181N	5 mg	C-181S		C-181S-TP
182	2,2',3,4,4',5,6'-Heptachlorobiphenyl	60145-23-5	C-182N	5 mg	C-182S		C-182S-TP
183	2,2',3,4,4',5',6-Heptachlorobiphenyl	52663-69-1	C-183N	5 mg	C-183S		C-183S-TP
184	2,2',3,4,4',6,6'-Heptachlorobiphenyl	74472-48-3	C-184N	5 mg	C-184S		C-184S-TP
185	2,2',3,4,5,5',6-Heptachlorobiphenyl	52712-05-7	C-185N	5 mg	C-185S		C-185S-TP
186	2,2',3,4,5,6,6'-Heptachlorobiphenyl	74472-49-4	C-186N	5 mg	C-186S		C-186S-TP
187	2,2',3,4',5,5',6-Heptachlorobiphenyl	52663-68-0	C-187N	5 mg	C-187S		C-187S-TP
188	2,2',3,4',5,6,6'-Heptachlorobiphenyl	74487-85-7	C-188N	5 mg	C-188S		C-188S-TP
189	2,3,3',4,4',5,5'-Heptachlorobiphenyl	39635-31-9	C-189N	5 mg	C-189S		C-189S-TP
190	2,3,3',4,4',5,6-Heptachlorobiphenyl	41411-64-7	C-190N	5 mg	C-190S		C-190S-TP
191	2,3,3',4,4',5',6-Heptachlorobiphenyl	74472-50-7	C-191N	5 mg	C-191S		C-191S-TP
192	2,3,3',4,5,5',6-Heptachlorobiphenyl	74472-51-8	C-192N	5 mg	C-192S		C-192S-TP
193	2,3,3',4',5,5',6-Heptachlorobiphenyl	69782-91-8	C-193N	5 mg	C-193S		C-193S-TP
194	2,2',3,3',4,4',5,5'-Octachlorobiphenyl	35694-08-7	C-194N	5 mg	C-194S		C-194S-TP
195	2,2',3,3',4,4',5,6-Octachlorobiphenyl	52663-78-2	C-195N	5 mg	C-195S		C-195S-TP
196	2,2',3,3',4,4',5,6'-Octachlorobiphenyl	42740-50-1	C-196N	5 mg	C-196S		C-196S-TP
197	2,2',3,3',4,4',6,6'-Octachlorobiphenyl	33091-17-7	C-197N	5 mg	C-197S		C-197S-TP
198	2,2',3,3',4,5,5',6-Octachlorobiphenyl	68194-17-2	C-198N	5 mg	C-198S		C-198S-TP
199	2,2',3,3',4,5,5',6'-Octachlorobiphenyl	52663-75-9	C-199N-R1	5 mg	C-199S-R1		C-199S-TP-R1
200	2,2',3,3',4,5,6,6'-Octachlorobiphenyl	52663-73-7	C-200N-R1	5 mg	C-200S-R1		C-200S-TP-R1
201	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	40186-71-8	C-201N-R1	5 mg	C-201S-R1		C-201S-TP-R1
202	2,2',3,3',5,5',6,6'-Octachlorobiphenyl	2136-99-4	C-202N	5 mg	C-202S		C-202S-TP
203	2,2',3,4,4',5,5',6-Octachlorobiphenyl	52663-76-0	C-203N	5 mg	C-203S		C-203S-TP
204	2,2',3,4,4',5,6,6'-Octachlorobiphenyl	74472-52-9	C-204N	5 mg	C-204S		C-204S-TP
205	2,3,3',4,4',5,5',6-Octachlorobiphenyl	74472-53-0	C-205N	5 mg	C-205S		C-205S-TP
206	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	40186-72-9	C-206N	5 mg	C-206S		C-206S-TP
207	2,2',3,3',4,4',5,6,6'-Nonachlorobiphenyl	52663-79-3	C-207N	5 mg	C-207S		C-207S-TP
208	2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl	52663-77-1	C-208N	5 mg	C-208S		C-208S-TP
209	Decachlorobiphenyl	2051-24-3	C-209N	10 mg	C-209S		C-209S-TP

PCBS



PCB Questions?

AccuStandard chemists have been involved in the synthesis of PCBs and related compounds for over 30 years.

Technical Note

The PCB congener numbering system is now being used. The only changes from the BZ numbering system affect congeners #199 (formerly BZ#201), #200 (formerly BZ#199) and #201 (formerly BZ#200).



Mixtures for Congener Specific PCB Analysis

Method 1668 Congener Set of 209 Chlorinated Biphenyl Congeners by GC/MS

Set of all 209 PCB congeners for specific determination and calibration on a SPB-Octyl capillary column

M-1668A-0.01X-SET

5 x 1 mL

M-1668A-1-0.01X, M-1668A-2-0.01X, M-1668A-3-0.01X
M-1668A-4-0.01X, M-1668A-5-0.01X

PCB Congener Mix #1

M-1668A-1-0.01X

At stated conc. (µg/mL) in Isooctane

2	3-Chlorobiphenyl	2.5
10	2,6-Dichlorobiphenyl	2.5
9	2,5-Dichlorobiphenyl	2.5
6	2,3-Dichlorobiphenyl	2.5
8	2,4-Dichlorobiphenyl	2.5
14	3,5-Dichlorobiphenyl	2.5
11	3,3'-Dichlorobiphenyl	2.5
30	2,4,6-Trichlorobiphenyl	2.5
27	2,3,6-Trichlorobiphenyl	2.5
32	2,4',6'-Trichlorobiphenyl	2.5
34	2',3,5'-Trichlorobiphenyl	2.5
26	2,3',5'-Trichlorobiphenyl	2.5
31	2,4',5'-Trichlorobiphenyl	2.5
33	2',3,4'-Trichlorobiphenyl	2.5
36	3,3',5'-Trichlorobiphenyl	2.5
38	3,4,5-Trichlorobiphenyl	2.5
35	3,3',4'-Trichlorobiphenyl	2.5
50	2,2',4,6-Tetrachlorobiphenyl	5.0
45	2,2',3,6-Tetrachlorobiphenyl	5.0
52	2,2',5,5'-Tetrachlorobiphenyl	5.0
49	2,2',4,5'-Tetrachlorobiphenyl	5.0
75	2,4,4',6-Tetrachlorobiphenyl	5.0
41	2,2',3,4-Tetrachlorobiphenyl	5.0
72	2,3',5,5'-Tetrachlorobiphenyl	5.0
57	2,3,3',5-Tetrachlorobiphenyl	5.0
63	2,3,4',5-Tetrachlorobiphenyl	5.0
66	2,3',4,4'-Tetrachlorobiphenyl	5.0
79	3,3',4,5'-Tetrachlorobiphenyl	5.0
78	3,3',4,5-Tetrachlorobiphenyl	5.0
81	3,4,4',5-Tetrachlorobiphenyl	5.0
96	2,2',3,6,6'-Pentachlorobiphenyl	5.0
103	2,2',4,5',6-Pentachlorobiphenyl	5.0
95	2,2',3,5',6-Pentachlorobiphenyl	5.0
88	2,2',3,4,6-Pentachlorobiphenyl	5.0
89	2,2',3,4,6'-Pentachlorobiphenyl	5.0
92	2,2',3,5,5'-Pentachlorobiphenyl	5.0
113	2,3,3',5',6-Pentachlorobiphenyl	5.0
83	2,2',3,3',5-Pentachlorobiphenyl	5.0
119	2,3',4,4',6-Pentachlorobiphenyl	5.0
87	2,2',3,4,5'-Pentachlorobiphenyl	5.0
85	2,2',3,4,4'-Pentachlorobiphenyl	5.0
82	2,2',3,3',4-Pentachlorobiphenyl	5.0

PCB Congener Mix #3

M-1668A-3-0.01X

At stated conc. (µg/mL) in Isooctane

13	3,4'-Dichlorobiphenyl	2.5
17	2,2',4-Trichlorobiphenyl	2.5
29	2,4,5-Trichlorobiphenyl	2.5
20	2,3,3'-Trichlorobiphenyl	2.5
46	2,2',3,6'-Tetrachlorobiphenyl	5.0
65	2,3,5,6-Tetrachlorobiphenyl	5.0
59	2,3,3',6-Tetrachlorobiphenyl	5.0
40	2,2',3,3'-Tetrachlorobiphenyl	5.0
67	2,3',4,5-Tetrachlorobiphenyl	5.0
76	2',3,4,5-Tetrachlorobiphenyl	5.0
80	3,3',5,5'-Tetrachlorobiphenyl	5.0
93	2,2',3,5,6-Pentachlorobiphenyl	5.0
84	2,2',3,3',6-Pentachlorobiphenyl	5.0
101	2,2',4,5,5'-Pentachlorobiphenyl	5.0
112	2,3,3',5,6-Pentachlorobiphenyl	5.0

1 x 1 mL

83 comps.

120	2,3',4,5,5'-Pentachlorobiphenyl	5.0
124	2',3,4,5,5'-Pentachlorobiphenyl	5.0
106	2,3,3',4,5-Pentachlorobiphenyl	5.0
122	2',3,3',4,5-Pentachlorobiphenyl	5.0
105	2,3,3',4,4'-Pentachlorobiphenyl	5.0
127	3,3',4,5,5'-Pentachlorobiphenyl	5.0
152	2,2',3,5,6,6'-Hexachlorobiphenyl	5.0
136	2,2',3,3',6,6'-Hexachlorobiphenyl	5.0
148	2,2',3,4',5,6'-Hexachlorobiphenyl	5.0
151	2,2',3,5,5',6-Hexachlorobiphenyl	5.0
144	2,2',3,4,5',6-Hexachlorobiphenyl	5.0
143	2,2',3,4,5,6'-Hexachlorobiphenyl	5.0
142	2,2',3,4,5,6-Hexachlorobiphenyl	5.0
133	2,2',3,3',5,5'-Hexachlorobiphenyl	5.0
161	2,3,3',4,5',6-Hexachlorobiphenyl	5.0
153	2,2',4,4',5,5'-Hexachlorobiphenyl	5.0
130	2,2',3,3',4,5'-Hexachlorobiphenyl	5.0
129	2,2',3,3',4,5-Hexachlorobiphenyl	5.0
166	2,3,4,4',5,6-Hexachlorobiphenyl	5.0
159	2,3,3',4,5,5'-Hexachlorobiphenyl	5.0
167	2,3',4,4',5,5'-Hexachlorobiphenyl	5.0
156	2,3,3',4,4',5-Hexachlorobiphenyl	5.0
179	2,2',3,3',5,6,6'-Heptachlorobiphenyl	5.0
176	2,2',3,3',4,6,6'-Heptachlorobiphenyl	5.0
178	2,2',3,3',5,5',6-Heptachlorobiphenyl	5.0
175	2,2',3,3',4,5',6-Heptachlorobiphenyl	5.0
183	2,2',3,4,4',5,6-Heptachlorobiphenyl	5.0
177	2,2',3,3',4',5,6-Heptachlorobiphenyl	5.0
171	2,2',3,3',4,4',6-Heptachlorobiphenyl	5.0
172	2,2',3,3',4,5,5'-Heptachlorobiphenyl	5.0
191	2,3,3',4,4',5,6-Heptachlorobiphenyl	5.0
170	2,2',3,3',4,4',5-Heptachlorobiphenyl	5.0
190	2,3,3',4,4',5,6-Heptachlorobiphenyl	5.0
201	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	7.5
204	2,2',3,4,4',5,6,6'-Octachlorobiphenyl	7.5
200	2,2',3,3',4,5,6,6'-Octachlorobiphenyl	7.5
198	2,2',3,3',4,5,5',6-Octachlorobiphenyl	7.5
196	2,2',3,3',4,4',5,6-Octachlorobiphenyl	7.5
195	2,2',3,3',4,4',5,6-Octachlorobiphenyl	7.5
194	2,2',3,3',4,4',5,5'-Octachlorobiphenyl	7.5
207	2,2',3,3',4,4',5,6,6'-Nonachlorobiphenyl	7.5

PCB Congener Mix #2

M-1668A-2-0.01X

At stated conc. (µg/mL) in Isooctane

1 x 1 mL

54 comps.

7	2,4-Dichlorobiphenyl	2.5
5	2,3-Dichlorobiphenyl	2.5
12	3,4-Dichlorobiphenyl	2.5
18	2,2',5-Trichlorobiphenyl	2.5
24	2,3,6-Trichlorobiphenyl	2.5
23	2,3,5-Trichlorobiphenyl	2.5
28	2,4,4'-Trichlorobiphenyl	2.5
22	2,3,4'-Trichlorobiphenyl	2.5
39	3,4',5-Trichlorobiphenyl	2.5
53	2,2',5,6'-Tetrachlorobiphenyl	5.0
51	2,2',4,6'-Tetrachlorobiphenyl	5.0
73	2,3',5',6-Tetrachlorobiphenyl	5.0
48	2,2',4,5-Tetrachlorobiphenyl	5.0
62	2,3,4,6-Tetrachlorobiphenyl	5.0
71	2,3',4',6-Tetrachlorobiphenyl	5.0
68	2,3',4,5'-Tetrachlorobiphenyl	5.0
58	2,3,3',5'-Tetrachlorobiphenyl	5.0
61	2,3,4,5-Tetrachlorobiphenyl	5.0
55	2,3,3',4-Tetrachlorobiphenyl	5.0
60	2,3,4,4'-Tetrachlorobiphenyl	5.0
94	2,2',3,5,6'-Pentachlorobiphenyl	5.0
100	2,2',4,4',6-Pentachlorobiphenyl	5.0
91	2,2',3,4',6-Pentachlorobiphenyl	5.0
121	2,3',4,5',6-Pentachlorobiphenyl	5.0
90	2,2',3,4',5-Pentachlorobiphenyl	5.0
99	2,2',4,4',5-Pentachlorobiphenyl	5.0
109	2,3,3',4,6-Pentachlorobiphenyl	5.0
117	2,3,4',5,6-Pentachlorobiphenyl	5.0
111	2,2',3,3',5-Pentachlorobiphenyl	5.0
108	2,3,3',4,5'-Pentachlorobiphenyl	5.0
118	2,3',4,4',5-Pentachlorobiphenyl	5.0
114	2,3,4,4',5-Pentachlorobiphenyl	5.0
150	2,2',3,4',6,6'-Hexachlorobiphenyl	5.0
145	2,2',3,4,6,6'-Hexachlorobiphenyl	5.0
135	2,2',3,3',5,6'-Hexachlorobiphenyl	5.0
149	2,2',3,4',5',6-Hexachlorobiphenyl	5.0
139	2,2',3,4,4',6-Hexachlorobiphenyl	5.0
132	2,2',3,3',4,6'-Hexachlorobiphenyl	5.0
165	2,3,3',5,5',6-Hexachlorobiphenyl	5.0
168	2,3',4,4',5',6-Hexachlorobiphenyl	5.0
137	2,2',3,4,4',5-Hexachlorobiphenyl	5.0
160	2,3,3',4,5,6-Hexachlorobiphenyl	5.0
128	2,2',3,3',4,4'-Hexachlorobiphenyl	5.0
162	2,3,3',4',5,5'-Hexachlorobiphenyl	5.0
157	2,3,3',4,4',5'-Hexachlorobiphenyl	5.0
184	2,2',3,4,4',6,6'-Heptachlorobiphenyl	5.0
186	2,2',3,4,5,6,6'-Heptachlorobiphenyl	5.0
187	2,2',3,4',5,5',6-Heptachlorobiphenyl	5.0
185	2,2',3,4,5,5',6-Heptachlorobiphenyl	5.0
181	2,2',3,4,4',5,6-Heptachlorobiphenyl	5.0
192	2,3,3',4,5,5',6-Heptachlorobiphenyl	5.0
197	2,2',3,3',4,4',6,6'-Octachlorobiphenyl	7.5
199	2,2',3,3',4,5,5',6-Octachlorobiphenyl	7.5
203	2,2',3,4,4',5,5',6-Octachlorobiphenyl	7.5

PCB Congener Set
continued on next page

Mixtures for Congener Specific PCB Analysis



Method 1668 Congener Set of 209 Chlorinated Biphenyl Congeners by GC/MS (continued)

PCB Congener Mix #4

M-1668A-4-0.01X		1 x 1 mL
At stated conc. (µg/mL) in Isooctane		15 comps.
25	2,3,4-Trichlorobiphenyl	2.5
21	2,3,4-Trichlorobiphenyl	2.5
69	2,3',4,6-Tetrachlorobiphenyl	5.0
47	2,2',4,4'-Tetrachlorobiphenyl	5.0
42	2,2',3,4'-Tetrachlorobiphenyl	5.0
64	2,3,4',6-Tetrachlorobiphenyl	5.0
70	2,3',4',5-Tetrachlorobiphenyl	5.0
102	2,2',4,5,6'-Pentachlorobiphenyl	5.0
97	2,2',3',4,5-Pentachlorobiphenyl	5.0
115	2,3,4,4',6-Pentachlorobiphenyl	5.0
123	2',3,4,4',5-Pentachlorobiphenyl	5.0
134	2,2',3,3',5,6-Hexachlorobiphenyl	5.0
131	2,2',3,3',4,6-Hexachlorobiphenyl	5.0
163	2,3,3',4',5,6-Hexachlorobiphenyl	5.0
180	2,2',3,4,4',5,5'-Heptachlorobiphenyl	5.0

PCB Congener Mix #5

M-1668A-5-0.01X		1 x 1 mL
At stated conc. (µg/mL) in Isooctane		28 comps.
1	2-Chlorobiphenyl	2.5
3	4-Chlorobiphenyl	2.5
4	2,2'-Dichlorobiphenyl	2.5
15	4,4'-Dichlorobiphenyl	2.5
19	2,2',6-Trichlorobiphenyl	2.5
16	2,2',3-Trichlorobiphenyl	2.5
37	3,4,4'-Trichlorobiphenyl	2.5
54	2,2',6,6'-Tetrachlorobiphenyl	5.0
43	2,2',3,5-Tetrachlorobiphenyl	5.0
44	2,2',3,5'-Tetrachlorobiphenyl	5.0
74	2,4,4',5-Tetrachlorobiphenyl	5.0
56	2,3,3',4'-Tetrachlorobiphenyl	5.0
77	3,3',4,4'-Tetrachlorobiphenyl	5.0
104	2,2',4,6,6'-Pentachlorobiphenyl	5.0
98	2,2',3',4,6-Pentachlorobiphenyl	5.0
125	2',3,4,5,6'-Pentachlorobiphenyl	5.0
110	2,3,3',4',6-Pentachlorobiphenyl	5.0
126	3,3',4,4',5-Pentachlorobiphenyl	5.0
155	2,2',4,4',6,6'-Hexachlorobiphenyl	5.0
138	2,2',3,4,4',5'-Hexachlorobiphenyl	5.0
169	3,3',4,4',5,5'-Hexachlorobiphenyl	5.0
188	2,2',3,4',5,6,6'-Heptachlorobiphenyl	5.0
189	2,3,3',4,4',5,5'-Heptachlorobiphenyl	5.0
202	2,2',3,3',5,5',6,6'-Octachlorobiphenyl	7.5
205	2,3,3',4,4',5,5',6-Octachlorobiphenyl	7.5
208	2,2',3,3',4,4',5,5',6,6'-Nonachlorobiphenyl	7.5
206	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	7.5
209	Decachlorobiphenyl	7.5

PCBS

Method 1668A/1668 Combined Congener Standards

M-1668A-C-NT-LOC-WD

M-1668A-C-NT-LOC-WD-PAK
20 µg/mL each in Isooctane

SAVE

1 x 1 mL
5 x 1 mL
33 comps.

1	2-Chlorobiphenyl	155	2,2',4,4',6,6'-Hexachlorobiphenyl
3	4-Chlorobiphenyl	156	2,3,3',4,4',5-Hexachlorobiphenyl
4	2,2'-Dichlorobiphenyl	157	2,3,3',4,4',5'-Hexachlorobiphenyl
15	4,4'-Dichlorobiphenyl	167	2,3',4,4',5,5'-Hexachlorobiphenyl
19	2,2',6-Trichlorobiphenyl	169	3,3',4,4',5,5'-Hexachlorobiphenyl
23	2,3,5-Trichlorobiphenyl	170	2,2',3,3',4,4',5-Heptachlorobiphenyl
34	2',3,5-Trichlorobiphenyl	180	2,2',3,4,4',5,5'-Heptachlorobiphenyl
37	3,4,4'-Trichlorobiphenyl	182	2,2',3,4,4',5,6-Heptachlorobiphenyl
54	2,2',6,6'-Tetrachlorobiphenyl	187	2,2',3,4',5,5',6-Heptachlorobiphenyl
77	3,3',4,4'-Tetrachlorobiphenyl	188	2,2',3,4',5,6,6'-Heptachlorobiphenyl
81	3,4,4',5-Tetrachlorobiphenyl	189	2,3,3',4,4',5,5'-Heptachlorobiphenyl
104	2,2',4,6,6'-Pentachlorobiphenyl	202	2,2',3,3',5,5',6,6'-Octachlorobiphenyl
105	2,3,3',4,4'-Pentachlorobiphenyl	205	2,3,3',4,4',5,5',6-Octachlorobiphenyl
114	2,3,4,4',5-Pentachlorobiphenyl	206	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl
118	2,3',4,4',5-Pentachlorobiphenyl	208	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl
123	2',3,4,4',5-Pentachlorobiphenyl	209	Decachlorobiphenyl
126	3,3',4,4',5-Pentachlorobiphenyl		

GPC Calibration Solution

CLP-027-R2-WL-10ML
At stated conc. (mg/mL) in CH₂Cl₂

1 x 10 mL
5 comps.

Corn Oil	25
bis(2-Ethylhexyl)phthalate	0.5
Methoxychlor	0.1
Perylene	0.02
Sulfur	0.08

Level of Chlorination Calibration/Spike Set

Calibration/Spike Set

M-1668A-LOC-SET
M-1668A-NAT, M-1668A-PAR

2 x 1 mL

Technical Note

Determination of Chlorobiphenyl content at each level of chlorination

Native PCB Calibration Mix

M-1668A-NAT
At stated conc. (µg/mL) in Isooctane

M-1668A-NAT		1 x 1 mL
At stated conc. (µg/mL) in Isooctane		19 comps.
3	4-Chlorobiphenyl	5.0
15	4,4'-Dichlorobiphenyl	5.0
28	2,4,4'-Trichlorobiphenyl	5.0
77	3,3',4,4'-Tetrachlorobiphenyl	1.0
105	2,3,3',4,4'-Pentachlorobiphenyl	5.0
114	2,3,4,4',5-Pentachlorobiphenyl	5.0
118	2,3',4,4',5-Pentachlorobiphenyl	5.0
123	2',3,4,4',5-Pentachlorobiphenyl	5.0
126	3,3',4,4',5-Pentachlorobiphenyl	5.0
156	2,3,3',4,4',5-Hexachlorobiphenyl	10
157	2,3,3',4,4',5'-Hexachlorobiphenyl	10
167	2,3',4,4',5,5'-Hexachlorobiphenyl	10
169	3,3',4,4',5,5'-Hexachlorobiphenyl	10
170	2,2',3,3',4,4',5-Heptachlorobiphenyl	10
180	2,2',3,4,4',5,5'-Heptachlorobiphenyl	10
189	2,3,3',4,4',5,5'-Heptachlorobiphenyl	10
194	2,2',3,3',4,4',5,5'-Octachlorobiphenyl	10
206	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	10
209	Decachlorobiphenyl	20

PAR PCB Spike Mix

M-1668A-PAR
At stated conc. (µg/mL) in Isooctane

M-1668A-PAR		1 x 1 mL
At stated conc. (µg/mL) in Isooctane		19 comps.
3	4-Chlorobiphenyl	10
15	4,4'-Dichlorobiphenyl	10
28	2,4,4'-Trichlorobiphenyl	10
77	3,3',4,4'-Tetrachlorobiphenyl	0.2
105	2,3,3',4,4'-Pentachlorobiphenyl	10
114	2,3,4,4',5-Pentachlorobiphenyl	10
118	2,3',4,4',5-Pentachlorobiphenyl	10
123	2',3,4,4',5-Pentachlorobiphenyl	10
126	3,3',4,4',5-Pentachlorobiphenyl	1.0
156	2,3,3',4,4',5-Hexachlorobiphenyl	10
157	2,3,3',4,4',5'-Hexachlorobiphenyl	10
167	2,3',4,4',5,5'-Hexachlorobiphenyl	10
169	3,3',4,4',5,5'-Hexachlorobiphenyl	2.0
170	2,2',3,3',4,4',5-Heptachlorobiphenyl	2.0
180	2,2',3,4,4',5,5'-Heptachlorobiphenyl	10
189	2,3,3',4,4',5,5'-Heptachlorobiphenyl	2.0
194	2,2',3,3',4,4',5,5'-Octachlorobiphenyl	10
206	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	10
209	Decachlorobiphenyl	20



Congener Specific PCB Analysis

Canadian Methods

A second set of four formulations has been selected by the Institute for Biological Sciences of Canada and can be purchased individually or as a complete set (C-CAN-SET). The concentration levels for these formulations are selected so that 1 mL of standard diluted into 100 mL will show equal response by ECD.

PCB Congener (Canadian RM) Set
C-CAN-SET 4 x 1 mL
 C-CAN-01, C-CAN-02, C-CAN-03, C-CAN-04

PCB Congeners Mix #1

C-CAN-01		1 x 1 mL
At stated conc. (µg/mL) in Isooctane		
		14 comps.
18	2,2',5'-Trichlorobiphenyl	11.8
31	2,4',5'-Trichlorobiphenyl	6.6
40	2,2',3,3'-Tetrachlorobiphenyl	4.9
44	2,2',3,5'-Tetrachlorobiphenyl	5.9
49	2,2',4,5'-Tetrachlorobiphenyl	7.6
54	2,2',6,6'-Tetrachlorobiphenyl	16.6
77	3,3',4,4'-Tetrachlorobiphenyl	5.5
86	2,2',3,4,5-Pentachlorobiphenyl	2.9
87	2,2',3,4,5'-Pentachlorobiphenyl	4.2
121	2,3',4,5',6-Pentachlorobiphenyl	3.1
153	2,2',4,4',5,5'-Hexachlorobiphenyl	2.1
156	2,3,3',4,4',5-Hexachlorobiphenyl	1.5
159	2,3,3',4,5,5'-Hexachlorobiphenyl	1.2
209	Decachlorobiphenyl	1.7

PCB Congeners Mix #2

C-CAN-02		1 x 1 mL
At stated conc. (µg/mL) in Isooctane		
		15 comps.
15	4,4'-Dichlorobiphenyl	91.9
52	2,2',5,5'-Tetrachlorobiphenyl	15.2
60	2,3,4,4'-Tetrachlorobiphenyl	3.9
103	2,2',4,5',6-Pentachlorobiphenyl	10.8
105	2,3,3',4,4'-Pentachlorobiphenyl	4.0
128	2,2',3,3',4,4'-Hexachlorobiphenyl	4.9
143	2,2',3,4,5,6'-Hexachlorobiphenyl	5.7
154	2,2',4,4',5,6'-Hexachlorobiphenyl	6.2
173	2,2',3,3',4,5,6-Heptachlorobiphenyl	2.3
182	2,2',3,4,4',5,6'-Heptachlorobiphenyl	3.8
202	2,2',3,3',5,5',6,6'-Octachlorobiphenyl	3.6
205	2,3,3',4,4',5,5',6-Octachlorobiphenyl	3.2
207	2,2',3,3',4,4',5,6,6'-Nonachlorobiphenyl	3.8
208	2,2',3,3',4,4',5,6,6'-Nonachlorobiphenyl	2.4
209	Decachlorobiphenyl	2.8

PCB Congeners Mix #3

C-CAN-03		1 x 1 mL
At stated conc. (µg/mL) in Isooctane		
		15 comps.
15	4,4'-Dichlorobiphenyl	138.1
114	2,3,4,4',5-Pentachlorobiphenyl	6.3
129	2,2',3,3',4,5-Hexachlorobiphenyl	8.3
137	2,2',3,4,4',5-Hexachlorobiphenyl	7.4
153	2,2',4,4',5,5'-Hexachlorobiphenyl	7.3
171	2,2',3,3',4,4',6-Heptachlorobiphenyl	5.2
183	2,2',3,4,4',5',6-Heptachlorobiphenyl	6.6
185	2,2',3,4,5,5',6-Heptachlorobiphenyl	3.5
189	2,3,3',4,4',5,5'-Heptachlorobiphenyl	4.7
191	2,3,3',4,4',5',6-Heptachlorobiphenyl	5.0
201	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	4.8
199	2,2',3,3',4,5,5',6'-Octachlorobiphenyl	7.0
203	2,2',3,4,4',5,5',6-Octachlorobiphenyl	5.1
206	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	6.7
209	Decachlorobiphenyl	6.5

PCB Congeners Mix #4

C-CAN-04		1 x 1 mL
At stated conc. (µg/mL) in Isooctane		
		15 comps.
14	4,4'-Dichlorobiphenyl	76.7
101	2,2',4,5,5'-Pentachlorobiphenyl	8.9
118	2,3',4,4',5-Pentachlorobiphenyl	3.9
138	2,2',3,4,4',5'-Hexachlorobiphenyl	4.2
141	2,2',3,4,5,5'-Hexachlorobiphenyl	2.8
151	2,2',3,5,5',6-Hexachlorobiphenyl	5.0
153	2,2',4,4',5,5'-Hexachlorobiphenyl	3.3
170	2,2',3,3',4,4',5-Heptachlorobiphenyl	3.0
180	2,2',3,4,4',5,5'-Heptachlorobiphenyl	2.8
187	2,2',3,4',5,5',6-Heptachlorobiphenyl	3.2
194	2,2',3,3',4,4',5,5'-Octachlorobiphenyl	2.4
195	2,2',3,3',4,4',5,6-Octachlorobiphenyl	2.6
196	2,2',3,3',4,4',5,6'-Octachlorobiphenyl	3.3
199	2,2',3,3',4,4',5,5',6'-Octachlorobiphenyl	3.6
209	Decachlorobiphenyl	2.7

Quebec Ministry of Environment Congener Mix

C-QME-01		1 x 1 mL
At stated conc. (ng/mL) in Isooctane		
		41 comps.
17	2,2',4-Trichlorobiphenyl	500
18	2,2',5-Trichlorobiphenyl	2000
28	2,4,4'-Trichlorobiphenyl	2000
31	2,4',5-Trichlorobiphenyl	1500
33	2',3,4-Trichlorobiphenyl	2000
44	2,2',3,5'-Tetrachlorobiphenyl	2000
49	2,2',4,5'-Tetrachlorobiphenyl	2000
52	2,2',5,5'-Tetrachlorobiphenyl	2000
70	2,3',4,5-Tetrachlorobiphenyl	2000
74	2,4,4',5-Tetrachlorobiphenyl	2000
82	2,2',3,3',4-Pentachlorobiphenyl	500
87	2,2',3,4,5-Pentachlorobiphenyl	2000
95	2,2',3,5',6-Pentachlorobiphenyl	1000
99	2,2',4,4',5-Pentachlorobiphenyl	2000
101	2,2',4,5,5'-Pentachlorobiphenyl	2000
105	2,3,3',4,4'-Pentachlorobiphenyl	500
110	2,3,3',4',6-Pentachlorobiphenyl	2000
118	2,3',4,4',5-Pentachlorobiphenyl	2000
128	2,2',3,3',4,4'-Hexachlorobiphenyl	2000
132	2,2',3,3',4,6'-Hexachlorobiphenyl	1000
138	2,2',3,4,4',5'-Hexachlorobiphenyl	2000
149	2,2',3,4',5,6-Hexachlorobiphenyl	2000
151	2,2',3,5,5',6-Hexachlorobiphenyl	2000
153	2,2',4,4',5,5'-Hexachlorobiphenyl	2000
156	2,3,3',4,4',5-Hexachlorobiphenyl	2000
158	2,3,3',4,4',6-Hexachlorobiphenyl	500
169	3,3',4,4',5,5'-Hexachlorobiphenyl	2000
170	2,2',3,3',4,4',5-Heptachlorobiphenyl	2000
171	2,2',3,3',4,4',6-Heptachlorobiphenyl	2000
177	2,2',3,3',4,5,6-Heptachlorobiphenyl	2000
180	2,2',3,4,4',5,5'-Heptachlorobiphenyl	2000
183	2,2',3,4,4',5',6-Heptachlorobiphenyl	2000
187	2,2',3,4',5,5',6-Heptachlorobiphenyl	2000
191	2,3,3',4,4',5,6-Heptachlorobiphenyl	2000
194	2,2',3,3',4,4',5,5'-Octachlorobiphenyl	2000
195	2,2',3,3',4,4',5,6-Octachlorobiphenyl	2000
199	2,2',3,3',4,5,5',6'-Octachlorobiphenyl	1500
205	2,3,3',4,4',5,5',6-Octachlorobiphenyl	2000
206	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	2000
208	2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl	2000
209	Decachlorobiphenyl	2000

Congener Specific PCB Analysis



Integrated Atmospheric Deposition Network (IADN)

The Integrated Atmospheric Deposition Network is composed of five agencies: the US EPA, Environment Canada's (EC) Metrological Service of Canada, EC's National Water Research Institute (NWRI), EC's Ecosystem Health Division of Ontario Region (EHD), and the Ontario Ministry of Environment (OME) whose goal it is to cooperatively implement the Great Lakes Water Quality Agreement.

This agreement requires certain chemicals to be monitored. The Tier 1 group specifically called for the measurement of PCB congeners. AccuStandard was requested to develop a set of IADN PCB congener standards to meet this specific chemical list.

IADN Congener Set
C-IADN-SET 3 x 1 mL
 C-IADN-01, C-IADN-02, C-IADN-03

IADN Congener Standard #1

C-IADN-01 1 x 1 mL
 30 µg/mL each in Isooctane 28 comps.

- 4 2,2'-Dichlorobiphenyl
- 7 2,4-Dichlorobiphenyl
- 10 2,6-Dichlorobiphenyl
- 15 4,4'-Dichlorobiphenyl
- 18 2,2',5-Trichlorobiphenyl
- 28 2,4,4'-Trichlorobiphenyl
- 32 2,4',6-Trichlorobiphenyl
- 41 2,2',3,4-Tetrachlorobiphenyl
- 45 2,2',3,6-Tetrachlorobiphenyl
- 52 2,2',5,5'-Tetrachlorobiphenyl
- 56 2,3,3',4'-Tetrachlorobiphenyl
- 66 2,3',4,4'-Tetrachlorobiphenyl
- 74 2,4,4',5-Tetrachlorobiphenyl
- 81 3,4,4',5-Tetrachlorobiphenyl
- 85 2,2',3,4,4'-Pentachlorobiphenyl
- 91 2,2',3,4',6-Pentachlorobiphenyl
- 97 2,2',3',4,5-Pentachlorobiphenyl
- 101 2,2',4,5,5'-Pentachlorobiphenyl
- 114 2,3,4,4',5-Pentachlorobiphenyl
- 123 2',3,4,4',5-Pentachlorobiphenyl
- 131 2,2',3,3',4,6-Hexachlorobiphenyl
- 138 2,2',3,4,4',5'-Hexachlorobiphenyl
- 153 2,2',4,4',5,5'-Hexachlorobiphenyl
- 167 2,3',4,4',5,5'-Hexachlorobiphenyl
- 171 2,2',3,3',4,4',6-Heptachlorobiphenyl
- 180 2,2',3,4,4',5,5'-Heptachlorobiphenyl
- 200 2,2',3,3',4,5,6'-Octachlorobiphenyl
- 205 2,3,3',4,4',5,5',6-Octachlorobiphenyl

IADN Congener Standard #2

C-IADN-02 1 x 1 mL
 30 µg/mL each in Isooctane 28 comps.

- 5 2,3-Dichlorobiphenyl
- 8 2,4'-Dichlorobiphenyl
- 12 3,4-Dichlorobiphenyl
- 16 2,2',3-Trichlorobiphenyl
- 19 2,2',6-Trichlorobiphenyl
- 26 2,3',5-Trichlorobiphenyl
- 33 2',3,4-Trichlorobiphenyl
- 42 2,2',3,4'-Tetrachlorobiphenyl
- 47 2,2',4,4'-Tetrachlorobiphenyl
- 49 2,2',4,5'-Tetrachlorobiphenyl
- 60 2,3,4,4'-Tetrachlorobiphenyl
- 70 2,3',4',5-Tetrachlorobiphenyl
- 76 2',3,4,5-Tetrachlorobiphenyl
- 83 2,2',3,3',5-Pentachlorobiphenyl
- 87 2,2',3,4,5'-Pentachlorobiphenyl
- 92 2,2',3,5,5'-Pentachlorobiphenyl
- 99 2,2',4,4',5-Pentachlorobiphenyl
- 105 2,3,3',4,4'-Pentachlorobiphenyl
- 118 2,3',4,4',5-Pentachlorobiphenyl
- 126 3,3',4,4',5-Pentachlorobiphenyl
- 132 2,2',3,3',4,6'-Hexachlorobiphenyl
- 144 2,2',3,4,5',6-Hexachlorobiphenyl
- 156 2,3,3',4,4',5-Hexachlorobiphenyl
- 169 3,3',4,4',5,5'-Hexachlorobiphenyl
- 172 2,2',3,3',4,5,5'-Heptachlorobiphenyl
- 190 2,3,3',4,4',5,6-Heptachlorobiphenyl
- 198 2,2',3,3',4,5,5',6'-Octachlorobiphenyl
- 206 2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl

IADN Congener Standard #3

C-IADN-03 1 x 1 mL
 30 µg/mL each in Isooctane 28 comps.

- 6 2,3'-Dichlorobiphenyl
- 9 2,5-Dichlorobiphenyl
- 13 3,4'-Dichlorobiphenyl
- 17 2,2',4-Trichlorobiphenyl
- 22 2,3,4'-Trichlorobiphenyl
- 31 2,4',5-Trichlorobiphenyl
- 37 3,4,4'-Trichlorobiphenyl
- 44 2,2',3,5'-Tetrachlorobiphenyl
- 48 2,2',4,5-Tetrachlorobiphenyl
- 53 2,2',5,6'-Tetrachlorobiphenyl
- 64 2,3,4',6-Tetrachlorobiphenyl
- 71 2,3',4',6-Tetrachlorobiphenyl
- 77 3,3',4,4'-Tetrachlorobiphenyl
- 84 2,2',3,3',6-Pentachlorobiphenyl
- 89 2,2',3,4,6'-Pentachlorobiphenyl
- 95 2,2',3,5',6-Pentachlorobiphenyl
- 100 2,2',4,4',6-Pentachlorobiphenyl
- 110 2,3,3',4',6-Pentachlorobiphenyl
- 119 2,3',4,4',6-Pentachlorobiphenyl
- 128 2,2',3,3',4,4'-Hexachlorobiphenyl
- 135 2,2',3,3',5,6'-Hexachlorobiphenyl
- 149 2,2',3,4',5',6-Hexachlorobiphenyl
- 163 2,3,3',4',5,6-Hexachlorobiphenyl
- 170 2,2',3,3',4,4',5-Heptachlorobiphenyl
- 174 2,2',3,3',4,5,6'-Heptachlorobiphenyl
- 194 2,2',3,3',4,4',5,5'-Octachlorobiphenyl
- 202 2,2',3,3',5,5',6'-Octachlorobiphenyl
- 207 2,2',3,3',4,4',5,6,6'-Nonachlorobiphenyl

PCB Congener Content Evaluation

These Congener Calibration mixes have been formulated to meet the proposed International standard titled "Insulating Liquids - Contamination by PCBs - Method of Determination by Capillary Column Gas Chromatography".

Mix #1

AE-00059 1 x 1 mL
AE-00059-10ML 1 x 10 mL
 10 µg/mL each in Isooctane 6 comps.

- 28 2,4,4'-Trichlorobiphenyl
- 52 2,2',5,5'-Tetrachlorobiphenyl
- 101 2,2',4,5,5'-Pentachlorobiphenyl
- 138 2,2',3,4,4',5'-Hexachlorobiphenyl
- 153 2,2',4,4',5,5'-Hexachlorobiphenyl
- 180 2,2',3,4,4',5,5'-Heptachlorobiphenyl

Mix #2

AE-00060 1 x 1 mL
AE-00060-10ML 1 x 10 mL
 10 µg/mL each in Isooctane 3 comps.

- 77 3,3',4,4'-Tetrachlorobiphenyl
- 126 3,3',4,4',5-Pentachlorobiphenyl
- 169 3,3',4,4',5,5'-Hexachlorobiphenyl

Congener Calibration Mix

AE-00061 1 x 1 mL
AE-00061-10ML 1 x 10 mL
 10 µg/mL each in Isooctane 14 comps.

- 18 2,2',5-Trichlorobiphenyl
- 28 2,4,4'-Trichlorobiphenyl
- 31 2,4',5-Trichlorobiphenyl
- 44 2,2',3,5'-Tetrachlorobiphenyl
- 52 2,2',5,5'-Tetrachlorobiphenyl
- 101 2,2',4,5,5'-Pentachlorobiphenyl
- 118 2,3',4,4',5-Pentachlorobiphenyl
- 138 2,2',3,4,4',5'-Hexachlorobiphenyl
- 149 2,2',3,4',5'-Hexachlorobiphenyl
- 153 2,2',4,4',5,5'-Hexachlorobiphenyl
- 170 2,2',3,3',4,4',5-Heptachlorobiphenyl
- 180 2,2',3,4,4',5,5'-Heptachlorobiphenyl
- 194 2,2',3,3',4,4',5,5'-Octachlorobiphenyl
- 209 Decachlorobiphenyl

Internal Standards

Each at 100 µg/mL in Isooctane

C-030S-TP 1 x 1 mL
 2,4,6-Trichlorobiphenyl

C-209S-TP 1 x 1 mL
 Decachlorobiphenyl

Technical Note

These congener content evaluation mixtures have proven useful for European laboratories estimating the PCB content of a sample when following EU guideline 96/59/EU for cleanup of PCBs.

PCBS



Congener Specific PCB Analysis

Formulations for Toxicity and Abundance Studies

Toxicity and Abundance Based PCB Congener Formulations

A study was conducted in 1989 by McFarland and J. Clarke ¹, (Environmental Occurrence, Abundance, and Potential Toxicity of Polychlorinated Biphenyl Congeners: Consideration for a Congener - Specific Analysis). The data that formed the basis for conclusions in the study have been referenced by the National Oceanic & Atmospheric Administration (NOAA) which developed a method in the same year.

Abundance Analysis

Five of the solutions AccuStandard offers are formulated to assist the investigator or analytical chemist in their own studies and can be purchased individually or as a complete set (C-SCA-SET). According to the study the 36 congeners contained in these five groups are considered environmentally threatening due to their frequency of occurrence in environmental samples, abundance in the Aroclors and potential toxicity.

Group 1a: comprises the three congeners present to a small extent in the Aroclors that are the most toxic and have been characterized as pure 3-Methyl cholanthrene - type (3-MC) inducers.

Group 1b: congeners are mixed-type inducers but are of somewhat lesser toxicity and are very abundant in the Aroclors as well as in the environment. It includes Congener #105 which, while not as prevalent, is potentially almost as toxic as the Group 1a congeners.

Group 2: includes the congeners which are Phenobarbital - type (PB) inducers for Mixed-Function Oxidase enzymes. These are less toxic but more abundant in the environment. They represent 25-41% of total PCB content found in animal tissue.

Group 3: congeners are weak- or non-inducers representing about 10% of the PCB content of tissues.

Group 4: congeners have some potential for toxicity but have very low presence in tissue.

Toxicity Analysis

A sixth solution is prepared for the analyst who is investigating the presence of PCB congeners in food and human tissues. Specific congeners are selected by K.C. Jones ² as outlined in his article referenced below which is titled, "Determination of polychlorinated biphenyls in human food stuffs and tissues: Suggestions for a selective congener analytical approach"

Complete Set of PCB Congeners

C-SCA-SET 5 x 1 mL
C-SCA-01, C-SCA-02, C-SCA-03, C-SCA-04, C-SCA-05

Mix #1 Group 1a (3 MC Type Inducers)

C-SCA-01 1 x 1 mL
10 µg/mL each in Isooctane 3 comps.
77 3,3',4,4'-Tetrachlorobiphenyl 169 3,3',4,4',5,5'-Hexachlorobiphenyl
126 3,3',4,4',5-Pentachlorobiphenyl

Mix #2 Group 1b (Mixed Type Inducers)

C-SCA-02 1 x 1 mL
10 µg/mL each in Isooctane 6 comps.
105 2,3,3',4,4'-Pentachlorobiphenyl 138 2,2',3,4,4',5'-Hexachlorobiphenyl
118 2,2',4,4',5-Pentachlorobiphenyl 156 2,3,3',4,4',5'-Hexachlorobiphenyl
128 2,2',3,3',4,4'-Hexachlorobiphenyl 170 2,2',3,3',4,4',5-Heptachlorobiphenyl

Mix #3 Group 2 (PB Type Inducers)

C-SCA-03 1 x 1 mL
10 µg/mL each in Isooctane 7 comps.
87 2,2',3,4,5'-Pentachlorobiphenyl 180 2,2',3,4,4',5,5'-Heptachlorobiphenyl
99 2,2',4,4',5-Pentachlorobiphenyl 183 2,2',3,4,4',5,6-Heptachlorobiphenyl
101 2,2',4,5,5'-Pentachlorobiphenyl 194 2,2',3,3',4,4',5,5'-Octachlorobiphenyl
153 2,2',4,4',5,5'-Hexachlorobiphenyl

Mix #4 Group 3 (Non-Inducer Type)

C-SCA-04 1 x 1 mL
10 µg/mL each in Isooctane 10 comps.
18 2,2',5-Trichlorobiphenyl 74 2,4,4',5-Tetrachlorobiphenyl
44 2,2',3,5'-Tetrachlorobiphenyl 151 2,2',3,5,5',6-Hexachlorobiphenyl
49 2,2',4,5'-Tetrachlorobiphenyl 177 2,2',3,3',4',5,6-Heptachlorobiphenyl
52 2,2',5,5'-Tetrachlorobiphenyl 187 2,2',3,4',5,5',6-Heptachlorobiphenyl
70 2,3',4',5-Tetrachlorobiphenyl 199 2,2',3,3',4,5,5',6'-Octachlorobiphenyl

Mix #5 Group 4

(Mixed Type Inducers present at very low levels)

C-SCA-05 1 x 1 mL
10 µg/mL each in Isooctane 10 comps.
37 3,4,4'-Trichlorobiphenyl 157 2,3,3',4,4',5'-Hexachlorobiphenyl
81 3,4,4',5-Tetrachlorobiphenyl 158 2,3,3',4,4',6-Hexachlorobiphenyl
114 2,3,4,4',5-Pentachlorobiphenyl 167 2,3',4,4',5,5'-Hexachlorobiphenyl
119 2,3',4,4',6-Pentachlorobiphenyl 168 2,3',4,4',5,6-Hexachlorobiphenyl
123 2',3,4,4',5-Pentachlorobiphenyl 189 2,3,3',4,4',5,5'-Heptachlorobiphenyl

Mix #6 (Food & Human Tissue analysis)

C-SCA-06 1 x 1 mL
10 µg/mL each in Isooctane 32 comps.

8 2,4'-Dichlorobiphenyl	114 2,3,4,4',5-Pentachlorobiphenyl
28 2,4,4'-Trichlorobiphenyl	118 2,3',4,4',5-Pentachlorobiphenyl
37 3,4,4'-Trichlorobiphenyl	126 3,3',4,4',5-Pentachlorobiphenyl
44 2,2',3,5'-Tetrachlorobiphenyl	128 2,2',3,3',4,4'-Hexachlorobiphenyl
49 2,2',4,5'-Tetrachlorobiphenyl	138 2,2',3,4,4',5'-Hexachlorobiphenyl
52 2,2',5,5'-Tetrachlorobiphenyl	153 2,2',4,4',5,5'-Hexachlorobiphenyl
60 2,3,4,4'-Tetrachlorobiphenyl	156 2,3,3',4,4',5-Hexachlorobiphenyl
66 2,3',4,4'-Tetrachlorobiphenyl	158 2,3,3',4,4',6-Hexachlorobiphenyl
70 2,3',4,5-Tetrachlorobiphenyl	166 2,3,4,4',5,6-Hexachlorobiphenyl
74 2,4,4',5-Tetrachlorobiphenyl	169 3,3',4,4',5,5'-Hexachlorobiphenyl
77 3,3',4,4'-Tetrachlorobiphenyl	170 2,2',3,3',4,4',5-Heptachlorobiphenyl
82 2,2',3,3',4-Pentachlorobiphenyl	179 2,2',3,3',5,6,6'-Heptachlorobiphenyl
87 2,2',3,4,5'-Pentachlorobiphenyl	180 2,2',3,4,4',5,5'-Heptachlorobiphenyl
99 2,2',4,4',5-Pentachlorobiphenyl	183 2,2',3,4,4',5,6-Heptachlorobiphenyl
101 2,2',4,5,5'-Pentachlorobiphenyl	187 2,2',3,4',5,5',6-Heptachlorobiphenyl
105 2,3,3',4,4'-Pentachlorobiphenyl	189 2,3,3',4,4',5,5'-Heptachlorobiphenyl

Non-Ortho Substituted PCBs

C-SCA-DIOXLIK 1 x 1 mL
10 µg/mL each in Isooctane 4 comps.
77 3,3',4,4'-Tetrachlorobiphenyl 169 3,3',4,4',5,5'-Hexachlorobiphenyl
126 3,3',4,4',5-Pentachlorobiphenyl 81 3,4,4',5-Tetrachlorobiphenyl

Internal Standard

C-EU-IS-10ML 1 x 10 mL
At stated conc. in Isooctane 2 comps.
30 2,4,6-Trichlorobiphenyl 209 Decachlorobiphenyl

Dutch Seven PCBs Standard

PCB-DUTCH7-SET 7 x 1 mL
Each at 100 µg/mL in Isooctane
PCB-DUTCH7 1 x 1 mL
10 µg/mL each in Isooctane 7 comps.

28 2,4,4'-Trichlorobiphenyl	138 2,2',3,4,4',5'-Hexachlorobiphenyl
52 2,2',5,5'-Tetrachlorobiphenyl	153 2,2',4,4',5,5'-Hexachlorobiphenyl
101 2,2',4,5,5'-Pentachlorobiphenyl	180 2,2',3,4,4',5,5'-Heptachlorobiphenyl
118 3',4,4',5-Pentachlorobiphenyl	

Literature Reference

1. V.A. McFarland and J.U. Clarke, Environmental Health Perspectives, vol. 81, pp 225-239 (1989).
2. K.C. Jones, Sci. Total Environment, vol. 68, pp 141-159 (1988).

Congener Specific PCB Analysis



PCB Congener Mix for West Coast Fish Studies

C-WCFS 25 µg/mL each in Isooctane	1 x 1 mL 24 comps.
31 2,4',5'-Trichlorobiphenyl	132 2,2',3,3',4,6'-Hexachlorobiphenyl
33 2',3,4'-Trichlorobiphenyl	141 2,2',3,4,5,5'-Hexachlorobiphenyl
49 2,2',4,5'-Tetrachlorobiphenyl	149 2,2',3,4',5',6'-Hexachlorobiphenyl
56 2,3,3',4'-Tetrachlorobiphenyl	151 2,2',3,5,5',6'-Hexachlorobiphenyl
60 2,3,4,4'-Tetrachlorobiphenyl	156 2,3,3',4,4',5'-Hexachlorobiphenyl
70 2,3',4',5'-Tetrachlorobiphenyl	158 2,3,3',4,4',6'-Hexachlorobiphenyl
74 2,4,4',5'-Tetrachlorobiphenyl	174 2,2',3,3',4,5,6'-Heptachlorobiphenyl
87 2,2',3,4,5'-Pentachlorobiphenyl	177 2,2',3,3',4',5,6'-Heptachlorobiphenyl
95 2,2',3,5',6'-Pentachlorobiphenyl	183 2,2',3,4,4',5',6'-Heptachlorobiphenyl
97 2,2',3',4,5'-Pentachlorobiphenyl	194 2,2',3,3',4,4',5,5'-Octachlorobiphenyl
99 2,2',4,4',5'-Pentachlorobiphenyl	198 2,2',3,3',4,5,5',6'-Octachlorobiphenyl
110 2,3,3',4',6'-Pentachlorobiphenyl	203 2,2',3,4,4',5,5',6'-Octachlorobiphenyl

WHO/NIST/NOAA Congener List

C-WNN 10 µg/mL each in Isooctane	SAVE	1 x 1 mL 5 x 1 mL 28 comps.
8 2,4'-Dichlorobiphenyl	128 2,2',3,3',4,4'-Hexachlorobiphenyl	
18 2,2',5'-Trichlorobiphenyl	138 2,2',3,4,4',5'-Hexachlorobiphenyl	
28 2,4,4'-Trichlorobiphenyl	153 2,2',4,4',5,5'-Hexachlorobiphenyl	
44 2,2',3,5'-Tetrachlorobiphenyl	156 2,3,3',4,4',5'-Hexachlorobiphenyl	
52 2,2',5,5'-Tetrachlorobiphenyl	157 2,3,3',4,4',5'-Hexachlorobiphenyl	
66 2,3',4,4'-Tetrachlorobiphenyl	167 2,3',4,4',5,5'-Hexachlorobiphenyl	
77 3,3',4,4'-Tetrachlorobiphenyl	169 3,3',4,4',5,5'-Hexachlorobiphenyl	
81 3,4,4',5'-Tetrachlorobiphenyl	170 2,2',3,3',4,4',5-Heptachlorobiphenyl	
101 2,2',4,5,5'-Pentachlorobiphenyl	180 2,2',3,4,4',5,5'-Heptachlorobiphenyl	
105 2,3,3',4,4'-Pentachlorobiphenyl	187 2,2',3,4',5,5',6-Heptachlorobiphenyl	
114 2,3,4,4',5-Pentachlorobiphenyl	189 2,3,3',4,4',5,5'-Heptachlorobiphenyl	
118 2,3',4,4',5-Pentachlorobiphenyl	195 2,2',3,3',4,4',5,6-Octachlorobiphenyl	
123 2',3,4,4',5-Pentachlorobiphenyl	206 2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	
126 3,3',4,4',5-Pentachlorobiphenyl	209 Decachlorobiphenyl	

World Health Organization Congener Mix

C-WHO-01 2.0 µg/mL each in Isooctane	1 x 1 mL 12 comps.	
77 3,3',4,4'-Tetrachlorobiphenyl	118 2,3',4,4',5-Pentachlorobiphenyl	157 2,3,3',4,4',5'-Hexachlorobiphenyl
81 3,4,4',5-Tetrachlorobiphenyl	123 2',3,4,4',5-Pentachlorobiphenyl	167 2,3',4,4',5,5'-Hexachlorobiphenyl
105 2,3,3',4,4'-Pentachlorobiphenyl	126 3,3',4,4',5-Pentachlorobiphenyl	169 3,3',4,4',5,5'-Hexachlorobiphenyl
114 2,3,4,4',5-Pentachlorobiphenyl	156 2,3,3',4,4',5-Hexachlorobiphenyl	189 2,3,3',4,4',5,5'-Heptachlorobiphenyl

DCMA-PCB Isomer Mixture

M-002 M-002-PAK At stated conc. (µg/mL) in Hexane	SAVE	1 x 1 mL 5 x 1 mL 10 comps.	
1 2-Chlorobiphenyl	100	136 2,2',3,3',6,6'-Hexachlorobiphenyl	10
11 3,3'-Dichlorobiphenyl	100	185 2,2',3,4,5,5',6-Heptachlorobiphenyl	5
29 2,4,5-Trichlorobiphenyl	10	194 2,2',3,3',4,4',5,5'-Octachlorobiphenyl	5
47 2,2',4,4'-Tetrachlorobiphenyl	10	206 2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	5
121 2,3',4,5',6-Pentachlorobiphenyl	10	209 Decachlorobiphenyl	5

Technical Note

The Dry Color Manufacturer's Association (DCMA) recommends this type of mixture to monitor their process streams for PCBs.

CEN's Workgroup #22 for PCBs in Waste Oil

PCB-W22 10 µg/mL each in Isooctane	SAVE	1 x 1 mL 15 comps.
PCB-W22-PAK		5 x 1 mL
PCB-W22-SET Each at 100 µg/mL in Isooctane		15 x 1 mL
18 2,2',5-Trichlorobiphenyl	118 2,3',4,4',5-Pentachlorobiphenyl	
20 2,3,3'-Trichlorobiphenyl	138 2,2',3,4,4',5'-Hexachlorobiphenyl	
28 2,4,4'-Trichlorobiphenyl	149 2,2',3,4',5',6-Hexachlorobiphenyl	
31 2,4',5-Trichlorobiphenyl	153 2,2',4,4',5,5'-Hexachlorobiphenyl	
44 2,2',3,5'-Tetrachlorobiphenyl	170 2,2',3,3',4,4',5-Heptachlorobiphenyl	
52 2,2',5,5'-Tetrachlorobiphenyl	180 2,2',3,4,4',5,5'-Heptachlorobiphenyl	
101 2,2',4,5,5'-Pentachlorobiphenyl	194 2,2',3,3',4,4',5,5'-Octachlorobiphenyl	
105 2,3,3',4,4'-Pentachlorobiphenyl		

Technical Note

The Comité Européen de Normalisation (CEN) has assigned Workgroup Number 22 in Hamburg, Germany to develop a method for "PCBs" in waste oil.

Dioxin-Like Congeners

C-DIOXLIK	At stated conc. (ng/mL) in Nonane											
	(-01) Level 1	(-02) Level 2	(-03) Level 3	(-04) Level 4	(-05) Level 5	(-06) Level 6	(-07) Level 7	(-08) Level 8	(-09) Level 9	(-10) Level 10	(-11) Level 11	(-12) Level 12
77 3,3',4,4'-Tetrachlorobiphenyl	0.05	0.1	0.2	0.5	1	2	5	10	20	50	100	250
81 3,4,4',5-Tetrachlorobiphenyl	0.05	0.1	0.2	0.5	1	2	5	10	20	50	100	250
105 2,3,3',4,4'-Pentachlorobiphenyl	0.05	0.1	0.2	0.5	1	2	5	10	20	50	100	250
114 2,3,4,4',5-Pentachlorobiphenyl	0.05	0.1	0.2	0.5	1	2	5	10	20	50	100	250
118 2,3',4,4',5-Pentachlorobiphenyl	0.05	0.1	0.2	0.5	1	2	5	10	20	50	100	250
123 2',3,4,4',5-Pentachlorobiphenyl	0.05	0.1	0.2	0.5	1	2	5	10	20	50	100	250
126 3,3',4,4',5-Pentachlorobiphenyl	0.05	0.1	0.2	0.5	1	2	5	10	20	50	100	250
156 2,3,3',4,4',5-Hexachlorobiphenyl	0.05	0.1	0.2	0.5	1	2	5	10	20	50	100	250
157 2,3,3',4,4',5-Hexachlorobiphenyl	0.05	0.1	0.2	0.5	1	2	5	10	20	50	100	250
167 2,3',4,4',5,5'-Hexachlorobiphenyl	0.05	0.1	0.2	0.5	1	2	5	10	20	50	100	250
169 3,3',4,4',5,5'-Hexachlorobiphenyl	0.05	0.1	0.2	0.5	1	2	5	10	20	50	100	250
170 2,2',3,3',4,4',5-Heptachlorobiphenyl	0.05	0.1	0.2	0.5	1	2	5	10	20	50	100	250
180 2,2',3,4,4',5,5'-Heptachlorobiphenyl	0.05	0.1	0.2	0.5	1	2	5	10	20	50	100	250
189 2,3,3',4,4',5,5'-Heptachlorobiphenyl	0.05	0.1	0.2	0.5	1	2	5	10	20	50	100	250

C-DIOXLIK1-SET 5 x 1 mL	C-DIOXLIK2-SET 5 x 1 mL	C-DIOXLIK3-SET 5 x 1 mL	Individual Levels 4, 6, 8, 10, 12
C-DIOXLIK-02	C-DIOXLIK-03	C-DIOXLIK-04	C-DIOXLIK3-04
C-DIOXLIK-04	C-DIOXLIK-05	C-DIOXLIK-06	C-DIOXLIK3-06
C-DIOXLIK-06	C-DIOXLIK-07	C-DIOXLIK-08	C-DIOXLIK3-08
			C-DIOXLIK3-10
			C-DIOXLIK3-12
			1 mL
			1 mL
			1 mL
			1 mL



PCB Congener Calibration Mixtures

9 Mixtures provide All 209 Congeners
Present in Aroclors

PCB Congener Mix #1

C-CS-01 1 x 1 mL
10 µg/mL each in Isooctane 39 comps.

- 1 2-Chlorobiphenyl
- 2 3-Chlorobiphenyl α
- 3 4-Chlorobiphenyl
- 4 2,2'-Dichlorobiphenyl
- 6 2,3'-Dichlorobiphenyl
- 8 2,4'-Dichlorobiphenyl
- 9 2,5-Dichlorobiphenyl
- 16 2,2',3-Trichlorobiphenyl
- 18 2,2',5-Trichlorobiphenyl
- 19 2,2',6-Trichlorobiphenyl
- 22 2,3,4'-Trichlorobiphenyl
- 25 2,3',4'-Trichlorobiphenyl
- 28 2,4,4'-Trichlorobiphenyl
- 44 2,2',3,5'-Tetrachlorobiphenyl
- 52 2,2',5,5'-Tetrachlorobiphenyl
- 56 2,3,3',4'-Tetrachlorobiphenyl
- 66 2,3',4,4'-Tetrachlorobiphenyl
- 67 2,3',4,5-Tetrachlorobiphenyl
- 71 2,3',4',6-Tetrachlorobiphenyl
- 74 2,4,4',5-Tetrachlorobiphenyl
- 82 2,2',3,3',4-Pentachlorobiphenyl
- 87 2,2',3,4,5'-Pentachlorobiphenyl
- 99 2,2',4,4',5-Pentachlorobiphenyl
- 110 2,3,3',4',6-Pentachlorobiphenyl
- 138 2,2',3,4,4',5'-Hexachlorobiphenyl
- 146 2,2',3,4',5,5'-Hexachlorobiphenyl
- 147 2,2',3,4',5,6-Hexachlorobiphenyl *
- 153 2,2',4,4',5,5'-Hexachlorobiphenyl
- 173 2,2',3,3',4,5,6-Heptachlorobiphenyl
- 174 2,2',3,3',4,5,6'-Heptachlorobiphenyl
- 177 2,2',3,3',4',5,6-Heptachlorobiphenyl
- 179 2,2',3,3',5,6,6'-Heptachlorobiphenyl
- 180 2,2',3,4,4',5,5'-Heptachlorobiphenyl
- 187 2,2',3,4',5,5',6-Heptachlorobiphenyl
- 194 2,2',3,3',4,4',5,5'-Octachlorobiphenyl
- 195 2,2',3,3',4,4',5,6-Octachlorobiphenyl
- 199 2,2',3,3',4,5,5',6-Octachlorobiphenyl
- 203 2,2',3,4,4',5,5',6-Octachlorobiphenyl
- 206 2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl

PCB Congener Mix #2

C-CS-02 1 x 1 mL
10 µg/mL each in Isooctane 36 comps.

- 5 2,3-Dichlorobiphenyl
- 7 2,4-Dichlorobiphenyl
- 10 2,6-Dichlorobiphenyl
- 17 2,2',4-Trichlorobiphenyl
- 24 2,3,6-Trichlorobiphenyl
- 26 2,3',5-Trichlorobiphenyl
- 31 2,4',5-Trichlorobiphenyl
- 32 2,4',6-Trichlorobiphenyl
- 37 3,4,4'-Trichlorobiphenyl
- 41 2,2',3,4-Tetrachlorobiphenyl
- 45 2,2',3,6-Tetrachlorobiphenyl
- 46 2,2',3,6'-Tetrachlorobiphenyl
- 48 2,2',4,5-Tetrachlorobiphenyl
- 60 2,3,4,4'-Tetrachlorobiphenyl
- 70 2,3',4',5-Tetrachlorobiphenyl
- 83 2,2',3,3',5-Pentachlorobiphenyl
- 84 2,2',3,3',6-Pentachlorobiphenyl
- 95 2,2',3,5',6-Pentachlorobiphenyl
- 103 2,2',4,5',6-Pentachlorobiphenyl *
- 107 2,3,3',4',5-Pentachlorobiphenyl
- 115 2,3,4,4',6-Pentachlorobiphenyl
- 131 2,2',3,3',4,6-Hexachlorobiphenyl
- 132 2,2',3,3',4,6'-Hexachlorobiphenyl
- 135 2,2',3,3',5,6'-Hexachlorobiphenyl
- 141 2,2',3,4,5,5'-Hexachlorobiphenyl
- 149 2,2',3,4',5,6-Hexachlorobiphenyl
- 164 2,3,3',4',5,6-Hexachlorobiphenyl
- 170 2,2',3,3',4,4',5-Heptachlorobiphenyl
- 171 2,2',3,3',4,4',6-Heptachlorobiphenyl
- 172 2,2',3,3',4,5,5'-Heptachlorobiphenyl
- 178 2,2',3,3',5,5',6-Heptachlorobiphenyl
- 183 2,2',3,4,4',5,6-Heptachlorobiphenyl
- 193 2,3,3',4',5,5',6-Heptachlorobiphenyl
- 196 2,2',3,3',4,4',5,6-Octachlorobiphenyl
- 197 2,2',3,3',4,4',6,6'-Octachlorobiphenyl
- 205 2,3,3',4,4',5,5',6-Octachlorobiphenyl

PCB Congener Mix #3

C-CS-03 1 x 1 mL
10 µg/mL each in Isooctane 27 comps.

- 15 4,4'-Dichlorobiphenyl
- 20 2,3,3'-Trichlorobiphenyl
- 27 2,3',6-Trichlorobiphenyl
- 29 2,4,5-Trichlorobiphenyl
- 34 2',3,5-Trichlorobiphenyl
- 40 2,2',3,3'-Tetrachlorobiphenyl
- 42 2,2',3,4'-Tetrachlorobiphenyl
- 47 2,2',4,4'-Tetrachlorobiphenyl
- 69 2,3',4,6-Tetrachlorobiphenyl α
- 92 2,2',3,5,5'-Pentachlorobiphenyl
- 93 2,2',3,5,6-Pentachlorobiphenyl α
- 101 2,2',4,5,5'-Pentachlorobiphenyl
- 105 2,3,3',4,4'-Pentachlorobiphenyl
- 118 2,3',4,4',5-Pentachlorobiphenyl
- 119 2,3',4,4',6-Pentachlorobiphenyl
- 128 2,2',3,3',4,4'-Hexachlorobiphenyl
- 134 2,2',3,3',5,6-Hexachlorobiphenyl
- 136 2,2',3,3',6,6'-Hexachlorobiphenyl
- 144 2,2',3,4,5',6-Hexachlorobiphenyl
- 151 2,2',3,5,5',6-Hexachlorobiphenyl
- 157 2,3,3',4,4',5'-Hexachlorobiphenyl
- 158 2,3,3',4,4',6-Hexachlorobiphenyl
- 190 2,3,3',4,4',5,6-Heptachlorobiphenyl
- 191 2,3,3',4,4',5',6-Heptachlorobiphenyl
- 207 2,2',3,3',4,4',5,6,6'-Nonachlorobiphenyl α
- 208 2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl
- 209 Decachlorobiphenyl α

PCB Congener Mix #4

C-CS-04 1 x 1 mL
10 µg/mL each in Isooctane 22 comps.

- 13 3,4'-Dichlorobiphenyl
- 14 3,5-Dichlorobiphenyl α
- 35 3,3',4-Trichlorobiphenyl
- 51 2,2',4,6'-Tetrachlorobiphenyl
- 53 2,2',5,6'-Tetrachlorobiphenyl
- 54 2,2',6,6'-Tetrachlorobiphenyl α
- 73 2,3',5',6-Tetrachlorobiphenyl α
- 75 2,4,4',6-Tetrachlorobiphenyl
- 81 3,4,4',5-Tetrachlorobiphenyl α
- 90 2,2',3,4',5-Pentachlorobiphenyl α
- 100 2,2',4,4',6-Pentachlorobiphenyl α
- 117 2,3,4',5,6-Pentachlorobiphenyl
- 122 2',3,3',4,5-Pentachlorobiphenyl
- 124 2',3,4,5,5'-Pentachlorobiphenyl
- 130 2,2',3,3',4,5'-Hexachlorobiphenyl
- 154 2,2',4,4',5,6'-Hexachlorobiphenyl α
- 163 2,3,3',4',5,6-Hexachlorobiphenyl
- 165 2,3,3',5,5',6-Hexachlorobiphenyl α
- 175 2,2',3,3',4,5',6-Heptachlorobiphenyl
- 200 2,2',3,3',4,5,6,6'-Octachlorobiphenyl
- 201 2,2',3,3',4,5',6,6'-Octachlorobiphenyl
- 202 2,2',3,3',5,5',6,6'-Octachlorobiphenyl

PCB Congener Mix #5

C-CS-05 1 x 1 mL
10 µg/mL each in Isooctane 20 comps.

- 12 3,4-Dichlorobiphenyl
- 33 2',3,4-Trichlorobiphenyl
- 49 2,2',4,5'-Tetrachlorobiphenyl
- 59 2,3,3',6-Tetrachlorobiphenyl
- 63 2,3,4',5-Tetrachlorobiphenyl
- 64 2,3,4',6-Tetrachlorobiphenyl
- 77 3,3',4,4'-Tetrachlorobiphenyl
- 85 2,2',3,4,4'-Pentachlorobiphenyl
- 91 2,2',3,4',6-Pentachlorobiphenyl
- 97 2,2',3',4,5-Pentachlorobiphenyl
- 104 2,2',4,6,6'-Pentachlorobiphenyl α
- 114 2,3,4,4',5-Pentachlorobiphenyl
- 123 2',3,4,4',5-Pentachlorobiphenyl
- 129 2,2',3,3',4,5-Hexachlorobiphenyl
- 137 2,2',3,4,4',5-Hexachlorobiphenyl
- 156 2,3,3',4,4',5-Hexachlorobiphenyl
- 167 2,3',4,4',5,5'-Hexachlorobiphenyl
- 176 2,2',3,3',4,6,6'-Heptachlorobiphenyl
- 185 2,2',3,4,5,5',6-Heptachlorobiphenyl
- 189 2,3,3',4,4',5,5'-Heptachlorobiphenyl

Reference Key

non-Bold = Congener in any of Aroclors 1242, 1254 or 1260 @ < 1.0 Wt.%

Bold = Congener in any of Aroclors 1242, 1254 or 1260 @ > 1.0 Wt.%

α = Congener not in any of the 3 Aroclors @ > 0.05 Wt.%

Bold congeners related to mixes #6, 7 & 8 marginally above 0.05 Wt.%, except #43 @ 0.24 Wt.% in Aroclor 1242.

Some "non-Aroclor" congeners assigned to Mixes 1-5 to reduce coelutions and number of mixes needed.

PCB Congener Calibration Mixtures



PCBS

**9 Mixtures provide All 209 Congeners
NOT Present in Aroclors**

PCB Congener Mix #6

C-CS-06 1 x 1 mL
10 µg/mL each in Isooctane 18 comps.

- 11 3,3'-Dichlorobiphenyl ✘
- 21 2,3,4-Trichlorobiphenyl ✘
- 38 3,4,5-Trichlorobiphenyl ✘
- 50 2,2',4,6-Tetrachlorobiphenyl ✘
- 57 2,3,3',5-Tetrachlorobiphenyl ✘
- 61 2,3,4,5-Tetrachlorobiphenyl ✘
- 65 2,3,5,6-Tetrachlorobiphenyl ✘
- 86 2,2',3,4,5-Pentachlorobiphenyl ✘
- 102 2,2',4,5,6'-Pentachlorobiphenyl ✘
- 113 2,3,3',5',6-Pentachlorobiphenyl ✘
- 126 3,3',4,4',5-Pentachlorobiphenyl ✘
- 127 3,3',4,5,5'-Pentachlorobiphenyl ✘
- 133 2,2',3,3',5,5'-Hexachlorobiphenyl ✘
- 139 2,2',3,4,4',6-Hexachlorobiphenyl ✘
- 145 2,2',3,4,6,6'-Hexachlorobiphenyl ✘
- 161 2,3,3',4,5',6-Hexachlorobiphenyl ✘
- 169 3,3',4,4',5,5'-Hexachlorobiphenyl ✘
- 181 2,2',3,4,4',5,6-Heptachlorobiphenyl ✘

PCB Congener Mix #7

C-CS-07 1 x 1 mL
10 µg/mL each in Isooctane 14 comps.

- 36 3,3',5-Trichlorobiphenyl ✘
- 72 2,3',5,5'-Tetrachlorobiphenyl ✘
- 78 3,3',4,5-Tetrachlorobiphenyl ✘
- 79 3,3',4,5'-Tetrachlorobiphenyl ✘
- 89 2,2',3,4,6'-Pentachlorobiphenyl ✘
- 96 2,2',3,6,6'-Pentachlorobiphenyl ✘
- 98 2,2',3',4,6-Pentachlorobiphenyl ✘
- 106 2,3,3',4,5-Pentachlorobiphenyl ✘
- 108 2,3,3',4,5'-Pentachlorobiphenyl ✘
- 152 2,2',3,5,6,6'-Hexachlorobiphenyl ✘
- 166 2,3,4,4',5,6-Hexachlorobiphenyl ✘
- 182 2,2',3,4,4',5,6'-Heptachlorobiphenyl ✘
- 184 2,2',3,4,4',6,6'-Heptachlorobiphenyl ✘
- 204 2,2',3,4,4',5,6,6'-Octachlorobiphenyl ✘

PCB Congener Mix #8

C-CS-08 1 x 1 mL
10 µg/mL each in Isooctane 12 comps.

- 30 2,4,6-Trichlorobiphenyl ✘
- 43 2,2',3,5-Tetrachlorobiphenyl ✘
- 55 2,3,3',4-Tetrachlorobiphenyl ✘
- 58 2,3,3',5'-Tetrachlorobiphenyl ✘
- 76 2',3,4,5-Tetrachlorobiphenyl ✘
- 109 2,3,3',4,6-Pentachlorobiphenyl ✘
- 112 2,3,3',5,6-Pentachlorobiphenyl ✘
- 120 2,3',4,5,5'-Pentachlorobiphenyl ✘
- 159 2,3,3',4,5,5'-Hexachlorobiphenyl ✘
- 186 2,2',3,4,5,6,6'-Heptachlorobiphenyl ✘
- 192 2,3,3',4,5,5',6-Heptachlorobiphenyl ✘
- 198 2,2',3,3',4,5,5',6-Octachlorobiphenyl ✘

PCB Congener Mix #9

C-CS-09 1 x 1 mL
10 µg/mL each in Isooctane 21 comps.

- 23 2,3,5-Trichlorobiphenyl ✘
- 39 3,4',5-Trichlorobiphenyl ✘
- 62 2,3,4,6-Tetrachlorobiphenyl ✘
- 68 2,3',4,5'-Tetrachlorobiphenyl ✘
- 80 3,3',5,5'-Tetrachlorobiphenyl ✘
- 88 2,2',3,4,6-Pentachlorobiphenyl ✘
- 94 2,2',3,5,6'-Pentachlorobiphenyl ✘
- 111 2,3,3',5,5'-Pentachlorobiphenyl ✘
- 116 2,3,4,5,6-Pentachlorobiphenyl ✘
- 121 2,3',4,5',6-Pentachlorobiphenyl ✘
- 125 2',3,4,5,6'-Pentachlorobiphenyl ✘
- 140 2,2',3,4,4',6'-Hexachlorobiphenyl ✘
- 142 2,2',3,4,5,6-Hexachlorobiphenyl ✘
- 143 2,2',3,4,5,6'-Hexachlorobiphenyl ✘
- 148 2,2',3,4,5,6'-Hexachlorobiphenyl ✘
- 150 2,2',3,4',6,6'-Hexachlorobiphenyl ✘
- 155 2,2',4,4',6,6'-Hexachlorobiphenyl ✘
- 160 2,3,3',4,5,6-Hexachlorobiphenyl ✘
- 162 2,3,3',4',5,5'-Hexachlorobiphenyl ✘
- 168 2,3',4,4',5',6-Hexachlorobiphenyl ✘
- 188 2,2',3,4',5,6,6'-Heptachlorobiphenyl ✘

Congener Calibration Solution Sets

Containing all 209 PCB congeners

C-CSQ-SET 9 x 1 mL

- | | | |
|---------|---------|---------|
| C-CS-01 | C-CS-04 | C-CS-07 |
| C-CS-02 | C-CS-05 | C-CS-08 |
| C-CS-03 | C-CS-06 | C-CS-09 |

Congeners found in

Aroclor® 1242, 1254 and 1260

C-CSA-SET 5 x 1 mL

- | | | |
|---------|---------|---------|
| C-CS-01 | C-CS-03 | C-CS-05 |
| C-CS-02 | C-CS-04 | |

Non-Aroclor congeners

C-CSN-SET 4 x 1 mL

- | | | |
|---------|---------|---------|
| C-CS-06 | C-CS-08 | C-CS-09 |
| C-CS-07 | | |

Reference Key

non-Bold = Congener in any of Aroclors 1242, 1254 or 1260 @ < 1.0 Wt.%

Bold = Congener in any of Aroclors 1242, 1254 or 1260 @ > 1.0 Wt.%

✘ = Congener not in any of the 3 Aroclors @ > 0.05 Wt.%

Bold congeners related to mixes #6, 7 & 8 marginally above 0.05 Wt.%, except #43 @ 0.24 Wt.% in Aroclor 1242.

Some "non-Aroclor" congeners assigned to Mixes 1-5 to reduce coelutions and number of mixes needed.





PCB Congener Calibration Mixtures

PCBs

Method 680 PCB Analytes

Internal Standards

M-680-IS 1 x 1 mL
M-680-IS-PAK **SAVE** 5 x 1 mL
 75 µg/mL each in Hexane:Toluene (50:50) 2 comps.

M-680-IS-10X 1 x 1 mL
M-680-IS-10X-PAK **SAVE** 5 x 1 mL
 750 µg/mL each in Hexane:Toluene (50:50) 2 comps.

Chrysene-d₁₂ Phenanthrene-d₁₀

PCB Locator Mixture

M-PCBL 1 x 1 mL
M-PCBL-PAK **SAVE** 5 x 1 mL
 At stated conc. (µg/mL) in Isooctane 5 comps.

Aroclor 1242 0.5
 Aroclor 1260 0.5
 2-Chlorobiphenyl 0.1
 3-Chlorobiphenyl 0.1
 Decachlorobiphenyl 0.1

The EPA has designated the following isomers for use in quantifying PCB's by GC/MS. The PCBs are identified and measured as isomer groups (i.e., by level of chlorination). A concentration is measured for each PCB isomer group; total PCB concentration in each sample extract is obtained by summing isomer group concentrations.

Level of Chlorination	Isomer Selected	Congener Number	RF Value vs. Chrysene-d ₁₂	Mean RF Value vs. Chrysene-d ₁₂
1	2-mono	1	0.899	0.925
2	2,3-di	5	0.651	0.642
3	2,4,5-tri	29	0.411	0.411
4	2,2',4,6-tetra	50	0.305	0.431
5	2,2',3,4,5-penta	87	0.299	0.287
6	2,2',4,4',5,6'-hexa	154	0.254	0.254
7	2,2',3,4',5,6,6'-hepta	188	0.164	0.160
8	2,2',3,3',4,5',6,6'-octa	201	0.207	0.191
9,10	deca	209	0.144	0.150

PCB Isomer Calibration Set

M-680-SET 2 x 1 mL
 M-680A, M-680B

Retention Time Calibration Standard

M-680-RT 1 x 1 mL
M-680-RT-PAK **SAVE** 5 x 1 mL
 At stated conc. (µg/mL) in Hexane 3 comps.

77 3,3',4,4'-Tetrachlorobiphenyl 100
 104 2,2',4,6,6'-Pentachlorobiphenyl 100
 208 2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl 200

Tuning Standard

M-680-TS 1 x 1 mL
M-680-TS-PAK **SAVE** 5 x 1 mL
 10 µg/mL in CH₂Cl₂

Decafluorotriphenylphosphine (DFTPP)

PCB Isomer Calibration Mix

M-680A 1 x 1 mL
 At stated conc. (µg/mL) in Hexane 9 comps.

1 2-Chlorobiphenyl 50
 5 2,3-Dichlorobiphenyl 50
 29 2,4,5-Trichlorobiphenyl 50
 50 2,2',4,6-Tetrachlorobiphenyl 100
 87 2,2',3,4,5'-Pentachlorobiphenyl 100
 154 2,2',4,4',5,6'-Hexachlorobiphenyl 100
 188 2,2',3,4',5,6,6'-Heptachlorobiphenyl 150
 201 2,2',3,3',4,5',6,6'-Octachlorobiphenyl 150
 209 Decachlorobiphenyl 250

Internal Standard

M-680B 1 x 1 mL
 250 µg/mL in Toluene

Chrysene-d₁₂

See EPA Methods 680 and 8082 for complete analytes and PCB congener mixes.

Instrument Test Solutions

PCB Window Defining Mixture

C-WDM 1 x 1 mL
C-WDM-PAK **SAVE** 5 x 1 mL
 2.5 µg/mL each in Isooctane 20 comps.

0 Biphenyl
 1 2-Chlorobiphenyl
 3 4-Chlorobiphenyl
 10 2,6-Dichlorobiphenyl
 15 4,4'-Dichlorobiphenyl
 19 2,2',6-Trichlorobiphenyl
 37 3,4,4'-Trichlorobiphenyl
 54 2,2',6,6'-Tetrachlorobiphenyl
 77 3,3',4,4'-Tetrachlorobiphenyl
 104 2,2',4,6,6'-Pentachlorobiphenyl
 126 3,3',4,4',5-Pentachlorobiphenyl
 155 2,2',4,4',6,6'-Hexachlorobiphenyl
 169 3,3',4,4',5,5'-Hexachlorobiphenyl
 188 2,2',3,4',5,6,6'-Heptachlorobiphenyl
 189 2,3,3',4,4',5,5'-Heptachlorobiphenyl
 202 2,2',3,3',5,5',6,6'-Octachlorobiphenyl
 205 2,3,3',4,4',5,5',6-Octachlorobiphenyl
 208 2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl
 206 2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl
 209 Decachlorobiphenyl

PCB Calibration Check Solution

C-CCSEC 1 x 1 mL
C-CCSEC-PAK **SAVE** 5 x 1 mL
 100 µg/mL each in Acetone 20 comps.

C-CCSEC-R 1 x 1 mL
C-CCSEC-R-PAK **SAVE** 5 x 1 mL
 C-CCSEC plus 2,2',3,3',4,5',6,6'-Octachlorobiphenyl
Special Blend 21 comps.

8 2,4'-Dichlorobiphenyl
 18 2,2',5-Trichlorobiphenyl
 28 2,4,4'-Trichlorobiphenyl
 44 2,2',3,5'-Tetrachlorobiphenyl
 52 2,2',5,5'-Tetrachlorobiphenyl
 66 2,3',4,4'-Tetrachlorobiphenyl
 77 3,3',4,4'-Tetrachlorobiphenyl
 101 2,2',4,5,5'-Pentachlorobiphenyl
 105 2,3,3',4,4'-Pentachlorobiphenyl
 118 2,3',4,4',5-Pentachlorobiphenyl
 126 3,3',4,4',5-Pentachlorobiphenyl
 128 2,2',3,3',4,4'-Hexachlorobiphenyl
 138 2,2',3,4,4',5'-Hexachlorobiphenyl
 153 2,2',4,4',5,5'-Hexachlorobiphenyl
 170 2,2',3,3',4,4',5-Heptachlorobiphenyl
 180 2,2',3,4,4',5,5'-Heptachlorobiphenyl
 187 2,2',3,4',5,5',6-Heptachlorobiphenyl
 195 2,2',3,3',4,4',5,6-Octachlorobiphenyl
 206 2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl
 209 Decachlorobiphenyl

PCB / Selective Ion Monitoring Solution

PCB-SIM 1 x 1 mL
PCB-SIM-PAK **SAVE** 5 x 1 mL
 At stated conc. (µg/mL) in Hexane 12 comps.

1 2-Chlorobiphenyl 10
 5 2,3-Dichlorobiphenyl 10
 29 2,4,5-Trichlorobiphenyl 10
 104 2,2',4,6,6'-Pentachlorobiphenyl 20
 87 2,2',3,4,5'-Pentachlorobiphenyl 20
 208 2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl 40
 50 2,2',4,6-Tetrachlorobiphenyl 20
 209 Decachlorobiphenyl 50
 77 3,3',4,4'-Tetrachlorobiphenyl 20
 200 2,2',3,3',4,5',6,6'-Octachlorobiphenyl 30
 186 2,2',3,4',5,6,6'-Heptachlorobiphenyl 30
 154 2,2',4,4',5,6'-Hexachlorobiphenyl 20

Technical Note

For use with 5% phenyl methyl silicone type columns



Method 8082/8082A PCBs by Capillary Column GC by ECD or ELCD

PCB Congeners Mixture

M-8082				1 x 1 mL
M-8082-PAK	SAVE			5 x 1 mL
100 µg/mL each in Hexane				
1	2-Chlorobiphenyl	137	2,2',3,4,4',5-Hexachlorobiphenyl	
5	2,3-Dichlorobiphenyl	141	2,2',3,4,5,5'-Hexachlorobiphenyl	
18	2,2',5-Trichlorobiphenyl	151	2,2',3,5,5',6-Hexachlorobiphenyl	
31	2,4',5-Trichlorobiphenyl	153	2,2',4,4',5,5'-Hexachlorobiphenyl	
44	2,2',3,5'-Tetrachlorobiphenyl	170	2,2',3,3',4,4',5-Heptachlorobiphenyl	
52	2,2',5,5'-Tetrachlorobiphenyl	180	2,2',3,4,4',5,5'-Heptachlorobiphenyl	
66	2,3',4,4'-Tetrachlorobiphenyl	183	2,2',3,4,4',5',6-Heptachlorobiphenyl	
87	2,2',3,4,5'-Pentachlorobiphenyl	187	2,2',3,4',5,5',6-Heptachlorobiphenyl	
101	2,2',4,5,5'-Pentachlorobiphenyl	206	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	
110	2,3,3',4',6-Pentachlorobiphenyl			

Reformulated PCB Congeners Mixture

M-8082A				1 x 1 mL
M-8082A-PAK	SAVE			5 x 1 mL
100 µg/mL each in Hexane				
1	2-Chlorobiphenyl	138	2,2',3,4,4',5'-Hexachlorobiphenyl	
5	2,3-Dichlorobiphenyl	141	2,2',3,4,5,5'-Hexachlorobiphenyl	
18	2,2',5-Trichlorobiphenyl	151	2,2',3,5,5',6-Hexachlorobiphenyl	
31	2,4',5-Trichlorobiphenyl	153	2,2',4,4',5,5'-Hexachlorobiphenyl	
44	2,2',3,5'-Tetrachlorobiphenyl	170	2,2',3,3',4,4',5-Heptachlorobiphenyl	
52	2,2',5,5'-Tetrachlorobiphenyl	180	2,2',3,4,4',5,5'-Heptachlorobiphenyl	
66	2,3',4,4'-Tetrachlorobiphenyl	183	2,2',3,4,4',5',6-Heptachlorobiphenyl	
87	2,2',3,4,5'-Pentachlorobiphenyl	187	2,2',3,4',5,5',6-Heptachlorobiphenyl	
101	2,2',4,5,5'-Pentachlorobiphenyl	206	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	
110	2,3,3',4',6-Pentachlorobiphenyl			

Technical Note

AccuStandard has formulated these standards for use in determining the concentrations of Aroclors (Industrial PCBs), specific PCB congeners, or "total PCBs". Additional Aroclor stock solutions are available at higher concentrations and in other solvents.

Internal and Surrogate Standard

CLP-032-H-5X				1 x 1 mL
1.0 mg/mL each in Hexane				
Decachlorobiphenyl		Tetrachloro- <i>m</i> -xylene		2 comps.

Surrogate Standards

M-8082-SSA-WL-10ML				1 x 10 mL
M-8082-SSA-WL-10ML-PAK	SAVE			5 x 10 mL
5 µg/mL in Acetone				
Decachlorobiphenyl				

M-8082-SS				1 x 1 mL
100 µg/mL in Hexane				

M-8082-SS-10X				1 x 1 mL
1.0 mg/mL in Hexane				
Tetrachloro- <i>m</i> -xylene				

Internal Standards

M-8082-ISC-WL-10ML				1 x 10 mL
M-8082-ISC-WL-10ML-PAK	SAVE			5 x 10 mL
5 µg/mL in Hexane				
Decachlorobiphenyl				

M-8082-SSC-WL-10ML				1 x 10 mL
M-8082-SSC-WL-10ML-PAK	SAVE			5 x 10 mL
5 µg/mL in Acetone				
Tetrachloro- <i>m</i> -xylene				

Method 8082 Aroclor 1016/1260 Calibration Curve

Aroclor 1016/1260 Calibration Curve

C-216/260-CAL-SET 6 x 1 mL
At stated conc. (ng/mL) in Isooctane 4 comps.

Components	Level 1	Level 2 (2X)	Level 3 (5X)	Level 4 (10X)	Level 5 (15X)	Level 6 (20X)
Aroclor 1016	50	100	250	500	750	1000
Aroclor 1260	50	100	250	500	750	1000
Decachlorobiphenyl	10	20	50	100	150	200
Tetrachloro- <i>m</i> -xylene	10	20	50	100	150	200

Level 3 Daily Working Level

Low level curves

C-216/260-WL-5X-5ML 1 x 5 mL
C-216/260-WL-5X-10ML 1 x 10 mL
At stated conc. (ng/mL) in Isooctane

Level 4 Daily Working Level

Higher level curves

C-216/260-WL-10X-5ML 1 x 5 mL
C-216/260-WL-10X-10ML 1 x 10 mL
At stated conc. (ng/mL) in Isooctane

Method 8082A Polychlorinated Biphenyl (PCBs) by GC/ECD

Individual PCB Congener Solutions

Congener	35 µg/mL in Isooctane	100 µg/mL in Isooctane	1 mL
2-Chlorobiphenyl	C-001S	C-001S-TP	
2,3-Dichlorobiphenyl	C-005S	C-005S-TP	
2,2',5-Trichlorobiphenyl	C-018S	C-018S-TP	
2,4',5-Trichlorobiphenyl	C-031S	C-031S-TP	
2,2',3,5'-Tetrachlorobiphenyl	C-044S	C-044S-TP	
2,2',5,5'-Tetrachlorobiphenyl	C-052S	C-052S-TP	
2,3',4,4'-Tetrachlorobiphenyl	C-066S	C-066S-TP	
2,2',3,4,5'-Pentachlorobiphenyl	C-087S	C-087S-TP	
2,2',4,5,5'-Pentachlorobiphenyl	C-101S	C-101S-TP	
2,3,3',4',6-Pentachlorobiphenyl	C-110S	C-110S-TP	
2,2',3,4,4',5-Hexachlorobiphenyl	C-137S	C-137S-TP	
2,2',3,4,4',5'-Hexachlorobiphenyl	C-138S	C-138S-TP	
2,2',3,4,5,5'-Hexachlorobiphenyl	C-141S	C-141S-TP	
2,2',3,5,5',6-Hexachlorobiphenyl	C-151S	C-151S-TP	
2,2',4,4',5,5'-Hexachlorobiphenyl	C-153S	C-153S-TP	
2,2',3,3',4,4',5-Heptachlorobiphenyl	C-170S	C-170S-TP	
2,2',3,4,4',5,5'-Heptachlorobiphenyl	C-180S	C-180S-TP	
2,2',3,4,4',5',6-Heptachlorobiphenyl	C-183S	C-183S-TP	
2,2',3,4',5,5',6-Heptachlorobiphenyl	C-187S	C-187S-TP	
2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	C-206S	C-206S-TP	

Internal Standards

C-209S-H		1 x 1 mL
100 µg/mL in Hexane		
C-209S-H-10X		1 x 1 mL
1.0 mg/mL in Hexane		
Decachlorobiphenyl		

Internal and Surrogate Standard

CLP-032-H-5X			1 x 1 mL
1.0 mg/mL each in Hexane			
Decachlorobiphenyl		Tetrachloro- <i>m</i> -xylene	2 comps.

Surrogate Standard

M-8082-SS		1 x 1 mL
100 µg/mL in Hexane		
M-8082-SS-10X		1 x 1 mL
1.0 mg/mL in Hexane		
Tetrachloro- <i>m</i> -xylene		



Aroclors (Industrial PCBs)

Aroclors

Aroclor Solutions in Isooctane and Methanol, 2 Concentrations (Individuals, PAKs, Sets)

Aroclor #	Isooctane		SAVE PAK		Isooctane		Methanol		SAVE PAK		Methanol	
	35 µg/mL	1 mL	5 x 1 mL	5 x 1 mL	100 µg/mL	1 mL	35 µg/mL	1 mL	5 x 1 mL	5 x 1 mL	100 µg/mL	1 mL
Aroclor 1016	C-216S		C-216S-PAK		C-216S-TP		C-216S-M		C-216S-M-PAK		C-216S-M-2.85X	
Aroclor 1221	C-221S		C-221S-PAK		C-221S-TP		C-221S-M		C-221S-M-PAK		C-221S-M-2.85X	
Aroclor 1232	C-232S		C-232S-PAK		C-232S-TP		C-232S-M		C-232S-M-PAK		C-232S-M-2.85X	
Aroclor 1242	C-242S		C-242S-PAK		C-242S-TP		C-242S-M		C-242S-M-PAK		C-242S-M-2.85X	
Aroclor 1248	C-248S		C-248S-PAK		C-248S-TP		C-248S-M		C-248S-M-PAK		C-248S-M-2.85X	
Aroclor 1254	C-254S		C-254S-PAK		C-254S-TP		C-254S-M		C-254S-M-PAK		C-254S-M-2.85X	
Aroclor 1260	C-260S		C-260S-PAK		C-260S-TP		C-260S-M		C-260S-M-PAK		C-260S-M-2.85X	
Aroclor 1262	C-262S		C-262S-PAK		C-262S-TP		C-262S-M		C-262S-M-PAK		C-262S-M-2.85X	
Aroclor 1268	C-268S		C-268S-PAK		C-268S-TP		C-268S-M		C-268S-M-PAK		C-268S-M-2.85X	
	Z-008S-SET		9 x 1 mL				Z-008S-M-SET		9 x 1 mL			

Aroclor Solutions in Hexane, 2 Concentrations (Individuals, PAKs, Sets)

Aroclor #	Hexane		SAVE PAK	
	100 µg/mL	1 mL	1000 µg/mL	5 x 1 mL
Aroclor 1016	C-216S-H		C-216S-H-10X	C-216S-H-10X-PAK
Aroclor 1221	C-221S-H		C-221S-H-10X	C-221S-H-10X-PAK
Aroclor 1232	C-232S-H		C-232S-H-10X	C-232S-H-10X-PAK
Aroclor 1242	C-242S-H		C-242S-H-10X	C-242S-H-10X-PAK
Aroclor 1248	C-248S-H		C-248S-H-10X	C-248S-H-10X-PAK
Aroclor 1254	C-254S-H		C-254S-H-10X	C-254S-H-10X-PAK
Aroclor 1260	C-260S-H		C-260S-H-10X	C-260S-H-10X-PAK
Aroclor 1262	C-262S-H		C-262S-H-10X	C-262S-H-10X-PAK
Aroclor 1268	C-268S-H		C-268S-H-10X	C-268S-H-10X-PAK
	Z-008S-H-SET		Z-008S-H-10X-SET	

Aroclor Neats (Individuals)

Aroclor #	Neat	Unit
Aroclor 1016	C-216N	100 mg
Aroclor 1221	C-221N-50MG	50 mg
Aroclor 1232	-----	-----
Aroclor 1242	C-242N-50MG	50 mg
Aroclor 1248	C-248N-50MG	50 mg
Aroclor 1254	C-254N-50MG	50 mg
Aroclor 1260	C-260N-50MG	50 mg
Aroclor 1262	C-262N-50MG	50 mg
Aroclor 1268	-----	-----

Solutions in PCB-Free Transformer Oil (Individuals, 2 Concentrations)

Aroclor # CAS No.	Conc. ppm w/w	Individual		PAK SAVE	
		Cat. No.	1 mL	Cat. No.	5 x 1 mL
Aroclor 1016	50	C-216-ST-1		C-216-ST-1-PAK	
12674-11-2	500	C-216-ST-2		C-216-ST-2-PAK	
Aroclor 1221	50	C-221-ST-1		C-221-ST-1-PAK	
11104-28-2	500	C-221-ST-2		C-221-ST-2-PAK	
Aroclor 1232	50	C-232-ST-1		C-232-ST-1-PAK	
11141-16-5	500	C-232-ST-2		C-232-ST-2-PAK	
Aroclor 1242	50	C-242-ST-1		C-242-ST-1-PAK	
53469-21-9	500	C-242-ST-2		C-242-ST-2-PAK	
Aroclor 1248	50	C-248-ST-1		C-248-ST-1-PAK	
12672-29-6	500	C-248-ST-2		C-248-ST-2-PAK	
Aroclor 1254	50	C-254-ST-1		C-254-ST-1-PAK	
11097-69-1	500	C-254-ST-2		C-254-ST-2-PAK	
Aroclor 1260	50	C-260-ST-1		C-260-ST-1-PAK	
11096-82-5	500	C-260-ST-2		C-260-ST-2-PAK	
Aroclor 1262	50	C-262-ST-1		C-262-ST-1-PAK	
37324-23-5	500	C-262-ST-2		C-262-ST-2-PAK	
Aroclor 1268	50	C-268-ST-1		C-268-ST-1-PAK	
11100-14-4	500	C-268-ST-2		C-268-ST-2-PAK	

Aroclor-free Transformer Oil

T-W130 1 x 1 mL

Aroclors 1221 & 1254 Similar but Different

Reference Standards of Aroclor Mixtures (for GC analysis)

Technical mixtures of PCBs (Aroclors) were manufactured by Monsanto from the 1930s through 1977. In some instances there was an alteration in the manufacturing process which resulted in a more radical components change than the usual variations. This was the case for a particular batch of Aroclor 1254 (54% Chlorine by weight) that was chlorinated in two stages rather than the usual one. The product of the two stage manufacturing process was a material containing higher concentrations of the more toxic non-ortho substituted congeners. Consequently, the analyst may have to identify and quantify two distinct types of Aroclor 1254. For different reasons there also exist two distinct types of Aroclor 1221. To eliminate any confusion when encountering these Aroclors, AccuStandard offers (as an exclusive) all four variations.

C-221S-TYPE1* and C-221S-TYPE2*	C-221S-SET	2 x 1 mL
C-254S-TYPE1* and C-254S-TYPE2*	C-254S-SET	2 x 1 mL

Solutions in these sets are 35 µg/mL in Isooctane

All Standards cited in this monograph are bonafide and unadulterated Monsanto product.

Technical Note

Major Isomer Components of Aroclor 1254

Aroclor® 1254 was the most commonly used of the industrial PCB fluids. This list contains congeners which constitute the majority of the components in this material. They are offered in both neat form and solution. Solutions are in 35 µg/mL in Isooctane.

For 1254 only the following congeners may be found at > 0.5% by weight by Congener Number:

#s 44, 49, 52, 56, 64, 66, 70, 74, 82, 84, 85, 87, 91, 92, 95, 97, 99, 101, 105, 110, 118, 128, 130, 132, 135, 136, 138, 141, 146, 149, 151, 153, 156, 158, 163, 170, 180.

- The coplanar polychlorinated biphenyl (PCB) congeners; 3,3',4,4'-Tetrachlorobiphenyl (# 77), 3,3',4,4',5-Pentachlorobiphenyl (# 126), and 3,3',4,4',5,5'-Hexachlorobiphenyl (# 169) are recognized as the most toxic components of Aroclors.
- The major problem in isolation of these PCB congeners is the separation of 2,3,3',4',6-Pentachlorobiphenyl (# 110) from 3,3',4,4'-Tetrachlorobiphenyl (# 77).
- A simple cleanup procedure using alumina is proposed for the fractionation of the Aroclors on alumina which allows the isolation and analysis of the coplanar PCB congeners (1).
- The proposed internal standard 3,3',4,4'-Tetrabromobiphenyl (B-077S) enhances the accuracy of the procedure.

3,3',4,4'-Tetrabromobiphenyl is used as an Internal Standard to identify and quantify the coplanar components of Aroclors (1).

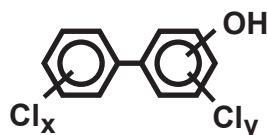
(1) Analysis of coplanar PCB congeners in Aroclors using alumina column cleanup. Jerry W. Anderson, ManTech Environmental Technology, Inc., R.S. Kerr Environmental Research Laboratory, U.S. Environmental Protection Agency, P.O. Box 1198, Ada, OK 74820 - Pittsburgh Conference, March 1992, New Orleans

B-077S	1 x 1 mL
35 µg/mL in Isooctane	
3,3',4,4'-Tetrabromobiphenyl	



Hydroxy PCBs

Compound	CAS No.	NEAT		100 µg/mL in Isooctane	
		Cat. No.	Unit	Cat. No.	1 mL
2-Hydroxy-5-chlorobiphenyl	607-12-5	HPCB-1001N	5 mg	HPCB-1001S	
4-Hydroxy-2-chlorobiphenyl	23719-22-4	HPCB-1002N	5 mg	HPCB-1002S	
4-Hydroxy-3-chlorobiphenyl	92-04-6	HPCB-1003N	5 mg	HPCB-1003S	
4-Hydroxy-4'-chlorobiphenyl	28034-99-3	HPCB-1004N	10 mg	HPCB-1004S	
2-Hydroxy-2',5'-dichlorobiphenyl	53905-30-9	HPCB-2001N	10 mg	HPCB-2001S	
3-Hydroxy-2',5'-dichlorobiphenyl	53905-29-6	HPCB-2002N	10 mg	HPCB-2002S	
4-Hydroxy-2',5'-dichlorobiphenyl	53905-28-5	HPCB-2003N	10 mg	HPCB-2003S	
4-Hydroxy-3,5-dichlorobiphenyl	1137-59-3	HPCB-2004N	10 mg	HPCB-2004S	
2-Hydroxy-2',3'-dichlorobiphenyl		HPCB-2005N	10 mg	HPCB-2005S	
2-Hydroxy-3',4'-dichlorobiphenyl		HPCB-2006N	10 mg	HPCB-2006S	
2-Hydroxy-2',4',6'-trichlorobiphenyl		HPCB-3001N	10 mg	HPCB-3001S	
2-Hydroxy-2',5,5'-trichlorobiphenyl		HPCB-3002N	10 mg	HPCB-3002S	
3-Hydroxy-2',4',6'-trichlorobiphenyl		HPCB-3003N	10 mg	HPCB-3003S	
4-Hydroxy-2,2',5'-trichlorobiphenyl	53905-33-2	HPCB-3004N	5 mg	HPCB-3004S	
4-Hydroxy-2',3,5'-trichlorobiphenyl		HPCB-3005N	5 mg	HPCB-3005S	
4-Hydroxy-2',4',6'-trichlorobiphenyl	14962-28-8	HPCB-3006N	10 mg	HPCB-3006S	
2-Hydroxy-2',3',4',5'-tetrachlorobiphenyl		HPCB-4001N	10 mg	HPCB-4001S	
2-Hydroxy-2',3',5',6'-tetrachlorobiphenyl		HPCB-4002N	10 mg	HPCB-4002S	
2-Hydroxy-2',4',5,6'-tetrachlorobiphenyl		HPCB-4003N	10 mg	HPCB-4003S	
3-Hydroxy-2',3',4',5'-tetrachlorobiphenyl	67651-37-0	HPCB-4004N	10 mg	HPCB-4004S	
3-Hydroxy-2',3',5',6'-tetrachlorobiphenyl		HPCB-4005N	10 mg	HPCB-4005S	
4-Hydroxy-2,2',4',6'-tetrachlorobiphenyl	150304-08-8	HPCB-4006N	5 mg	HPCB-4006S	
4-Hydroxy-2',3',4',5'-tetrachlorobiphenyl	67651-34-7	HPCB-4007N	10 mg	HPCB-4007S	
4-Hydroxy-2',3,4',6'-tetrachlorobiphenyl		HPCB-4008N	5 mg	HPCB-4008S	
4-Hydroxy-2',3,5,5'-tetrachlorobiphenyl		HPCB-4009N	10 mg	HPCB-4009S	
4-Hydroxy-2',3',5',6'-tetrachlorobiphenyl	14962-32-4	HPCB-4010N	10 mg	HPCB-4010S	
4'-Hydroxy-3,3',4,5'-tetrachlorobiphenyl	111810-41-4	-----	-----	HPCB-4011S	
3-Hydroxy-2,2',6,6'-tetrachlorobiphenyl		-----	-----	HPCB-4012S	
2-Hydroxy-2',3,5,6'-tetrachlorobiphenyl		-----	-----	HPCB-4013S	
5-Hydroxy-2,2',4,6'-tetrachlorobiphenyl		-----	-----	HPCB-4014S	
4,4'-Dihydroxy-2,2',6,6'-tetrachlorobiphenyl		-----	-----	HPCB-4015S	
4,6'-Dihydroxy-2,2',4',6'-tetrachlorobiphenyl		-----	-----	HPCB-4016S	
2-Hydroxy-2',3',4',5,5'-pentachlorobiphenyl	67651-36-9	HPCB-5001N	10 mg	HPCB-5001S	
2-Hydroxy-2',3',5,5',6'-pentachlorobiphenyl		HPCB-5002N	10 mg	HPCB-5002S	
4-Hydroxy-2,2',3',4',5'-pentachlorobiphenyl		HPCB-5003N	5 mg	HPCB-5003S	
4-Hydroxy-2,2',3',5',6'-pentachlorobiphenyl		HPCB-5004N	5 mg	HPCB-5004S	
4-Hydroxy-2',3,3',4',5'-pentachlorobiphenyl	67651-35-8	HPCB-5005N	5 mg	HPCB-5005S	
4-Hydroxy-2',3,3',5',6'-pentachlorobiphenyl		HPCB-5006N	5 mg	HPCB-5006S	
4-Hydroxy-2',3,4',5,6'-pentachlorobiphenyl		HPCB-5007N	10 mg	HPCB-5007S	
3-Hydroxy-2,2',4',5,5'-pentachlorobiphenyl	69278-58-6	-----	-----	HPCB-5008S	
4-Hydroxy-2,2',4',5,5'-pentachlorobiphenyl		-----	-----	HPCB-5009S	
2-Hydroxy-2',3,4',5',6'-pentachlorobiphenyl		-----	-----	HPCB-5010S	
4-Hydroxy-2',3,3',4',5,5'-hexachlorobiphenyl	158076-63-2	HPCB-6001N	10 mg	HPCB-6001S	
4-Hydroxy-2',3,3',5,5',6'-hexachlorobiphenyl		HPCB-6002N	10 mg	HPCB-6002S	
5-Hydroxy-2,2',3,4,4',5'-hexachlorobiphenyl		-----	-----	HPCB-6003S	
4'-Hydroxy-2,2',3,3',4,5,5'-heptachlorobiphenyl		-----	-----	HPCB-7001S	
3'-Hydroxy-2,2',3,4,4',5,6'-heptachlorobiphenyl		-----	-----	HPCB-7002S	
3'-Hydroxy-2,2',3,4,4',5,5'-heptachlorobiphenyl		-----	-----	HPCB-7003S	
5-Hydroxy-2,2',3,4,4',5,6'-heptachlorobiphenyl		-----	-----	HPCB-7004S	



Metabolite and Degradation Reference Material Importance to the Environment

As environmental testing progresses, researchers realize that often the original compounds are not the ones found in the ecosystem. In real-world samples, metabolites and degradation products of well-known common chemical pollutants, such as PCBs and BDEs, are becoming much more prevalent. These compounds are found in soil, water and wildlife samples. This occurs as the parent compounds are leached out of waste and are exposed to rainwater, sunlight and other environmental factors. The original materials form new compounds, most often the methoxy or the hydroxy derivatives of the original molecule. Sometimes substitutions of the halogens occur and chlorinated moieties are found.

The problem with these newly found pollutants is that they are not commercial chemicals. This means that they are not readily available as reference materials. Not having a reference material makes the identification and quantification of these materials extremely difficult. In order to support the research into these degradates, AccuStandard has worked with many different researchers to synthesize the novel compounds that they require for their work. By having these materials available, scientists can learn more about the environmental fate and true impact of pollutants.

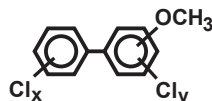


PCB Metabolites

PCBS

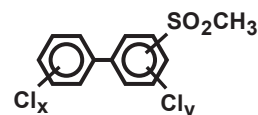
Methoxy PCBs

100 µg/mL in Isooctane		100 µg/mL in Isooctane, * at 50 µg/mL	
Compound	Cat. No.	Compound	Cat. No.
2-Methoxy-5-chlorobiphenyl	MOPCB-1001S	2-Methoxy-2',3',4',5'-tetrachlorobiphenyl	MOPCB-4001S
4-Methoxy-2-chlorobiphenyl	MOPCB-1002S	2-Methoxy-2',3',5',6'-tetrachlorobiphenyl	MOPCB-4002S
4-Methoxy-3-chlorobiphenyl	MOPCB-1003S	2-Methoxy-2',4',5,6'-tetrachlorobiphenyl	MOPCB-4003S
4-Methoxy-4'-chlorobiphenyl	MOPCB-1004S	3-Methoxy-2',3',4',5'-tetrachlorobiphenyl	MOPCB-4004S
2-Methoxy-3-chlorobiphenyl	MOPCB-1005S	3-Methoxy-2',3',5',6'-tetrachlorobiphenyl	MOPCB-4005S
3-Methoxy-5-chlorobiphenyl	MOPCB-1006S	4-Methoxy-2',3',4',5'-tetrachlorobiphenyl	MOPCB-4007S
2-Methoxy-3'-chlorobiphenyl	MOPCB-1007S	4-Methoxy-2',3',4',6'-tetrachlorobiphenyl	MOPCB-4008S
3-Methoxy-3'-chlorobiphenyl	MOPCB-1008S	4-Methoxy-2',3,5,5'-tetrachlorobiphenyl	MOPCB-4009S
4-Methoxy-3'-chlorobiphenyl	MOPCB-1009S	4-Methoxy-2',3',5',6'-tetrachlorobiphenyl	MOPCB-4010S
2-Methoxy-2',5'-dichlorobiphenyl	MOPCB-2001S	3-Methoxy-2,2',6,6'-tetrachlorobiphenyl	MOPCB-4012S-0.5X *
3-Methoxy-2',5'-dichlorobiphenyl	MOPCB-2002S	2-Methoxy-2',3',4',5,5'-pentachlorobiphenyl	MOPCB-5001S
4-Methoxy-2',5'-dichlorobiphenyl	MOPCB-2003S	2-Methoxy-2',3',5,5',6'-pentachlorobiphenyl	MOPCB-5002S
4-Methoxy-3,5-dichlorobiphenyl	MOPCB-2004S	4-Methoxy-2,2',3',4',5'-pentachlorobiphenyl	MOPCB-5003S
2-Methoxy-2',3'-dichlorobiphenyl	MOPCB-2005S	4-Methoxy-2,2',3',5',6'-pentachlorobiphenyl	MOPCB-5004S
2-Methoxy-3',4'-dichlorobiphenyl	MOPCB-2006S	4-Methoxy-2',3,4,5,6'-pentachlorobiphenyl	MOPCB-5007S
2-Methoxy-2',4',6'-trichlorobiphenyl	MOPCB-3001S	4-Methoxy-2,2',4',5,5'-pentachlorobiphenyl	MOPCB-5009S
2-Methoxy-2',5,5'-trichlorobiphenyl	MOPCB-3002S	2-Methoxy-2',3,4,5,6'-pentachlorobiphenyl	MOPCB-5010S
3-Methoxy-2',4',6'-trichlorobiphenyl	MOPCB-3003S	4-Methoxy-2',3,3',4',5,5'-hexachlorobiphenyl	MOPCB-6001S
4-Methoxy-2,2',5'-trichlorobiphenyl	MOPCB-3004S	5-Methoxy-2,2',3,4,4',5'-hexachlorobiphenyl	MOPCB-6003S
4-Methoxy-2',3,5'-trichlorobiphenyl	MOPCB-3005S	4'-Methoxy-2,2',3,3',4,5,5'-heptachlorobiphenyl	MOPCB-7001S-0.5X *
4-Methoxy-2',4',6'-trichlorobiphenyl	MOPCB-3006S	5-Methoxy-2,2',3,4,4',5',6'-heptachlorobiphenyl	MOPCB-7004S-0.5X *



Methylsulfonyl PCB Congeners

Compound	CAS No.	50 µg/mL in Isooctane	
		Cat. No.	1 mL
3-Methylsulfonyl-2,2',4',5-tetrachlorobiphenyl	116807-52-4	MSCB-3049	
3-Methylsulfonyl-2,2',5,5'-tetrachlorobiphenyl	60640-54-2	MSCB-3052	
3-Methylsulfonyl-2,3',4',5-tetrachlorobiphenyl	116807-53-5	MSCB-3070	
3-Methylsulfonyl-2,2',3',4',5-pentachlorobiphenyl	66640-58-2	MSCB-3087	
3-Methylsulfonyl-2,2',4',5,6-pentachlorobiphenyl	149949-86-0	MSCB-3091	
3-Methylsulfonyl-2,2',3',5,6'-pentachlorobiphenyl		MSCB-3095	
3-Methylsulfonyl-2,2',4',5,5'-pentachlorobiphenyl	66640-60-6	MSCB-3101	
3-Methylsulfonyl-2,3',4',5,6-pentachlorobiphenyl	116807-23-9	MSCB-3110	
3-Methylsulfonyl-2,2',3',4',5,6-hexachlorobiphenyl	149949-90-6	MSCB-3132	
3-Methylsulfonyl-2,2',3',4',5,5'-hexachlorobiphenyl	104086-18-2	MSCB-3141	
3-Methylsulfonyl-2,2',4',5,5',6-hexachlorobiphenyl	149949-88-2	MSCB-3149	
3-Methylsulfonyl-2,2',3',4',5,5',6-heptachlorobiphenyl		MSCB-3174	
4-Methylsulfonyl-2,2',4',5-tetrachlorobiphenyl	69797-52-0	MSCB-4049	
4-Methylsulfonyl-2,2',5,5'-tetrachlorobiphenyl	60640-55-3	MSCB-4052	
4-Methylsulfonyl-2,3,4',6-tetrachlorobiphenyl	108736-08-9	MSCB-4064	
4-Methylsulfonyl-2,3',4',5-tetrachlorobiphenyl	69797-51-9	MSCB-4070	
4-Methylsulfonyl-2,2',3',4',5-pentachlorobiphenyl	66640-59-3	MSCB-4087	
4-Methylsulfonyl-2,2',4',5,6-pentachlorobiphenyl	149949-87-1	MSCB-4091	
4-Methylsulfonyl-2,2',3',5,6'-pentachlorobiphenyl		MSCB-4095	
4-Methylsulfonyl-2,2',4',5,5'-pentachlorobiphenyl	66640-61-7	MSCB-4101	
4-Methylsulfonyl-2,2',4',5,6'-pentachlorobiphenyl		MSCB-4103	
4-Methylsulfonyl-2,3,3',4',6-pentachlorobiphenyl	149949-89-3	MSCB-4110	
4-Methylsulfonyl-2,2',3,3',4',6-hexachlorobiphenyl	104086-16-0	MSCB-4132	
4-Methylsulfonyl-2,2',3',4',5,5'-hexachlorobiphenyl	104086-19-3	MSCB-4141	
4-Methylsulfonyl-2,2',3,4',5',6-hexachlorobiphenyl	116806-76-9	MSCB-4149	
4-Methylsulfonyl-2,2',3',4',5,5',6-heptachlorobiphenyl	153310-30-6	MSCB-4174	
3-Methylsulfonyl-4-methyl-2',3',4',5,5'-pentachlorobiphenyl (ISTD)		MSCB-IS	



Technical Note

Only the 3- and 4-MeSO₂-PCBs with chlorine atoms in the 2,5- or 2,3,6-position have been found in environmental samples, and therefore only those are offered by AccuStandard.

Hydroxybiphenyls

Compound	CAS No.	NEAT		100 µg/mL in MeOH	
		Cat. No.	Unit	Cat. No.	1 mL
2-Hydroxybiphenyl	90-43-7	HBP-001N	100 mg	HBP-001S	
3-Hydroxybiphenyl	580-51-8	HBP-002N	100 mg	HBP-002S	
4-Hydroxybiphenyl	92-69-3	HBP-003N	100 mg	HBP-003S	
2,2'-Dihydroxybiphenyl	1806-29-7	HBP-004N	100 mg	HBP-004S	
4,4'-Dihydroxybiphenyl	92-88-6	HBP-006N	100 mg	HBP-006S	
2,5-Dihydroxybiphenyl	1079-21-6	HBP-009N	100 mg	HBP-009S	



Halogenated Aromatics (other than PCBs)



Polychlorinated Terphenyls (PCTs) have physical and chemical properties similar to PCBs, and may contain up to 10% of PCBs within the product matrix. They have been used as plasticizers, fire retardants and in various types of coatings. AccuStandard now offers 20 PCT congeners to aid in the monitoring and environmental impact of these pollutants.

Polychlorinated Terphenyls (PCTs)

Compound	CAS No.	NEAT Cat. No.	Unit	In Toluene		
				Conc.	Cat. No.	1 mL
<i>o</i> -Terphenyl	84-15-1	T-001N	100 mg	-----	----	--
<i>m</i> -Terphenyl	92-06-8	T-002N	100 mg	-----	----	--
<i>p</i> -Terphenyl	92-94-4	T-003N	100 mg	-----	----	--
Tetradecachloro- <i>o</i> -terphenyl		-----	-----	35 µg/mL	T-004S	
Tetradecachloro- <i>m</i> -terphenyl	42429-88-9	-----	-----	35 µg/mL	T-005S	
Tetradecachloro- <i>p</i> -terphenyl		-----	-----	35 µg/mL	T-006S	
4-Chloro- <i>o</i> -terphenyl		-----	-----	50 µg/mL	T-007S	
4-Chloro- <i>p</i> -terphenyl	1762-83-0	-----	-----	50 µg/mL	T-008S	
2,4-Dichloro- <i>p</i> -terphenyl	61576-83-8	-----	-----	50 µg/mL	T-009S	
2,5-Dichloro- <i>o</i> -terphenyl	61577-02-4	-----	-----	50 µg/mL	T-010S	
2,5-Dichloro- <i>m</i> -terphenyl		-----	-----	50 µg/mL	T-011S	
2,5-Dichloro- <i>p</i> -terphenyl	61576-86-1	-----	-----	50 µg/mL	T-012S	
2,4,6-Trichloro- <i>p</i> -terphenyl	57346-61-9	-----	-----	50 µg/mL	T-013S	
2,3,5,6-Tetrachloro- <i>p</i> -terphenyl	61576-99-6	-----	-----	50 µg/mL	T-014S	
2,4,4",6-Tetrachloro- <i>p</i> -terphenyl	61576-97-4	-----	-----	50 µg/mL	T-015S	
2,3,4,5,6-Pentachloro- <i>p</i> -terphenyl	61577-01-3	-----	-----	50 µg/mL	T-016S	
Aroclor 5432	63496-31-1	-----	-----	35 µg/mL	T-432S	
Aroclor 5442	12642-23-8	-----	-----	35 µg/mL	T-442S	
Aroclor 5460	11126-42-4	-----	-----	35 µg/mL	T-460S	
Aroclor 6050		-----	-----	35 µg/mL	T-6050S	

Perchlorinated Aromatics

Compound	CAS No.	NEAT Cat. No.	Unit	In Toluene		
				Conc.	Cat. No.	1 mL
Decachlorobiphenyl	2051-24-3	C-209N	10 mg	-----	----	--
Hexachlorobenzene	118-74-1	A-012	100 mg	-----	----	--
Octachlorodibenzofuran	39001-02-0	F-801N	50 mg	50 µg/mL	F-801S	
Octachlorodibenzo- <i>p</i> -dioxin	3268-87-9	D-801N	50 mg	50 µg/mL	D-801S	
Octachloronaphthalene	2234-13-1	-----	-----	100 µg/mL	N-003S	
Octachlorostyrene	29082-74-4	-----	-----	35 µg/mL	PC-001S	
Perchlorinated <i>p,p'</i> -DDE		-----	-----	35 µg/mL	PC-002S	
Tetradecachloro- <i>o</i> -terphenyl		-----	-----	35 µg/mL	T-004S	
Tetradecachloro- <i>m</i> -terphenyl	42429-88-9	-----	-----	35 µg/mL	T-005S	
Tetradecachloro- <i>p</i> -terphenyl		-----	-----	35 µg/mL	T-006S	

Halogenated Aromatics (other than PCBs)

Compound	CAS No.	Conc	Matrix	Cat. No.	1 mL
		0.1 mg/mL	AcCN	M-8310-SS	
		0.2 mg/mL	CH ₂ Cl ₂	M-625-04	
		1 mg/mL	Acetone	M-551.1-SS-100X	
		2 mg/mL	CH ₂ Cl ₂	M-625-04-10X	
4,4'-Dibromobiphenyl	92-86-4	0.1 mg/mL	Ethyl acetate	M-508.1-SS	
		0.2 mg/mL	CH ₂ Cl ₂	M-625-05	
		1 mg/mL	Acetone	M-8111-IS-20X	
		2 mg/mL	CH ₂ Cl ₂	M-625-05-10X	
4,4'-Dibromooctafluorobiphenyl	10386-84-2	0.2 mg/mL	CH ₂ Cl ₂	M-625-06	
		2 mg/mL	CH ₂ Cl ₂	M-625-06-10X	
2,2'-Difluorobiphenyl	388-82-9	0.2 mg/mL	CH ₂ Cl ₂	M-625-07	
		1 mg/mL	MeOH	M-1653-IIS	
		2 mg/mL	CH ₂ Cl ₂	M-625-07-10X	
		5 mg/mL	Acetone	M-1653-IIS-R	
2-Fluorobiphenyl	321-60-8	0.2 mg/mL	CH ₂ Cl ₂	M-625-09	
		2 mg/mL	CH ₂ Cl ₂	M-625-09-10X	
Halowax 1013	1321-64-8	0.1 mg/mL	MeOH	N-1013S	
Halowax 1014	1335-87-1	0.1 mg/mL	MeOH	N-1014S	
Halowax 1051		0.1 mg/mL	MeOH	N-1051S	
Halowax 1099	39450-05-0	0.1 mg/mL	MeOH	N-1099S	
		5 mg/mL	MeOH	AS-E0470	
Octachloronaphthalene	2234-13-1	100 µg/mL	MeOH	N-003S	



Halogenated Aromatics (other than PCBs)

PCNs were produced in high volume around 1910 in both Europe and the United States. In the United States, PCNs were called Halowax by New York based Union Carbide, which was subsequently taken over by Koppers of Pittsburgh, PA.

Polychlorinated Naphthalenes

Halowaxes (Koppers PCNs)

Compound	CAS No.	NEAT Cat. No.	Unit	100 µg/mL in MeOH Cat. No.	1 mL
Halowax 1013 (56 %Cl)	1321-64-8	-----	-----	N-1013S	
Halowax 1014 (62 %Cl)	1335-87-1	-----	-----	N-1014S	
Halowax 1051 (70 %Cl)		-----	-----	N-1051S	
Halowax 1099 (52 %Cl)	39450-05-0	-----	-----	N-1099S	

Polychlorinated Naphthalene Congeners

Naphthalene	91-20-3	H-152N	100 mg	-----	-----
1-Chloronaphthalene	90-13-1	N-001N	100 mg	-----	-----
2-Chloronaphthalene	91-58-7	N-002N	100 mg	-----	-----
1,4-Dichloronaphthalene	1825-31-6	N-004N	10 mg	-----	-----
Octachloronaphthalene	2234-13-1	-----	-----	N-003S	1 mL
1,2,3,4-Tetrachloronaphthalene	20020-02-4	N-005N	10 mg		

Chlorinated Diphenyl Ethers

Compound	CAS No.	Conc	Matrix	Cat. No.	1 mL
4-Chlorodiphenyl ether	7005-72-3	10 mg	NEAT	CDE-003N	
		50 µg/mL	Isooctane	CDE-003S	
2,4-Dichlorodiphenyl ether		10 mg	NEAT	CDE-007N	
		50 µg/mL	Isooctane	CDE-007S	
4,4'-Dichlorodiphenyl ether	2444-89-5	10 mg	NEAT	CDE-015N	
		50 µg/mL	Isooctane	CDE-015S	
2,2',4,4'-Tetrachlorodiphenyl ether		50 µg/mL	Isooctane	CDE-047S	
3,3',4,4'-Tetrachlorodiphenyl ether		50 µg/mL	Isooctane	CDE-077S	
3,3',5,5'-Tetrachlorodiphenyl ether		50 µg/mL	Isooctane	CDE-080S	
2,2',4,4',5-Pentachlorodiphenyl ether		50 µg/mL	Isooctane	CDE-099S	
2,2',4,4',6-Pentachlorodiphenyl ether		50 µg/mL	Isooctane	CDE-100S	
2,3,3',4,4'-Pentachlorodiphenyl ether		50 µg/mL	Isooctane	CDE-105S	
2,3',4,4',5-Pentachlorodiphenyl ether	60123-65-1	10 mg	NEAT	CDE-118N	
		50 µg/mL	Isooctane	CDE-118S	
2,2',4,4',5,5'-Hexachlorodiphenyl ether		50 µg/mL	Isooctane	CDE-153S	
2,2',4,4',5,6'-Hexachlorodiphenyl ether		50 µg/mL	Isooctane	CDE-154S	
Decachlorodiphenyl ether	31710-30-2	10 mg	NEAT	CDE-209N	
		50 µg/mL	Isooctane	CDE-209S	



Dibenzo-p-dioxin Congeners



The Environmental Protection Agency published its final rule regulating dioxin-containing waste in the Federal Register - Volume 5, 1978-1979, January 14, 1985.

Minimum purity 98%

Dibenzo-p-dioxin Congeners

Compound	CAS No.	NEAT Cat. No.	Unit	SOLUTION			1 mL
				Cat. No.	Conc.	Solvent	
1-Chlorodibenzo- <i>p</i> -dioxin	39227-53-7	D-101N	25 mg	D-101S	50 µg/mL	Isooctane	
2-Chlorodibenzo- <i>p</i> -dioxin	39227-54-8	D-102N	50 mg	D-102S	50 µg/mL	Isooctane	
Dibenzo- <i>p</i> -dioxin	262-12-4	D-100N	10 mg	D-100S	50 µg/mL	Isooctane	
1,2-Dichlorodibenzo- <i>p</i> -dioxin		-----	-----	D-207S	50 µg/mL	Isooctane	
1,3-Dichlorodibenzo- <i>p</i> -dioxin		D-205N	10 mg	D-205S	50 µg/mL	Isooctane	
1,4-Dichlorodibenzo- <i>p</i> -dioxin		D-206N	10 mg	D-206S	50 µg/mL	Isooctane	
1,6-Dichlorodibenzo- <i>p</i> -dioxin	38178-38-0	D-201N	5 mg	D-201S	50 µg/mL	Isooctane	
2,3-Dichlorodibenzo- <i>p</i> -dioxin	29446-15-9	D-202N	5 mg	D-202S	50 µg/mL	Isooctane	
2,7-Dichlorodibenzo- <i>p</i> -dioxin	33857-26-0	D-203N	25 mg	D-203S	50 µg/mL	Isooctane	
2,8-Dichlorodibenzo- <i>p</i> -dioxin	38964-22-6	-----	-----	D-204S	50 µg/mL	Isooctane	
1,2,3-Trichlorodibenzo- <i>p</i> -dioxin	54536-17-3	D-301N	5 mg	D-301S	50 µg/mL	Isooctane	
1,2,4-Trichlorodibenzo- <i>p</i> -dioxin	39227-58-2	D-302N	10 mg	D-302S	50 µg/mL	Isooctane	
1,7,8-Trichlorodibenzo- <i>p</i> -dioxin	82306-65-8	D-303N	5 mg	D-303S	50 µg/mL	Isooctane	
2,3,7-Trichlorodibenzo- <i>p</i> -dioxin	33857-28-2	D-304N	5 mg	D-304S	50 µg/mL	Isooctane	
1,2,3,4-Tetrachlorodibenzo- <i>p</i> -dioxin	30746-58-8	D-401N	50 mg	D-401S	50 µg/mL	Toluene	
1,2,7,8-Tetrachlorodibenzo- <i>p</i> -dioxin	34816-53-0	D-402N	5 mg	D-402S	50 µg/mL	Toluene	
1,3,7,8-Tetrachlorodibenzo- <i>p</i> -dioxin	50585-46-1	D-403N	5 mg	D-403S	50 µg/mL	Toluene	
2,3,7,8-Tetrachlorodibenzo- <i>p</i> -dioxin	1746-01-6	D-404N	1 mg	APP-9-167	5 µg/mL	Toluene	
		-----	-----	M-613	10 µg/mL	Toluene	
		-----	-----	D-404S	50 µg/mL	Toluene	
1,3,6,8-Tetrachlorodibenzo- <i>p</i> -dioxin	33423-92-6	D-405N	5 mg	D-405S	50 µg/mL	Toluene	
1,2,8,9-Tetrachlorodibenzo- <i>p</i> -dioxin	116889-69-1	D-406N	5 mg	D-406S	50 µg/mL	Toluene	
1,3,7,9-Tetrachlorodibenzo- <i>p</i> -dioxin	116889-70-4	D-407N	5 mg	D-407S	50 µg/mL	Toluene	
1,2,6,8-Tetrachlorodibenzo- <i>p</i> -dioxin	67323-56-2	D-408N	1 mg	D-408S	50 µg/mL	Toluene	
1,2,6,7-Tetrachlorodibenzo- <i>p</i> -dioxin	41903-57-5	D-409N	5 mg	D-409S	50 µg/mL	Toluene	
1,2,3,4,7-Pentachlorodibenzo- <i>p</i> -dioxin	39227-61-7	D-503N	1 mg	D-503S	50 µg/mL	Toluene	
1,2,3,7,8-Pentachlorodibenzo- <i>p</i> -dioxin	40321-76-4	D-501N	5 mg	APP-9-168	5 µg/mL	Toluene	
		-----	-----	D-501S	50 µg/mL	Toluene	
1,2,3,8,9-Pentachlorodibenzo- <i>p</i> -dioxin	71925-18-3	D-504N	1 mg	D-504S	50 µg/mL	Toluene	
1,2,4,7,8-Pentachlorodibenzo- <i>p</i> -dioxin	58802-08-7	D-502N	5 mg	D-502S	50 µg/mL	Toluene	
1,2,4,6,8/1,2,4,7,9-Pentachlorodibenzo- <i>p</i> -dioxin	71998-76-0/ 82291-37-0	D-505N	1 mg	D-505S	50 µg/mL	Toluene	
1,2,3,4,6,7-Hexachlorodibenzo- <i>p</i> -dioxin	58200-66-1	D-603N	1 mg	D-603S	50 µg/mL	Toluene	
1,2,3,4,7,8-Hexachlorodibenzo- <i>p</i> -dioxin	39227-28-6	D-601N	5 mg	APP-9-169	5 µg/mL	Toluene	
		-----	-----	D-601S	50 µg/mL	Toluene	
1,2,3,6,7,8-Hexachlorodibenzo- <i>p</i> -dioxin	57653-85-7	D-602N	1 mg	D-602S	50 µg/mL	Toluene	
1,2,4,6,7,9/1,2,4,6,8,9-Hexachlorodibenzo- <i>p</i> -dioxin	39227-62-8/ 58802-09-8	D-604N	1 mg	D-604S	50 µg/mL	Toluene	
1,2,3,7,8,9-Hexachlorodibenzo- <i>p</i> -dioxin	19408-74-3	D-605N	1 mg	D-605S	50 µg/mL	Toluene	
1,2,3,4,6,7,8-Heptachlorodibenzo- <i>p</i> -dioxin	35822-46-9	D-701N	1 mg	D-701S	50 µg/mL	Toluene	
1,2,3,4,6,7,9-Heptachlorodibenzo- <i>p</i> -dioxin	58200-70-7	D-702N	5 mg	D-702S	50 µg/mL	Toluene	
Octachlorodibenzo- <i>p</i> -dioxin	3268-87-9	D-801N	50 mg	D-801S	50 µg/mL	Toluene	

These compounds are described as environmental pollutants. Recent studies have shown that they may be formed from ortho-substituted hydroxy BDEs by environmental factors and/or biogenic processes.

Brominated Dibenzo-p-Dioxins

Compound	Cat. No.	Conc.	Matrix	1 mL
1,3,7-Tribromodibenzo- <i>p</i> -dioxin	BDD-301S	10 µg/mL	Toluene	
	BDD-301S-2.5X	25 µg/mL	Toluene	
1,3,8-Tribromodibenzo- <i>p</i> -dioxin	BDD-302S	10 µg/mL	Toluene	
	BDD-302S-2.5X	25 µg/mL	Toluene	
2,3,7-Tribromodibenzo- <i>p</i> -dioxin	BDD-303S	10 µg/mL	Toluene	
	BDD-303S-2.5X	25 µg/mL	Toluene	
1,2,3,7-Tetrabromodibenzo- <i>p</i> -dioxin	BDD-401S	10 µg/mL	Toluene	
	BDD-401S-2.5X	25 µg/mL	Toluene	
1,2,3,8-Tetrabromodibenzo- <i>p</i> -dioxin	BDD-402S	10 µg/mL	Toluene	
	BDD-402S-2.5X	25 µg/mL	Toluene	
Tetrabromodibenzo- <i>p</i> -dioxin-Mixed Isomers 1,2,4,7-Tetrabromodibenzo- <i>p</i> -dioxin / 1,2,4,8-Tetrabromodibenzo- <i>p</i> -dioxin	BDD-403S	10 µg/mL	Toluene	
	BDD-403S-2.5X	25 µg/mL	Toluene	
1,2,3,4-Tetrabromodibenzo- <i>p</i> -dioxin	BDD-404S	10 µg/mL	Toluene	
	BDD-404S-2.5X	25 µg/mL	Toluene	
2,3,7,8-Tetrabromodibenzo- <i>p</i> -dioxin	X-001	1 mg	NEAT	



Chlorodibenzo-p-dioxin Congeners

Canadian Method, Method 1613, 8280

Dioxins

Canadian Dioxin Mixtures

Custom Window Defining Mixture

D-WD 1 x 1 mL
20 ng/mL in Toluene 7 comps.

D-WD-2.5X 1 x 1 mL
50 ng/mL in Toluene 7 comps.

- 1,2,4,6,8/1,2,4,7,9-Pentachlorodibenzo-*p*-dioxin (Isomer pair)
- 1,2,3,8,9-Pentachlorodibenzo-*p*-dioxin
- 1,2,4,6,7,9/1,2,4,6,8,9-Hexachlorodibenzo-*p*-dioxin (Isomer pair)
- 1,2,3,4,6,7-Hexachlorodibenzo-*p*-dioxin
- 1,2,3,4,6,7,8-Heptachlorodibenzo-*p*-dioxin
- 1,2,3,4,6,7,9-Heptachlorodibenzo-*p*-dioxin
- Octachlorodibenzo-*p*-dioxin

High Conc.
Low Cost

Custom Calibration Mixture

D-CAL 1 x 1 mL
20 ng/mL in Toluene 6 comps.

D-CAL-2.5X 1 x 1 mL
50 ng/mL in Toluene 6 comps.

- 1,2,3,7,8-Pentachlorodibenzo-*p*-dioxin
- 1,2,3,4,7,8-Hexachlorodibenzo-*p*-dioxin
- 1,2,3,6,7,8-Hexachlorodibenzo-*p*-dioxin
- 1,2,3,7,8,9-Hexachlorodibenzo-*p*-dioxin
- 1,2,3,4,6,7,8-Heptachlorodibenzo-*p*-dioxin
- Octachlorodibenzo-*p*-dioxin

Standards of Interest

For more Canadian Methods see International Regional Section

Method 8280A Dioxins & Furans by HRGC/LRMS

Dioxin Mixture

M-8280A 1 x 1 mL
M-8280A-PAK 5 x 1 mL
5 µg/mL each in Toluene 5 comps. SAVE

- 2,3,7,8-Tetrachlorodibenzo-*p*-dioxin
- 1,2,3,7,8-Pentachlorodibenzo-*p*-dioxin
- 1,2,3,4,7,8-Hexachlorodibenzo-*p*-dioxin
- 1,2,3,4,6,7,8-Heptachlorodibenzo-*p*-dioxin
- Octachlorodibenzo-*p*-dioxin

Furan Mixture

M-8280B 1 x 1 mL
M-8280B-PAK 5 x 1 mL
5 µg/mL each in Toluene 5 comps. SAVE

- 2,3,7,8-Tetrachlorodibenzofuran
- 1,2,3,7,8-Pentachlorodibenzofuran
- 1,2,3,4,7,8-Hexachlorodibenzofuran
- 1,2,3,4,6,7,8-Heptachlorodibenzofuran
- Octachlorodibenzofuran

Column Performance Check

M-8280-CPC 1 x 1 mL
M-8280-CPC-PAK 5 x 1 mL
5 µg/mL each in Toluene 7 comps. SAVE

- 1,2,3,4-Tetrachlorodibenzo-*p*-dioxin
- 2,3,7,8-Tetrachlorodibenzo-*p*-dioxin
- 1,2,3,4,7-Pentachlorodibenzo-*p*-dioxin
- 1,2,3,4,7,8-Hexachlorodibenzo-*p*-dioxin
- 1,2,3,4,6,7,8-Heptachlorodibenzo-*p*-dioxin
- Octachlorodibenzo-*p*-dioxin
- 2,3,7,8-Tetrachlorodibenzofuran

Method 1613 Dioxins & Furans by HRGC/HRMS

Method 1613 Precision and Recovery Standard

M-1613-PAR Bold (-04) 1 x 1 mL
M-1613-PAR-PAK 5 x 1 mL
At stated conc. (ng/mL) in Nonane 17 comps. SAVE

Calibration Set

M-1613-CAL-SET 5 x 1 mL

M-1613-CAL	-01	-02	-03	-04	-05
2,3,7,8-Tetrachlorodibenzo- <i>p</i> -dioxin	0.5	2	10	40	200
2,3,7,8-Tetrachlorodibenzofuran	0.5	2	10	40	200
1,2,3,7,8-Pentachlorodibenzo- <i>p</i> -dioxin	2.5	10	50	200	1000
1,2,3,7,8-Pentachlorodibenzofuran	2.5	10	50	200	1000
2,3,4,7,8-Pentachlorodibenzofuran	2.5	10	50	200	1000
1,2,3,4,7,8-Hexachlorodibenzo- <i>p</i> -dioxin	2.5	10	50	200	1000
1,2,3,6,7,8-Hexachlorodibenzo- <i>p</i> -dioxin	2.5	10	50	200	1000
1,2,3,7,8,9-Hexachlorodibenzo- <i>p</i> -dioxin	2.5	10	50	200	1000
1,2,3,4,7,8-Hexachlorodibenzofuran	2.5	10	50	200	1000
1,2,3,6,7,8-Hexachlorodibenzofuran	2.5	10	50	200	1000
1,2,3,7,8,9-Hexachlorodibenzofuran	2.5	10	50	200	1000
2,3,4,6,7,8-Hexachlorodibenzofuran	2.5	10	50	200	1000
1,2,3,4,6,7,8-Heptachlorodibenzo- <i>p</i> -dioxin	2.5	10	50	200	1000
1,2,3,4,6,7,8-Heptachlorodibenzofuran	2.5	10	50	200	1000
1,2,3,4,7,8,9-Heptachlorodibenzofuran	2.5	10	50	200	1000
Octachlorodibenzo- <i>p</i> -dioxin	5	20	100	400	2000
Octachlorodibenzofuran	5	20	100	400	2000

2,3,7,8 Isomers Only Mix

This solution is for those labs only determining the concentration of the two most toxic isomers.

M-1613-DF 1 x 1 mL
40 ng/mL each in Nonane 2 comps.

- 2,3,7,8-Tetrachlorodibenzo-*p*-dioxin
- 2,3,7,8-Tetrachlorodibenzofuran

Technical Note

These native solutions of the USEPA Method 1613 analytes can also be used for USEPA Method 23, 8280, 8290, EU Method EN-1948 and Japanese Methods JIS-K0311 and K0312.

Chlorinated Dibenzofuran Congeners



Minimum purity 98%

Chlorinated Dibenzofuran Congeners

Compound	CAS No.	NEAT Cat. No.	Unit	SOLUTION			1 mL
				Cat. No.	Conc.	Solvent	
Dibenzofuran	132-64-9	F-100N	50 mg	F-100S	50 µg/mL	Isooctane	
				APP-9-059	100 µg/mL	MeOH	
				APP-9-059-2X	200 µg/mL	MeOH	
				AS-E0261	5 mg/mL	MeOH	
2-Chlorodibenzofuran	51230-49-0	-----	-----	F-102S	50 µg/mL	Isooctane	
4-Chlorodibenzofuran	74992-96-4	-----	-----	F-104S	50 µg/mL	Isooctane	
2,8-Dichlorodibenzofuran	5409-83-6	F-201N	10 mg	F-201S	50 µg/mL	Isooctane	
2,4,8-Trichlorodibenzofuran	54589-71-8	-----	-----	F-301S	50 µg/mL	Isooctane	
1,2,3,4-Tetrachlorodibenzofuran	24478-72-6	-----	-----	F-401S	50 µg/mL	Toluene	
1,3,6,8-Tetrachlorodibenzofuran	30402-14-3	-----	-----	F-403S	50 µg/mL	Toluene	
2,3,7,8-Tetrachlorodibenzofuran	51207-31-9	F-402N	1 mg	APP-9-170	5 µg/mL	Toluene	
				F-402S	50 µg/mL	Toluene	
1,2,3,7,8-Pentachlorodibenzofuran	57117-41-6	-----	-----	APP-9-171	5 µg/mL	Toluene	
2,3,4,7,8-Pentachlorodibenzofuran	57117-31-4	-----	-----	F-502S-0.1X	5 µg/mL	Toluene	
1,2,3,4,7,8-Hexachlorodibenzofuran	55684-94-1	-----	-----	APP-9-172	5 µg/mL	Toluene	
1,2,3,4,6,7,8-Heptachlorodibenzofuran	38998-75-3	-----	-----	F-701S-0.1X	5 µg/mL	Toluene	
				F-701S	50 µg/mL	Toluene	
Octachlorodibenzofuran	39001-02-0	F-801N	50 mg	F-801S	50 µg/mL	Toluene	
3-Nitrodibenzofuran	5410-97-9	R-009N	5 mg	R-009S	100 µg/mL	Toluene	

Furans

ASTM D5837 Furanic Compounds in Electrical Insulating Liquids by High-Performance Liquid Chromatography (HPLC)

Furanic Compound Extraction Standard

D-5837-01

1000 µg/mL each in Acetonitrile

1 x 1 mL

5 comps.

2-Acetylfuran
2-Furaldehyde
Furfuryl alcohol
5-(Hydroxymethyl)-2-furaldehyde
5-Methylfurfural

Furanic Compound Calibration Standard

D-5837-02

1000 µg/mL each in Toluene

1 x 1 mL

5 comps.

2-Acetylfuran
2-Furaldehyde
Furfuryl alcohol
5-(Hydroxymethyl)-2-furaldehyde
5-Methylfurfural

Custom Synthesized Rare Chemicals

Neat Compounds, except as noted	CAS No.	Cat. No.	Unit
2-Amino-7,8-dibromodibenzo- <i>p</i> -dioxin	0.1 mg/mL in Toluene	X-011	1 mL
4-Chlorophenyl methyl sulfoxide	934-73-6	X-004	10 mg
4,6-Dinitro- <i>o</i> -toluidine	7477-94-3	X-002	10 mg
1,4-Dioxino(2,3,b,5,6,b')dipyridine (Dipyridine analog of dibenzo- <i>p</i> -dioxin)	262-16-8	X-005	5 mg
N,N'-bis(4-Isopropylphenyl) urea	113260-74-5	X-012	10 mg
9-Methylacridine	611-64-3	X-008	10 mg
2,3,7,8-Tetrabromodibenzo- <i>p</i> -dioxin	50585-41-6	X-001	1 mg
3,3',4,4'-Tetrachloroazobenzene	14047-09-7	X-009	10 mg
3,3',4,4'-Tetrachloroazoxybenzene	21232-47-3	X-010	10 mg
N,N'-bis(2,4,6-Trichlorophenyl) urea	20632-35-3	X-003	10 mg

See next page for
Custom Synthesis Services



Custom Synthesis

AccuStandard specializes in synthesizing chemicals of high purity to be used as reference standards. Custom synthesis capabilities range from milligram to kilogram scale. AccuStandard's Synthesis Department employs several PhD Organic Chemists with many years of pertinent academic and industrial experience. The experienced staff has developed hundreds of pure chemical compounds for companies, research, academic institutions and governmental agencies around the world.

AccuStandard is renowned for its quick response to customer requests for new compounds and its partnership in developing new methods. The offering of a wide variety of nonyl- and octylphenol ethoxylate derivatives, for example, led to the development of ASTM methods D7065-06 and D7485.

Featured in AccuStandard's history of firsts are all of the 209 congeners of polychlorinated biphenyls (PCBs) and all of the 209 congeners of polybrominated diphenyl ethers (PBDEs).

A comprehensive collection of brominated flame retardants together with some of their metabolites is constantly being extended. Among the more recent introduction of unique products is a variety of metabolites of the flame retardant tetradecabromodiphenoxybenzene (TDBDPB): hydroxylated and methoxylated polybrominated diphenoxybenzenes.

Over 80 hydroxy- and methoxy PBDEs as well as mixed bromo/chloro hydroxy- and methoxy-PBDEs have been added to the catalog due to requests by the research community.

The syntheses of many organic pollutants and their metabolites are an integral part of the department's efforts to provide the community with previously unavailable standards. This is especially true when it comes to the growing demand for reference standards for explosives and pesticides.

Synthesized Products:

- PCBs (all 209 congeners), hydroxy, methoxy, and methylsulfonyl metabolites
- Chloro- and bromodibenzodioxins and furans
- PBDEs (all 209 congeners), hydroxy, methoxy, and chloro metabolites
- Fluorinated PBDEs
- Polybrominated diphenoxybenzene, hydroxy, methoxy (BDPB/HBDPB/MOBDPB) metabolites
- Alpha-, beta- and gamma-hexabromocyclododecane (HBCD)
- Other brominated flame retardants
- PBBs
- PAHs, nitro-PAHs and methyl-PAHs
- Pesticides and metabolites
- Explosives and metabolites
- Nonyl- and octylphenol ethoxylates
- Mono- and di-phthalates
- Organophosphates
- Other rare chemicals



Analytical Capabilities

- GC-MS, GC-FID, GC-ECD
- HPLC/UV, LC-MS
- NMR
- ICP, ICP-MS
- Access to additional analytical instrumentation if necessary

Synthesis and Purification

- Milligram to Kilogram Glassware
- Inert Conditions Equipment
- Microwave Synthesis System
- High Performance Flash Chromatography
- Distillation Equipment – High Vacuum Distillation, Molecular Distillation (Kugelrohr)
- Parr Pressure and Hydrogenation Reactor



Table of Contents

PBDE Congeners	28-30
Tech Grade PBDEs	31
PBDE Mixtures	31
ISO/DIS 22032 Calibration Curve Set	31
EPA Method 1614	32
PBDE Metabolites	33-34
OH-BDEs	33
MeO-BDEs	33-34
OH-Br/Cl-DEs	34
Tetradecabromodiphenoxybenzenes Metabolites	35
Fluorinated PBDE Congeners	36
HBCD and Dechlorane Plus Isomers	37
Bromobiphenyl Congeners	37
Bromophenols	38
Bromoanisoles	38
Chlorinated Diphenyl Ethers	38
Industrial Flame Retardants	39-41
Bromine Containing FRs	39-40
Chlorine Containing FRs	41
Organophosphate FRs (PFRs)	41

Brominated Flame Retardants (BFRs), such as polybrominated diphenyl ethers (PBDEs), have become global environmental contaminants because of their widespread use in numerous household and commercial products. They have been detected in sediments, biota, house dust, sewage sludge, air, water samples, and human and wildlife tissues. In the past years, an impressive amount of information has been gained on the persistence, bioaccumulative and toxic properties of PBDEs.

Some PBDEs break down further in the environment and in biota to other congeners or analogues. AccuStandard has synthesized all of the 209 possible congeners and over 80 of their hydroxy and methoxy metabolites. We offer a wide variety of PBDE mixtures and calibration sets which are designed for US EPA and International PBDE monitoring.

The industrial production of the technical penta-BDE mixtures is to be eliminated under the Stockholm Convention of 2001 because of their toxicity and persistence. Technical octa-BDE mixtures have been banned by the EU since 2004. In the USA the ban of this group of BDEs has been implemented since 2007.

There are many other brominated compounds in use as alternatives to the PBDE flame retardants. Selected substances of these industrial BFRs are monitored by the international community for their environmental impact. We offer a number of these compounds to assist these monitoring efforts. Degradation products and metabolites of these "emerging" BFRs are of increasing interest. AccuStandard has been synthesizing these compounds upon request and continues to add them to the product line. Examples are 2,3,4,5-tetrabromobenzoic acid, a degradation product of di(2-ethylhexyl)tetrabromophthalate, and dimethyl- and diglycidyl ethers of both tetrabromobisphenol A and tetrabromobisphenol S. We have some flame retardants like Hexabromocyclododecane (HBCD) and Dechlorane Plus as technical mixtures and their major isomers in pure form.

As with the BFRs, the widespread use of organophosphate flame retardants (OP-FRs) has raised concerns about their impact on the environment, human and animal health. Analysis of indoor air and dust has shown that the concentration of OP-FRs appear to be higher than that of PBDEs. To aid in the on-going toxicological and environmental studies of these compounds we provide a number of the most widely used OP-FRs for use as reference standards.

Custom standards are an economical and efficient way to have a standard prepared for your individual needs. Upon special request, compounds can be offered in various concentrations and mixes or as neat materials.



Polybrominated Diphenyl Ether (PBDE) Congeners

PBDE Congeners



Technical Note
For specific applications (e.g. toxicological studies) that require absolute dioxin and furan free PBDEs, contact Technical Service.

Polybrominated Diphenyl Ethers (PBDEs) Congeners

Compound	CAS No.	Conc.	Solvent	Cat. No.	1 mL
2-Bromodiphenyl ether	7025-06-1	50 µg/mL	Isooctane	BDE-001S	
3-Bromodiphenyl ether	6876-00-2	50 µg/mL	Isooctane	BDE-002S	
4-Bromodiphenyl ether	101-55-3	50 µg/mL	Isooctane	BDE-003S	
2,2'-Dibromodiphenyl ether	51452-87-0	50 µg/mL	Isooctane	BDE-004S	
2,3-Dibromodiphenyl ether	446254-14-4	50 µg/mL	Isooctane	BDE-005S	
2,3'-Dibromodiphenyl ether	147217-72-9	50 µg/mL	Isooctane	BDE-006S	
2,4-Dibromodiphenyl ether	171977-44-9	50 µg/mL	Isooctane	BDE-007S	
2,4'-Dibromodiphenyl ether	147217-71-8	50 µg/mL	Isooctane	BDE-008S	
2,5-Dibromodiphenyl ether	337513-66-3	50 µg/mL	Isooctane	BDE-009S	
2,6-Dibromodiphenyl ether	51930-04-2	50 µg/mL	Isooctane	BDE-010S	
3,3'-Dibromodiphenyl ether	6903-63-5	50 µg/mL	Isooctane	BDE-011S	
3,4-Dibromodiphenyl ether	189084-59-1	50 µg/mL	Isooctane	BDE-012S	
3,4'-Dibromodiphenyl ether	83694-71-7	50 µg/mL	Isooctane	BDE-013S	
3,5-Dibromodiphenyl ether	46438-88-4	50 µg/mL	Isooctane	BDE-014S	
4,4'-Dibromodiphenyl ether	2050-47-7	50 µg/mL	Isooctane	BDE-015S	
2,2',3-Tribromodiphenyl ether	147217-74-1	50 µg/mL	Isooctane	BDE-016S	
2,2',4-Tribromodiphenyl ether	147217-75-2	50 µg/mL	Isooctane	BDE-017S	
2,2',5-Tribromodiphenyl ether	407606-55-7	50 µg/mL	Isooctane	BDE-018S	
2,2',6-Tribromodiphenyl ether	147217-73-0	50 µg/mL	Isooctane	BDE-019S	
2,3,3'-Tribromodiphenyl ether	147217-76-3	50 µg/mL	Isooctane	BDE-020S	
2,3,4-Tribromodiphenyl ether	337513-67-4	50 µg/mL	Isooctane	BDE-021S	
2,3,4'-Tribromodiphenyl ether	446254-15-5	50 µg/mL	Isooctane	BDE-022S	
2,3,5-Tribromodiphenyl ether	446254-16-6	50 µg/mL	Isooctane	BDE-023S	
2,3,6-Tribromodiphenyl ether		50 µg/mL	Isooctane	BDE-024S	
2,3',4-Tribromodiphenyl ether	147217-77-4	50 µg/mL	Isooctane	BDE-025S	
2,3',5-Tribromodiphenyl ether	337513-75-4	50 µg/mL	Isooctane	BDE-026S	
2,3',6-Tribromodiphenyl ether	337513-53-8	50 µg/mL	Isooctane	BDE-027S	
2,4,4'-Tribromodiphenyl ether	41318-75-6	50 µg/mL	Isooctane	BDE-028S	
2,4,5-Tribromodiphenyl ether	337513-56-1	50 µg/mL	Isooctane	BDE-029S	
2,4,6-Tribromodiphenyl ether	155999-95-4	50 µg/mL	Isooctane	BDE-030S	
2,4',5-Tribromodiphenyl ether	65075-08-3	50 µg/mL	Isooctane	BDE-031S	
2,4',6-Tribromodiphenyl ether	189084-60-4	50 µg/mL	Isooctane	BDE-032S	
2',3,4-Tribromodiphenyl ether	147217-78-5	50 µg/mL	Isooctane	BDE-033S	
2',3,5-Tribromodiphenyl ether	446254-17-7	50 µg/mL	Isooctane	BDE-034S	
3,3',4-Tribromodiphenyl ether	147217-80-9	50 µg/mL	Isooctane	BDE-035S	
3,3',5-Tribromodiphenyl ether	147217-79-6	50 µg/mL	Isooctane	BDE-036S	
3,4,4'-Tribromodiphenyl ether	147217-81-0	50 µg/mL	Isooctane	BDE-037S	
3,4,5-Tribromodiphenyl ether	337513-54-9	50 µg/mL	Isooctane	BDE-038S	
3,4',5-Tribromodiphenyl ether		50 µg/mL	Isooctane	BDE-039S	
2,2',3,3'-Tetrabromodiphenyl ether		50 µg/mL	Isooctane	BDE-040S	
2,2',3,4-Tetrabromodiphenyl ether	337513-68-5	50 µg/mL	Isooctane	BDE-041S	
2,2',3,4'-Tetrabromodiphenyl ether	446254-18-8	50 µg/mL	Isooctane	BDE-042S	
2,2',3,5-Tetrabromodiphenyl ether	446254-19-9	50 µg/mL	Isooctane	BDE-043S	
2,2',3,5'-Tetrabromodiphenyl ether	446254-20-2	50 µg/mL	Isooctane	BDE-044S	
2,2',3,6-Tetrabromodiphenyl ether		50 µg/mL	Isooctane	BDE-045S	
2,2',3,6'-Tetrabromodiphenyl ether	446254-22-4	50 µg/mL	Isooctane	BDE-046S	
2,2',4,4'-Tetrabromodiphenyl ether	5436-43-1	50 µg/mL	Isooctane	BDE-047S	
2,2',4,5-Tetrabromodiphenyl ether	337513-55-0	50 µg/mL	Isooctane	BDE-048S	
2,2',4,5'-Tetrabromodiphenyl ether	243982-82-3	50 µg/mL	Isooctane	BDE-049S	
2,2',4,6-Tetrabromodiphenyl ether	446254-23-5	50 µg/mL	Isooctane	BDE-050S	
2,2',4,6'-Tetrabromodiphenyl ether	189084-57-9	50 µg/mL	Isooctane	BDE-051S	
2,2',5,5'-Tetrabromodiphenyl ether	446254-24-6	50 µg/mL	Isooctane	BDE-052S	
2,2',5,6'-Tetrabromodiphenyl ether	446254-25-7	50 µg/mL	Isooctane	BDE-053S	
2,2',6,6'-Tetrabromodiphenyl ether		50 µg/mL	Isooctane	BDE-054S	
2,3,3',4-Tetrabromodiphenyl ether	40088-47-9	50 µg/mL	Isooctane	BDE-055S	
2,3,3',4'-Tetrabromodiphenyl ether		50 µg/mL	Isooctane	BDE-056S	
2,3,3',5-Tetrabromodiphenyl ether		50 µg/mL	Isooctane	BDE-057S	
2,3,3',5'-Tetrabromodiphenyl ether		50 µg/mL	Isooctane	BDE-058S	
2,3,3',6-Tetrabromodiphenyl ether		50 µg/mL	Isooctane	BDE-059S	
2,3,4,4'-Tetrabromodiphenyl ether	446254-31-5	50 µg/mL	Isooctane	BDE-060S	
2,3,4,5-Tetrabromodiphenyl ether	446254-32-6	50 µg/mL	Isooctane	BDE-061S	
2,3,4,6-Tetrabromodiphenyl ether	446254-33-7	50 µg/mL	Isooctane	BDE-062S	
2,3,4',5-Tetrabromodiphenyl ether	446254-34-8	50 µg/mL	Isooctane	BDE-063S	
2,3,4',6-Tetrabromodiphenyl ether		50 µg/mL	Isooctane	BDE-064S	
2,3,5,6-Tetrabromodiphenyl ether		50 µg/mL	Isooctane	BDE-065S	
2,3',4,4'-Tetrabromodiphenyl ether	189084-61-5	50 µg/mL	Isooctane	BDE-066S	
2,3',4,5-Tetrabromodiphenyl ether	446254-37-1	50 µg/mL	Isooctane	BDE-067S	
2,3',4,5'-Tetrabromodiphenyl ether	446254-38-2	50 µg/mL	Isooctane	BDE-068S	
2,3',4,6-Tetrabromodiphenyl ether	327185-09-1	50 µg/mL	Isooctane	BDE-069S	
2,3',4',5-Tetrabromodiphenyl ether	446254-39-3	50 µg/mL	Isooctane	BDE-070S	
2,3',4',6-Tetrabromodiphenyl ether	189084-62-6	50 µg/mL	Isooctane	BDE-071S	
2,3',5,5'-Tetrabromodiphenyl ether	446254-40-6	50 µg/mL	Isooctane	BDE-072S	
2,3',5,6-Tetrabromodiphenyl ether	446254-41-7	50 µg/mL	Isooctane	BDE-073S	
2,4,4',5-Tetrabromodiphenyl ether	446254-42-8	50 µg/mL	Isooctane	BDE-074S	
2,4,4',6-Tetrabromodiphenyl ether	189084-63-7	50 µg/mL	Isooctane	BDE-075S	

Polybrominated Diphenyl Ether (PBDE) Congeners



Polybrominated Diphenyl Ethers (PBDEs) Congeners

Compound	CAS No.	Conc.	Solvent	Cat. No.	1 mL
2,3,4,5-Tetrabromodiphenyl ether	446254-43-9	50 µg/mL	Isooctane	BDE-076S	
3,3',4,4'-Tetrabromodiphenyl ether	93703-48-1	50 µg/mL	Isooctane	BDE-077S	
3,3',4,5-Tetrabromodiphenyl ether	446254-45-1	50 µg/mL	Isooctane	BDE-078S	
3,3',4,5'-Tetrabromodiphenyl ether	446254-48-4	50 µg/mL	Isooctane	BDE-079S	
3,3',5,5'-Tetrabromodiphenyl ether	103173-66-6	50 µg/mL	Isooctane	BDE-080S	
3,4,4',5-Tetrabromodiphenyl ether	446254-50-8	50 µg/mL	Isooctane	BDE-081S	
2,2',3,3',4-Pentabromodiphenyl ether		50 µg/mL	Isooctane	BDE-082S	
2,2',3,3',5-Pentabromodiphenyl ether	446254-51-9	50 µg/mL	Isooctane	BDE-083S	
2,2',3,3',6-Pentabromodiphenyl ether		50 µg/mL	Isooctane	BDE-084S	
2,2',3,3,4'-Pentabromodiphenyl ether	182346-21-0	50 µg/mL	Isooctane	BDE-085S	
2,2',3,4,5-Pentabromodiphenyl ether	446254-53-1	50 µg/mL	Isooctane	BDE-086S	
2,2',3,4,5'-Pentabromodiphenyl ether	446254-54-2	50 µg/mL	Isooctane	BDE-087S	
2,2',3,4,6-Pentabromodiphenyl ether	446254-55-3	50 µg/mL	Isooctane	BDE-088S	
2,2',3,4,6'-Pentabromodiphenyl ether		50 µg/mL	Isooctane	BDE-089S	
2,2',3,4',5-Pentabromodiphenyl ether	446254-57-5	50 µg/mL	Isooctane	BDE-090S	
2,2',3,4',6-Pentabromodiphenyl ether		50 µg/mL	Isooctane	BDE-091S	
2,2',3,5,5'-Pentabromodiphenyl ether	446254-59-7	50 µg/mL	Isooctane	BDE-092S	
2,2',3,5,6-Pentabromodiphenyl ether		50 µg/mL	Isooctane	BDE-093S	
2,2',3,5,6'-Pentabromodiphenyl ether	446254-61-1	50 µg/mL	Isooctane	BDE-094S	
2,2',3,5',6-Pentabromodiphenyl ether		50 µg/mL	Isooctane	BDE-095S	
2,2',3,6,6'-Pentabromodiphenyl ether		50 µg/mL	Isooctane	BDE-096S	
2,2',3',4,5-Pentabromodiphenyl ether	446254-64-4	50 µg/mL	Isooctane	BDE-097S	
2,2',3',4,6-Pentabromodiphenyl ether	38463-82-0	50 µg/mL	Isooctane	BDE-098S	
2,2',4,4',5-Pentabromodiphenyl ether	60348-60-9	50 µg/mL	Isooctane	BDE-099S	
2,2',4,4',6-Pentabromodiphenyl ether	189084-64-8	50 µg/mL	Isooctane	BDE-100S	
2,2',4,5,5'-Pentabromodiphenyl ether	446254-65-5	50 µg/mL	Isooctane	BDE-101S	
2,2',4,5,6'-Pentabromodiphenyl ether	446254-66-6	50 µg/mL	Isooctane	BDE-102S	
2,2',4,5',6-Pentabromodiphenyl ether	446254-67-7	50 µg/mL	Isooctane	BDE-103S	
2,2',4,6,6'-Pentabromodiphenyl ether	446254-68-8	50 µg/mL	Isooctane	BDE-104S	
2,3,3',4,4'-Pentabromodiphenyl ether	373594-78-6	50 µg/mL	Isooctane	BDE-105S	
2,3,3',4,5-Pentabromodiphenyl ether	446254-69-9	50 µg/mL	Isooctane	BDE-106S	
2,3,3',4',5-Pentabromodiphenyl ether		50 µg/mL	Isooctane	BDE-107S	
2,3,3',4,5'-Pentabromodiphenyl ether	446254-71-3	50 µg/mL	Isooctane	BDE-108S	
2,3,3',4,6-Pentabromodiphenyl ether	446254-72-4	50 µg/mL	Isooctane	BDE-109S	
2,3,3',4',6-Pentabromodiphenyl ether		50 µg/mL	Isooctane	BDE-110S	
2,3,3',5,5'-Pentabromodiphenyl ether	446254-74-6	50 µg/mL	Isooctane	BDE-111S	
2,3,3',5,6-Pentabromodiphenyl ether		50 µg/mL	Isooctane	BDE-112S	
2,3,3',5',6-Pentabromodiphenyl ether		50 µg/mL	Isooctane	BDE-113S	
2,3,4,4',5-Pentabromodiphenyl ether	446254-77-9	50 µg/mL	Isooctane	BDE-114S	
2,3,4,4',6-Pentabromodiphenyl ether	446254-78-0	50 µg/mL	Isooctane	BDE-115S	
2,3,4,5,6-Pentabromodiphenyl ether	189084-65-9	50 µg/mL	Isooctane	BDE-116S	
2,3,4',5,6-Pentabromodiphenyl ether		50 µg/mL	Isooctane	BDE-117S	
2,3',4,4',5-Pentabromodiphenyl ether	446254-80-4	50 µg/mL	Isooctane	BDE-118S	
2,3',4,4',6-Pentabromodiphenyl ether	189084-66-0	50 µg/mL	Isooctane	BDE-119S	
2,3',4,5,5'-Pentabromodiphenyl ether		50 µg/mL	Isooctane	BDE-120S	
2,3',4,5',6-Pentabromodiphenyl ether		50 µg/mL	Isooctane	BDE-121S	
2',3,3',4,5-Pentabromodiphenyl ether		50 µg/mL	Isooctane	BDE-122S	
2',3,4,4',5-Pentabromodiphenyl ether		50 µg/mL	Isooctane	BDE-123S	
2',3,4,5,5'-Pentabromodiphenyl ether		50 µg/mL	Isooctane	BDE-124S	
2',3,4,5,6'-Pentabromodiphenyl ether		50 µg/mL	Isooctane	BDE-125S	
3,3',4,4',5-Pentabromodiphenyl ether	366791-32-4	50 µg/mL	Isooctane	BDE-126S	
3,3',4,5,5'-Pentabromodiphenyl ether	446254-86-0	50 µg/mL	Isooctane	BDE-127S	
2,2',3,3',4,4'-Hexabromodiphenyl ether	182677-28-7	50 µg/mL	Isooctane	BDE-128S	
2,2',3,3',4,5-Hexabromodiphenyl ether		50 µg/mL	Isooctane	BDE-129S	
2,2',3,3',4,5'-Hexabromodiphenyl ether		50 µg/mL	Isooctane	BDE-130S	
2,2',3,3',4,6-Hexabromodiphenyl ether		50 µg/mL	Isooctane	BDE-131S	
2,2',3,3',4,6'-Hexabromodiphenyl ether		50 µg/mL	Isooctane	BDE-132S	
2,2',3,3',5,5'-Hexabromodiphenyl ether		50 µg/mL	Isooctane	BDE-133S	
2,2',3,3',5,6-Hexabromodiphenyl ether		50 µg/mL	Isooctane	BDE-134S	
2,2',3,3',5,6'-Hexabromodiphenyl ether		50 µg/mL	Isooctane	BDE-135S	
2,2',3,3',6,6'-Hexabromodiphenyl ether		50 µg/mL	Isooctane	BDE-136S	
2,2',3,4,4',5-Hexabromodiphenyl ether		50 µg/mL	Isooctane	BDE-137S	
2,2',3,4,4',5'-Hexabromodiphenyl ether	182677-30-1	50 µg/mL	Isooctane	BDE-138S	
2,2',3,4,4',6-Hexabromodiphenyl ether		50 µg/mL	Isooctane	BDE-139S	
2,2',3,4,4',6'-Hexabromodiphenyl ether	243982-83-4	50 µg/mL	Isooctane	BDE-140S	
2,2',3,4,5,5'-Hexabromodiphenyl ether		50 µg/mL	Isooctane	BDE-141S	
2,2',3,4,5,6-Hexabromodiphenyl ether		50 µg/mL	Isooctane	BDE-142S	
2,2',3,4,5,6'-Hexabromodiphenyl ether		50 µg/mL	Isooctane	BDE-143S	
2,2',3,4,5',6-Hexabromodiphenyl ether		50 µg/mL	Isooctane	BDE-144S	
2,2',3,4,6,6'-Hexabromodiphenyl ether		50 µg/mL	Isooctane	BDE-145S	
2,2',3,4',5,5'-Hexabromodiphenyl ether		50 µg/mL	Isooctane	BDE-146S	
2,2',3,4',5,6-Hexabromodiphenyl ether		50 µg/mL	Isooctane	BDE-147S	
2,2',3,4',5,6'-Hexabromodiphenyl ether		50 µg/mL	Isooctane	BDE-148S	
2,2',3,4',5',6-Hexabromodiphenyl ether		50 µg/mL	Isooctane	BDE-149S	
2,2',3,4',6,6'-Hexabromodiphenyl ether		50 µg/mL	Isooctane	BDE-150S	

PBDE Congeners continued on next page

Flame Retardant Standards Guide



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Polybrominated Diphenyl Ether (PBDE) Congeners

PBDE Congeners



Polybrominated Diphenyl Ethers (PBDEs) Congeners

Compound	CAS No.	Conc.	Solvent	Cat. No.	1 mL
2,2',3,5,5',6'-Hexabromodiphenyl ether		50 µg/mL	Isooctane	BDE-151S	
2,2',3,5,6,6'-Hexabromodiphenyl ether		50 µg/mL	Isooctane	BDE-152S	
2,2',4,4',5,5'-Hexabromodiphenyl ether	68631-49-2	50 µg/mL	Isooctane	BDE-153S	
2,2',4,4',5,6'-Hexabromodiphenyl ether	207122-15-4	50 µg/mL	Isooctane	BDE-154S	
2,2',4,4',6,6'-Hexabromodiphenyl ether	35854-94-5	50 µg/mL	Isooctane	BDE-155S	
2,3,3',4,4',5'-Hexabromodiphenyl ether		50 µg/mL	Isooctane	BDE-156S	
2,3,3',4,4',5'-Hexabromodiphenyl ether		50 µg/mL	Isooctane	BDE-157S	
2,3,3',4,4',6'-Hexabromodiphenyl ether		50 µg/mL	Isooctane	BDE-158S	
2,3,3',4,5,5'-Hexabromodiphenyl ether		50 µg/mL	Isooctane	BDE-159S	
2,3,3',4,5,6'-Hexabromodiphenyl ether		50 µg/mL	Isooctane	BDE-160S	
2,3,3',4,5',6'-Hexabromodiphenyl ether		50 µg/mL	Isooctane	BDE-161S	
2,3,3',4',5,5'-Hexabromodiphenyl ether		50 µg/mL	Isooctane	BDE-162S	
2,3,3',4',5,6'-Hexabromodiphenyl ether		50 µg/mL	Isooctane	BDE-163S	
2,3,3',4',5',6'-Hexabromodiphenyl ether		50 µg/mL	Isooctane	BDE-164S	
2,3,3',5,5',6'-Hexabromodiphenyl ether		50 µg/mL	Isooctane	BDE-165S	
2,3,4,4',5,6'-Hexabromodiphenyl ether	189084-58-0	50 µg/mL	Isooctane	BDE-166S	
2,3,4,4',5,5'-Hexabromodiphenyl ether		50 µg/mL	Isooctane	BDE-167S	
2,3,4,4',5',6'-Hexabromodiphenyl ether		50 µg/mL	Isooctane	BDE-168S	
3,3',4,4',5,5'-Hexabromodiphenyl ether		50 µg/mL	Isooctane	BDE-169S	
2,2',3,3',4,4',5'-Heptabromodiphenyl ether	327185-13-7	50 µg/mL	Isooctane	BDE-170S	
2,2',3,3',4,4',6'-Heptabromodiphenyl ether		50 µg/mL	Isooctane	BDE-171S	
2,2',3,3',4,5,5'-Heptabromodiphenyl ether		50 µg/mL	Isooctane	BDE-172S	
2,2',3,3',4,5,6'-Heptabromodiphenyl ether		50 µg/mL	Isooctane	BDE-173S	
2,2',3,3',4,5,6'-Heptabromodiphenyl ether		50 µg/mL	Isooctane	BDE-174S	
2,2',3,3',4,5',6'-Heptabromodiphenyl ether		50 µg/mL	Isooctane	BDE-175S	
2,2',3,3',4,6,6'-Heptabromodiphenyl ether		50 µg/mL	Isooctane	BDE-176S	
2,2',3,3',4',5,6'-Heptabromodiphenyl ether		50 µg/mL	Isooctane	BDE-177S	
2,2',3,3',5,5',6'-Heptabromodiphenyl ether		50 µg/mL	Isooctane	BDE-178S	
2,2',3,3',5,6,6'-Heptabromodiphenyl ether		50 µg/mL	Isooctane	BDE-179S	
2,2',3,4,4',5,5'-Heptabromodiphenyl ether		50 µg/mL	Isooctane	BDE-180S	
2,2',3,4,4',5,6'-Heptabromodiphenyl ether	189084-67-1	50 µg/mL	Isooctane	BDE-181S	
2,2',3,4,4',5,6'-Heptabromodiphenyl ether		50 µg/mL	Isooctane	BDE-182S	
2,2',3,4,4',5',6'-Heptabromodiphenyl ether	207122-16-5	50 µg/mL	Isooctane	BDE-183S	
2,2',3,4,4',6,6'-Heptabromodiphenyl ether		50 µg/mL	Isooctane	BDE-184S	
2,2',3,4,5,5',6'-Heptabromodiphenyl ether		50 µg/mL	Isooctane	BDE-185S	
2,2',3,4,5,6,6'-Heptabromodiphenyl ether		50 µg/mL	Isooctane	BDE-186S	
2,2',3,4',5,5',6'-Heptabromodiphenyl ether		50 µg/mL	Isooctane	BDE-187S	
2,2',3,4',5,6,6'-Heptabromodiphenyl ether		50 µg/mL	Isooctane	BDE-188S	
2,3,3',4,4',5,5'-Heptabromodiphenyl ether		50 µg/mL	Isooctane	BDE-189S	
2,3,3',4,4',5,6'-Heptabromodiphenyl ether	189084-68-2	50 µg/mL	Isooctane	BDE-190S	
2,3,3',4,4',5',6'-Heptabromodiphenyl ether		50 µg/mL	Isooctane	BDE-191S	
2,3,3',4,5,5',6'-Heptabromodiphenyl ether		50 µg/mL	Isooctane	BDE-192S	
2,3,3',4',5,5',6'-Heptabromodiphenyl ether		50 µg/mL	Isooctane	BDE-193S	
2,2',3,3',4,4',5,5'-Octabromodiphenyl ether		50 µg/mL	Isooctane	BDE-194S	
2,2',3,3',4,4',5,6'-Octabromodiphenyl ether		50 µg/mL	Isooctane	BDE-195S	
2,2',3,3',4,4',5,6'-Octabromodiphenyl ether		50 µg/mL	Isooctane	BDE-196S	
2,2',3,3',4,4',6,6'-Octabromodiphenyl ether		50 µg/mL	Isooctane	BDE-197S	
2,2',3,3',4,5,5',6'-Octabromodiphenyl ether		50 µg/mL	Isooctane	BDE-198S	
2,2',3,3',4,5,5',6'-Octabromodiphenyl ether		25 µg/mL	Isooctane	BDE-199S-0.5X	
2,2',3,3',4,5,6,6'-Octabromodiphenyl ether		25 µg/mL	Isooctane	BDE-200S-0.5X	
2,2',3,3',4,5',6,6'-Octabromodiphenyl ether		50 µg/mL	Isooctane	BDE-201S	
2,2',3,3',5,5',6,6'-Octabromodiphenyl ether		50 µg/mL	Isooctane	BDE-202S	
2,2',3,4,4',5,5',6'-Octabromodiphenyl ether	337513-72-1	50 µg/mL	Isooctane	BDE-203S	
2,2',3,4,4',5,6,6'-Octabromodiphenyl ether		50 µg/mL	Isooctane	BDE-204S	
2,3,3',4,4',5,5',6'-Octabromodiphenyl ether	446255-56-7	50 µg/mL	Isooctane	BDE-205S	
2,2',3,3',4,4',5,5',6'-Nonabromodiphenyl ether	63387-28-0	50 µg/mL	Isooctane	BDE-206S	
2,2',3,3',4,4',5,6,6'-Nonabromodiphenyl ether	437701-79-6	50 µg/mL	Isooctane	BDE-207S-R1	
2,2',3,3',4,5,5',6,6'-Nonabromodiphenyl ether		50 µg/mL	Isooctane	BDE-208S	
Decabromodiphenyl ether	1163-19-5	50 µg/mL	Isooctane: Toluene (90:10)	BDE-209S	
Internal Standard	Short Form (4'-CI-BDE-208)				
4'-Chloro-2,2',3,3',4,5,5',6,6'-Nonabromodiphenyl ether		10 µg/mL	Isooctane	CBDE-001S-0.2X	
		50 µg/mL	Isooctane	CBDE-001S	

Polybrominated Diphenyl Ether (PBDE)

Tech Grade PBDEs, Specific Mixes & Calibration Curve



Technical Grade PBDEs

PBDE Technical Grade

50 µg/mL in Isooctane	Cat. No.	1 mL
Bromkal™ DE-70-5 (Pentas)	BDE-705	
Bromkal DE-71 (Pentas)	BDE-710	
Bromkal DE-73-6 (Hexas)	BDE-736	
Bromkal DE-79-8 (Octas)	BDE-798S	
FR-300BA (Deca)	FRS-009S	
100 µg/mL in Toluene		

Bromkal™ is a registered Trade Mark of Chemische Fabrik Kalk

PBDE Congeners common to Technical Mixtures (Bromkal™)

BDE-BROMKAL	1 x 1 mL
10 µg/mL each in Isooctane	6 comps.
28 2,2',4,4'-Tribromodiphenyl ether	
47 2,2',4,4'-Tetrabromodiphenyl ether	
99 2,2',4,4',5-Pentabromodiphenyl ether	
100 2,2',4,4',6-Pentabromodiphenyl ether	
153 2,2',4,4',5,5'-Hexabromodiphenyl ether	
154 2,2',4,4',5,6'-Hexabromodiphenyl ether	

DE-71 (Pentas) Great Lakes

BDE-710-GL	1 x 1 mL
50 µg/mL each in Isooctane	
Bromkal DE-71	

DE-79 (Octas) Great Lakes

BDE-798S-GL	1 x 1 mL
50 µg/mL each in Isooctane	
DE-79 (Great Lakes)	

Specific Mixtures

PBDEs Common in the Environment

BDE-USE	1 x 1 mL
10 µg/mL each in Isooctane	5 comps.
47 2,2',4,4'-Tetrabromodiphenyl ether	
99 2,2',4,4',5-Pentabromodiphenyl ether	
100 2,2',4,4',6-Pentabromodiphenyl ether	
153 2,2',4,4',5,5'-Hexabromodiphenyl ether	
154 2,2',4,4',5,6'-Hexabromodiphenyl ether	

PBDEs - Columbia River Study

BDE-CR	1 x 1 mL
10 µg/mL each in Isooctane	12 comps.
15 4,4'-Dibromodiphenyl ether	
28 2,2',4,4'-Tribromodiphenyl ether	
33 2',3,4-Tribromodiphenyl ether	
47 2,2',4,4'-Tetrabromodiphenyl ether	
49 2,2',4,5'-Tetrabromodiphenyl ether	
66 2,3',4,4'-Tetrabromodiphenyl ether	
75 2,4,4',6-Tetrabromodiphenyl ether	
99 2,2',4,4',5-Pentabromodiphenyl ether	
100 2,2',4,4',6-Pentabromodiphenyl ether	
153 2,2',4,4',5,5'-Hexabromodiphenyl ether	
154 2,2',4,4',5,6'-Hexabromodiphenyl ether	
155 2,2',4,4',6,6'-Hexabromodiphenyl ether	

PBDEs Common to California Environment

BDE-CAE-1	1 x 1 mL
10 µg/mL each in Isooctane	7 comps.
28 2,2',4,4'-Tribromodiphenyl ether	
33 2',3,4-Tribromodiphenyl ether	
47 2,2',4,4'-Tetrabromodiphenyl ether	
99 2,2',4,4',5-Pentabromodiphenyl ether	
100 2,2',4,4',6-Pentabromodiphenyl ether	
153 2,2',4,4',5,5'-Hexabromodiphenyl ether	
154 2,2',4,4',5,6'-Hexabromodiphenyl ether	

PBDEs - Lake Michigan Study

BDE-LMS	1 x 1 mL
10 µg/mL each in Isooctane	9 comps.
28 2,2',4,4'-Tribromodiphenyl ether	
47 2,2',4,4'-Tetrabromodiphenyl ether	
66 2,3',4,4'-Tetrabromodiphenyl ether	
85 2,2',3,4,4'-Pentabromodiphenyl ether	
99 2,2',4,4',5-Pentabromodiphenyl ether	
100 2,2',4,4',6-Pentabromodiphenyl ether	
138 2,2',3,4,4',5'-Hexabromodiphenyl ether	
153 2,2',4,4',5,5'-Hexabromodiphenyl ether	
154 2,2',4,4',5,6'-Hexabromodiphenyl ether	

California Method 750-M Standard

BDE-CALEWS	1 x 1 mL
10 µg/mL each in Isooctane	13 comps.
17 2,2',4-Tribromodiphenyl ether	
28 2,2',4,4'-Tribromodiphenyl ether	
47 2,2',4,4'-Tetrabromodiphenyl ether	
66 2,3',4,4'-Tetrabromodiphenyl ether	
71 2,3',4,6-Tetrabromodiphenyl ether	
99 2,2',4,4',5-Pentabromodiphenyl ether	
100 2,2',4,4',6-Pentabromodiphenyl ether	
138 2,2',3,4,4',5'-Hexabromodiphenyl ether	
153 2,2',4,4',5,5'-Hexabromodiphenyl ether	
154 2,2',4,4',5,6'-Hexabromodiphenyl ether	
183 2,2',3,4,4',5',6-Heptabromodiphenyl ether	
209 Decabromodiphenyl ether	
2,2',6,6'-Tetrabromobisphenol A	

Method 527 - PBDE Standard

M-527-BDE	1 x 1 mL
50 µg/mL each in Isooctane:Ethyl Acetate (80:20)	5 comps.
47 2,2',4,4'-Tetrabromodiphenyl ether	
100 2,2',4,4',6-Pentabromodiphenyl ether	
99 2,2',4,4',5-Pentabromodiphenyl ether	
153 2,2',4,4',5,5'-Hexabromodiphenyl ether	
2,2',4,4',5,5'-Hexabromodiphenyl	

Calibration Curve

ISO/DIS 22032 Calibration Curve Set

ISO/DIS-22032-SET

At stated conc. (ng/mL) in Isooctane

ISO/DIS-22032	01	02	03	04	05	06	07
47 2,2',4,4'-Tetrabromodiphenyl ether	5	12.5	25	50	100	150	250
99 2,2',4,4',5-Pentabromodiphenyl ether	5	12.5	25	50	100	150	250
100 2,2',4,4',6-Pentabromodiphenyl ether	5	12.5	25	50	100	150	250
153 2,2',4,4',5,5'-Hexabromodiphenyl ether	5	12.5	25	50	100	150	250
154 2,2',4,4',5,6'-Hexabromodiphenyl ether	5	12.5	25	50	100	150	250
183 2,2',3,4,4',5',6-Heptabromodiphenyl ether	5	12.5	25	50	100	150	250
205 2,3,3',4,4',5,5',6-Octabromodiphenyl ether	5	12.5	25	50	100	150	250
209 Decabromodiphenyl ether	25	50	100	200	500	700	1000

ISO/DIS 22032 Internal Standard for BDE-47, 99 & 100

ISO22032-IS-1-5ML	1 x 5 mL
ISO22032-IS-1-10ML	1 x 10 mL
100 ng/mL each in Isooctane	
3,3',4,4'-Tetrabromodiphenyl ether	

ISO/DIS 22032 Internal Standard for BDE-153, 154 & 183

ISO22032-IS-2-5ML	1 x 5 mL
ISO22032-IS-2-10ML	1 x 10 mL
100 ng/mL each in Isooctane	
2,2',3,4,4',5,6-Heptabromodiphenyl ether	



EPA Method 1614

Method 1614

Method 1614 Brominated Diphenyl Ethers in Water, Soil, Sediment and Tissue by HRGC/HRMS

PBDEs Standard Solution for Accuracy and Precision

At stated conc. in Isooctane	39 comps.	BDE-AAP-A	BDE-AAP-A-15X
		1 mL (ng/mL)	1 mL (µg/mL)
1	2-Bromodiphenyl ether	100	1.5
2	3-Bromodiphenyl ether	100	1.5
3	4-Bromodiphenyl ether	100	1.5
7	2,4-Dibromodiphenyl ether	100	1.5
8	2,4'-Dibromodiphenyl ether	100	1.5
10	2,6-Dibromodiphenyl ether	100	1.5
11	3,3'-Dibromodiphenyl ether	100	1.5
12	3,4-Dibromodiphenyl ether	100	1.5
13	3,4'-Dibromodiphenyl ether	100	1.5
15	4,4'-Dibromodiphenyl ether	100	1.5
17	2,2',4,-Tribromodiphenyl ether	100	1.5
25	2,3',4-Tribromodiphenyl ether	100	1.5
28	2,4,4'-Tribromodiphenyl ether	100	1.5
30	2,4,6-Tribromodiphenyl ether	100	1.5
32	2,4',6-Tribromodiphenyl ether	100	1.5
33	2',3,4-Tribromodiphenyl ether	100	1.5
35	3,3',4-Tribromodiphenyl ether	100	1.5
37	3,4,4'-Tribromodiphenyl ether	100	1.5
47	2,2',4,4'-Tetrabromodiphenyl ether	100	1.5
49	2,2',4,5'-Tetrabromodiphenyl ether	100	1.5
66	2,3',4,4'-Tetrabromodiphenyl ether	100	1.5
71	2,3',4',6-Tetrabromodiphenyl ether	100	1.5
75	2,4,4',6-Tetrabromodiphenyl ether	100	1.5
77	3,3',4,4'-Tetrabromodiphenyl ether	100	1.5
85	2,2',3,4,4'-Pentabromodiphenyl ether	150	2.25
99	2,2',4,4',5-Pentabromodiphenyl ether	150	2.25
100	2,2',4,4',6-Pentabromodiphenyl ether	150	2.25
116	2,3,4,5,6-Pentabromodiphenyl ether	150	2.25
118	2,3',4,4',5-Pentabromodiphenyl ether	150	2.25
119	2,3',4,4',6-Pentabromodiphenyl ether	150	2.25
126	3,3',4,4',5-Pentabromodiphenyl ether	150	2.25
138	2,2',3,4,4',5'-Hexabromodiphenyl ether	200	3.0
153	2,2',4,4',5,5'-Hexabromodiphenyl ether	200	3.0
154	2,2',4,4',5,6'-Hexabromodiphenyl ether	200	3.0
155	2,2',4,4',6,6'-Hexabromodiphenyl ether	200	3.0
166	2,3,4,4',5,6-Hexabromodiphenyl ether	200	3.0
181	2,2',3,4,4',5,6-Heptabromodiphenyl ether	250	3.75
183	2,2',3,4,4',5',6-Heptabromodiphenyl ether	250	3.75
190	2,3,3',4,4',5,6-Heptabromodiphenyl ether	250	3.75

Commonly Occurring PBDE Congeners for Precision and Recovery

BDE-COC	1 x 1 mL	
At stated conc. (µg/mL) in Isooctane	14 comps.	
17	2,2',4,-Tribromodiphenyl ether	5
28	2,4,4'-Tribromodiphenyl ether	5
47	2,2',4,4'-Tetrabromodiphenyl ether	5
66	2,3',4,4'-Tetrabromodiphenyl ether	5
71	2,3',4',6-Tetrabromodiphenyl ether	5
85	2,2',3,4,4'-Pentabromodiphenyl ether	5
99	2,2',4,4',5-Pentabromodiphenyl ether	5
100	2,2',4,4',6-Pentabromodiphenyl ether	5
138	2,2',3,4,4',5'-Hexabromodiphenyl ether	5
153	2,2',4,4',5,5'-Hexabromodiphenyl ether	5
154	2,2',4,4',5,6'-Hexabromodiphenyl ether	5
183	2,2',3,4,4',5',6-Heptabromodiphenyl ether	5
190	2,3,3',4,4',5,6-Heptabromodiphenyl ether	5
209	Decabromodiphenyl ether	25

PBDE Congeners of Primary Interest

BDE-CSM	1 x 1 mL	
At stated conc. (µg/mL) in Isooctane	8 comps.	
28	2,4,4'-Tribromodiphenyl ether	20
47	2,2',4,4'-Tetrabromodiphenyl ether	20
99	2,2',4,4',5-Pentabromodiphenyl ether	20
100	2,2',4,4',6-Pentabromodiphenyl ether	20
153	2,2',4,4',5,5'-Hexabromodiphenyl ether	20
154	2,2',4,4',5,6'-Hexabromodiphenyl ether	20
183	2,2',3,4,4',5',6-Heptabromodiphenyl ether	20
209	Decabromodiphenyl ether	200

Technical Note

Responding to the need for an analytical method for polybrominated diphenyl ether (PBDE) congeners, the EPA has developed Method 1614. Method 1614 is recommended for analysis of aqueous, solid, tissue, and multi-phase environmental samples.

Calibration Mix

BDE-CM	1 x 1 mL	
At stated conc. (µg/mL) in Isooctane	8 comps.	
28	2,4,4'-Tribromodiphenyl ether	2.5
47	2,2',4,4'-Tetrabromodiphenyl ether	2.5
99	2,2',4,4',5-Pentabromodiphenyl ether	2.5
100	2,2',4,4',6-Pentabromodiphenyl ether	2.5
153	2,2',4,4',5,5'-Hexabromodiphenyl ether	2.5
154	2,2',4,4',5,6'-Hexabromodiphenyl ether	2.5
183	2,2',3,4,4',5',6-Heptabromodiphenyl ether	2.5
209	Decabromodiphenyl ether	25

Matrix Spiking Solution

BDE-MS	1 x 1 mL	
At stated conc. (ng/mL) in Isooctane	8 comps.	
28	2,4,4'-Tribromodiphenyl ether	1
47	2,2',4,4'-Tetrabromodiphenyl ether	1
99	2,2',4,4',5-Pentabromodiphenyl ether	1
100	2,2',4,4',6-Pentabromodiphenyl ether	1
153	2,2',4,4',5,5'-Hexabromodiphenyl ether	1
154	2,2',4,4',5,6'-Hexabromodiphenyl ether	1
183	2,2',3,4,4',5',6-Heptabromodiphenyl ether	1
209	Decabromodiphenyl ether	10

PBDEs in Method 1614

BDE-EPA-SET	8 x 1 mL	
50 µg/mL each in Isooctane	8 comps.	
28	2,4,4'-Tribromodiphenyl ether	1
47	2,2',4,4'-Tetrabromodiphenyl ether	1
99	2,2',4,4',5-Pentabromodiphenyl ether	1
100	2,2',4,4',6-Pentabromodiphenyl ether	1
153	2,2',4,4',5,5'-Hexabromodiphenyl ether	1
154	2,2',4,4',5,6'-Hexabromodiphenyl ether	1
183	2,2',3,4,4',5',6-Heptabromodiphenyl ether	1
209	Decabromodiphenyl ether	10



Hydroxy and Methoxy Polybromodiphenyl Ether Congeners

Hydroxylated and methoxylated PBDEs may be formed as metabolites of the PBDE flame retardants. Hydroxylated PBDEs (OH-PBDEs) have been detected in human blood, mice, rats, fish and birds. They have been studied for their potential to disrupt the endocrine (hormone) system in mammals. One important aspect of these studies is the structural similarity of some of the OH-PBDEs with the thyroid hormones which affect every cell in the body. We have synthesized a variety of hydroxylated and methoxylated PBDEs. HBDE-3007 (T2-like), HBDE-4010 (T3-like), and HBDE-5010 (T4-like) display the closest similarity to the halogen substitution pattern of those thyroid hormones.

AccuStandard recognizes the significance of this on-going research and is supporting it by providing the necessary reference standards. Please check the website for the latest update of synthesized OH- and MeO-PBDEs, or request specific congeners to be synthesized.

Short Form	Compound	Conc.	Solvent	Cat. No.	1 mL
Hydroxy					
2'-OH-BDE-003	2'-Hydroxy-4-monobromodiphenyl ether	50 µg/mL	AcCN	HBDE-1001S-CN	
3'-OH-BDE-007	3'-Hydroxy-2,4-dibromodiphenyl ether	50 µg/mL	AcCN	HBDE-2001S-CN	
2'-OH-BDE-007	2'-Hydroxy-2,4-dibromodiphenyl ether	10 µg/mL	AcCN	HBDE-2002S-CN-0.2X	
2'-OH-BDE-009	2'-Hydroxy-2,5-dibromodiphenyl ether	50 µg/mL	AcCN	HBDE-2003S-CN	
4'-OH-BDE-007	4'-Hydroxy-2,4-dibromodiphenyl ether	10 µg/mL	AcCN	HBDE-2004S-CN-0.2X	
		50 µg/mL	AcCN	HBDE-2004S-CN	
4'-OH-BDE-017	4'-Hydroxy-2,2',4-tribromodiphenyl ether	50 µg/mL	AcCN	HBDE-3001S-CN	
3'-OH-BDE-028	3'-Hydroxy-2,4,4'-tribromodiphenyl ether	50 µg/mL	AcCN	HBDE-3002S-CN	
2'-OH-BDE-028	2'-Hydroxy-2,4,4'-tribromodiphenyl ether	50 µg/mL	AcCN	HBDE-3003S-CN	
5'-OH-BDE-025	5'-Hydroxy-2,3',4-tribromodiphenyl ether	50 µg/mL	AcCN	HBDE-3004S-CN	
3'-OH-BDE-029	3'-Hydroxy-2,4,5-tribromodiphenyl ether	50 µg/mL	AcCN	HBDE-3005S-CN	
3'-OH-BDE-030	3'-Hydroxy-2,4,6-tribromodiphenyl ether	50 µg/mL	AcCN	HBDE-3006S-CN	
4'-OH-BDE-030	4'-Hydroxy-2,4,6-tribromodiphenyl ether	50 µg/mL	AcCN	HBDE-3007S-CN	
4'-OH-BDE-042	4'-Hydroxy-2,2',3,4'-tetrabromodiphenyl ether	10 µg/mL	AcCN	HBDE-4001S-CN-0.2X	
4'-OH-BDE-049	4'-Hydroxy-2,2',4,5'-tetrabromodiphenyl ether	10 µg/mL	AcCN	HBDE-4002S-CN-0.2X	
3'-OH-BDE-047	3'-Hydroxy-2,2',4,4'-tetrabromodiphenyl ether	50 µg/mL	AcCN	HBDE-4003S-CN	
5'-OH-BDE-047	5'-Hydroxy-2,2',4,4'-tetrabromodiphenyl ether	50 µg/mL	AcCN	HBDE-4004S-CN	
6'-OH-BDE-047	6'-Hydroxy-2,2',4,4'-tetrabromodiphenyl ether	10 µg/mL	AcCN	HBDE-4005S-CN-0.2X	
		10 µg/mL	Toluene	HBDE-4005S-T-0.2X	
2'-OH-BDE-068	2'-Hydroxy-2,3',4,5'-tetrabromodiphenyl ether	10 µg/mL	AcCN	HBDE-4006S-CN-0.2X	
		10 µg/mL	Toluene	HBDE-4006S-T-0.2X	
		50 µg/mL	AcCN	HBDE-4006S-CN	
		50 µg/mL	Toluene	HBDE-4006S-T	
6'-OH-BDE-066	6'-Hydroxy-2,3',4,4'-tetrabromodiphenyl ether	50 µg/mL	AcCN	HBDE-4008S-CN	
4'-OH-BDE-069	4'-Hydroxy-2,3',4,6-tetrabromodiphenyl ether	50 µg/mL	AcCN	HBDE-4010S-CN	
4'-OH-BDE-048	4'-Hydroxy-2,2',4,5-tetrabromodiphenyl ether	50 µg/mL	AcCN	HBDE-4011S-CN	
6'-OH-BDE-061	6'-Hydroxy-2,3,4,5-tetrabromodiphenyl ether	50 µg/mL	AcCN	HBDE-4012S-CN	
4'-OH-BDE-090	4'-Hydroxy-2,2',3,4',5-pentabromodiphenyl ether	10 µg/mL	AcCN	HBDE-5001S-CN-0.2X	
6'-OH-BDE-085	6'-Hydroxy-2,2',3,4,4'-pentabromodiphenyl ether	10 µg/mL	AcCN	HBDE-5002S-CN-0.2X	
6'-OH-BDE-087	6'-Hydroxy-2,2',3,4,5'-pentabromodiphenyl ether	10 µg/mL	AcCN	HBDE-5003S-CN-0.2X	
5'-OH-BDE-100	5'-Hydroxy-2,2',4,4',6-pentabromodiphenyl ether	10 µg/mL	AcCN	HBDE-5004S-CN-0.2X	
6'-OH-BDE-082	6'-Hydroxy-2,2',3,3',4-pentabromodiphenyl ether	10 µg/mL	AcCN	HBDE-5005S-CN-0.2X	
6'-OH-BDE-099	6'-Hydroxy-2,2',4,4',5-pentabromodiphenyl ether	10 µg/mL	AcCN	HBDE-5006S-CN-0.2X	
5'-OH-BDE-099	5'-Hydroxy-2,2',4,4',5-pentabromodiphenyl ether	10 µg/mL	AcCN	HBDE-5007S-CN-0.2X	
3'-OH-BDE-100	3'-Hydroxy-2,2',4,4',6-pentabromodiphenyl ether	50 µg/mL	AcCN	HBDE-5008S-CN	
4'-OH-BDE-101	4'-Hydroxy-2,2',4,5,5'-pentabromodiphenyl ether	50 µg/mL	AcCN	HBDE-5009S-CN	
4'-OH-BDE-121	4'-Hydroxy-2,3',4,5',6-pentabromodiphenyl ether	50 µg/mL	AcCN	HBDE-5010S-CN	
6'-OH-BDE-123	6'-Hydroxy-2',3,4,4',5-pentabromodiphenyl ether	50 µg/mL	AcCN	HBDE-5011S-CN	
6'-OH-BDE-157	6'-Hydroxy-2,3,3',4,4',5'-hexabromodiphenyl ether	10 µg/mL	AcCN	HBDE-6001S-CN-0.2X	
6'-OH-BDE-140	6'-Hydroxy-2,2',3,4,4',6'-hexabromodiphenyl ether	10 µg/mL	AcCN	HBDE-6002S-CN-0.2X	
3'-OH-BDE-154	3'-Hydroxy-2,2',4,4',5,6'-hexabromodiphenyl ether	10 µg/mL	AcCN	HBDE-6003S-CN-0.2X	
6'-OH-BDE-137	6'-Hydroxy-2,2',3,4,4',5'-hexabromodiphenyl ether	10 µg/mL	AcCN	HBDE-6004S-CN-0.2X	
3'-OH-BDE-155	3'-Hydroxy-2,2',4,4',6,6'-hexabromodiphenyl ether	10 µg/mL	AcCN	HBDE-6005S-CN-0.2X	
		50 µg/mL	AcCN	HBDE-6005S-CN	
4'-OH-BDE-146	4'-Hydroxy-2,2',3,4',5,5'-hexabromodiphenyl ether	10 µg/mL	AcCN	HBDE-6006S-CN-0.2X	
		50 µg/mL	AcCN	HBDE-6006S-CN	190
		50 µg/mL	Isooctane	HBDE-6006S	
4'-OH-BDE-187	4'-Hydroxy-2,2',3,4',5,5',6-heptabromodiphenyl ether	50 µg/mL	AcCN	HBDE-7001S-CN	
6'-OH-BDE-180	6'-Hydroxy-2,2',3,4,4',5,5'-heptabromodiphenyl ether	50 µg/mL	AcCN	HBDE-7002S-CN	
4'-OH-BDE-188	4'-Hydroxy-2,2',3,4',5,6,6'-heptabromodiphenyl ether	50 µg/mL	AcCN	HBDE-7003S-CN	
6'-OH-BDE-182	6'-Hydroxy-2,2',3,4,4',5,6'-heptabromodiphenyl ether	50 µg/mL	AcCN	HBDE-7004S-CN-0.2X	
6'-OH-BDE-170	6'-Hydroxy-2,2',3,3',4,4',5-heptabromodiphenyl ether	50 µg/mL	AcCN	HBDE-7005S-CN	
4'-OH-BDE-201	4'-Hydroxy-2,2',3,3',4,5',6,6'-octabromodiphenyl ether	50 µg/mL	AcCN	HBDE-8001S-CN	
Methoxy					
2'-MeO-BDE-003	2'-Methoxy-4-monobromodiphenyl ether	50 µg/mL	MeOH	MOBDE-1001S	
3'-MeO-BDE-007	3'-Methoxy-2,4-dibromodiphenyl ether	50 µg/mL	MeOH	MOBDE-2001S	
2'-MeO-BDE-007	2'-Methoxy-2,4-dibromodiphenyl ether	10 µg/mL	MeOH	MOBDE-2002S-0.2X	
2'-MeO-BDE-009	2'-Methoxy-2,5-dibromodiphenyl ether	50 µg/mL	MeOH	MOBDE-2003S	
4'-MeO-BDE-007	4'-Methoxy-2,4-dibromodiphenyl ether	10 µg/mL	MeOH	MOBDE-2004S-0.2X	
		50 µg/mL	MeOH	MOBDE-2004S	
4'-MeO-BDE-017	4'-Methoxy-2,2',4-tribromodiphenyl ether	50 µg/mL	MeOH	MOBDE-3001S	
3'-MeO-BDE-028	3'-Methoxy-2,4,4'-tribromodiphenyl ether	50 µg/mL	MeOH	MOBDE-3002S	
2'-MeO-BDE-028	2'-Methoxy-2,4,4'-tribromodiphenyl ether	50 µg/mL	MeOH	MOBDE-3003S	
5'-MeO-BDE-025	5'-Methoxy-2,3',4-tribromodiphenyl ether	50 µg/mL	MeOH	MOBDE-3004S	
3'-MeO-BDE-029	3'-Methoxy-2,4,5-tribromodiphenyl ether	50 µg/mL	MeOH	MOBDE-3005S	
3'-MeO-BDE-030	3'-Methoxy-2,4,6-tribromodiphenyl ether	50 µg/mL	MeOH	MOBDE-3006S	
4'-MeO-BDE-030	4'-Methoxy-2,4,6-tribromodiphenyl ether	50 µg/mL	MeOH	MOBDE-3007S	

Methoxy PBDE Congeners continued on next page



PBDE Metabolites

Methoxy Polybromodiphenyl Ether Congeners (Continued)

Short Form	Compound	Conc.	Solvent	Cat. No.	1 mL
4-MeO-BDE-042	4-Methoxy-2,2',3,4'-tetrabromodiphenyl ether	10 µg/mL	MeOH	MOBDE-4001S-0.2X	
4'-MeO-BDE-049	4'-Methoxy-2,2',4,5'-tetrabromodiphenyl ether	10 µg/mL	MeOH	MOBDE-4002S-0.2X	
3-MeO-BDE-047	3-Methoxy-2,2',4,4'-tetrabromodiphenyl ether	50 µg/mL	MeOH	MOBDE-4003S	
5-MeO-BDE-047	5-Methoxy-2,2',4,4'-tetrabromodiphenyl ether	50 µg/mL	MeOH	MOBDE-4004S	
6-MeO-BDE-047	6-Methoxy-2,2',4,4'-tetrabromodiphenyl ether	10 µg/mL	MeOH	MOBDE-4005S-0.2X	
2'-MeO-BDE-068	2'-Methoxy-2,3',4,5'-tetrabromodiphenyl ether	10 µg/mL	MeOH	MOBDE-4006S-0.2X	
2'-MeO-BDE-075	2'-Methoxy-2,4,4',6-tetrabromodiphenyl ether	50 µg/mL	MeOH	MOBDE-4007S	
6'-MeO-BDE-066	6'-Methoxy-2,3',4,4'-tetrabromodiphenyl ether	50 µg/mL	MeOH	MOBDE-4008S	
5'-MeO-BDE-069	5'-Methoxy-2,3',4,6-tetrabromodiphenyl ether	10 µg/mL	MeOH	MOBDE-4009S-0.2X	
		50 µg/mL	MeOH	MOBDE-4009S	
4'-MeO-BDE-069	4'-Methoxy-2,3',4,6-tetrabromodiphenyl ether	50 µg/mL	MeOH	MOBDE-4010S	
4'-MeO-BDE-048	4'-Methoxy-2,2',4,5-tetrabromodiphenyl ether	50 µg/mL	MeOH	MOBDE-4011S	
6-MeO-BDE-061	6-Methoxy-2,3,4,5-tetrabromodiphenyl ether	50 µg/mL	MeOH	MOBDE-4012S-TP	
4-MeO-BDE-090	4-Methoxy-2,2',3,4,5-pentabromodiphenyl ether	10 µg/mL	MeOH	MOBDE-5001S-0.2X	
6-MeO-BDE-085	6-Methoxy-2,2',3,4,4'-pentabromodiphenyl ether	10 µg/mL	MeOH	MOBDE-5002S-0.2X	
6-MeO-BDE-087	6-Methoxy-2,2',3,4,5'-pentabromodiphenyl ether	10 µg/mL	MeOH	MOBDE-5003S-0.2X	
5'-MeO-BDE-100	5'-Methoxy-2,2',4,4',6-pentabromodiphenyl ether	50 µg/mL	MeOH	MOBDE-5004S	
6-MeO-BDE-082	6-Methoxy-2,2',3,3',4-pentabromodiphenyl ether	10 µg/mL	MeOH	MOBDE-5005S-0.2X	
6'-MeO-BDE-099	6'-Methoxy-2,2',4,4',5-pentabromodiphenyl ether	10 µg/mL	MeOH	MOBDE-5006S-0.2X	
5'-MeO-BDE-099	5'-Methoxy-2,2',4,4',5-pentabromodiphenyl ether	10 µg/mL	MeOH	MOBDE-5007S-0.2X	
3-MeO-BDE-100	3-Methoxy-2,2',4,4',6-pentabromodiphenyl ether	50 µg/mL	MeOH	MOBDE-5008S	
4'-MeO-BDE-101	4'-Methoxy-2,2',4,5,5'-pentabromodiphenyl ether	50 µg/mL	MeOH	MOBDE-5009S	
4'-MeO-BDE-121	4'-Methoxy-2,3',4,4',6-pentabromodiphenyl ether	50 µg/mL	MeOH	MOBDE-5010S	
6-MeO-BDE-123	6-Methoxy-2',3,4,4',5-pentabromodiphenyl ether	50 µg/mL	MeOH	MOBDE-5011S	
6-MeO-BDE-157	6-Methoxy-2,3,3',4,4',5'-hexabromodiphenyl ether	10 µg/mL	MeOH	MOBDE-6001S-0.2X	
6-MeO-BDE-140	6-Methoxy-2,2',3,4,4',6'-hexabromodiphenyl ether	10 µg/mL	MeOH	MOBDE-6002S-0.2X	
3'-MeO-BDE-154	3'-Methoxy-2,2',4,4',5,6'-hexabromodiphenyl ether	10 µg/mL	MeOH	MOBDE-6003S-0.2X	
6-MeO-BDE-137	6-Methoxy-2,2',3,4,4',5-hexabromodiphenyl ether	10 µg/mL	MeOH	MOBDE-6004S-0.2X	
3-MeO-BDE-155	3-Methoxy-2,2',4,4',6,6'-hexabromodiphenyl ether	10 µg/mL	MeOH	MOBDE-6005S-0.2X	
		50 µg/mL	MeOH	MOBDE-6005S	
4-MeO-BDE-146	4-Methoxy-2,2',3,4',5,5'-hexabromodiphenyl ether	10 µg/mL	MeOH	MOBDE-6006S-0.2X	
4-MeO-BDE-187	4-Methoxy-2,2',3,4',5,5',6-heptabromodiphenyl ether	50 µg/mL	MeOH	MOBDE-7001S	
6-MeO-BDE-180	6-Methoxy-2,2',3,4,4',5,5'-heptabromodiphenyl ether	50 µg/mL	MeOH	MOBDE-7002S	
4-MeO-BDE-188	4-Methoxy-2,2',3,4',5,6,6'-heptabromodiphenyl ether	50 µg/mL	MeOH	MOBDE-7003S	
6-MeO-BDE-182	6-Methoxy-2,2',3,4,4',5,6'-heptabromodiphenyl ether	10 µg/mL	MeOH	MOBDE-7004S-0.2X	
6-MeO-BDE-170	6-Methoxy-2,2',3,3',4,4',5-heptabromodiphenyl ether	50 µg/mL	Isocetane	MOBDE-7005S-TP	
4'-MeO-BDE-201	4'-Methoxy-2,2',3,3',4,4',5',6'-octabromodiphenyl ether	50 µg/mL	MeOH	MOBDE-8001S	

Mixed Bromo/Chloro Hydroxylated Diphenyl Ethers

The abundance of PBDEs in the environment led to the increased detection of hydroxylated PBDEs (OH-PBDEs) as well as their chlorinated derivatives (OH-PBCDEs), especially in aquatic environments.

In saltwater systems, some of the OH-PBDEs are being produced naturally; in freshwater systems, atmospheric and wastewater treatment oxidation seems to be the major source of these compounds. Furthermore, disinfection of wastewater with chlorine may lead to the chlorination of OH-PBDEs. These mixed bromo/chloro hydroxy diphenyl ethers (OH-PBCDEs) can then undergo photochemical cyclization in the presence of sunlight to form the potentially even more harmful brominated/chlorinated dibenzo-p-dioxins (Br/Cl-DDs). There is growing concern that both naturally and anthropogenically produced PBDDs and Br/Cl-DDs are an emerging environmental problem.

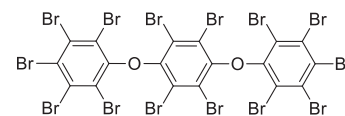
At AccuStandard, following the lead of environmental chemists, we recognize the emerging problem of the presence of OH-PBCDEs. We have synthesized three OH-PBCDEs and their methylated counterparts to provide reference standards for this new group of compounds. All three chlorinated OH-PBDEs are based on the structure of BDE-47, the most common BDE congener found in environmental samples.

Compound (Short Form)	Conc.	Solvent	Cat. No.	1 mL
Hydroxy				
3-Chloro-6-hydroxy-2,2',4,4'-tetrabromodiphenyl ether (3-Cl-6-OH-BDE-047)	25 µg/mL	AcCN	HCBDDE-4001S-0.5X	
	50 µg/mL	AcCN	HCBDDE-4001S	
3,5-Dichloro-6-hydroxy-2,2',4,4'-tetrabromodiphenyl ether (3,5-Cl2-6-OH-BDE-047)	25 µg/mL	AcCN	HCBDDE-4002S-0.5X	
	50 µg/mL	AcCN	HCBDDE-4002S	
5-Chloro-6-hydroxy-2,2',4,4'-tetrabromodiphenyl ether (5-Cl-6-OH-BDE-047)	25 µg/mL	AcCN	HCBDDE-4003S-0.5X	
	50 µg/mL	AcCN	HCBDDE-4003S	
Methoxy				
3-Chloro-6-methoxy-2,2',4,4'-tetrabromodiphenyl ether (3-Cl-6-MeO-BDE-047)	25 µg/mL	MeOH	MOCBDE-4001S-0.5X	
	50 µg/mL	MeOH	MOCBDE-4001S	
3,5-Dichloro-6-methoxy-2,2',4,4'-tetrabromodiphenyl ether (3,5-Cl2-6-MeO-BDE-047)	25 µg/mL	MeOH	MOCBDE-4002S-0.5X	
	50 µg/mL	MeOH	MOCBDE-4002S	
5-Chloro-6-methoxy-2,2',4,4'-tetrabromodiphenyl ether (5-Cl-6-MeO-BDE-047)	25 µg/mL	MeOH	MOCBDE-4003S-0.5X	
	50 µg/mL	MeOH	MOCBDE-4003S	

Tetradecabromodiphenoxy Benzene (TDBDPB) and Metabolites



Brominated flame retardants (BFRs) are widely used in various commercial products such as furniture, textiles, plastics, paints, and electronic appliances as additive and reactive substances to reduce flammability and hinder fire ignition.



There are at least 75 different BFRs which have been used in commercial products. One of them is tetradecabromodiphenoxybenzene (TDBDPB), a compound with a high molecular weight due to its 14 bromine atoms. It was promoted as a compound with low rates of bioaccumulation and excellent thermal and photolytic stability.

Now studies have shown that TDBDPB does undergo UV and natural sunlight degradation. The findings do not stop at the expected debromination products. Most recently various methoxylated debrominated TDBDPB metabolites were found in Herring Gull eggs from the Great Lakes of North America. G. Su et al has identified the spectra base structure of four MeO-pentabromoDPBs, a MeO-hexabromoDPB and a MeO-tetrabromoDPB as the metabolites.

To aid the ongoing research regarding the metabolism and environmental impact of TDBDPB, we have synthesized and now provide a variety of hydroxylated and methoxylated polybrominated diphenoxybenzene metabolites as well as polybrominated diphenoxybenzene degradation products as reference standards.

See Guanyong Su et al., Environ. Sci. Technol., 2016, 50 (15), pp 8335–8343

Katie L. Hill et al., Environ. Sci. Technol., Just Accepted Manuscript, Publication Date (Web): December 28, 2017.

Tetradecabromodiphenoxybenzene (TDBDPB) Metabolites

Compound	Matrix	Cat. No.	Unit
4"-Hydroxy-2,2',2",4-tetrabromodiphenoxybenzene	50 µg/mL in AcCN	HBDPB-401S	1 mL
4"-Hydroxy-2,2',3',4-tetrabromodiphenoxybenzene	50 µg/mL in AcCN	HBDPB-402S	1 mL
4"-Hydroxy-2,2',4,6-tetrabromodiphenoxybenzene	50 µg/mL in AcCN	HBDPB-403S	1 mL
6"-Hydroxy-2,2',4,5"-tetrabromodiphenoxybenzene	50 µg/mL in AcCN	HBDPB-404S	1 mL
4"-Hydroxy-2,2',4,5-tetrabromodiphenoxybenzene	50 µg/mL in AcCN	HBDPB-405S	1 mL
6"-Hydroxy-2,2',3",4-tetrabromodiphenoxybenzene	50 µg/mL in AcCN	HBDPB-406S	1 mL
6"-Hydroxy-2,3',3",4-tetrabromodiphenoxybenzene	50 µg/mL in AcCN	HBDPB-407S	1 mL
4"-Hydroxy-2,3',3",4-tetrabromodiphenoxybenzene	50 µg/mL in AcCN	HBDPB-408S	1 mL
4"-Hydroxy-2,2',3",4-tetrabromodiphenoxybenzene	50 µg/mL in AcCN	HBDPB-409S	1 mL
6"-Hydroxy-2,2',2",4-tetrabromodiphenoxy benzene	50 µg/mL in AcCN	HBDPB-410S	1 mL
4"-Hydroxy-2,2',2",4,5-pentabromodiphenoxybenzene	50 µg/mL in AcCN	HBDPB-501S	1 mL
6"-Hydroxy-2,2',3',4,5"-pentabromodiphenoxybenzene	50 µg/mL in AcCN	HBDPB-502S	1 mL
6"-Hydroxy-2,2',4,5",6-pentabromodiphenoxybenzene	50 µg/mL in AcCN	HBDPB-503S	1 mL
4"-Hydroxy-2,2',4,6,6'-pentabromodiphenoxybenzene	50 µg/mL in AcCN	HBDPB-504S	1 mL
6"-Hydroxy-2,2',2",4,5"-pentabromodiphenoxybenzene	50 µg/mL in AcCN	HBDPB-505S	1 mL
4"-Methoxy-2,2',2",4-tetrabromodiphenoxybenzene	50 µg/mL in AcCN	MOBDPB-401S	1 mL
4"-Methoxy-2,2',3',4-tetrabromodiphenoxybenzene	50 µg/mL in AcCN	MOBDPB-402S	1 mL
4"-Methoxy-2,2',4,6-tetrabromodiphenoxybenzene	50 µg/mL in AcCN	MOBDPB-403S	1 mL
6"-Methoxy-2,2',4,5"-tetrabromodiphenoxybenzene	50 µg/mL in AcCN	MOBDPB-404S	1 mL
4"-Methoxy-2,2',4,5-tetrabromodiphenoxybenzene	50 µg/mL in AcCN	MOBDPB-405S	1 mL
6"-Methoxy-2,2',3",4-tetrabromodiphenoxybenzene	50 µg/mL in AcCN	MOBDPB-406S	1 mL
6"-Methoxy-2,3',3",4-tetrabromodiphenoxybenzene	50 µg/mL in AcCN	MOBDPB-407S	1 mL
4"-Methoxy-2,3',3",4-tetrabromodiphenoxybenzene	50 µg/mL in AcCN	MOBDPB-408S	1 mL
4"-Methoxy-2,2',3",4-tetrabromodiphenoxybenzene	50 µg/mL in AcCN	MOBDPB-409S	1 mL
6"-Methoxy-2,2',2",4-tetrabromodiphenoxy benzene	50 µg/mL in AcCN	MOBDPB-410S	1 mL
4"-Methoxy-2,2',2",4,5-pentabromodiphenoxybenzene	50 µg/mL in AcCN	MOBDPB-501S	1 mL
6"-Methoxy-2,2',3',4,5"-pentabromodiphenoxybenzene	50 µg/mL in AcCN	MOBDPB-502S	1 mL
6"-Methoxy-2,2',4,5",6-pentabromodiphenoxybenzene	50 µg/mL in AcCN	MOBDPB-503S	1 mL
4"-Methoxy-2,2',4,6,6'-pentabromodiphenoxybenzene	50 µg/mL in AcCN	MOBDPB-504S	1 mL
6"-Methoxy-2,2',2",4,5"-pentabromodiphenoxy benzene	50 µg/mL in AcCN	MOBDPB-505S	1 mL
2,2',4,4"-Tetrabromodiphenoxybenzene	50 µg/mL in AcCN	BDPB-401S	1 mL
2,2',2",4-Tetrabromodiphenoxybenzene	50 µg/mL in AcCN	BDPB-402S	1 mL
2,2',2",4,4"-Pentabromodiphenoxybenzene	50 µg/mL in AcCN	BDPB-501S	1 mL



Fluorinated PBDE Congeners



Fluorinated PBDEs

Fluorinated PBDE Congeners

Internal Standards for PBDE Analysis

As with PCBs, the separation and identification of PBDE congeners and related metabolites present a significant analytical challenge due to the co-elution of compounds and nearly identical mass spectra. The traditional approach of using ¹³C labeled compounds has been successfully utilized for both internal standard quantification, and as an internal standard for calculating relative retention indices. However, this approach is expensive and cannot be used with electron capture detector methods. AccuStandard has synthesized a selection of mono and di-fluorinated analogs of the native BDEs that can be used as a replacement.

Short Form	Compound	Conc.	Solvent	Cat. No.	1 mL
F-BDE-003	4'-Fluoro-4-bromodiphenyl ether	25 µg/mL	Isooctane	FBDE-1001S-0.5X	
		50 µg/mL	Isooctane	FBDE-1001S	
F-BDE-007	3'-Fluoro-2,4-dibromodiphenyl ether	25 µg/mL	Isooctane	FBDE-2001S-0.5X	
		50 µg/mL	Isooctane	FBDE-2001S	
F-BDE-012	3'-Fluoro-3,4-dibromodiphenyl ether	25 µg/mL	Isooctane	FBDE-2002S-0.5X	
		50 µg/mL	Isooctane	FBDE-2002S	
F-BDE-015	2-Fluoro-4,4'-dibromodiphenyl ether	25 µg/mL	Isooctane	FBDE-2003S-0.5X	
		50 µg/mL	Isooctane	FBDE-2003S	
F-BDE-025	4'-Fluoro-2,3',4-tribromodiphenyl ether	25 µg/mL	Isooctane	FBDE-3001S-0.5X	
		50 µg/mL	Isooctane	FBDE-3001S	
F-BDE-027	4'-Fluoro-2,3',6-tribromodiphenyl ether	25 µg/mL	Isooctane	FBDE-3002S-0.5X	
		50 µg/mL	Isooctane	FBDE-3002S	
F-BDE-028	2'-Fluoro-2,4,4'-tribromodiphenyl ether	25 µg/mL	Isooctane	FBDE-3003S-0.5X	
		50 µg/mL	Isooctane	FBDE-3003S	
F-BDE-028	3'-Fluoro-2,4,4'-tribromodiphenyl ether	25 µg/mL	Isooctane	FBDE-3004S-0.5X	
		50 µg/mL	Isooctane	FBDE-3004S	
F-BDE-069	4'-Fluoro-2,3',4,6-tetrabromodiphenyl ether	25 µg/mL	Isooctane	FBDE-4001S-0.5X	
		50 µg/mL	Isooctane	FBDE-4001S	
F-BDE-067	4'-Fluoro-2,3',4,5-tetrabromodiphenyl ether	25 µg/mL	Isooctane	FBDE-4002S-0.5X	
		50 µg/mL	Isooctane	FBDE-4002S	
F-BDE-047	6-Fluoro-2,2',4,4'-tetrabromodiphenyl ether	25 µg/mL	Isooctane	FBDE-4003S-0.5X	
		50 µg/mL	Isooctane	FBDE-4003S	
F-BDE-066	6-Fluoro-2,3',4,4'-tetrabromodiphenyl ether	25 µg/mL	Isooctane	FBDE-4004S-0.5X	
		50 µg/mL	Isooctane	FBDE-4004S	
2F-BDE-047	5,5'-Difluoro-2,2',4,4'-tetrabromodiphenyl ether	25 µg/mL	Isooctane	FBDE-4005S-0.5X	
		50 µg/mL	Isooctane	FBDE-4005S	
F-BDE-070	3-Fluoro-2,3',4',5-tetrabromodiphenyl ether	25 µg/mL	Isooctane	FBDE-4006S-0.5X	
		50 µg/mL	Isooctane	FBDE-4006S	
F-BDE-077	5-Fluoro-3,3',4,4'-tetrabromodiphenyl ether	25 µg/mL	Isooctane	FBDE-4007S-0.5X	
		50 µg/mL	Isooctane	FBDE-4007S	
F-BDE-099	6'-Fluoro-2,2',4,4',5-pentabromodiphenyl ether	25 µg/mL	Isooctane	FBDE-5001S-0.5X	
		50 µg/mL	Isooctane	FBDE-5001S	
F-BDE-100	3-Fluoro-2,2',4,4',6-pentabromodiphenyl ether	25 µg/mL	Isooctane	FBDE-5002S-0.5X	
		50 µg/mL	Isooctane	FBDE-5002S	
2F-BDE-099	3,6-Difluoro-2,2',4,4',5-pentabromodiphenyl ether	25 µg/mL	Isooctane	FBDE-5003S-0.5X	
		50 µg/mL	Isooctane	FBDE-5003S	
2F-BDE-085	5,6-Difluoro-2,2',3,4,4'-pentabromodiphenyl ether	25 µg/mL	Isooctane	FBDE-5004S-0.5X	
		50 µg/mL	Isooctane	FBDE-5004S	
2F-BDE-119	3,5-Difluoro-2,3',4,4',6-pentabromodiphenyl ether	25 µg/mL	Isooctane	FBDE-5005S-0.5X	
		50 µg/mL	Isooctane	FBDE-5005S	
F-BDE-124	3'-Fluoro-2',3,4,5,5'-pentabromodiphenyl ether	25 µg/mL	Isooctane	FBDE-5006S-0.5X	
		50 µg/mL	Isooctane	FBDE-5006S	
F-BDE-118	5'-Fluoro-2,3',4,4',5-pentabromodiphenyl ether	25 µg/mL	Isooctane	FBDE-5007S-0.5X	
		50 µg/mL	Isooctane	FBDE-5007S	
F-BDE-126	5'-Fluoro-3,3',4,4',5-pentabromodiphenyl ether	25 µg/mL	Isooctane	FBDE-5008S-0.5X	
		50 µg/mL	Isooctane	FBDE-5008S	
F-BDE-160	4'-Fluoro-2,3,3',4,5,6-hexabromodiphenyl ether	25 µg/mL	Isooctane	FBDE-6001S-0.5X	
		50 µg/mL	Isooctane	FBDE-6001S	
F-BDE-139	5-Fluoro-2,2',3,4,4',6-hexabromodiphenyl ether	25 µg/mL	Isooctane	FBDE-6002S-0.5X	
		50 µg/mL	Isooctane	FBDE-6002S	
F-BDE-153	3-Fluoro-2,2',4,4',5,5'-hexabromodiphenyl ether	25 µg/mL	Isooctane	FBDE-6003S-0.5X	
		50 µg/mL	Isooctane	FBDE-6003S	
F-BDE-168	3-Fluoro-2,3',4,4',5',6-hexabromodiphenyl ether	25 µg/mL	Isooctane	FBDE-6004S-0.5X	
		50 µg/mL	Isooctane	FBDE-6004S	
F-BDE-183	5-Fluoro-2,2',3,4,4',5',6-heptabromodiphenyl ether	25 µg/mL	Isooctane	FBDE-7001S-0.5X	
		50 µg/mL	Isooctane	FBDE-7001S	
2F-BDE-199	4',6-Difluoro-2,2',3,3',4,5,5',6'-octabromodiphenyl ether	25 µg/mL	Isooctane	FBDE-8001S-0.5X	
		50 µg/mL	Isooctane	FBDE-8001S	
F-BDE-208	4'-Fluoro-2,2',3,3',4,5,5',6,6'-nonabromodiphenyl ether	25 µg/mL	Isooctane	FBDE-9001S-0.5X	
		50 µg/mL	Isooctane	FBDE-9001S	



Hexabromocyclododecane Isomers

Compound	CAS No.	Conc.	Matrix	Cat. No.	1 mL
α -Hexabromocyclododecane	134237-50-6	100 $\mu\text{g/mL}$	Toluene	HXBCD-01	
β -Hexabromocyclododecane	134237-51-7	100 $\mu\text{g/mL}$	Toluene	HXBCD-02	
γ -Hexabromocyclododecane	134237-52-8	100 $\mu\text{g/mL}$	Toluene	HXBCD-03	
HBCD SP-75C (Great Lakes)	3194-55-6	10 mg	NEAT	FRS-028N	
		100 $\mu\text{g/mL}$	Toluene	FRS-028S	

Dechlorane Plus Isomers

Compound	CAS No.	Conc.	Matrix	Cat. No.	1 mL
Dechlorane Plus "Anti"	135821-74-8	50 $\mu\text{g/mL}$	Toluene	FRS-061S-0.5X	
Dechlorane Plus "Syn"	135821-03-3	50 $\mu\text{g/mL}$	Toluene	FRS-062S-0.5X	
Dechlorane Plus (Mixed isomers)	13560-89-9	10 mg	NEAT	FRS-033N	
		100 $\mu\text{g/mL}$	Toluene	FRS-033S	

Bromobiphenyl Congeners

Compound	CAS No.	Conc.	Matrix	Cat. No.	1 mL
2-Bromobiphenyl	2052-07-5	50 mg	NEAT	B-001N	
		35 $\mu\text{g/mL}$	Isooctane	B-001S	
		1 mg/mL	Acetone	M-8081-SS-X	
3-Bromobiphenyl	2113-57-7	50 mg	NEAT	B-002N	
		35 $\mu\text{g/mL}$	Isooctane	B-002S	
4-Bromobiphenyl	92-66-0	50 mg	NEAT	B-003N	
		35 $\mu\text{g/mL}$	Isooctane	B-003S	
2,2'-Dibromobiphenyl	13029-09-9	10 mg	NEAT	B-004N	
		35 $\mu\text{g/mL}$	Isooctane	B-004S	
2,4-Dibromobiphenyl	53592-10-2	10 mg	NEAT	B-007N-10MG	
		35 $\mu\text{g/mL}$	Isooctane	B-007S	
2,5-Dibromobiphenyl	57422-77-2	25 mg	NEAT	B-009N	
		35 $\mu\text{g/mL}$	Isooctane	B-009S	
2,6-Dibromobiphenyl	59080-32-9	5 mg	NEAT	B-010N-5MG	
		35 $\mu\text{g/mL}$	Isooctane	B-010S	
4,4'-Dibromobiphenyl	92-86-4	10 mg	NEAT	B-015N	
		35 $\mu\text{g/mL}$	Isooctane	B-015S	
2,2',5-Tribromobiphenyl	59080-34-1	10 mg	NEAT	B-018N	
		35 $\mu\text{g/mL}$	Isooctane	B-018S	
2,3',5-Tribromobiphenyl	59080-35-2	10 mg	NEAT	B-026N	
		35 $\mu\text{g/mL}$	Isooctane	B-026S	
2,4,5-Tribromobiphenyl	115245-07-3	35 $\mu\text{g/mL}$	Isooctane	B-029S	
2,4,6-Tribromobiphenyl	59080-33-0	25 mg	NEAT	B-030N	
		35 $\mu\text{g/mL}$	Isooctane	B-030S	
2,4',5-Tribromobiphenyl	59080-36-3	10 mg	NEAT	B-031N	
		35 $\mu\text{g/mL}$	Isooctane	B-031S	
2,2',4,5'-Tetrabromobiphenyl	60044-24-8	5 mg	NEAT	B-049N-5MG	
		35 $\mu\text{g/mL}$	Isooctane	B-049S	
2,2',5,5'-Tetrabromobiphenyl	59080-37-4	10 mg	NEAT	B-052N	
		35 $\mu\text{g/mL}$	Isooctane	B-052S	
2,2',5,6'-Tetrabromobiphenyl	60044-25-9	5 mg	NEAT	B-053N-5MG	
		35 $\mu\text{g/mL}$	Isooctane	B-053S	
3,3',4,4'-Tetrabromobiphenyl	77102-82-0	35 $\mu\text{g/mL}$	Isooctane	B-077S	
3,3',5,5'-Tetrabromobiphenyl	16400-50-3	35 $\mu\text{g/mL}$	Isooctane	B-080S	
2,3,4,4',5-Pentabromobiphenyl	96551-70-1	35 $\mu\text{g/mL}$	Isooctane	B-114S	
2,2',4,5,5'-Pentabromobiphenyl	67888-96-4	5 mg	NEAT	B-101N	
		35 $\mu\text{g/mL}$	Isooctane	B-101S	
2,2',4,5',6-Pentabromobiphenyl	59080-39-6	5 mg	NEAT	B-103N	
		35 $\mu\text{g/mL}$	Isooctane	B-103S	
2,2',3,4,4',5-Hexabromobiphenyl	81381-52-4	35 $\mu\text{g/mL}$	Isooctane	B-137S	
2,2',3,4,5,5'-Hexabromobiphenyl	120991-47-1	35 $\mu\text{g/mL}$	Isooctane	B-141S	
2,2',4,4',5,5'-Hexabromobiphenyl	59080-40-9	5 mg	NEAT	B-153N-5MG	
		35 $\mu\text{g/mL}$	Isooctane	B-153S	
2,2',4,4',6,6'-Hexabromobiphenyl	59261-08-4	5 mg	NEAT	B-155N	
		35 $\mu\text{g/mL}$	Isooctane	B-155S	
2,3,3',4,4',5-Hexabromobiphenyl	77607-09-1	35 $\mu\text{g/mL}$	Isooctane	B-156S	
2,3,3',4,5,5'-Hexabromobiphenyl	120991-48-2	35 $\mu\text{g/mL}$	Isooctane	B-159S	
3,3',4,4',5,5'-Hexabromobiphenyl	60044-26-0	35 $\mu\text{g/mL}$	Isooctane	B-169S	
2,2',3,4,4',5,5'-Heptabromobiphenyl	67733-52-2	35 $\mu\text{g/mL}$	Isooctane	B-180S	
2,3,3',4,4',5,5'-Heptabromobiphenyl	88700-06-5	35 $\mu\text{g/mL}$	Isooctane	B-189S	
2,2',3,3',4,4',5,5'-Octabromobiphenyl	67889-00-3	35 $\mu\text{g/mL}$	Isooctane	B-194S	
2,2',3,3',4,5',6,6'-Octabromobiphenyl	119264-60-7	35 $\mu\text{g/mL}$	Isooctane	B-200S	
		25 mg	NEAT	B-209N	
Decabromobiphenyl	13654-09-6	35 $\mu\text{g/mL}$	Isooctane :	B-209S	
			Acetone (98:2)		



Bromophenols, Bromoanisoles, Chlorinated Diphenyl Ethers

Bromophenols

Compound	CAS No.	Cat. No.	Each at 100 µg/mL in Toluene 1 mL
2-Bromophenol	95-56-7	BP-002S	
3-Bromophenol	591-20-8	BP-003S	
4-Bromophenol	106-41-2	BP-004S	
2,3-Dibromophenol	57383-80-9	BP-023S	
2,4-Dibromophenol	615-58-7	BP-024S	
2,5-Dibromophenol	28165-52-8	BP-025S	
2,6-Dibromophenol	608-33-3	BP-026S	
3,4-Dibromophenol	615-56-5	BP-034S	
3,5-Dibromophenol	626-41-5	BP-035S	
2,3,4-Tribromophenol	138507-65-0	BP-234S	
2,3,5-Tribromophenol		BP-235S	
2,3,6-Tribromophenol		BP-236S	
2,4,5-Tribromophenol	14401-61-7	BP-245S	
2,4,6-Tribromophenol	118-79-6	BP-246S	
3,4,5-Tribromophenol		BP-345S	
2,3,4,5-Tetrabromophenol		BP-2345S	
2,3,4,6-Tetrabromophenol	14400-94-3	BP-2346S	
2,3,5,6-Tetrabromophenol		BP-2356S	
Pentabromophenol	608-71-9	BP-23456S	

Bromoanisoles

Compound	CAS No.	Cat. No.	Each at 50 µg/mL in MeOH 1 mL
2-Bromoanisole	578-57-4	BAN-01	
3-Bromoanisole	2398-37-0	BAN-02	
4-Bromoanisole	104-92-7	BAN-03	
2,3-Dibromoanisole	95970-22-2	BAN-04	
2,4-Dibromoanisole	21702-84-1	BAN-05	
2,5-Dibromoanisole	95970-08-4	BAN-06	
2,6-Dibromoanisole	38603-09-7	BAN-07	
3,5-Dibromoanisole	74137-36-3	BAN-08	
2,4,5-Tribromoanisole		BAN-09	
2,4,6-Tribromoanisole	607-99-8	BAN-10	

Chlorinated Diphenyl Ethers

Compound	CAS No.	Conc	Matrix	Cat. No.	1 mL
4-Chlorodiphenyl ether	7005-72-3	10 mg	NEAT	CDE-003N	
		50 µg/mL	Isooctane	CDE-003S	
2,4-Dichlorodiphenyl ether		10 mg	NEAT	CDE-007N	
		50 µg/mL	Isooctane	CDE-007S	
4,4'-Dichlorodiphenyl ether	2444-89-5	10 mg	NEAT	CDE-015N	
		50 µg/mL	Isooctane	CDE-015S	
2,2',4,4'-Tetrachlorodiphenyl ether		50 µg/mL	Isooctane	CDE-047S	
3,3',4,4'-Tetrachlorodiphenyl ether		50 µg/mL	Isooctane	CDE-077S	
3,3',5,5'-Tetrachlorodiphenyl ether		50 µg/mL	Isooctane	CDE-080S	
2,2',4,4',5-Pentachlorodiphenyl ether		50 µg/mL	Isooctane	CDE-099S	
2,2,4,4',6-Pentachlorodiphenyl ether		50 µg/mL	Isooctane	CDE-100S	
2,3,3',4,4'-Pentachlorodiphenyl ether		50 µg/mL	Isooctane	CDE-105S	
2,3',4,4',5-Pentachlorodiphenyl ether	60123-65-1	10 mg	NEAT	CDE-118N	
		50 µg/mL	Isooctane	CDE-118S	
2,2',4,4',5,5'-Hexachlorodiphenyl ether		50 µg/mL	Isooctane	CDE-153S	
2,2',4,4',5,6'-Hexachlorodiphenyl ether		50 µg/mL	Isooctane	CDE-154S	
Decachlorodiphenyl ether	31710-30-2	10 mg	NEAT	CDE-209N	
		50 µg/mL	Isooctane	CDE-209S	



How do flame retardants work?

Flame retardants work by interfering and/or suppressing the combustion process. These modes of action may be chemical or physical.

Chemical actions can include:

- reaction in the gas phase - flammable gases cannot be generated which results in a cooling of the combustion process
- reaction in the solid phase - the flame retardant compound chars, acting as a barrier against the flame

Physical action can occur by:

- additives that cool the substrate to a temperature below a level for sustainable combustion
- formation of a protective layer much like the process mentioned above
- dilution of flammable gases by additives/fillers (inorganics) that create non-flammable gases

Industrial Flame Retardants

Bromine Containing (BFRs)



Bromine Containing Industrial Flame Retardants (BFRs) PURE

Compound	CAS No.	Conc.	Matrix	Cat. No.	1 mL
1,2-Dibromo-4-(1,2-dibromoethyl)cyclohexane (TBECH)	3322-93-8	10 mg	NEAT	FRS-038N	
		100 mg/mL	MeOH	FRS-038S	
tris(2,3-Dibromopropyl) isocyanurate	52434-90-9	10 mg	NEAT	FRS-042N	
		100 µg/mL	Toluene	FRS-042S	
bis(2,3-Dibromopropyl) phthalate	7415-86-3	10 mg	NEAT	FRS-067N	
		100 µg/mL	Toluene	FRS-067S	
tris(2,3-Dibromopropyl)phosphate	126-72-7	10 mg	NEAT	FRS-057N	
		100 µg/mL	Toluene	FRS-057S	
(2,3-Dibromopropyl)(2,4,6-tribromophenyl) ether (DPTE)	35109-60-5	10 mg	NEAT	FRS-044N	
		100 µg/mL	Toluene	FRS-044S	
Di(2-ethylhexyl)tetrabromophthalate	26040-51-7	10 mg	NEAT	FRS-040N	
		100 µg/mL	Toluene	FRS-040S	
2-Ethylhexyl 2,3,4,5-tetrabromobenzoate	183658-27-7	10 mg	NEAT	FRS-041N	
		100 µg/mL	Toluene	FRS-041S	
Hexachlorocyclopentadienyl-dibromocyclooctane (HCDBCO)	51936-55-1	10 mg	NEAT	FRS-039N	
		100 µg/mL	Toluene	FRS-039S	
Pentabromobenzene	608-90-2	10 mg	NEAT	FRS-064N	
		50 µg/mL	Toluene	FRS-064S-0.5X	
Pentabromobenzylacrylate	59447-55-1	10 mg	NEAT	FRS-035N	
		100 µg/mL	Toluene	FRS-035S	
Pentabromobenzylbromide	38521-51-6	10 mg	NEAT	FRS-030N	
		100 µg/mL	Toluene	FRS-030S	
Pentabromoethylbenzene	85-22-3	100 µg/mL	Toluene	FRS-048S	
		1,4-bis(Pentabromophenoxy)tetrabromobenzene	58965-66-5	10 mg	NEAT
Tetrabromobisphenol A	79-94-7	100 µg/mL	Toluene	FRS-052S	
		100 mg	NEAT	FRS-074N	
Tetrabromobisphenol A bis(2,3-dibromopropyl) ether	21850-44-2	100 µg/mL	Toluene	FRS-074S	
		50 mg	NEAT	FRS-034N	
Tetrabromobisphenol A bis(hydroxyethyl) ether	4162-45-2	100 µg/mL	Toluene	FRS-034S	
		50 mg	NEAT	FRS-032N	
Tetrabromobisphenol A bis(methyl) ether	37853-61-5	100 µg/mL	Toluene	FRS-032S	
		10 mg	NEAT	FRS-069N	
Tetrabromobisphenol A diallyl ether	25327-89-3	100 µg/mL	Toluene	FRS-069S	
		10 mg	NEAT	FRS-045N	
Tetrabromobisphenol S	39635-79-5	100 µg/mL	Toluene	FRS-045S	
		10 mg	NEAT	FRS-070N	
Tetrabromobisphenol S bis(2,3-dibromopropyl) ether	42757-55-1	100 µg/mL	AcCN	FRS-070S-CN	
		10 mg	NEAT	FRS-075N	
1,2,5,6-Tetrabromocyclooctane	3194-57-8	100 µg/mL	Toluene	FRS-075S	
		10 mg	NEAT	FRS-068N	
Tetrabromophthalic acid	13810-83-8	100 µg/mL	Toluene	FRS-068S	
		10 mg	NEAT	FRS-065N	
Tribromoneopentyl alcohol	1522-92-5	100 µg/mL	Toluene	FRS-065S	
		10 mg	NEAT	FRS-046N	
tris(Tribromoneopentyl) phosphate	19186-97-1	100 µg/mL	Toluene	FRS-046S	
		10 mg	NEAT	FRS-047N	
1,2-bis(2,4,6-Tribromophenoxy)ethane	37853-59-1	100 µg/mL	Toluene	FRS-047S	
		50 mg	NEAT	FRS-037N	
2,4,6-tris(2,4,6-Tribromophenoxy)-1,3,5-triazine	25713-60-4	100 µg/mL	Toluene	FRS-037S	
		10 mg	NEAT	FRS-049S	
2,4,6-Tribromophenyl allyl ether	3278-89-5	100 µg/mL	Toluene	FRS-043N	
		10 mg	NEAT	FRS-043S	

Compounds are available in different solvents.
Please contact our Technical Service Department.



Industrial Flame Retardants

Bromine Containing (BFRs)

Bromine Containing Industrial Flame Retardants (BFRs) Commercial Grade

Compound	CAS No.	Active Ingredient	Conc.	Matrix	Cat. No.	1 mL
Bromkal™ DE-70-5		Penta BDEs	50 µg/mL	Isooctane	BDE-705	
Bromkal™ DE-71		Penta BDEs	50 µg/mL	Isooctane	BDE-710	
Bromkal™ DE-73-6		Hexa BDEs	50 µg/mL	Isooctane	BDE-736	
Bromkal™ DE-79-8		Octa BDEs	50 µg/mL	Isooctane	BDE-798	
Dow FR-250	27858-07-7	Mix of Octa and Nonabromobiphenyl	35 µg/mL	Isooctane	B-250S-0.35X	
			100 µg/mL	Isooctane	B-250S	
Firemaster™ BP4A	79-94-7	Tetrabromobisphenol A	100 µg/mL	Toluene	FRS-006S	
Firemaster™ BP-6	59536-65-1	Hexabromobiphenyl	35 µg/mL	Isooctane	B-600S-0.35X	
			100 µg/mL	Isooctane	B-600S	
Firemaster™ PHT4	632-79-1	Tetrabromophthalic anhydride	10 mg	NEAT	FRS-007N	
			100 µg/mL	Toluene	FRS-007S	
Firemaster™ T23P (Michigan Chemical)	126-72-7	tris(2,3-Dibromopropyl)phosphate	10 mg	NEAT	FRS-008N	
			100 µg/mL	Toluene	FRS-008S	
Firemaster™ 680 (Great Lakes)	37853-59-1	1,2-bis(2,4,6-Tribromophenoxy)ethane	50 mg	NEAT	FRS-037N	
			100 µg/mL	Toluene	FRS-037S	
Firemaster™ 2100 (Great Lakes)	84852-53-9	Decabromodiphenylethane	50 mg	NEAT	FRS-036N	
			100 µg/mL	Toluene	FRS-036S	
FR-300BA	1163-19-5	Decabromodiphenyl ether 85.5%	100 µg/mL	Toluene	FRS-009S	
FR-651A (Dow)	87-84-3	Pentabromochlorocyclohexane	10 mg	NEAT	FRS-010N	
			100 µg/mL	Toluene	FRS-010S	
FR-1138 (Dow)	3296-90-0	Dibromoneopentyl glycol 85.0%	10 mg	NEAT	FRS-011N	
			100 µg/mL	Toluene	FRS-011S	
HBCD SP-75C (Great Lakes)	3194-55-6	Hexabromocyclododecane	10 mg	NEAT	FRS-028N	
			100 µg/mL	Toluene	FRS-028S	
Hexabromobenzene (Michigan Chemical)	87-82-1	Hexabromobenzene	10 mg	NEAT	FRS-012N	
			100 µg/mL	Toluene	FRS-012S	
Hexabromobenzene (White Chemical)	87-82-1	Hexabromobenzene	10 mg	NEAT	FRS-013N	
			100 µg/mL	Toluene	FRS-013S	
Hexabromobenzene (Hummel)	87-82-1	Hexabromobenzene	10 mg	NEAT	FRS-014N	
Pentabromotoluene (White Chemical)	87-83-2	Pentabromotoluene	10 mg	NEAT	FRS-018N	
			100 µg/mL	Toluene	FRS-018S	
Saytex BT-93	32588-76-4	Ethylene bis(tetrabromophthalimide)	50 µg/mL	Toluene	FRS-053S-0.5X	
Saytex RB-79	77058-07-8	1,2-Benzenedicarboxylic acid, 3,4,5,6-tetrabromo-2-(2-hydroxyethoxy)ethyl 2-hydroxypropyl ester	10 mg	NEAT	FRS-054N	
			100 µg/mL	Toluene	FRS-054S	
Tetrabromo-o-chlorotoluene (White Chemical)	39569-21-6	Tetrabromo-o-chlorotoluene (98%)	10 mg	NEAT	FRS-021N	
			100 µg/mL	Toluene	FRS-021S	
TP-69 (Great Lakes)	126-72-7	tris-(2,3-Dibromopropyl)phosphate	10 mg	NEAT	FRS-023N	
			100 µg/mL	Toluene	FRS-023S	

Other BFR Related Chemicals

Compound	CAS No.	Conc.	Matrix	Cat. No.	1 mL
2-Bromoallyl-2,4,6-tribromophenyl ether	99717-56-3	10 mg	NEAT	FRS-063N	
		100 µg/mL	Toluene	FRS-063S	
3-Bromostyrene	2039-86-3	10 mg	NEAT	FRS-050N	
		100 µg/mL	Toluene	FRS-050S	
4-Bromostyrene	2039-82-9	10 mg	NEAT	FRS-051N	
		100 µg/mL	Toluene	FRS-051S	
2,3,4,5-Tetrabromobenzoic acid (Metabolite)	27581-13-1	100 µg/mL	Toluene:THF (85:15)	FRS-066S	
Tetrabromobisphenol A bisglycidyl ether	3072-84-2	10 mg	NEAT	FRS-073N	
		100 µg/mL	Toluene	FRS-073S	
Tetrabromobisphenol S bisglycidyl ether		10 mg	NEAT	FRS-072N	
		100 µg/mL	Toluene	FRS-072S	
Tetrabromobisphenol S bismethyl ether	70156-79-5	10 mg	NEAT	FRS-071N	
		100 µg/mL	Toluene	FRS-071S	
2,4,6-Tribromophenol (Metabolite)	118-79-6	100 µg/mL	Toluene	BP-246S	

Registered Trademarks

Chlorafin Hercules Powder Company Corp.
Chlorowax Dover Chemical Corp.

Firemaster Great Lakes Chemical Corp.
Paroil Dover Chemical Corp.

Phosgard Solutia Inc.
Unichlor Neville Chemical Co.

Industrial Flame Retardants

Chlorine Containing Flame Retardants (CFRs) and Phosphate Flame Retardants (PFRs)



Chlorine Containing Industrial Flame Retardants (CFRs)

Compound	CAS No.	Active Ingredient	Conc.	Matrix	Cat. No.	1 mL
Chlorafin™ 40		Chlorinated Paraffin	10 mg	NEAT	FRS-002N	
			100 µg/mL	Toluene	FRS-002S	
Chlorendic anhydride	115-27-5	Chlorendic anhydride	10 mg	NEAT	FRS-001N	
			100 µg/mL	Toluene	FRS-001S	
bis(2-Chloroethyl)ether	111-44-4	bis(2-Chloroethyl)ether	100 µg/mL	MeOH	APP-9-027	
			5 mg/mL	MeOH	AS-E0016	
4-Chlorophenyl phenyl ether	7005-72-3	4-Chlorophenyl phenyl ether	100 µg/mL	MeOH	APP-9-047	
			5 mg/mL	MeOH	AS-E0038	
Chlorowax™ 500C		Chlorinated Hydrocarbons 59.0%	10 mg	NEAT	FRS-004N	
			100 µg/mL	Toluene	FRS-004S	
Dechlorane 602	31107-44-5		50 µg/mL	Toluene	FRS-076S-0.5X	
Dechlorane 603	13560-92-4		50 µg/mL	Toluene	FRS-077S-0.5X	
Dechlorane Plus (Mixed isomers)	13560-89-9	Dechlorane Plus	10 mg	NEAT	FRS-033N	
			100 µg/mL	Toluene	FRS-033S	
Diablo 700X		Chlorinated Hydrocarbons 70.0%	10 mg	NEAT	FRS-005N	
			100 µg/mL	Toluene	FRS-005S	
Hexachlorobutadiene	87-68-3	Hexachlorobutadiene	100 µg/mL	Toluene	FRS-017S	
Paroi™ 179-HV	634493-98-4	Chlorinated Paraffin	10 mg	NEAT	FRS-015N	
			100 µg/mL	Toluene	FRS-015S	
Paroi™ 170-8		Chlorinated Paraffin	100 µg/mL	Toluene	FRS-016S	
Phosgard™ C 22-R	4351-70-6	Halogenated organic phosphate ester	10 mg	NEAT	FRS-019N	
			100 µg/mL	Toluene	FRS-019S	
Phosgard™ 2XC-20, V6	38051-10-4	Halogenated organic phosphate ester	100 µg/mL	Toluene	FRS-020S	
Tetrachlorobisphenol A	79-95-8	Tetrachlorobisphenol A	10 mg	NEAT	FRS-022N	
			100 µg/mL	Toluene	FRS-022S	
Unichlor™ 40-90		Chlorinated Hydrocarbons 38.5%	10 mg	NEAT	FRS-024N	
			100 µg/mL	Toluene	FRS-024S	
Unichlor™ 502-50		Chlorinated Hydrocarbons 52.0%	10 mg	NEAT	FRS-025N	
			100 µg/mL	Toluene	FRS-025S	
Unichlor™ 70AX		Chlorinated Hydrocarbons 70.0%	10 mg	NEAT	FRS-026N	
			100 µg/mL	Toluene	FRS-026S	

Organophosphate Flame Retardants (PFRs)

Organophosphate compounds (OPs) are high production volume chemicals that have a high potential of acute toxicity to insects, wildlife and humans. They are utilized as flame retardants, plasticizers, antifoaming agents and additives not only in plastics, but in paints, lubricants and hydraulic fluids as well. The chlorinated organophosphate compounds like tris(2-chloroethyl) phosphate and tris(1,3-dichloro-2-propyl) phosphate are flame retardants used in both flexible and rigid polyurethane foam (e.g. furniture foam, thermal insulation), rubber, textile coatings, and home electronics. Organophosphates have been detected in indoor air and house dust, surface, ground, and even drinking water. Toxicology studies have shown these compounds to inhibit acetylcholinesterase which is essential to nerve functions in insects and humans.

Compound	CAS No.	Conc.	Matrix	Cat. No.	1 mL
Trimethyl phosphate (TMP)	512-56-1	100 µg/mL	Toluene	PFRS-016S	
Dimethyl phosphate	813-78-5	100 µg/mL	Toluene	PFRS-006S	
Triethyl phosphate (TEP)	78-40-0	100 µg/mL	Toluene	PFRS-012S	
				PFRS-012N	
Diethyl phosphate (mono & di-)	598-02-7	100 µg/mL	Toluene	PFRS-005S	
Tripropyl phosphate (TPRP)	513-08-6	100 µg/mL	Toluene	PFRS-021S	
Triisopropyl phosphate (TiPP, TiPrP)	513-02-0	100 µg/mL	Toluene	PFRS-013S	
Tributyl phosphate	126-73-8	100 µg/mL	Toluene	PFRS-009S	
Tripenyl phosphate (TPeP)	2528-38-3	100 µg/mL	Hexane	PFRS-019S-H	
tris(2-Ethylhexyl) phosphate	78-42-2	100 µg/mL	Toluene	PFRS-028S	
Triphenyl phosphate (TPP, TPhP)	115-86-8	100 µg/mL	Toluene	PFRS-020S	
2-Ethylhexyl diphenyl phosphate (EDP, DPEHP)	1241-94-7	100 µg/mL	Toluene	PFRS-007S	
tris(2-Isopropylphenyl) phosphate	64532-95-2	100 µg/mL	Toluene	PFRS-014S	
Isodecyl diphenyl phosphate	29761-21-5	100 µg/mL	Toluene	PFRS-008S	
Cresyl diphenyl phosphate (CDP)	26444-49-5	100 µg/mL	Toluene	PFRS-004S	
Tri-o-cresyl phosphate (o-TCP, TOCP, TOTP)	78-30-8	100 µg/mL	Toluene	PFRS-017S	
Tri-p-cresyl phosphate (p-TCP, TPCP, TPTP)	78-32-0	100 µg/mL	Toluene	PFRS-018S	
Tricresyl phosphate (mixture of isomers) (TCP, TCrP, TToP)	1330-78-5	100 µg/mL	Toluene	PFRS-011S	
Tri-m-cresyl phosphate (m-TCP, TMTP)	563-04-2	100 µg/mL	Toluene	PFRS-015S	
tris(2-Butoxyethyl) phosphate (TBEP)	78-51-3	100 µg/mL	Toluene	PFRS-022S	
tris(2-Chloroethyl) phosphate (TCEP)	115-96-8	100 µg/mL	Toluene	PFRS-024S	
tris(1-Chloro-2-propyl) phosphate (TCPP, TCiPP)	13674-84-5	100 µg/mL	Toluene	PFRS-025S	
tris(2-Chloropropyl) phosphate	6145-73-9	100 µg/mL	Toluene	PFRS-023S	
Tri(3-chloropropyl) phosphate (TCPP)	26248-87-3	100 µg/mL	Toluene	PFRS-010S	
tris(1,3-Dichloro-2-propyl) phosphate (TDCPP, TDCCP)	13674-87-8	100 µg/mL	Toluene	PFRS-027S	
tris(2,3-Dibromopropyl)phosphate	126-72-7	100 µg/mL	Toluene	PFRS-026S	
bis(2,3-Dibromopropyl)phosphate	5412-25-9	100 µg/mL	Toluene	PFRS-002S	
tris(Tribromoneopentyl) phosphate (TTBNP)	19186-97-1	100 µg/mL	Toluene	PFRS-029S	
Tetrakis(2-chloroethyl)dichloroisopentylidiphosphate (V6)	38051-10-4	100 µg/mL	Toluene	PFRS-003S	
Resorcinol bis(diphenyl phosphate) (RDP)	57583-54-7	100 µg/mL	Toluene	PFRS-030S	
Bisphenol A bis(diphenyl phosphate) (BADP, BAPP, BPADP, BDP)	5945-33-5	100 µg/mL	Toluene	PFRS-001S	



Polynuclear Aromatic Hydrocarbons

Polyaromatic Hydrocarbons (PAHs) are hydrocarbon compounds with multiple benzene rings. PAHs are typical components of asphalts, fuels, oils, and greases. They are also called Polycyclic Aromatic Hydrocarbons and have been linked to cancer and hormone disruption.



PAHs available in Bulk Quantities, Please inquire.

NEATS as stated, SOLUTIONS at 50 µg/mL in Toluene, except where noted.

Polynuclear Aromatic Hydrocarbons (PAHs)

Compound	Synonym	CAS No.	NEAT Cat. No.	Unit	SOLUTION Cat. No.	1 mL
Acenaphthene		83-32-9	H-108N	100 mg	H-108S	
Acenaphthylene		208-96-8	H-125N	100 mg	H-125S	
Acridine		260-94-6	H-187N	100 mg	H-187S	
Anthanthrene		191-26-4	H-109N	10 mg	H-109S	
Anthracene		120-12-7	H-110N	100 mg	H-110S	
Azulene		275-51-4	H-127N	10 mg	H-127S	
Benz[a]anthracene	1,2-Benzanthracene	56-55-3	H-100N	10 mg	H-100S	
Benz[a]anthracene-7,12-dione	1,2-Benzoanthraquinone	2498-66-0	H-111N	10 mg	H-111S	
Benz[a]fluorene	1,2-Benzofluorene	238-84-6	-----	-----	H-130S	
Benz[a]pyrene (Ames grade)	3,4-Benzopyrene	50-32-8	H-169N	10 mg	H-169S	
Benz[e]pyrene		192-97-2	H-112N	10 mg	H-112S	
Benzo[b]anthracene	2,3-Benzanthracene	92-24-0	H-159N	10 mg	H-159S	
Benzo[b]chrysene		214-17-5	H-183N	5 mg	H-183S	
Benzo[b]fluoranthene	Benzo[e]acephenanthrylene	205-99-2	H-128N	10 mg	H-128S	
Benzo[j]fluoranthene		205-82-3	H-171N	10 mg	H-171S	
Benzo[k]fluoranthene		207-08-9	H-129N	10 mg	H-129S	
Benzo[b]fluorene	2,3-Benzofluorene	243-17-4	H-180N	10 mg	H-180S	
Benzo[g,h,i]perylene	1,12-Benzoperylene	191-24-2	H-103N	10 mg	H-103S	
Benzo[c]phenanthrene		195-19-7	H-244N	10 mg	H-244S	
2,3-Benzofuran		271-89-6	H-237N	10 mg	H-237S	
5,6-Benzoquinoline	Benzo[f]quinoline	85-02-9	H-113N-10MG	10 mg	H-113S	
7,8-Benzoquinoline		230-27-3	H-245N	100 mg	H-245S	
2,2'-Binaphthyl		612-78-2	H-239N	50 mg	H-239S	
Biphenyl		92-52-4	H-133N	500 mg	H-133S	
Carbazole		86-74-8	H-114N	100 mg	H-114S	
Chrysene	Benzo[a]phenanthrene	218-01-9	H-115N	100 mg	H-115S	
Coronene		191-07-1	H-116N	5 mg	H-116S	
Cyclopenta[c,d]pyrene		27208-37-3	-----	-----	H-242S	
Dibenz[a,h]acridine		226-36-8	H-172N	10 mg	H-172S	
Dibenz[a,j]acridine		224-42-0	H-173N	10 mg	H-173S	
Dibenz[a,c]anthracene	1,2:3,4-Dibenzanthracene	215-58-7	H-134N	10 mg	H-134S	
Dibenz[a,h]anthracene	1,2:5,6-Dibenzanthracene	53-70-3	H-135N	10 mg	H-135S	
Dibenz[a,e]fluoranthene		5385-75-1	-----	-----	H-247S	
Dibenz[a,e]pyrene	1,2,4,5-Dibenzopyrene	192-65-4	-----	-----	H-138S	
Dibenz[a,h]pyrene		189-64-0	H-177N	10 mg	H-177S	
Dibenz[a,i]pyrene		189-55-9	H-178N	5 mg	H-178S	
Dibenz[a,l]pyrene		191-30-0	-----	-----	H-179S	
7H-Dibenzo[c,g]carbazole		194-59-2	-----	-----	H-176S	
Dibenzo-p-dioxin		262-12-4	D-100N	10 mg	D-100S *	
Dibenzofuran		132-64-9	F-100N	50 mg	F-100S	
Dibenzothiophene	Diphenylene sulfide	132-65-0	H-117N	100 mg	H-117S	
Dibenz[a,l]pentacene	1,2:8,9-Dibenzpentacene	227-09-8	-----	-----	H-139S	
9,10-Dihydroanthracene		613-31-0	H-140N	100 mg	H-140S	
12,12A-Dihydro-3,9-dimethylbenz[a]anthracene			-----	-----	H-188S	
Diindeno[1,2,3-cd-1',2',3'-lm]perylene	Periflanthene	188-94-3	-----	-----	H-141S	
2,3-Dimethylanthracene		613-06-9	H-189N	10 mg	H-189S	
9,10-Dimethylanthracene		781-43-1	H-190N	10 mg	H-190S	
3,9-Dimethylbenz[a]anthracene		316-51-8	-----	-----	H-191S	
6,8-Dimethylbenz[a]anthracene		317-64-6	-----	-----	H-192S	
7,12-Dimethylbenz[a]anthracene		57-97-6	H-174N	10 mg	H-174S	
7,10-Dimethylbenz[a]pyrene		63104-33-6	-----	-----	H-195S	
1,12-Dimethylbenzo[c]phenanthrene		4076-43-1	-----	-----	H-193S	
5,8-Dimethylbenzo[c]phenanthrene		54886-63-9	-----	-----	H-194S	

* in Isooctane

Polynuclear Aromatic Hydrocarbons



NEATS as stated, SOLUTIONS at 50 µg/mL in Toluene

Polynuclear Aromatic Hydrocarbons (PAHs) (Continued)

Compound	Synonym	CAS No.	NEAT Cat. No.	Unit	SOLUTION Cat. No.	1 mL
1,2-Dimethylnaphthalene		573-98-8	H-197N	10 mg	H-197S	
1,3-Dimethylnaphthalene (96%)		575-41-7	H-198N	10 mg	H-198S	
1,4-Dimethylnaphthalene (95%)		571-53-4	H-199N	10 mg	H-199S	
1,5-Dimethylnaphthalene		571-61-9	H-200N	10 mg	H-200S	
1,6-Dimethylnaphthalene		575-43-9	H-201N	10 mg	H-201S	
1,8-Dimethylnaphthalene (95%)		569-41-5	H-202N	10 mg	H-202S	
2,6-Dimethylnaphthalene		581-42-0	H-161N	10 mg	H-161S	
2,7-Dimethylnaphthalene		582-16-1	H-203N	10 mg	H-203S	
3,6-Dimethylphenanthrene		1576-67-6	H-142N-5MG	5 mg	H-142S	
9,10-Diphenylanthracene		1499-10-1	H-185N	100 mg	H-185S	
Dodecahydrotriphenylene		1610-39-5	H-144N	100 mg	H-144S	
6-Ethylchrysene		2732-58-3	H-264N	10 mg		
Fluoranthene		206-44-0	H-118N	100 mg	H-118S	
Fluorene		86-73-7	H-146N	100 mg	H-146S	
Indan		496-11-7	H-231N	100 mg	H-231S	
Indene		95-13-6	H-230N	100 mg	H-230S	
Indeno[1,2,3-cd]pyrene	o-Phenylene pyrene	193-39-5	H-157N	10 mg	H-157S	
Indole		120-72-9	H-236N	100 mg	H-236S	
Isoquinoline		119-65-3	H-232N	100 mg	H-232S	
1-Methylantracene		610-48-0	H-222N	10 mg	H-222S	
2-Methylantracene		613-12-7	H-148N	10 mg	H-148S	
9-Methylantracene		779-02-2	H-149N	10 mg	H-149S	
1-Methylbenz[a]anthracene		2498-77-3	-----	-----	H-213S	
2-Methylbenz[a]anthracene		2498-76-2	-----	-----	H-214S	
3-Methylbenz[a]anthracene		2498-75-1	-----	-----	H-215S	
4-Methylbenz[a]anthracene		316-49-4	-----	-----	H-216S	
5-Methylbenz[a]anthracene		2319-96-2	-----	-----	H-217S	
6-Methylbenz[a]anthracene		316-14-3	-----	-----	H-218S	
7-Methylbenz[a]anthracene		2541-69-7	-----	-----	H-219S	
9-Methylbenz[a]anthracene		2381-16-0	-----	-----	H-220S	
10-Methylbenz[a]anthracene		2381-15-9	-----	-----	H-221S	
7-Methylbenz[a]pyrene		63041-77-0	H-223N	10 mg	H-223S	
8-Methylbenz[a]pyrene		63041-76-9	-----	-----	H-205S	
9-Methylbenz[a]pyrene		70644-19-8	-----	-----	H-206S	
10-Methylbenz[a]pyrene		63104-32-5	-----	-----	H-207S	
1-Methylbenzo[c]phenanthrene		4076-39-5	-----	-----	H-208S	
2-Methylbenzo[c]phenanthrene		2606-85-1	-----	-----	H-209S	
3-Methylbenzo[c]phenanthrene		2381-19-3	-----	-----	H-210S	
4-Methylbenzo[c]phenanthrene		4076-40-8	-----	-----	H-211S	
5-Methylbenzo[c]phenanthrene		652-04-0	-----	-----	H-212S	
3-Methylcholanthrene		56-49-5	H-170N	10 mg	H-170S	
4-Methylchrysene		3351-30-2	-----	-----	H-228S	
5-Methylchrysene		3697-24-3	-----	-----	H-243S	
6-Methylchrysene		1705-85-7	H-175N	10 mg	H-175S	
2-Methylfluoranthene		33543-31-6	H-182N-5MG	5 mg	H-182S	
1-Methylnaphthalene		90-12-0	H-001N	100 mg	H-001S	
2-Methylnaphthalene		91-57-6	H-002N	100 mg	H-002S	
9-Methyl-9-phenylfluorene		56849-83-3	H-204N	10 mg	H-204S	
1-Methylphenanthrene		832-69-9	-----	-----	H-162S	
2-Methylphenanthrene		2531-84-2	-----	-----	H-003S	
3-Methylphenanthro[3,4-c]phenanthrene		83844-21-7	-----	-----	H-224S	
1-Methylpyrene		2381-71-7	-----	-----	H-233S	
4,5-Methylenephenanthrene		203-64-5	-----	-----	H-119S	
Naphthalene		91-20-3	H-152N	100 mg	H-152S	
Perylene		198-55-0	H-121N	10 mg	H-121S	
Phenanthrene		85-01-8	H-122N	100 mg	H-122S	
9-Phenylantracene		602-55-1	H-156N	100 mg	H-156S	
1-Phenylnaphthalene		605-02-7	H-246N	100 mg	H-246S	
2-Phenylnaphthalene		612-94-2	H-158N	5 mg	H-158S	
Picene		213-46-7	-----	-----	H-184S	
Pyrene		129-00-0	H-123N	100 mg	H-123S	
Pyrrrole		109-97-7	H-229N	100 mg	H-229S	
Quinoline		91-22-5	H-186N	100 mg	H-186S	
2,3;6,7-Tetraethylbiphenylene			H-225N	10 mg	H-225S	
1,2,3,4-Tetrahydrofluoranthene		20279-21-4	H-165N	10 mg	H-165S	
Thianaphthene		95-15-8	H-238N	100 mg	H-238S	
Thianthrene		92-85-3	H-241N	100 mg	-----	--
4,6,8-Trimethylazulene		941-81-1	H-226N	10 mg	H-226S	
8,9,11-Trimethylbenz[a]anthracene		74845-58-2	-----	-----	H-227S	
1,6,7-Trimethylnaphthalene		2245-38-7	H-268N-5MG	5 mg	H-268S	
Triphenylene		217-59-4	H-235N	10 mg	H-235S	
Truxene (95%)		548-35-6	H-124N	100 mg	H-124S	

PAHS



Polynuclear Aromatic Hydrocarbons

PAH Sets and Solutions

AccuStandard has assembled these Polycyclic Aromatic Hydrocarbon Kits for use as reference standards for the predominant species found in ambient air samples. This library of standards was compiled as a working list used by the EPA based on their research and literature surveys. One kit is offered as individual neat compounds, the other as individual solutions. The Solution Kit also contains all the compounds in one solution.

PAH Neat Sets

Z-001-SET **20 x 5 mg**

Acenaphthene	Chrysene
Anthanthrene	Coronene
Anthracene	Dibenzo[thiophene
1,2-Benzanthracene	Fluoranthene
Benz[a]anthracene-7,12-dione (95%)	4,5-Methylenephenanthrene
Benz[<i>g,h,i</i>]perylene	Naphthalene
Benz[<i>a</i>]pyrene	Perylene
Benz[<i>e</i>]pyrene	Phenanthrene
5,6-Benzoquinoline	Pyrene
Carbazole	Truxene (95%)

Z-013N-SET **16 x 10 mg**

Acenaphthene	Chrysene
Acenaphthylene	Dibenz[<i>a,h</i>]anthracene
Anthracene	Fluoranthene
Benz[<i>a</i>]anthracene	Fluorene
Benz[<i>a</i>]pyrene	Indeno[1,2,3- <i>cd</i>]pyrene
Benz[<i>b</i>]fluoranthene	Naphthalene
Benzo[<i>g,h,i</i>]perylene	Phenanthrene
Benzo[<i>k</i>]fluoranthene	Pyrene

PAH Solutions

Z-013-SET **17 x 1 mL**
Each at 0.2 mg/mL at stated solvent plus Z-013-17

Compound	Solvent	Cat. No.	1 mL
Acenaphthene	MeOH	Z-013-01	
Acenaphthylene	MeOH	Z-013-02	
Anthracene	MeOH	Z-013-03	
Benz[<i>a</i>]anthracene	CH ₂ Cl ₂	Z-013-04	
Benz[<i>a</i>]pyrene	CH ₂ Cl ₂	Z-013-05	
Benzo[<i>b</i>]fluoranthene	MeOH	Z-013-06	
Benzo[<i>g,h,i</i>]perylene	CH ₂ Cl ₂	Z-013-07	
Benzo[<i>k</i>]fluoranthene	CH ₂ Cl ₂	Z-013-08	
Chrysene	CH ₂ Cl ₂	Z-013-09	
Dibenz[<i>a,h</i>]anthracene	CH ₂ Cl ₂	Z-013-10	
Fluoranthene	CH ₂ Cl ₂	Z-013-11	
Fluorene	MeOH	Z-013-12	
Indeno[1,2,3- <i>cd</i>]pyrene	MeOH	Z-013-13	
Naphthalene	MeOH	Z-013-14	
Phenanthrene (98%)	CH ₂ Cl ₂	Z-013-15	
Pyrene	CH ₂ Cl ₂	Z-013-16	

Z-013-17 **1 x 1 mL**
0.2 mg/mL each in MeOH:CH₂Cl₂ (50:50) 16 comps.

PAH Mix (Quebec Ministry of Environmental)

H-QME-01 **1 x 1 mL**
500 µg/mL each in CH₂Cl₂:Benzene (50:50) 24 comps.

Acenaphthene	Dibenz[<i>a,h</i>]anthracene
Acenaphthylene	Dibenz[<i>a,h</i>]pyrene
Anthracene	Dibenz[<i>a,i</i>]pyrene
Benz[<i>a</i>]anthracene	Dibenz[<i>a,l</i>]pyrene
Benzo[<i>b</i>]fluoranthene	7,12-Dimethylbenz[<i>a</i>]anthracene
Benzo[<i>j</i>]fluoranthene	Fluoranthene
Benzo[<i>k</i>]fluoranthene	Fluorene
Benzo[<i>g,h,i</i>]perylene	Indeno[1,2,3- <i>cd</i>]pyrene
Benzo[<i>c</i>]phenanthrene	3-Methylcholanthrene
Benz[<i>a</i>]pyrene	Naphthalene
Benz[<i>e</i>]pyrene	Phenanthrene
Chrysene	Pyrene



Nitro-Polynuclear Aromatic Hydrocarbons



The atmosphere of most industrialized areas of the world contains Polynuclear Aromatic Hydrocarbons (PAHs) and Nitrogen Oxides (NOx)¹. Wherever these compounds exist together they react and form Nitro-PAHs, which are highly mutagenic.

Scientists have found Nitro-PAHs in diesel particulates², carbon black^{3,4} and ambient air particulates⁵. These compounds are the major contributors to the mutagenicity of the pollutants since the most common Nitro-PAH found is 1-Nitropyrene, a potent mutagen.

AccuStandard has compiled an extensive inventory of Nitro substituted compounds including mono, di and tri Nitro-PAHs, Amino and Hydroxy substituted PAHs, Nitrotoluenes, Nitroanilines and Nitrophenols. Most compounds are offered in both neat form and in solution.

Nitro-PAHs

Compound	CAS No.	NEAT Cat. No.	Unit	100 µg/mL in Toluene SOLUTION	
				Cat. No.	1 mL
1-Amino-4-nitronaphthalene	776-34-1	R-001N	100 mg	R-001S	
2-Nitroanthracene	3586-69-4	R-105N	5 mg	R-105S	
9-Nitroanthracene	602-60-8	R-003N	5 mg	R-003S	
7-Nitrobenz[a]anthracene	20268-51-3	R-097N	5 mg	R-097S	
6-Nitrobenz[a]pyrene	63041-90-7	-----	-----	R-004S	
2-Nitrobiphenyl	86-00-0	R-005N	100 mg	R-005S	
3-Nitrobiphenyl	2113-58-8	R-006N	100 mg	R-006S	
4-Nitrobiphenyl	92-93-3	R-007N	100 mg	R-007S	
6-Nitrochrysene	7496-02-8	R-008N	5 mg	R-008S	
3-Nitrodibenzofuran	5410-97-9	R-009N	5 mg	R-009S	
2-Nitrodibenzothiophene	6639-36-7	R-010N	5 mg	R-010S	
3-Nitrofluoranthene	892-21-7	R-013N	5 mg	R-013S	
2-Nitrofluorene	607-57-8	R-098N	100 mg	R-098S	
5-Nitroacenaphthene	602-87-9	R-115N	5 mg	R-115S	
1-Nitronaphthalene	86-57-7	R-016N	100 mg	R-016S	
2-Nitronaphthalene	581-89-5	R-085N-10MG	10 mg	R-085S	
3-Nitrophenanthrene	17024-19-0	R-045N	5 mg	R-045S	
9-Nitrophenanthrene	954-46-1	R-020N	5 mg	R-020S	
1-Nitropyrene	5522-43-0	R-022N	5 mg	R-022S	

Di- and Tri- Nitro-PAHs

Compound	CAS No.	NEAT Cat. No.	Unit	100 µg/mL in Toluene SOLUTION	
				Cat. No.	1 mL
9,10-Dinitroanthracene	33685-60-8	R-024N	5 mg	R-024S	
2,2'-Dinitrobiphenyl	2436-96-6	R-025N	100 mg	R-025S	
2,8-Dinitrodibenzothiophene	109041-38-5	R-026N	5 mg	R-026S	
2,7-Dinitrofluorene	5405-53-8	R-027N	100 mg	R-027S	
2,7-Dinitro-9-fluorenone	31551-45-8	R-028N	100 mg	R-028S	
1,3-Dinitronaphthalene	606-37-1	R-029N	100 mg	R-029S	
1,5-Dinitronaphthalene	605-71-0	R-030N	100 mg	R-030S	
1,8-Dinitronaphthalene	602-38-0	R-031N	100 mg	R-031S	
1,3-Dinitropyrene	75321-20-9	R-094N	5 mg	R-094S	
1,6-Dinitropyrene	42397-64-8	R-032N	5 mg	R-032S	
1,8-Dinitropyrene	42397-65-9	R-099N	5 mg	R-099S	
2,4,7-Trinitro-9-fluorenone	129-79-3	-----	-----	R-033S	

Nitro-Aromatics

Compound	CAS No.	NEAT Cat. No.	Unit	100 µg/mL in Toluene SOLUTION	
				Cat. No.	1 mL
Nitrobenzene	98-95-3	R-047N	100 mg	R-047S	
2-Nitrotoluene	88-72-2	R-048N	100 mg	R-048S	
2,4-Dinitrotoluene	121-14-2	R-049N	100 mg	R-049S	
2,6-Dinitrotoluene	606-20-2	R-050N	100 mg	R-050S	
2-Nitrophenol	88-75-5	R-051N	100 mg	R-051S	
4-Nitrophenol	100-02-7	R-052N	100 mg	R-052S	
2,4-Dinitrophenol	51-28-5	-----	-----	R-053S	
2-Nitroaniline	88-74-4	R-054N	100 mg	R-054S	
3-Nitroaniline	99-09-2	R-055N	100 mg	R-055S	
4-Nitroaniline	100-01-6	R-056N	100 mg	R-056S	
4,6-Dinitro-o-cresol (2-Methyl-4,6-dinitrophenol)	534-52-1	R-057N	100 mg	R-057S	

PAHs Derivatives continued on next page

References:

- (1) Nitrated PAHs. Edited by C.M. White, Published by Huethig 1985.
- (2) Analysis of Nitrated Polycyclic Aromatic Hydrocarbons in Diesel Particulates, D. Schuetzle et al., Anal. Chem., Vol. 54, pp. 265-71 (1982).
- (3) Mutagenic Activity in Photocopies, G. Lofroth et al., Science, Vol. 209, pp. 1037-9 (1980).
- (4) Nitropyrenes: Isolation, Identification and Reduction of Mutagenic Impurities in Carbon Black and Toners, H.S. Rosenkranz et al., Science, Vol. 290, pp. 1039-43 (1980).
- (5) Atmospheric Reactions of Polycyclic Aromatic Hydrocarbons: Facile Formation of Mutagenic Nitro Derivatives, J.N. Pitts, Jr. et al., Science, Vol. 202, pp. 515-8 (1978).



Polynuclear Aromatic Hydrocarbons Derivatives

Amino-PAHs

Compound	CAS No.	NEAT		100 µg/mL in Toluene SOLUTION	
		Cat. No.	Unit	Cat. No.	1 mL
2-Acetamidofluorene	53-96-3	R-058N	10 mg	R-058S	
1-Aminoanthracene	610-49-1	R-059N	50 mg	R-059S	
2-Aminoanthracene	613-13-8	R-060N	50 mg	R-060S	
1-Aminoanthraquinone	82-45-1	R-061N	50 mg	R-061S	
2-Aminoanthraquinone	117-79-3	R-093N	5 mg	R-093S	
2-Aminobiphenyl	90-41-5	R-062N	10 mg	R-062S	
4-Aminobiphenyl	92-67-1	R-063N	10 mg	R-063S	
6-Aminochrysene	2642-98-0	R-065N	10 mg	R-065S	
2-Aminofluorene	153-78-6	R-066N	10 mg	R-066S	
1-Aminonaphthalene	134-32-7	R-067N	50 mg	R-067S	
2-Aminonaphthalene	91-59-8	R-084N	10 mg	R-084S	
2,7-Diaminofluorene	525-64-4	R-068N	10 mg	R-068S	
1,8-Diaminonaphthalene	479-27-6	R-069N	100 mg	R-069S	
1,2-Diphenylhydrazine	122-66-7	R-070N	100 mg	R-070S	
N-Phenyl-1-naphthylamine	90-30-2	R-071N	50 mg	R-071S	
o-Tolidine (3,3'-Dimethylbenzidine) †	119-93-7	R-072N	100 mg	R-072S	

Hydroxy-PAHs

Compound	CAS No.	NEAT		100 µg/mL in Toluene SOLUTION	
		Cat. No.	Unit	Cat. No.	1 mL
6-Hydroxychrysene	37515-51-8	R-095N	10 mg	R-095S	
1-Hydroxypyrene	5315-79-7	R-096N	10 mg	R-096S	

Amino-Aromatics

Compound	CAS No.	Neat		100 µg/mL in Toluene Solution	
		Cat. No.	Unit	Cat. No.	1 mL
Benzidine †	92-87-5	R-073N	100 mg	R-073S	
3,3'-Diaminobenzidine †	91-95-2	R-074N	50 mg	R-074S	
3,3'-Dichlorobenzidine †	91-94-1	R-075N	50 mg	R-075S	
3,3'-Dimethoxybenzidine †	119-90-4	R-076N	50 mg	R-076S	
4,4'-Diaminodiphenylmethane (4,4'-Methylenedianiline)	101-77-9	R-077N	100 mg	R-077S	
2,4-Diaminotoluene	95-80-7	R-078N	100 mg	R-078S	
4-Dimethylaminoazobenzene	60-11-7	R-079N	10 mg	R-079S	
4,4'-Methylene bis(2-chloroaniline)	101-14-4	R-080N	50 mg	R-080S	
N-Methyl-N'-nitro-N-nitrosoguanidine	70-25-7	R-081N	50 mg	R-081S	
N-Phenyl-2-naphthylamine	135-88-6	R-082N	10 mg	R-082S	
s-Triazine	290-87-9	R-083N	10 mg	R-083S	

† Subject to oxidation

DIN-38407-17 Nitroaromatic Compounds

Examination of water, wastewater and sludge for the determination of selected nitroaromatic compounds by Gas-Liquid Chromatography

DIN38407-17

500 µg/mL each in MeOH

1 x 1 mL

12 comps.

Nitrobenzene	3,4-Dinitrotoluene
2-Nitrotoluene	2-Amino-6-nitrotoluene
4-Nitrotoluene	4-Amino-2-nitrotoluene
1,3-Dinitrobenzene	4-Amino-2,6-dinitrotoluene
2,6-Dinitrotoluene	2-Amino-4,6-dinitrotoluene
2,4-Dinitrotoluene	2,4,6-Trinitrotoluene



Nitrogen Containing Compounds



Nitrogen Containing Compounds

Compound	CAS No.	Conc.	Matrix	Cat. No.	Unit
Azobenzene	103-33-3	2 mg/mL	CH ₂ Cl ₂	Z-014B-1	1 mL
2-Chloronitrobenzene	88-73-3	100 mg	NEAT	R-017N	100 mg
		100 µg/mL	Toluene	R-017S	1 mL
4-Chloronitrobenzene	100-00-5	100 mg	NEAT	R-018N	100 mg
		100 µg/mL	Toluene	R-018S	1 mL
2,3-Dichloronitrobenzene	3209-22-1	100 mg	NEAT	R-086N	100 mg
		100 µg/mL	Toluene	R-086S	1 mL
2,4-Dichloronitrobenzene	611-06-3	100 mg	NEAT	R-087N	100 mg
		100 µg/mL	Toluene	R-087S	1 mL
2,5-Dichloronitrobenzene	89-61-2	100 mg	NEAT	R-088N	100 mg
		100 µg/mL	Toluene	R-088S	1 mL
2,2'-Dinitrobiphenyl	2436-96-6	100 mg	NEAT	R-025N	100 mg
		100 µg/mL	Toluene	R-025S	1 mL
2,4-Dinitrophenol	51-28-5	100 µg/mL	Toluene	R-053S	1 mL
2,4-Dinitrotoluene	121-14-2	100 mg	NEAT	R-049N	100 mg
		100 µg/mL	Toluene	R-049S	1 mL
		100 µg/mL	MeOH	APP-9-092	1 mL
		5 mg/mL	MeOH	AS-E0033	1 mL
2,6-Dinitrotoluene	606-20-2	100 mg	NEAT	R-050N	100 mg
		100 µg/mL	Toluene	R-050S	1 mL
		100 µg/mL	MeOH	APP-9-093	1 mL
		5 mg/mL	MeOH	AS-E0034	1 mL
N-Methyl-N'-nitro-N-nitrosoguanidine	70-25-7	50 mg	NEAT	R-081N	50 mg
		100 µg/mL	Toluene	R-081S	1 mL
2-Nitrobiphenyl	86-00-0	100 mg	NEAT	R-005N	100 mg
		100 µg/mL	Toluene	R-005S	1 mL
3-Nitrobiphenyl	2113-58-8	100 mg	NEAT	R-006N	100 mg
		100 µg/mL	Toluene	R-006S	1 mL
4-Nitrobiphenyl	92-93-3	100 mg	NEAT	R-007N	100 mg
		100 µg/mL	Toluene	R-007S	1 mL
2-Nitrophenol	88-75-5	100 mg	NEAT	R-051N	100 mg
		100 µg/mL	Toluene	R-051S	1 mL
4-Nitrophenol	100-02-7	100 mg	NEAT	R-052N	100 mg
		100 µg/mL	Toluene	R-052S	1 mL
2-Nitrotoluene	88-72-2	100 mg	NEAT	R-048N	100 mg
		100 µg/mL	Toluene	R-048S	1 mL
		100 µg/mL	MeOH	APP-9-186-M	1 mL
Pyridine	110-86-1	2 mg/mL	MeOH	APP-9-186-M-20X	1 mL
		5 mg/mL	MeOH	AS-E0271	1 mL
		10 mg/mL	Water	M-8015B/5031-26	1 mL
		100 µg/mL	MeOH	APP-9-186-M	1 mL
2,3,4,5-Tetrachloronitrobenzene	879-39-0	100 mg	NEAT	R-091N	100 mg
		100 µg/mL	Toluene	R-091S	1 mL
2,3,5,6-Tetrachloronitrobenzene	117-18-0	100 mg	NEAT	R-092N	100 mg
		100 µg/mL	Toluene	R-092S	1 mL
s-Triazine	290-87-9	10 mg	NEAT	R-083N	10 mg
		100 µg/mL	Toluene	R-083S	1 mL
2,3,4-Trichloronitrobenzene	17700-09-3	100 mg	NEAT	R-089N	100 mg
		100 µg/mL	Toluene	R-089S	1 mL
2,4,5-Trichloronitrobenzene	89-69-0	100 mg	NEAT	R-090N	100 mg
		100 µg/mL	Toluene	R-090S	1 mL



Custom pesticide formulations can be prepared for residue screening and other applications. See back of catalog for details.

**Can't find a Pesticide?
Search in CAS No. Index in back of the catalog.**

Pesticide Catalog Numbers have 5 parts:

1. The initial **P-** specifies the product is a Pesticide.
2. The following three numbers are sequentially assigned and are unique to the chemical.
3. The next character (**N or S**) specifies whether the product is Neat or in Solution.
4. “-” with letters specify a solvent other than Methanol (MeOH).
5. “-” with a number followed by an X specifies the concentration difference from the 100 µg/mL (ex: -10X is 1000 µg/mL).

Example:

P-017S is Chlordane at 100 µg/mL in Methanol

P-017N is Chlordane neat (10 mg)

P-017S-H-10X is Chlordane at 1000 µg/mL in Hexane

in Acetone (-A)

in Acetonitrile (-CN)

in Ethyl acetate (-EA)

in Hexane (-H)

in Isooctane (-TP)

in Methyl cellosolve (-MC)

in Toluene (-T)

in Water (-W)

Neat Pesticide Standards

Small amounts (5-10 mg) of powder often are spread over the surface of the vial and cap. If the chemical is a liquid it may coat the walls as a thin layer invisible to the eye. To recover all of the contents contained in a vial of neat material please use the procedure described below:

1. Wipe the outside of the vial containing the Standard clean and dry (including the cap).
2. Weigh the entire unit on an analytical balance. Record the weight to the nearest 0.1 mg.
3. Carefully transfer the contents to a volumetric flask using a suitable solvent. Rinse the cap and vial several times to assure a complete transfer.
4. Dry inside and outside of the vial and cap with mild heat or inert gas.
5. Weigh the empty dry vial on the same analytical balance to the nearest 0.1 mg. Calculate the difference to determine the amount of material transferred.





Pesticides, their by-products, metabolites and degradates

Pesticides are usually viewed as something bad for the environment and human health. Research on the presence and toxicity of pesticides is an important factor in understanding the risk/benefit balance of their use.

In addition to many of the pesticides for which production has been discontinued (but are still present in the environment), we have synthesized metabolites, degradates, and by-products such as:

- Aldicarb sulfone and sulfoxide
- Endrin aldehyde and ketone
- Oxychlorane and o,p'-Methoxychlor
- Fipronyl sulfone, sulfoxide and desulfinyl
- DDT by-products

Over 1000 Individual Pesticide Standards

Table of Contents

Individual Pesticides (NEATS and SOLUTIONS)	50-66
Pesticide, Herbicide Kits & Mixtures	67
Triazines and Metabolites	68
Phenylurea Pesticide Mixtures	68
Neonicotinoids, Fipronil & its metabolites	68
Honeybee Colony Collapse Disorder (CCD)	

Same Low Price in Neat (10 mg) or Solution (100 µg/mL) form

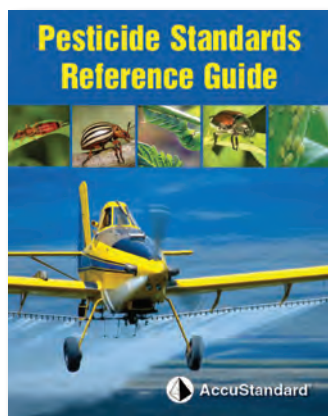
Most Pesticides are available in 1000 µg/mL (add -10X). Call or visit website for pricing.



EXACT WEIGHT for Neat Pesticides

Listed Catalog neat products are overfilled approximately 10%, however, pesticides can be provided with **EXACT WEIGHT**. Specify EXACT WEIGHT by ordering **X-WT** and the exact weight will be noted on the product label. There is an additional charge for this service. Rinse the pesticide out of the vial with the appropriate amount of solvent to get a weight/volume standard and calculate the concentration.

Pesticide Standards Reference Guide

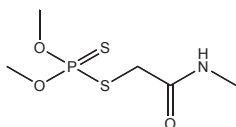


Lists over 1000 pesticides and contains technical information such as chemical name, structure, CAS number, molecular formula, molecular weight and physical state. Most also include solubility, specific gravity, melting or boiling point, flash point and common synonyms.

Sample:

Dimethoate

2-Dimethoxyphosphinothioylthio-N-methylacetamide



CAS 60-51-5 **MF** C₅H₁₂NO₃PS₂ **MW** 229.26 **PS** S
SG 1.31 g/cm³ **MP** 50 °C **BP** 117 °C **FP** 107 °C

Matrix	Cat. No.	Unit
Neat	P-039N	10 mg
100 µg/mL in MeOH	P-039S	1 mL

Property Key

CAS	Chemical Abstract Service Number
MF	Molecular Formula
MW	Molecular Weight
PS	Physical State (Solid, Liquid)
SOL	Solubility
SG	Specific Gravity (g/cm ³)
MP	Melting Point (°C)
BP	Boiling Point (°C)
FP	Flash Point (°C)

Solubility Key (SOL)

A	Acetone
CN	Acetonitrile (AcCN)
D	Methylene chloride
DMSO	Dimethyl sulfoxide
EA	Ethyl acetate
H	Hexane
IPA	Isopropanol
MeOH	Methanol
MC	Methyl cellosolve
T	Toluene
TP	Isooctane
W	Water

Includes formulations for over 50 EPA and international pesticide methods.

Download Pesticide Standards Reference Guide at AccuStandard.com



Pesticides

Pesticide Standards

Compound	Synonym / CAS No.	Matrix	Cat. No.	Compound	Synonym / CAS No.	Matrix	Cat. No.
<i>AA</i> trax	see Atrazine			Amicarbazone	129909-90-6	AcCN	P-1152S-CN
Abamectin	71751-41-2	NEAT MeOH	P-615N P-615S	Amidosulfuron	120923-37-7	NEAT AcCN	P-821N P-821S-CN
<i>Ab</i> baphos	see Abate			<i>Amigol</i>	see Amitrole		
<i>Ab</i> ar	see Leptophos			Aminocarb	2032-59-9	NEAT MeOH	P-062N P-062S
Abate	3383-96-8	NEAT MeOH	P-101N P-101S	Aminomethylphosphonic acid	1066-51-9	NEAT Water	P-625N P-625S-W
<i>Ab</i> athion	see Abate			Aminopyralid	150114-71-9	NEAT MeOH	P-1048N P-1048S
<i>A</i> calarate	see Chloropropylate			4-Aminopyridine	504-24-5	NEAT MeOH	P-407N P-407S
<i>A</i> carben	see Chlorobenzilate			<i>Aminotriazole</i>	see Amitrole		
<i>Ac</i> claim	see Fenoxaprop-p-ethyl			<i>Amino</i> zide	see Alar		
Acephate	30560-19-1	NEAT Acetone	P-200N P-200S-A	<i>Amiral</i>	see Triadimefon		
Acequinocyl	57960-19-7	NEAT AcCN	P-1037N P-1037S-CN	Amisulbrom	348635-87-0	MeOH	P-998S
Acetamiprid	135410-20-7	NEAT AcCN	P-820N P-820S-CN	Amitraz	33089-61-1	NEAT AcCN	P-409N P-409S-CN
Acetochlor	34256-82-1	NEAT MeOH	P-465N P-465S	Amitrole (ATA)	61-82-5	NEAT MeOH	P-103N P-103S
Acibenzolar-S-methyl	135158-54-2	NEAT MeOH	P-895N P-895S	<i>Amizine</i>	see Simazine		
Acifluorfen †	50594-66-6	NEAT MeOH AcCN	P-245N P-245S P-245S-CN	<i>Amizol</i>	see Amitrole		
Acifluorfen methyl ester	50594-67-7	NEAT MeOH	P-246N P-246S	Ammonium sulfamate	7773-06-0	NEAT MeOH	P-530N P-530S
Aclonifen	74070-46-5	AcCN	P-890S-CN	<i>AMS</i>	see Ammonium sulfamate		
Acrinathrin	101007-06-1	AcCN	P-842S-CN	Ancymidol	12771-68-5	NEAT MeOH	P-410N P-410S
<i>Act</i> ellic	see Pirimphos methyl ester			Anilazine	101-05-3	NEAT Hexane AcCN	P-287N P-287S-H P-973S-CN
<i>Acti-Aid</i>	see Cycloheximide			Anilofos	64249-01-0		
<i>Act</i> osin C	see Chlorophacinone			<i>Antiphen</i>	see Dichlorophen		
<i>Ad</i> mire	see Imidacloprid			<i>Apl-Luster</i>	see Thiabendazole		
<i>Af</i> alon	see Linuron			<i>Aprocarb</i>	see Baygon		
<i>Af</i> firm	see Abamectin			<i>Aracide</i>	see Aramite		
<i>Af</i> ugan	see Pyrazophos			<i>Aracnol F</i>	see Cyhexatin		
<i>Agritox</i>	see Trichloronate			Aramite	140-57-8	MeOH	P-132S
<i>Agro</i> xone	see MCPA acid			<i>A-Rest</i>	see Ancymidol		
<i>Ai</i> msan	see Phenthoate			<i>Arisan</i>	see Buturon		
<i>Ak</i> ar	see Chlorobenzilate			<i>Arresin</i>	see Monolinuron		
Alachlor	15972-60-8	NEAT MeOH	P-102N P-102S	Aspon	3244-90-4	MeOH	P-309S
Alanap	132-66-1	NEAT MeOH	P-274N P-274S	Assure	see Quizalofop ethyl		
Alar	1596-84-5	NEAT MeOH	P-174N P-174S	Asulam	3337-71-1	NEAT MeOH	P-276N P-276S
Albendazole	54965-21-8	NEAT MeOH	P-498N P-498S	<i>ATA</i>	see Amitrole		
Aldicarb	116-06-3	NEAT MeOH	P-001N P-001S	<i>Athrombine-K</i>	see Warfarin		
Aldicarb sulfone	1646-88-4	NEAT MeOH	P-130N P-130S	<i>Atratol</i>	see Atrazine		
Aldicarb sulfoxide	1646-87-3	NEAT MeOH	P-131N * P-131S	<i>Atraton</i>	see Gesatamin		
<i>Aldoxycarb</i>	see Aldicarb sulfone			Atrazine	1912-24-9	NEAT MeOH Acetone	P-005N P-005S P-005S-A-10X
Aldrin	309-00-2	NEAT MeOH	P-002N † P-002S	Atrazine desethyl	6190-65-4	NEAT MeOH	P-343N P-343S
<i>Alfa-tox</i>	see Diazinon			Atrazine-desethyl-desisopropyl	3397-62-4	NEAT MeOH	P-428N P-428S
Allethrin	584-79-2	NEAT MeOH	P-267N P-267S	Atrazine-desethyl-2-hydroxy	19988-24-0	MeOH	P-544S
Allidochlor	93-71-0	NEAT MeOH	P-670N P-670S	Atrazine-desisopropyl	1007-28-9	NEAT MeOH	P-345N P-345S
<i>Allisan</i>	see Botran			Atrazine-desisopropyl-2-hydroxy	7313-54-4	NEAT MeOH	P-344N P-344S
<i>Altosid</i>	see Methoprene			<i>Avadex</i>	see Diallylate		
Alloxydim-sodium	55635-13-7	NEAT MeOH	P-510N P-510S	<i>Avid</i>	see Abamectin		
<i>Amaze</i>	see Isofenphos			<i>Axial</i>	see Pinoxaden		
<i>Ambush</i>	see Permethrin			Azaconazole	60207-31-0	NEAT AcCN	P-971N P-971S-CN
<i>Amdro</i>	see Hydramethylnon			Azaditractin	11141-17-6	MeOH	P-711S
Ametoctradin	865318-97-4	MeOH	P-1039S	Azamethiphos	35575-96-3	NEAT MeOH	P-352N P-352S
Ametryn	834-12-8	NEAT MeOH	P-003N P-003S	Azimsulfuron	120162-55-2	50 µg/mL AcCN	P-1036S-CN-0.5X
				Azinphos-ethyl	2642-71-9	NEAT MeOH	P-201N P-201S

† Pesticides containing a carboxyl group may autoesterify in Methanol. These standards are intended for use as a post-esterification standard for GC analysis. For other types of analysis (ex. HPLC) we suggest a non-hydroxylic solvent such as Acetonitrile.

* ColdPAK required to maintain integrity of product.

‡ V-Rated packaging surcharge applies for international shipments.



NEATS in 10 mg, SOLUTIONS at 100 µg/mL in 1 mL, except as noted.

Pesticide Standards

Compound	Synonym / CAS No.	Matrix	Cat. No.	Compound	Synonym / CAS No.	Matrix	Cat. No.
Azinphos-methyl	86-50-0	NEAT	P-007N	<i>Bethrodine</i>	see Benfluralin		
		MeOH	P-007S	BHC Tech	608-73-1	NEAT	P-081N
Azocyclotin	41083-11-8	NEAT	P-353N			MeOH	P-081S
		MeOH	P-353S	α - BHC	319-84-6	NEAT	P-010N
Azoxystrobin	131860-33-8	NEAT	P-719N			MeOH	P-010S
		MeOH	P-719S	β - BHC	319-85-7	NEAT	P-011N
<i>Barvel</i>	see Dicamba					MeOH	P-011S
Barbamate	101-27-9	NEAT	P-202N	δ - BHC	319-86-8	NEAT	P-012N
		MeOH	P-202S			MeOH	P-012S
<i>Barban</i>	see Barbamate			γ - BHC	see Lindane		
<i>Barben</i>	see Azinphos-methyl			<i>Bidrin</i>	see Dicrotophos		
Barnon	52756-22-6	NEAT	P-646N	Bifenazate	149877-41-8	5 mg	P-772N-5MG
		MeOH	P-646S			MeOH	P-772S
<i>Basagran</i>	see Bentazon			Bifenox	42576-02-3	NEAT	P-257N
<i>Basalin</i>	see Fluchloralin					MeOH	P-257S
<i>Basudin</i>	see Diazinon			Bifenthrin	82657-04-3	NEAT	P-445N
<i>Baythroid</i>	see Cyfluthrin					MeOH	P-445S
Baycarb	3766-81-2	NEAT	P-347N	<i>Biflex</i>	see Bifenthrin		
		MeOH	P-347S	Binapacryl	485-31-4	NEAT	P-499N
<i>Baycor</i>	See Bitertanol					MeOH	P-499S
<i>Bayfidan</i>	see Triadimenol			Bioallethrin	28057-48-9	NEAT	P-665N
Baygon	114-26-1	NEAT	P-009N			MeOH	P-665S
		MeOH	P-009S	S-Bioallethrin	28424-00-6	NEAT	P-664N
<i>Bayleton</i>	see Triadimefon					MeOH	P-664S
<i>Bayluscid</i>	see Niclosamide			Bioresmethrin	28434-01-7	NEAT	P-594N
<i>Baytan</i>	see Triadimenol					MeOH	P-594S
<i>Baytex</i>	see Fenthion			Bitertanol	55179-31-2	NEAT	P-351N
<i>Baythion</i>	see Phoxim					MeOH	P-351S
<i>Beam</i>	see Tricyclazole			Bitrex	3734-33-6	NEAT	P-679N
Beflubutamid	113614-08-7	NEAT	P-1041N			MeOH	P-679S
		MeOH	P-1041S	<i>Bladafum</i>	see Sulfotep		
Benalaxyl	71626-11-4	NEAT	P-559N	<i>Bladan</i>	see Parathion		
		MeOH	P-559S	<i>Blattanex</i>	see Baygon		
Benazolin	3813-05-6	NEAT	P-397N	Bloc	60168-88-9	NEAT	P-086N
		MeOH	P-397S			MeOH	P-086S
Bendiocarb	22781-23-3	NEAT	P-203N	<i>B-Nine</i>	see Alar		
		MeOH	P-203S	<i>Bolero</i>	see Thiobencarb		
<i>Benefin</i>	see Benfluralin			Bolstar	35400-43-2	NEAT	P-108N
<i>Benelux</i>	see Thiofanox					MeOH	P-108S
Benfluralin	1861-40-1	NEAT	P-237N	Bonzi	76738-62-0	NEAT	P-669N
		MeOH	P-237S			MeOH	P-669S
Benfuracarb	82560-54-1	NEAT	P-454N	Boscalid	188425-85-6	NEAT	P-811N
		MeOH	P-454S			MeOH	P-811S *
Benfuresate	68505-69-1	NEAT	P-1080N	Botran	99-30-9	NEAT	P-013N
		MeOH	P-1080S			MeOH	P-013S
<i>Benlate</i>	see Benomyl			<i>BPMC</i>	see Baycarb		
Benodanil	15310-01-7	NEAT	P-671N	<i>Bravo</i>	see Chlorothalonil		
		MeOH	P-671S	<i>Brigade</i>	see Bifenthrin		
Benomyl	17804-35-2	NEAT	P-104N	Brodifacoum	56073-10-0	NEAT	P-677N
		AcCN	P-104S-CN *			MeOH	P-677S
Benoxacor	98730-04-2	NEAT	P-490N	Bromacil	314-40-9	NEAT	P-181N
		MeOH	P-490S			MeOH	P-181S
Bensulfuron-methyl	83055-99-6	NEAT	P-597N	Bromadiolone	28772-56-7	NEAT	P-316N
		MeOH	P-597S			MeOH	P-316S *
Bensulide	741-58-2	NEAT	P-204N	<i>Bromex</i>	see Naled		
		MeOH	P-204S	Brominal	1689-84-5	NEAT	P-256N
Bensultap	17606-31-4	NEAT	P-678N			MeOH	P-256S
		MeOH	P-678S	Bromobutide	74712-19-9	MeOH	P-1059S
Bentazon †	25057-89-0	NEAT	P-177N	Bromofenoxim	13181-17-4	NEAT	P-511N
		Acetone	P-177S-A			MeOH	P-511S
		AcCN	P-177S-CN	Bromophos-ethyl	4824-78-6	NEAT	P-372N
Bentazon methyl	61592-45-8	NEAT	P-241N			MeOH	P-372S
		MeOH	P-241S	Bromophos-methyl	2104-96-3	NEAT	P-484N
Benthiavalicarb-isopropyl	177406-68-7	10 µg/mL	P-1049S-A-0.1X			MeOH	P-484S
		Acetone		Bromopropylate	18181-80-1	NEAT	P-457N
<i>Benthiocarb</i>	see Thiobencarb					MeOH	P-457S
<i>Benzoifuroline</i>	see Resmethrin			<i>Bromoxynil</i>	see Brominal		
Benzoimate	29104-30-1	AcCN	P-801S-CN	Bromoxynil-heptanoate	56634-95-8	MeOH	P-1012S
Benzoilprop ethyl	22212-55-1	NEAT	P-340N			NEAT	P-573N
		MeOH	P-340S	Bromoxynil methyl ether	3336-39-8	MeOH	P-573S
<i>Betasan</i>	see Bensulide						

† Pesticides containing a carboxyl group may autoesterify in Methanol. These standards are intended for use as a post-esterification standard for GC analysis. For other types of analysis (ex. HPLC) we suggest a non-hydroxylic solvent such as Acetonitrile.

* ColdPAK required to maintain integrity of product.



Pesticides

Pesticide Standards

Compound	Synonym / CAS No.	Matrix	Cat. No.	Compound	Synonym / CAS No.	Matrix	Cat. No.
Bromoxynil octanoate	1689-99-2	NEAT MeOH	P-550N P-550S	Chloramben methyl ester	7286-84-2	NEAT MeOH	P-272N P-272S
Bromuconazol	116255-48-2	NEAT AcCN	P-843N P-843S-CN	Chlorantraniliprole	500008-45-7	NEAT MeOH	P-952N P-952S
Bueno	2163-80-6	NEAT MeOH	P-279N P-279S	Chlorbenside	103-17-3	NEAT MeOH	P-107N P-107S
Bupirimate	41483-43-6	NEAT MeOH	P-672N P-672S	Chlorbromuron	13360-45-7	NEAT MeOH	P-520N P-520S
Buprofezin	69327-76-0	NEAT MeOH	P-595N P-595S	Chlorbufam	1967-16-4	NEAT MeOH	P-558N P-558S
Busan †	21564-17-0	AcCN	P-072S-CN	Chlordane (Tech)	12789-03-6	NEAT MeOH	P-017N P-017S
Butachlor	23184-66-9	NEAT MeOH	P-191N P-191S	α-Chlordane	5103-71-9	NEAT MeOH	P-134N P-134S
Butafenacil	134605-64-4	NEAT MeOH	P-940N P-940S	γ-Chlordane	5103-74-2	NEAT MeOH	P-135N P-135S
Butisan S	see Metazachlor			<i>cis</i> -Chlordane	see α-Chlordane		
Butocarboxim	34681-10-2	NEAT MeOH	P-518N P-518S	<i>trans</i> -Chlordane	see γ-Chlordane		
Butocarboxim sulfoxide	34681-24-8	NEAT MeOH	P-701N P-701S	Chlordecone	see Kepone		
Butoflin	see Deltamethrin			Chlordene	3734-48-3	NEAT MeOH	P-136N P-136S
Butox	see Deltamethrin			Chlordimeform	6164-98-3	NEAT MeOH	P-333N P-333S
Butoxycarboxim	34681-23-7	NEAT AcCN	P-822N P-822S-CN	Chlorethoxyfos	54593-83-8	NEAT AcCN	P-1017N P-1017S-CN
Butralin	33629-47-9	NEAT MeOH	P-574N P-574S	<i>Chlorfenac</i>	see Fenatrol		
Buturon	3766-60-7	NEAT MeOH	P-301N P-301S	<i>Chlorfenson</i>	see Ovex		
Butylate	2008-41-5	NEAT MeOH	P-088N P-088S	Chlorfenapyr	122453-73-0	NEAT MeOH	P-807N P-807S
Cadusafos	95465-99-9	NEAT MeOH	P-794N † P-794S	Chlorfenvinphos	470-90-6	NEAT MeOH	P-139N † P-139S
Calcium arsenate	7778-44-1	NEAT	P-1076N	Chlorfluazuron	71422-67-8	AcCN	P-771S-CN †
Calixin	see Tridemorph			Chlorfluorecol-methyl ester	2536-31-4	NEAT MeOH	P-401N P-401S
Camphchlor	see Toxaphene			<i>Chlorfluorecol</i>	see Chlorfluorecol-methyl ester		
Caparol	see Prometryne			<i>Chloridazon</i>	see Pyrazon		
Captafol	2425-06-1	NEAT MeOH	P-254N P-254S	Chlorimuron-ethyl	90982-32-4	AcCN	P-284S-CN
Captan	133-06-2	NEAT MeOH	P-182N P-182S †	Chlormephos	24934-91-6	NEAT MeOH	P-329N P-329S
Capture	see Bifenthrin			Chlormequat chloride	999-81-5	NEAT MeOH	P-338N P-338S
Carbamult	see Promecarb			Chlornitrofen	1836-77-7	5 mg AcCN	P-816N-5MG P-816S-CN
Carbaryl	63-25-2	NEAT MeOH	P-083N P-083S	Chlorobenzilate †	510-15-6	NEAT AcCN	P-133N P-133S-CN
Carbendazim	10605-21-7	NEAT MeOH	P-278N P-278S	<i>Chloroea</i>	see Monuron		
Carbetamide	16118-49-3	NEAT MeOH	P-562N P-562S	2-Chloro-2',6'-diethylacetanilide	6967-29-9	NEAT MeOH	P-620N P-620S
Carbexsin	see Oxycarboxin			2-Chloro-4-ethylamino-6-methylethylamino-s-triazine		NEAT MC	P-539N P-539S-MC
Carbicron	see Dicrotophos			2-Chloro-4-ethylamino-6-propylamino-s-triazine	90952-64-0	NEAT MC	P-537N P-537S-MC
Carbofuran	1563-66-2	NEAT MeOH	P-106N P-106S	2-Chloro-4-methylamino-6-diethylamino-s-triazine		NEAT MC	P-541N P-541S-MC
Carbofuran phenol-3-ketone	17781-16-7	MeOH	P-630S	2-Chloro-4-methylamino-6-sec-butylamino-s-triazine		NEAT MC	P-540N P-540S-MC
Carbophenothion	786-19-6	NEAT MeOH	P-095N P-095S	Chloroneb	2675-77-6	NEAT MeOH	P-212N P-212S
Carbophenothion methyl-o-analog		10 µg/mL in EtOAc	P-637S-EA-0.1X	Chlorophacinone	3691-35-8	NEAT MeOH	P-314N P-314S
Carbosulfan	55285-14-8	NEAT MeOH	P-446N P-446S	[3(2-Chlorophenyl)]-1,1-dimethylurea			
Carboxin	5234-68-4	NEAT MeOH	P-216N P-216S	see 2-Monuron			
Carbyne	see Barbamate			4-Chlorophenoxyacetic acid	see 4-CPA		
Carfentrazone-ethyl	128639-02-1	AcCN	P-957S-CN †	Chloropicrin	76-06-2	NEAT MeOH	P-398N †† P-398S
Carpropamid	104030-54-8	AcCN	P-1162S-CN	4-Chloro-2-methylphenol	1570-64-5	NEAT MeOH	P-1026N P-1026S
Cartap	15263-53-3	MeOH	P-577S	3-Chloro-1,2-propanediol	96-24-2	NEAT MeOH	P-408N P-408S
Cartap hydrochloride	22042-59-7	NEAT	P-949N	2-Chloroethanol	107-07-3	NEAT MeOH	P-1079N P-1079S
CDEC	see Sulfallate						
Cekumethion	see Methyl parathion						
Chemathion	see Malathion						
Chinomethionate	2439-01-2	NEAT Acetone	P-399N P-399S-A				
Chloramben	133-90-4	NEAT MeOH	P-243N P-243S				

† V-Rated packaging surcharge applies for international shipments.

†† This product can not ship by air.

Pesticides at same low price in Neat (10 mg) or Solution (100 µg/mL) form
Most Pesticides are available in 1000 µg/mL (add -10X). Call or visit website for pricing.



NEATS in 10 mg, SOLUTIONS at 100 µg/mL in 1 mL, except as noted.

Pesticide Standards

Compound	Synonym / CAS No.	Matrix	Cat. No.	Compound	Synonym / CAS No.	Matrix	Cat. No.
1,1-bis(4-Chlorophenyl)ethylene		NEAT	P-1054N	<i>Crotoxyphos</i>	see Ciodrin		
	2642-81-1	MeOH	P-1054S	Cruformate	299-86-5	NEAT	P-292N
Chloropropylate	5836-10-2	NEAT	P-213N			MeOH	P-292S
		MeOH	P-213S	Cryolite	15096-52-3	NEAT	P-1071N
Chlorothalonil	1897-45-6	NEAT	P-222N	Cumyluron	99485-76-4	AcCN	P-1135S-CN *
		MeOH	P-222S	<i>Curacron</i>	see Profenofos		
Chlorotoluron	22175-22-0	AcCN	P-1368S-CN	Cyanazine	21725-46-2	NEAT	P-175N
Chloroxuron	1982-47-4	NEAT	P-402N			MeOH	P-175S
		MeOH	P-402S	Cyanofenphos	13067-93-1	NEAT	P-584N
Chlorpropham	101-21-3	NEAT	P-221N			MeOH	P-584S
		MeOH	P-221S	Cyanophos	2636-26-2	NEAT	P-531N
<i>Chlorpyrifos</i>	see Dursban					MeOH	P-531S
Chlorpyrifos-methyl	5598-13-0	NEAT	P-223N	Cyazofamid	120116-88-3	NEAT	P-969N
		MeOH	P-223S			MeOH	P-969S
Chlorpyrifos-oxon	5598-15-2	NEAT	P-700N	Cyclanilide	113136-77-9	AcCN	P-982S-CN
		MeOH	P-700S	Cycloate	1134-23-2	NEAT	P-248N
Chlorsulfuron	64902-72-3	NEAT	P-262N			MeOH	P-248S
		AcCN	P-262S-CN	Cycloheximide	66-81-9	MeOH	P-411N
<i>Chlorthal</i>	see DCPA diacid					MeOH	P-411S
Chlorthiamid	1918-13-4	NEAT	P-673N	<i>2-Cyclohexyl-4,6-dinitrophenol</i>	see Dinex		
		MeOH	P-673S	Cycloprate	54460-46-7	NEAT	P-1069N
Chlorthion	500-28-7	MeOH	P-674S			MeOH	P-1069S
Chlorthiophos	60238-56-4	NEAT	P-545N	Cyclosulfamuron	136849-15-5	MeOH	P-1086S
		MeOH	P-545S	Cycloxydime	101205-02-1	NEAT	P-735N
Chlortoluron	15545-48-9	NEAT	P-434N			MeOH	P-735S *
		MeOH	P-434S	Cycluron	2163-69-1	AcCN	P-791S-CN *
Chlorzolinate	84332-86-5	AcCN	P-683S-CN	Cyflufenamide	180409-60-3	AcCN	P-975S-CN *
Cinosulfuron	94593-91-6	NEAT	P-823N	Cyfluthrin - Mix of Isomers	68359-37-5	NEAT	P-354N
		AcCN	P-823S-CN			MeOH	P-354S *
Ciodrin	7700-17-6	MeOH	P-218S	<i>Cygon</i>	see Dimethoate		
<i>CIPC</i>	see Chlorpropham			Cyhalofop-butyl	122008-85-9	5 mg	P-944N-5MG
Clarity	104040-79-1	H ₂ O	P-495S-W			MeOH	P-944S
<i>Classic</i>	see Chlorimuron-ethyl			λ-Cyhalothrin	91465-08-6	NEAT	P-473N
Clethodim	99129-21-2	NEAT	P-602N			MeOH	P-473S *
		AcCN	P-602S-CN *	Cyhexatin	13121-70-5	NEAT	P-375N
Clodinafop	114420-56-3	NEAT	P-1009N			MeOH	P-375S
		MeOH	P-1009S	<i>Cyolane</i>	see Phosfolan		
Clodinafop-propargyl	105512-06-9	NEAT	P-755N	Cymoxanil	57966-95-7	NEAT	P-493N
		AcCN	P-755S-CN			MeOH	P-493S *
Clofentezine	74115-24-5	NEAT	P-472N	Cypermethrin	52315-07-8	NEAT	P-225N
		MeOH	P-472S			MeOH	P-225S *
Clomazon	81777-89-1	MeOH	P-286S	α-Cypermethrin	67375-30-8	NEAT	P-548N
Clomeprop	84496-56-0	5 mg	P-1065N-5MG			AcCN	P-548S-CN
		Acetone	P-1065S-A	<i>cis-Cypermethrin</i>	see a-Cypermethrin		
<i>Clopyralid</i>	see Lontrel			Cyphenothrin	39515-40-7	NEAT	P-709N
Clopyralid methyl ester	1532-24-7	MeOH	P-488S			MeOH	P-709S
Cloquintocet-mexyl	99607-70-2	NEAT	P-929N	<i>Cypona</i>	see Dichlorvos		
		MeOH	P-929S	Cyprazine	22936-86-3	NEAT	P-420N
Cloransulam methyl	147150-35-4	AcCN	P-981S-CN			MeOH	P-420S
Clothianidin	210880-92-5	NEAT	P-947N			Hexane	P-420S-H
		MeOH	P-947S	Cyproconazole	94361-06-5	MeOH	P-555S
<i>CMU</i>	see Monuron			Cyprodinil	121552-61-2	NEAT	P-720N
<i>Comite</i>	see Propargite					MeOH	P-720S
<i>Command</i>	see Clomazone			Cyromazine	66215-27-8	NEAT	P-296N
<i>Confidor</i>	see Imidacloprid					MeOH	P-296S
<i>Conrac</i>	see Bromadiolone			<i>Cythion</i>	see Malathion		
Copper(II)carbonate	12069-69-1	NEAT	P-1074N	2,3-D acid †	2976-74-1	NEAT	P-470N
		MeOH	P-1074S			MeOH	P-470S
Copper oxychloride	1332-40-7	NEAT	P-458N			AcCN	P-470S-CN
<i>Cornox</i>	see MCPA acid			2,4-D acid †	94-75-7	NEAT	P-020N
<i>Cotoran</i>	see Fluometuron					MeOH	P-020S
Coumachlor	81-82-3	MeOH	P-684S			AcCN	P-020S-CN
<i>Coumaphene</i>	see Warfarin			2,6-D acid †	575-90-6	NEAT	P-690N
Coumaphos	56-72-4	NEAT	P-019N			MeOH	P-690S
		MeOH	P-019S	2,4-D butoxyethyl ester	1929-73-3	AcCN	P-690S-CN
Coumatetralyl	5836-29-3	NEAT	P-313N			NEAT	P-438N
		MeOH	P-313S	2,4-D butyl ester	94-80-4	NEAT	P-712N
<i>Counter</i>	see Terbufos					MeOH	P-712S *
4-CPA	122-88-3	NEAT	P-373N	2,4-D ethyl ester	533-23-3	NEAT	P-636N
		MeOH	P-373S			MeOH	P-636S
Crimidine	535-89-7	NEAT	P-561N	2,4-D ethylhexyl ester	1928-43-4	NEAT	P-439N
		MeOH	P-561S			Hexane	P-439S-H

† Pesticides containing a carboxyl group may autoesterify in Methanol. These standards are intended for use as a post-esterification standard for GC analysis. For other types of analysis (ex. HPLC) we suggest a non-hydroxylic solvent such as Acetonitrile.

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Pesticides

Pesticide Standards

Compound	Synonym / CAS No.	Matrix	Cat. No.	Compound	Synonym / CAS No.	Matrix	Cat. No.
2,4-D isobutyl ester	1713-15-1	NEAT	P-1027N	Demeton-S-methyl	919-86-8	NEAT	P-482N
		AcCN	P-1027S-CN			MeOH	P-482S
2,4-D methyl ester	1928-38-7	NEAT	P-021N	Demeton-S-methylsulfone	17040-19-6	NEAT	P-554N
		MeOH	P-021S			MeOH	P-554S
2,6-D methyl ester		NEAT	P-691N	<i>Demosan</i>	see Chloroneb		
		MeOH	P-691S	<i>Desethylterbutylazine</i>	see Terbutylazin desethyl		
<i>Dacamax</i>	see Thiofanox			Desmedipham	13684-56-5	NEAT	P-376N
<i>Daconil</i>	see Chlorothalonil					MeOH	P-376S
<i>Dacthal diacid</i>	see DCPA diacid			Desmel	see Tilt		
<i>Dacthal monoacid</i>	see Monomethyl tetrachloroterephthalate					Desmetryn	1014-69-3
Dacthal	1861-32-1	NEAT	P-196N			MeOH	P-566S
		MeOH	P-196S	<i>Devrinol</i>	see Napropamide		
Daimuron	42609-52-9	AcCN	P-1087S-CN *	<i>Dexon</i>	see Fenaminosulf		
Dalapon acid †	75-99-0	NEAT	P-140N	Diafenthion	80060-09-9	NEAT	P-1064N
		MeOH	P-140S			Acetone	P-1064S-A
		AcCN	P-140S-CN				
Dalapon methyl ester	17640-02-7	NEAT	P-226N	<i>Dialifor</i>	see Dialifos		
		MeOH	P-226S	Dialifos	10311-84-9	NEAT	P-426N
				MeOH	P-426S		
<i>Daminozide</i>	see Alar			Diallate	2303-16-4	NEAT	P-142N
<i>Danicut</i>	see Amitraz					MeOH	P-142S
Danitol	39515-41-8	NEAT	P-263N	Diazinon	333-41-5	NEAT	P-033N
		MeOH	P-263S			MeOH	P-033S
Dasanit	115-90-2	NEAT	P-235N	Diazinon-o-analog	962-58-3	NEAT	P-640N
		MeOH	P-235S			Acetone	P-640S-A
Dazomet	533-74-4	NEAT	P-469N	Dibam	128-04-1	NEAT	P-487N
		MeOH	P-469S			MeOH	P-487S
2,4-DB acid †	94-82-6	NEAT	P-141N	<i>Dibrom</i>	see Naled		
		MeOH	P-141S	Dibutylchloredate	1770-80-5	NEAT	P-109N
		AcCN	P-141S-CN			MeOH	P-109S
2,4-DB methyl ester	18625-12-2	NEAT	P-228N	Dicamba †	1918-00-9	NEAT	P-008N
		MeOH	P-228S			MeOH	P-008S
<i>DBCP</i>	see Fumazone					AcCN	P-008S-CN
<i>DCMU</i>	see Karmex			<i>Dicamba diglycolamine (tech)</i>	see Clarity		
<i>DCNA</i>	see Botran			Dicamba methyl ester	6597-78-0	NEAT	P-071N
<i>DCPA</i>	see Dacthal					MeOH	P-071S
DCPA diacid †	2136-79-0	NEAT	P-320N	<i>Dicaptan</i>	see Dicapthon		
		MeOH	P-320S	Dicapthon	2463-84-5	NEAT	P-035N
		AcCN	P-320S-CN	MeOH	P-035S		
o,p'-DDD	53-19-0	NEAT	P-024N	Dichlobenil	1194-65-6	NEAT	P-275N
		MeOH	P-024S			MeOH	P-275S
o,p'-DDE	3424-82-6	NEAT	P-026N	Dichlofenthion	97-17-6	NEAT	P-211N
		MeOH	P-026S			MeOH	P-211S
o,p'-DDT	789-02-6	NEAT	P-028N	Dichlofluanid	1085-98-9	NEAT	P-474N
		MeOH	P-028S			MeOH	P-474S
p,p'-DDA	83-05-6	NEAT	P-444N	Dichlone	117-80-6	NEAT	P-253N
		MeOH	P-444S			MeOH	P-253S
p,p'-DDD	72-54-8	NEAT	P-025N	<i>Dichloran</i>	see Botran		
		MeOH	P-025S	Dichlormid	37764-25-3	NEAT	P-675N
p,p'-DDE	72-55-9	NEAT	P-027N			MeOH	P-675S
		MeOH	P-027S	3,5-Dichloroaniline	626-43-7	NEAT	P-1008N
p,p'-DDT	50-29-3	NEAT	P-029N				
		MeOH	P-029S	<i>3,6-Dichloroanisic acid</i>	see Clarity		
DDT (Tech)	8017-34-3	NEAT	P-346N	2,6-Dichlorobenzamide	2008-58-4	NEAT	P-1035N
		MeOH	P-346S			MeOH	P-1035S
		AcCN	P-346S-CN	3,5-Dichlorobenzoic acid †	51-36-5	NEAT	P-242N
4,4'-DDMU	1022-22-6	NEAT	P-424N			MeOH	P-242S
		MeOH	P-424S			AcCN	P-242S-CN
<i>DDVP</i>	see Dichlorvos			4,4'-Dichlorobenzophenone	90-98-2	NEAT	P-295N
<i>Dechlorane</i>	see Mirex					MeOH	P-295S
<i>Decis</i>	see Deltamethrin			2,4-Dichloro-6-ethylamino-s-triazine	3440-19-5	NEAT	P-538N
<i>Dede vap</i>	see Dichlorvos					MC	P-538S-MC
Deet	134-62-3	NEAT	P-255N	2,3-Dichloronitrobenzene	3209-22-1	NEAT	P-1005N
		MeOH	P-255S			MeOH	P-1005S-T
DEF 6	78-48-8	NEAT	P-150N	2,4-Dichlorophenylacetic acid †	19719-28-9	NEAT	P-244N
		MeOH	P-150S			MeOH	P-244S
<i>Delnav</i>	see Dioxathion					AcCN	P-244S-CN
Deltamethrin	52918-63-5	NEAT	P-355N	<i>3-(2,3-Dichlorophenyl)-1,1-dimethylurea</i>	see 2,3-Diuron		
		MeOH	P-355S	Dichlorophen	97-23-4	NEAT	P-232N
Demeton (mixed isomers)	8065-48-3	NEAT	P-031N			MeOH	P-232S
		MeOH	P-031S	1-(3,4-Dichlorophenyl)-3-methylurea	3567-62-2	NEAT	P-1038N
Demeton-S	126-75-0	NEAT	P-271N				
		MeOH	P-271S				

† Pesticides containing a carboxyl group may autoesterify in Methanol. These standards are intended for use as a post-esterification standard for GC analysis. For other types of analysis (ex. HPLC) we suggest a non-hydroxylic solvent such as Acetonitrile.

* ColdPAK required to maintain integrity of product.



NEATS in 10 mg, SOLUTIONS at 100 µg/mL in 1 mL, except as noted.

Pesticide Standards

Compound	Synonym / CAS No.	Matrix	Cat. No.	Compound	Synonym / CAS No.	Matrix	Cat. No.
2,4-Dichlorophenylacetic acid Me see Methyl-2,4-dichlorophenylacetate				Dimethyl phosphate	813-78-5	NEAT MeOH	P-442N P-442S
Dichlorprop †	120-36-5	NEAT MeOH AcCN	P-143N P-143S P-143S-CN	Dimethylvinphos (Z type)	67628-93-7	Acetone	P-1057S-A
Dichlorprop methyl ester	57153-17-0	NEAT MeOH	P-229N P-229S	Dimetilan	644-64-4	AcCN	P-905S-CN
Dichlorvos	62-73-7	NEAT MeOH	P-036N P-036S	Dimoxystrobin	149961-52-4	AcCN	P-844S-CN
Diclobutrazol	75736-33-3	NEAT AcCN	P-641N P-641S-CN	Dinex	131-89-5	NEAT MeOH	P-427N P-427S
Diclofop	40843-25-2	NEAT MeOH	P-514N P-514S	Diniconazol	83657-24-3	NEAT AcCN	P-845N P-845S-CN
Diclofop methyl	51338-27-3	NEAT MeOH	P-303N P-303S	Dinitramine	29091-05-2	NEAT MeOH	P-575N P-575S
Diclosulam	145701-21-9	NEAT MeOH	P-904N P-904S	4,6-Dinitro-o-cresol	534-52-1	NEAT MeOH	P-384N P-384S
o,p'-Dicofol	10606-46-9	NEAT MeOH	P-606N P-606S	Dinocap	39300-45-3	NEAT MeOH	P-288N P-288S
Dicofol	see Kelthane			Dinoseb †	88-85-7	NEAT MeOH	P-144N P-144S
Dicrotophos	141-66-2	NEAT MeOH	P-178N P-178S	Dinoseb acetate	2813-95-8	NEAT MeOH	P-779N P-779S
Dieldrin	60-57-1	NEAT MeOH	P-037N † P-037S	Dinoseb methyl ether	6099-79-2	NEAT MeOH	P-230N P-230S
Dieltamid	see Deet			Dinoterb	1420-07-1	MeOH	P-524S
Diethyl ethyl	38727-55-8	NEAT MeOH	P-599N P-599S	Dioxacarb	6988-21-2	NEAT MeOH	P-264N P-264S
Diethofencarb	87130-20-9	NEAT MeOH	P-744N P-744S	Dioxathion	78-34-2	NEAT MeOH	P-219N P-219S
Diethyl phosphate	598-02-7	NEAT MeOH	P-534N P-534S	Diphacinone	82-66-6	NEAT MeOH	P-315N P-315S *
Diethyl phosphate (mono- & di-)		NEAT MeOH	P-443N P-443S	Diphenamid	957-51-7	NEAT MeOH	P-173N P-173S
Difenacoum	56073-07-5	AcCN	P-1151S-CN	Dipropetryn	4147-51-7	NEAT MeOH	P-580N P-580S
Difenoconazole	119446-68-3	NEAT MeOH	P-447N P-447S	Diquat dibromide monohydrate	6385-62-2	NEAT MeOH	P-231N P-231S
Difenoxuron	14214-32-5	NEAT MeOH	P-604N P-604S	Disul-sodium salt	136-78-7	NEAT MeOH	P-513N P-513S
Difenzquat methyl sulfate	43222-48-6	MeOH	P-1330S	Disulfoton	298-04-4	NEAT MeOH	P-042N † P-042S
Diflubenzuron	35367-38-5	NEAT MeOH	P-377N P-377S	Disulfoton sulfone	2497-06-5	NEAT MeOH	P-582N P-582S
Diflufenican	83164-33-4	NEAT MeOH	P-722N P-722S	Disulfoton sulfoxide	2497-07-6	NEAT MeOH	P-593N P-593S
2,3-Dihydro-2,2-dimethylbenzofuran-7-ol		NEAT MeOH	P-628N P-628S	Disyston	see Disulfoton		
Dimecron	see Phosphamidon			Ditalimfos	5131-24-8	NEAT MeOH	P-546N P-546S
Dimefox	115-26-4	NEAT MeOH	P-299N P-299S	Dithane D-14	see Nabam		
Dimefuron	34205-21-5	NEAT MeOH	P-565N P-565S	Dithianon	3347-22-6	NEAT Acetone	P-725N P-725S-A
Dimepax	22936-75-0	NEAT MeOH	P-643N P-643S	Dithiopyr	97886-45-8	NEAT MeOH	P-741N P-741S
Dimepiperate	61432-55-1	50 µg/mL Acetone	P-1020S-A-0.5X	Diuron	see Karmex		
Dimetate	see Dimethoate			2,3-Diuron	10290-37-6	NEAT MeOH	P-632N P-632S
Dimethachlor	50563-36-5	NEAT MeOH	P-642N P-642S	DMST	66840-71-9	MeOH	P-572S
Dimethenamid	87674-68-8	NEAT MeOH	P-747N P-747S	DNBP	see Dinoseb		
Dimethenamide-P	163515-14-8	NEAT MeOH	P-934S P-934S	DNOC	see 4,6-Dinitro-o-cresol		
Dimethipin	55290-64-7	NEAT MeOH	P-483N P-483S	DNTP	see Parathion		
Dimethoate	60-51-5	NEAT MeOH	P-039N P-039S	Dodemorph acetate	31717-87-0	NEAT MeOH	P-385N P-385S
Dimethomorph	110488-70-5	NEAT MeOH	P-713N P-713S	Dodine	2439-10-3	NEAT MeOH	P-386N P-386S
Dimethylarsinic acid	75-60-5	NEAT MeOH	P-1075N P-1075S	Doguidine	see Dodine		
N-(2,4-Dimethylphenyl)formamide	60397-77-5	AcCN	P-1100S-CN *	Doramectin	117704-25-3	NEAT AcCN	P-935N P-935S-CN
				Dowpon	see Dalapon acid		
				Dozer	see Fenuron-TCA		
				2,4-DP ethyl hexyl	79270-78-3	NEAT MeOH	P-429N P-429S
				DPA Sodium	127-20-8	NEAT MeOH	P-1348N P-1348S
				Drinox	see Heptachlor		

Pesticides at same low price in Neat (10 mg) or Solution (100 µg/mL) form
Most Pesticides are available in 1000 µg/mL (add -10X). Call or visit website for pricing.



Pesticides

Pesticide Standards

Compound	Synonym / CAS No.	Matrix	Cat. No.	Compound	Synonym / CAS No.	Matrix	Cat. No.
<i>Drop</i>	see Thidiazuron			Ethiolat	2941-55-1	NEAT	P-785N
DSMA	144-21-8	NEAT MeOH	P-598N P-598S	Ethion	563-12-2	AcCN NEAT MeOH	P-785S-CN P-048N P-048S
<i>DTMC</i>	see Kelthane			Ethiprole	181587-01-9	NEAT AcCN	P-964N P-964S-CN
<i>Dual</i>	see Metolachlor			Ethiozin	64529-56-2	NEAT MeOH	P-660N P-660S
Dursban	2921-88-2	NEAT MeOH	P-094N P-094S	Ethirimol	23947-60-6	NEAT MeOH	P-645N P-645S
<i>Dybar</i>	see Fenuron			Ethofumesate	26225-79-6	NEAT MeOH	P-387N P-387S
Dyfonate	944-22-9	NEAT MeOH Hexane	P-087N P-087S P-087S-H	Ethoprop	13194-48-4	NEAT MeOH	P-129N P-129S
<i>Dylox</i>	see Trichlorfon			Ethoxyquin	91-53-2	NEAT AcCN	P-388N P-388S-CN
<i>Dymid</i>	see Diphenamid			Ethoxysulfuron	126801-58-9	NEAT AcCN	P-847N P-847S-CN
<i>Dyrene</i>	see Anilazine			Ethyl carbamate	51-79-6	NEAT MeOH	P-419N P-419S
<i>EDDP</i>	see Edifenphos			<i>Ethylene bisdithiocarbamate, disodium</i>	see Nabam		
Edifenphos	17109-49-8	NEAT MeOH	P-368N P-368S	Ethylene thiourea	96-45-7	NEAT MeOH	P-588N P-588S
<i>Ektafos</i>	see Dicrotophos			Ethyl hexanediol (mixed isomers)	94-96-2	NEAT MeOH	P-389N P-389S
<i>Elgetol</i>	see 4,6-Dinitro-o-cresol			bis(2-Ethylhexyl)adipate	103-23-1	NEAT MeOH	P-233N P-233S
<i>Eloncron</i>	see Dioxacarb			<i>Ethyl parathion</i>	see Parathion		
Emamectin-benzoate	155569-91-8	5 mg MeOH	P-996N-5MG P-996S	2-Ethylthiomethyl phenol		MeOH	P-423S
Empenthrin	54406-48-3	NEAT	P-708N	Etobenzanid	79540-50-4	AcCN	P-1136S-CN *
Endosulfan I	959-98-8	NEAT MeOH	P-091N P-091S	Etofenprox	80844-07-1	NEAT AcCN	P-848N P-848S-CN
Endosulfan II	33213-65-9	NEAT MeOH	P-092N P-092S	Etozole	153233-91-1	MeOH	P-991S
<i>α-Endosulfan</i>	see Endosulfan I			<i>Etridiazole</i>	see Terrazole		
<i>β-Endosulfan</i>	see Endosulfan II			Etrifos	38260-54-7	NEAT MeOH	P-480N P-480S
Endosulfan, mixed isomers	115-29-7	NEAT MeOH	P-435N P-435S	<i>Etolene</i>	see Ronnel		
Endosulfan sulfate	1031-07-8	NEAT MeOH	P-145N P-145S	<i>ETU</i>	see Ethylene thiourea		
Endothall †	145-73-3	NEAT MeOH	P-183N P-183S	<i>Expand</i>	see Sethoxydim		
Endothall dimethyl ester		NEAT MeOH	P-603N P-603S	<i>Famophos</i>	see Famphur		
Endrin	72-20-8	NEAT MeOH	P-045N P-045S	Famoxadon	131807-57-3	AcCN	P-849S-CN
Endrin aldehyde	7421-93-4	MeOH	P-046S	Famphur	52-85-7	NEAT MeOH	P-147N P-147S
Endrin ketone	53494-70-5	NEAT MeOH	P-146N P-146S	<i>Fargo</i>	see Triallate		
<i>Enide</i>	see Diphenamid			<i>Fenac</i>	see Fenatrol		
EPN	2104-64-5	NEAT Acetone	P-220N ♦ P-220S-A	Fenamidone	161326-34-7	NEAT AcCN	P-850N P-850S-CN
EPN Oxon	2012-00-2	Acetone	P-1345S-A	Fenaminosulf	140-56-7	NEAT MeOH	P-058N P-058S
Epoxiconazole	133855-98-8	NEAT MeOH	P-784N P-784S	Fenamiphos	22224-92-6	NEAT MeOH	P-114N P-114S
Eprinomectin	123997-26-2	AcCN	P-959S-CN	Fenamiphos sulfone	31972-44-8	NEAT MeOH	P-623N P-623S
<i>Eptam</i>	see EPTC			Fenamiphos sulfoxide	31972-43-7	NEAT MeOH	P-622N P-622S
<i>Eptapur</i>	see Buturon			<i>Fenarimol</i>	see Bloc		
EPTC	759-94-4	NEAT MeOH	P-238N P-238S	Fenatrol	85-34-7	NEAT MeOH	P-319N P-319S
Esfenvalerate	66230-04-4	NEAT MeOH	P-525N P-525S *	Fenazaquin	120928-09-8	Hexane	P-787S-H
Esprocarb	85785-20-2	MeOH	P-617S	Fenbuconazole	114369-43-6	NEAT MeOH	P-662N P-662S
Etaconazole	60207-93-4	NEAT MeOH	P-644N P-644S	Fenbutatin oxide	13356-08-6	NEAT Acetone	P-481N P-481S-A
<i>Etazine</i>	see Secbumeton			<i>Fenchlorphos</i>	see Ronnel		
Ethaboxam	162650-77-3	AcCN	P-1115S-CN	Fenfuram	24691-80-3	NEAT MeOH	P-896N P-896S
Ethalfuralin	55283-68-6	NEAT MeOH	P-269N P-269S	Fenhexamid	126833-17-8	NEAT MeOH	P-783N P-783S
Ethanedial dioxime	557-30-2	NEAT MeOH	P-1070N P-1070S	Fenitrothion	122-14-5	NEAT MeOH	P-259N P-259S
Ethephon	16672-87-0	NEAT MeOH	P-239N P-239S	<i>Fenoprop</i>	see Silvex		
Ethidimuron	30043-49-3	NEAT MeOH	P-364N P-364S	Fenothiocarb	62850-32-2	MeOH	P-1021S 50 µg/mL P-1021S-0.5X
Ethiofencarb	29973-13-5	NEAT MeOH	P-448N P-448S				
Ethiofencarb sulfone	53380-23-7	AcCN	P-824S-CN				
Ethiofencarb sulfoxide	53380-22-6	AcCN	P-825S-CN				
<i>Ethiofencarb metabolite</i>	see 2-Ethylthiomethyl phenol						

♦ Pesticides containing a carboxyl group may autoesterify in Methanol. These standards are intended for use as a post-esterification standard for GC analysis. For other types of analysis (ex. HPLC) we suggest a non-hydroxylic solvent such as Acetonitrile.

* ColdPAK required to maintain integrity of product.

♦ V-Rated packaging surcharge applies for international shipments.



NEATS in 10 mg, SOLUTIONS at 100 µg/mL in 1 mL, except as noted.

Pesticide Standards

Compound	Synonym / CAS No.	Matrix	Cat. No.	Compound	Synonym / CAS No.	Matrix	Cat. No.
Fenoxanil	115852-48-7	NEAT MeOH	P-997N P-997S	Flumetralin	62924-70-3	NEAT MeOH	P-491N P-491S
Fenoxaprop	95617-09-7	NEAT MeOH	P-884N P-884S	Flumetsulam	98967-40-9	NEAT MeOH	P-659N P-659S
Fenoxaprop-ethyl	66441-23-4	NEAT MeOH	P-365N P-365S	Flumiclorac-pentyl	87546-18-7	NEAT MeOH	P-993N P-993S
Fenoxaprop-p-ethyl	71283-80-2	NEAT MeOH	P-694N P-694S	Flumioxazin	103361-09-7	CH ₂ Cl ₂	P-992S-D
Fenoxycarb	72490-01-8	NEAT MeOH	P-686N P-686S	Fluometuron	2164-17-2	NEAT MeOH	P-014N P-014S
<i>Fenpropathrin</i>	see Danitol			Fluopicolide	239110-15-7	NEAT Acetone	P-1024N P-1024S-A
Fenpropidin	67306-00-7	NEAT MeOH	P-802N P-802S	Fluopyram	658066-35-4	MeOH	P-1094S
Fenpropimorph	67564-91-4	NEAT MeOH	P-705N P-705S	Fluoxastrobin	361377-29-9	AcCN	P-963S-CN *
Fenpyroximate	111812-58-9	NEAT MeOH	P-724N P-724S	Fluquinconazole	136426-54-5	NEAT AcCN	P-878N P-878S-CN
Fenson	80-38-6	NEAT MeOH	P-551N P-551S	Flurenol methyl ester	1216-44-0	NEAT MeOH	P-412N P-412S
<i>Fensulfothion</i>	see Dasanit			Fluridone	59756-60-4	NEAT MeOH	P-193N P-193S
Fenthion	55-38-9	NEAT MeOH	P-148N P-148S	Flurochloridon	61213-25-0	NEAT MeOH	P-647N P-647S
Fenthion-sulfone	3761-42-0	AcCN	P-953S-CN	Flurodifen	15457-05-3	NEAT MeOH	P-676N P-676S
Fenthion sulfoxide	3761-41-9	NEAT CH ₂ Cl ₂	P-1052N P-1052S-D	Fluroxypyr	69377-81-7	NEAT MeOH	P-521N P-521S
Fentin acetate	900-95-8	NEAT MeOH	P-680N P-680S	Fluroxypyr-1-methylheptyl ester	81406-37-3	NEAT MeOH	P-927N P-927S
<i>Fentin chloride</i>	see Triphenyltin chloride			Flurprimidol	56425-91-3	NEAT	P-1155N
Fentin hydroxide	76-87-9	NEAT AcCN	P-1042N P-1042S-CN	Flusilazole	85509-19-9	NEAT MeOH	P-578N P-578S
Fenuron	101-42-8	NEAT MeOH	P-004N P-004S	Fluthiacet-methyl	117337-19-6	AcCN	P-1095S-CN *
Fenuron-TCA	4482-55-7	NEAT MeOH	P-006N P-006S	Flutolanil	66332-96-5	NEAT MeOH	P-587N P-587S
Fenvalerate	51630-58-1	NEAT MeOH	P-194N P-194S *	Flutriafol	76674-21-0	NEAT MeOH	P-699N P-699S
Ferbam	14484-64-1	NEAT MeOH:A	P-110N P-110S	Tau-Fluvalinate	102851-06-9	NEAT MeOH AcCN	P-356N P-356S P-356S-CN
<i>Ferber K</i>	see Ferbam			Fluxapyroxad	907204-31-3	AcCN	P-1150S-CN
<i>Ficam</i>	see Bendiocarb			<i>Folbex</i>	see Chlorobenzilate		
Fipronil	120068-37-3 See Technical Data, page 68	NEAT MeOH Acetone	P-738N P-738S * P-738S-A	<i>Folex</i>	see Merphos		
Fipronil desulfinyl	205650-65-3	Acetone	P-782S-A	<i>Folosan</i>	see Pentachloronitrobenzene		
Fipronil sulfide	120067-83-6	Acetone 5 mg	P-781S-A P-781N-5MG	Folpet	133-07-3	NEAT MeOH	P-258N P-258S *
Fipronil sulfone	120068-36-2	Acetone	P-780S-A	Fomesafen	72178-02-0	NEAT MeOH	P-907N P-907S
Flamprop-methyl	52756-25-9	NEAT MeOH	P-366N P-366S	<i>Fonofos</i>	see Dyfonate		
Flonicamid	158062-67-0	NEAT MeOH	P-926N P-926S	Foramsulfuron	173159-57-4	NEAT AcCN	P-852N P-852S-CN
Florasulam	145701-23-1	AcCN	P-827S-CN-0.1X	Forchlorfenuron	68157-60-8	NEAT MeOH	P-753N P-753S
Fluacrypyrim	229977-93-9	MeOH	P-1056S	Formetanate HCl	23422-53-9	NEAT MeOH	P-431N P-431S
Fluazifop-butyl	69806-50-4	NEAT MeOH	P-310N P-310S	Formothion	2540-82-1	NEAT AcCN	P-149N P-149S-CN *
Fluazifop-p-butyl	79241-46-6	NEAT MeOH	P-601N P-601S	Fosetyl aluminum	39148-24-8	NEAT MeOH	P-532N P-532S
Fluazinam	79622-59-6	NEAT MeOH	P-586N P-586S	Fosthiazate	98886-44-3	AcCN	P-828S-CN
Flubendiamide	272451-65-7	NEAT AcCN	P-1025N P-1025S-CN	<i>Frescon</i>	see Trifenmorph		
Flucarbazone-sodium	181274-17-9	NEAT AcCN	P-1124N P-1124S-CN	<i>Frumidor</i>	see Thiophanate-methyl		
Fluchloralin	33245-39-5	NEAT MeOH	P-270N P-270S	Fuberidazole	3878-19-1	AcCN	P-789S-CN *
Flucythrinate	70124-77-5	MeOH	P-378S *	Fumazone	96-12-8	NEAT MeOH	P-341N P-341S
Fludioxonil	131341-86-1	NEAT MeOH	P-698N P-698S	<i>Furadan</i>	see Carbofuran		
Flufenacet	142459-58-3	AcCN	P-902S-CN	Furalaxyl	57646-30-7	NEAT MeOH	P-605N P-605S
Flufenoxuron	101463-69-8	NEAT MeOH	P-687N P-687S	Furathiocarb	65907-30-4	NEAT MeOH	P-569N P-569S
				Furilazole	121776-33-8	AcCN	P-810S-CN
				Furmecyclox	60568-05-0	MeOH	P-607S
				<i>Furore</i>	see Fenoxaprop-ethyl		
				<i>Fusilade</i>	see Fluazifop-butyl		

Pesticides at same low price in Neat (10 mg) or Solution (100 µg/mL) form
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Pesticides

Pesticide Standards

Compound	Synonym / CAS No.	Matrix	Cat. No.	Compound	Synonym / CAS No.	Matrix	Cat. No.
<i>Galtak</i>	see Benazolin			3-Hydroxycarbofuran	16655-82-6	MeOH	P-186S
<i>Gardona</i>	see Tetrachlorvinphos			Hymexazol	10004-44-1	MeOH	P-571S
<i>Gardoprim</i>	see Terbutylazine			<i>Hyvar</i>	see Bromacil		
<i>Garlon</i>	see Triclopyr			<i>Illoxan</i>	see Dichlofop methyl		
<i>Garrathion</i>	see Carbofenothion			Imazalil	35554-44-0	NEAT	P-332N
<i>Gesaftram</i>	see Prometon					MeOH	P-332S
<i>Gesagard</i>	see Prometryne			Imazamethabenz methyl	81405-85-8	NEAT	P-414N
<i>Gesamil</i>	see Propazine					MeOH	P-414S
<i>Gesapax</i>	see Ametryn			Imamazox	114311-32-9	NEAT	P-806N
<i>Gesaprim</i>	see Atrazine					AcCN	P-806S-CN
Gesatamine	1610-17-9	NEAT	P-189N	Imazapic	104098-48-8	NEAT	P-1063N
		MeOH	P-189S			MeOH	P-1063S
<i>Gesatop</i>	see Simazine			Imazapyr †	81334-34-1	NEAT	P-589N
<i>Gexane</i>	see Lindane					MeOH	P-589S
Glufosinate, ammonium salt	77182-82-2	NEAT	P-475N			AcCN	P-589S-CN
		MeOH	P-475S	Imazaquin	81335-37-7	NEAT	P-283N
Glyodin	556-22-9	NEAT	P-528N			MeOH	P-283S *
		MeOH	P-528S	Imazethapyr	81335-77-5	MeOH	P-285S
Glyphosate	1071-83-6	NEAT	P-015N			AcCN	
		Water	P-015S-W	Imazosulfuron	122548-33-8	AcCN	P-853S-CN-0.1X
<i>Goal</i>	see Oxyfluorfen					10 µg/mL	
<i>Goltix</i>	see Metamitron			Imibenconazole	86598-92-7	AcCN	P-1019S-CN-0.5X
<i>Grasidin</i>	see Sethoxydim					50 µg/mL	
<i>Grasp</i>	see Tralkoxydim			Imidacloprid	138261-41-3	NEAT	P-596N
Guazatine acetate	115044-19-4	MeOH	P-612S			MeOH	P-596S
<i>Gusathion M</i>	see Azinphos-methyl						
<i>Guthion</i>	see Azinphos-methyl			Imidan	732-11-6	NEAT	P-055N
<i>Gy-bon</i>	see Simetryn					MeOH	P-055S
Halfenproax	111872-58-3	10 µg/mL	P-1050S-0.1X	2-Imidazolidone	120-93-4	NEAT	P-1224N
		MeOH				MeOH	P-1224S
Halofenozide	112226-61-6	AcCN	P-804S-CN *	Imiprothrin	72963-72-5	AcCN	P-983S-CN *
Halosulfuron methyl	100784-20-1	AcCN	P-1089S-CN *	Indalone	532-34-3	NEAT	P-648N
Haloxypop †	69806-34-4	NEAT	P-496N			MeOH	P-648S
		MeOH	P-496S	Indanofan	133220-30-1	NEAT	P-988N
		AcCN	P-496S-CN			MeOH	P-988S
Haloxypop-methyl	69806-40-2	NEAT	P-497N	Indaziflam	950782-86-2	AcCN	P-1168S-CN
		MeOH	P-497S	Indoxacarb	144171-61-9	NEAT	P-829N
<i>Hanane</i>	see Dimefox					AcCN	P-829S-CN
<i>Hedonal</i>	see MCPP acid			<i>Ingran 80W</i>	see Prebane		
<i>Helothion</i>	see Bolstar			<i>INPC</i>	see Propham		
<i>HEOD</i>	see Dieldrin			Iodofenphos	18181-70-9	NEAT	P-379N
Heptachlor	76-44-8	NEAT	P-053N			MeOH	P-379S
		MeOH	P-053S	Iodosulfuron-methyl-sodium	144550-36-7	NEAT	P-830N
Heptachlor epoxide (Isomer A)	28044-83-9	MeOH	P-294S			AcCN	P-830S-CN
Heptachlor epoxide (Isomer B)	1024-57-3	NEAT	P-054N	Ioxynil	1689-83-4	NEAT	P-522N
		MeOH	P-054S			MeOH	P-522S
<i>2-Hepta-decyl-2-imidazoline</i>	see Glyodin			Ioxynil octanoate	3861-47-0	AcCN	P-1329S-CN
<i>Heptamul</i>	see Heptachlor			<i>IPB</i>	see Iprobenfos		
Heptenophos	23560-59-0	NEAT	P-547N	<i>IPC</i>	see Propham		
		MeOH	P-547S	Iproconazole	125225-28-7	AcCN	P-958S-CN *
<i>Heptox</i>	see Heptachlor			Iprobenfos	26087-47-8	NEAT	P-609N
<i>Herald</i>	see Danitol					MeOH	P-609S
<i>Herb-All</i>	see MSMA			Iprodione	36734-19-7	NEAT	P-016N
<i>Herkol</i>	see Dichlorvos					Acetone	P-016S-A
Hexaconazole	79983-71-4	NEAT	P-500N			AcCN	P-016S-CN
		MeOH	P-500S	Iprovalicarb	140923-17-7	NEAT	P-831N
Hexaflumuron	86479-06-3	NEAT	P-697N			AcCN	P-831S-CN
		MeOH	P-697S *	Irgarol	28159-98-0	NEAT	P-746N
Hexamethylphosphoramide	680-31-9	NEAT	P-205N			MeOH	P-746S
		MeOH	P-205S	Isazophos	42509-80-8	NEAT	P-449N
Hexazinone	51235-04-2	NEAT	P-123N			MeOH	P-449S
		MeOH	P-123S	Isobenzan	297-78-9	MeOH	P-323S
<i>Hexylthiocarbam</i>	see Cycloate			1-Isobenzofuranone	87-41-2	NEAT	P-1022N
Hexythiazox	78587-05-0	NEAT	P-658N			MeOH	P-1022S
		MeOH	P-658S	Isocarbamid	30979-48-7	AcCN	P-880S-CN
<i>Hoe 2810</i>	see Linuron			Isocarbofos	24353-61-5	NEAT	P-893N
<i>Hoelon</i>	see Dichlofop methyl					AcCN	P-893S-CN
<i>Horbadox</i>	see Pendimethalin			Isodrin	465-73-6	NEAT	P-471N
<i>Hostathion</i>	see Triazophos					MeOH	P-471S
<i>Hoxan</i>	see Dichlofop methyl			Isofenphos	25311-71-1	NEAT	P-018N
Hydramethylnon	67485-29-4	NEAT	P-403N			MeOH	P-018S
		MeOH	P-403S	Isofenphos-methyl	99675-03-3	MeOH	P-984S
2-Hydroxyatrazine	2163-68-0	MeOH	P-326S	Isoprocarb	2631-40-5	NEAT	P-317N
						MeOH	P-317S

† Pesticides containing a carboxyl group may autoesterify in Methanol. These standards are intended for use as a post-esterification standard for GC analysis. For other types of analysis (ex. HPLC) we suggest a non-hydroxylic solvent.

* ColdPAK required to maintain integrity of product.



NEATS in 10 mg, SOLUTIONS at 100 µg/mL in 1 mL, except as noted.

Pesticide Standards

Compound	Synonym / CAS No.	Matrix	Cat. No.	Compound	Synonym / CAS No.	Matrix	Cat. No.
Isopropalin	33820-53-0	NEAT	P-100N	Maneb	12427-38-2	NEAT	P-282N
		MeOH	P-100S	<i>Manzeb</i>	see Mancozeb		
2-Isopropylamino-4,6-dichloro-s-triazine		NEAT	P-635N	<i>Marathon</i>	see Imidacloprid		
3703-10-4		MeOH	P-635S	<i>Marlate</i>	see Methoxychlor		
2-Isopropyl-6-methyl-4-pyrimidinol		NEAT	P-631N	<i>Matacil</i>	see Aminocarb		
2814-20-2		MeOH	P-631S	<i>Mataven</i>	see Flamprop-methyl		
1-(4-Isopropylphenyl)-3-methylurea	34123-57-4	MeOH	P-1040S	<i>Mavrik</i>	see Fluralinate		
Isoprothiolane	50512-35-1	NEAT	P-661N	<i>Maxforce</i>	see Hydramethylnon		
		MeOH	P-661S	MCPA acid ⬆	94-74-6	NEAT	P-153N
Isoproturon	34123-59-6	NEAT	P-302N			MeOH	P-153S
		MeOH	P-302S	MCPA 2-ethylhexyl ester	29450-45-1	AcCN	P-153S-CN
Isopyrazam	881685-58-1	AcCN	P-1159S-CN			NEAT	P-1082N
Isoxaben	82558-50-7	NEAT	P-533N	MCPA methyl ester	2436-73-9	MeOH	P-1082S
		MeOH	P-533S			NEAT	P-038N
Isoxaflutole	141112-29-0	NEAT	P-832N	MCPB acid	94-81-5	MeOH	P-038S
		AcCN	P-832S-CN	MCPB-ethyl	10443-70-6	NEAT	P-370N
Isoxathion	18854-01-8	NEAT	P-1096N	MCPB methyl ester	57153-18-1	MeOH	P-370S
		AcCN	P-1096S-CN			AcCN	P-1347S-CN
<i>Jodfenphos</i>	see Iodofenphos			MCPP acid ⬆	7085-19-0	NEAT	P-371N
Kadethrine	58769-20-3	NEAT	P-367N			MeOH	P-371S
		MeOH	P-367S	MCPP methyl ester	23844-56-6	NEAT	P-154N
Karbutilate	4849-32-5	NEAT	P-337N			MeOH	P-154S
		MeOH	P-337S	Mecarbam	2595-54-2	AcCN	P-154S-CN
Karmex	330-54-1	NEAT	P-227N			NEAT	P-040N
		MeOH	P-227S	<i>Mecoprop</i>	see MCPP acid	MeOH	P-040S
Kelthane	115-32-2	NEAT	P-057N	Mecoprop, 2-ethylhexyl ester	71526-69-7	NEAT	P-318N
		MeOH	P-057S			MeOH	P-318S
Kepon	143-50-0	NEAT	P-152N				
		MeOH	P-152S	<i>Mecoprop</i>	see MCPP acid		
<i>Kerb</i>	see Pronamide			Mecoprop-1-octyl ester	161922-37-8	NEAT	P-502N
3-Ketocarbofuran	16709-30-1	Acetone	P-298S-A	Mecoprop-2-octyl ester	28473-03-2	MeOH	P-502S
<i>Kilprop</i>	see MCPP acid					AcCN	P-1028S-CN
<i>Kothar</i>	see Oxyfluorfen			Mecoprop-p	16484-77-8	NEAT	P-1029N
Kresoxim-methyl	143390-89-0	NEAT	P-740N			AcCN	P-1029S-CN
		MeOH	P-740S	<i>Mediben</i>	see Dicamba	NEAT	P-1053N
Lactofen	77501-63-4	NEAT	P-979N	Mefenacet	73250-68-7	Acetone	P-1053S-A
		AcCN	P-979S-CN			NEAT	P-745N
<i>Lannate</i>	see Methomyl			Mefenpyr-diethyl	135590-91-9	MeOH	P-745S
<i>Larvadex</i>	see Cyromazine					NEAT	P-1010N
<i>Lasso</i>	see Alachlor			<i>Meltatox</i>	see Dodemorph acetate	MeOH	P-1010S
<i>Lazo</i>	see Alachlor			<i>Menaphace</i>	see MCPA acid		
Lenacil	2164-08-1	NEAT	P-649N	MEP Oxon	2255-17-6	MeOH	P-1344S
		MeOH	P-649S	Mepanipyrim	110235-47-7	NEAT	P-855N
<i>Lentagran</i>	see Pyridate					AcCN	P-855S-CN
<i>Lepton</i>	see Leptophos			Mephosfolan	950-10-7	NEAT	P-718N
Leptophos	21609-90-5	NEAT	P-206N			MeOH	P-718S
		MeOH	P-206S	Mepiquat chloride	24307-26-4	NEAT	P-1062N
<i>Lesan</i>	see Fenaminosulf					MeOH	P-1062S
Lethane 384	112-56-1	NEAT	P-506N	<i>Mepro</i>	see MCPP acid		
		MeOH	P-506S	Meptyldinocap	131-72-6	MeOH	P-1043S
Lindane (γ-BHC)	58-89-9	NEAT	P-059N				
		MeOH	P-059S	<i>2-Mercaptobenzothiazole monoethanolamine salt</i>	see Vanicide-20S		
Linuron	330-55-2	NEAT	P-022N	<i>Mercaptodimethur</i>	see Methiocarb		
		MeOH	P-022S	<i>Mercaptophos</i>	see Fenthion		
<i>Liphadione</i>	see Chlorophacinone			<i>Mercuram</i>	see Thiram		
<i>Lonacol</i>	see Zineb			<i>Merge 823</i>	see MSMA		
Lontrel	1702-17-6	NEAT	P-224N	Merphos	150-50-5	NEAT	P-124N
		MeOH	P-224S			MeOH	P-124S
<i>Lorox</i>	see Linuron			Mesosulfuron-methyl	208465-21-8	NEAT	P-1044N
Lufenuron	103055-07-8	NEAT	P-704N			MeOH	P-1044S
		MeOH	P-704S	Mesotrione	104206-82-8	AcCN	P-962S-CN *
<i>Machete</i>	see Butachlor			<i>Metacide</i>	see Methyl parathion		
Malaoxon	1634-78-2	NEAT	P-529N	Metaflumizone	139968-49-3	AcCN	P-1090S-CN *
		MeOH	P-529S	Metalaxyl	57837-19-1	NEAT	P-120N
<i>Malaspray</i>	see Malathion					MeOH	P-120S
Malathion	121-75-5	NEAT	P-060N	Metalaxyl-M	70630-17-0	NEAT	P-874N
		MeOH	P-060S			MeOH	P-874S
Maleic hydrazide	123-33-1	NEAT	P-380N	Metaldehyde ⬆	9002-91-9	NEAT	P-600N
		MeOH	P-380S			MeOH	P-600S
<i>Mancozan</i>	see Zineb			Metamitron	41394-05-2	AcCN	P-600S-CN
Mancozeb	8018-01-7	NEAT	P-322N			NEAT	P-252N
Mandipropamid	374726-62-2	NEAT	P-1023N			MeOH	P-252S
		AcCN	P-1023S-CN				

Pesticides at same low price in Neat (10 mg) or Solution (100 µg/mL) form

Most Pesticides are available in 1000 µg/mL (add -10X). Call or visit website for pricing.



Pesticides

Pesticide Standards

Compound	Synonym / CAS No.	Matrix	Cat. No.	Compound	Synonym / CAS No.	Matrix	Cat. No.
<i>Metam-sodium</i> see Metam-sodium dihydrate				Metrafenone	220899-03-6	NEAT	P-1032N
Metam-sodium dihydrate	6734-80-1	NEAT	P-381N			AcCN	P-1032S-CN
		MeOH	P-381S	Metribuzin	21087-64-9	NEAT	P-089N
<i>Metasystox R</i> see Oxydemeton methyl						MeOH	P-089S
Metazachlor	67129-08-2	NEAT	P-249N	<i>Metron</i> see Methyl parathion			
		MeOH	P-249S	Metsulfuron methyl	74223-64-6	NEAT	P-463N
Metconazole	125116-23-6	NEAT	P-856N			MeOH	P-463S *
		AcCN	P-856S-CN	Mevinphos	7786-34-7	NEAT	P-074N ♦
Methabenzthiazuron	18691-97-9	NEAT	P-563N			MeOH	P-074S
		MeOH	P-563S	Mexacarbate	315-18-4	NEAT	P-030N
Methacrifos	62610-77-9	NEAT	P-556N			MeOH	P-030S
		MeOH	P-556S	MGK-264	113-48-4	NEAT	P-082N
<i>Methamidophos</i> see Monitor						MeOH	P-082S
Methfuroxam	28730-17-8	AcCN	P-881S-CN *	MGK-326	136-45-8	NEAT	P-342N
Methidathion	950-37-8	NEAT	P-195N ♦			MeOH	P-342S
		MeOH	P-195S	<i>Milogard</i> see Propazine			
Methiocarb	2032-65-7	NEAT	P-156N	<i>MIPC</i> see Isoproc carb			
		MeOH	P-156S	Mirex	2385-85-5	NEAT	P-066N
Methiocarb sulfone	2179-25-1	NEAT	P-570N			MeOH	P-066S
		AcCN	P-570S-CN	<i>Mitac</i> see Amitraz			
Methiocarb sulfoxide	2635-10-1	NEAT	P-650N	<i>Mocap</i> see Ethoprop			
		MeOH	P-650S	Molinate	2212-67-1	NEAT	P-176N
Methomyl	16752-77-5	NEAT	P-032N			MeOH	P-176S
		MeOH	P-032S	Monalide	7287-36-7	NEAT	P-737N
	1000 µg/mL	MeOH	P-032S-10X			MeOH	P-737S
Methoprene	40596-69-8	NEAT	P-157N	<i>Monceren</i> see Pencycuron			
		MeOH	P-157S	Monitor	10265-92-6	NEAT	P-155N
Methoprotryne	841-06-5	NEAT	P-564N			MeOH	P-155S
		MeOH	P-564S	Monocrotophos	6923-22-4	NEAT	P-112N
Methoxychlor	72-43-5	NEAT	P-064N			MeOH	P-112S
		MeOH	P-064S	Monolinuron	1746-81-2	NEAT	P-382N
o,p'-Methoxychlor	30667-99-3	MeOH	P-535S			MeOH	P-382S
		Isocotane	P-535S-TP	Monomethyltetrachloroterephthalate	887-54-7	NEAT	P-707N
p,p'-Methoxychlor-olefin	2132-70-9	MeOH	P-466S			Acetone	P-707S-A
<i>Methoxy-DDT</i> see Methoxychlor				Monuron	150-68-5	NEAT	P-023N
Methoxyfenozide	161050-58-4	NEAT	P-857N			MeOH	P-023S
		AcCN	P-857S-CN	Monuron TCA	140-41-0	NEAT	P-034N
Methylamine hydrochloride	593-51-1	NEAT	P-624N			MeOH	P-034S
		MeOH	P-624S	2-Monuron		NEAT	P-633N
Methyl-3,5-dichlorobenzoate	2905-67-1	NEAT	P-247N			MeOH	P-633S
		MeOH	P-247S	<i>Morestan</i> see Chinomethionate			
Methyl-2,4-dichlorophenylacetate		NEAT	P-214N	Moxidectin	113507-06-5	AcCN	P-961S-CN *
	55954-23-9	MeOH	P-214S	<i>MSMA</i> see Bueno			
2-Methyl-4,6-dinitroanisole	29027-13-2	NEAT	P-611N	Myclobutanil	88671-89-0	NEAT	P-330N
		MeOH	P-611S			MeOH	P-330S
<i>2-Methyl-4,6-dinitrophenol methyl ether</i> see 2-Methyl-4,6-dinitroanisole				Nabam	142-59-6	NEAT	P-383N
<i>Methyl dursban</i> see Chlorpyrifos-methyl ester						MeOH	P-383S
3-Methyl-4-nitrophenol	2581-34-2	NEAT	P-509N	Naled	300-76-5	NEAT	P-159N
		MeOH	P-509S			MeOH	P-159S
Methyl nonyl ketone ♦	112-12-9	NEAT	P-415N	1-Naphthalene acetamide	86-86-2	NEAT	P-512N
		MeOH	P-415S			MeOH	P-512S
		AcCN	P-415S-CN	1-Naphthol	90-15-3	NEAT	P-1007N
Methyl paraoxon	950-35-6	NEAT	P-311N			MeOH	P-1007S
		MeOH	P-311S	<i>Naptalam</i> see Alanap			
Methyl parathion	298-00-0	NEAT	P-065N ♦	1-Naphthylacetic acid	86-87-3	NEAT	P-461N
		MeOH	P-065S			MeOH	P-461S
Methylpentachlorophenyl sulfide	1825-19-0	NEAT	P-567N	Naproanilide	52570-16-8	Acetone	P-1343S-A
		MeOH	P-567S	Napropamide	15299-99-7	NEAT	P-179N
<i>Methyl tiofanato</i> see Thiophanate-methyl						MeOH	P-179S
Methyl trithion	953-17-3	MeOH	P-652S	<i>Navadel</i> see Dioxathion			
Metiram	9006-42-2	NEAT	P-416N	Neburon	555-37-3	NEAT	P-041N
Metobromuron	3060-89-7	NEAT	P-436N			MeOH	P-041S
		MeOH	P-436S	<i>Neguvon</i> see Trichlorfon			
Metolachlor	51218-45-2	NEAT	P-158N	<i>Nemacur R</i> see Fenamiphos			
		MeOH	P-158S	<i>Neocidol</i> see Diazinon			
S-Metolachlor	87392-12-9	NEAT	P-1013N	<i>Netrazine</i> see Cyromazine			
		MeOH	P-1013S	<i>Niagamite</i> see Aramite			
Metolcarb	1129-41-5	NEAT	P-494N	<i>Nialate</i> see Ethion			
		MeOH	P-494S	Niclosamide	50-65-7	NEAT	P-160N
Metosulam	139528-85-1	AcCN	P-900S-CN			MeOH	P-160S
Metoxuron	19937-59-8	NEAT	P-437N	Nicosulfuron	111991-09-4	NEAT	P-591N
		MeOH	P-437S			AcCN	P-591S-CN
				<i>Nifos</i> see TEPP			

♦ Pesticides containing a carboxyl group may autoesterify in Methanol. These standards are intended for use as a post-esterification standard for GC analysis.

For other types of analysis (ex. HPLC) we suggest a non-hydroxylic solvent such as Acetonitrile.

* ColdPAK required to maintain integrity of product.

♦ V-Rated packaging surcharge applies for international shipments.



NEATS in 10 mg, SOLUTIONS at 100 µg/mL in 1 mL, except as noted.

Pesticide Standards

Compound	Synonym / CAS No.	Matrix	Cat. No.	Compound	Synonym / CAS No.	Matrix	Cat. No.
Nitenpyram	150824-47-8	NEAT	P-858N	Oxycarboxin	5259-88-1	NEAT	P-391N
		AcCN	P-858S-CN			MeOH	P-391S
Nitralin	4726-14-1	NEAT	P-583N	Oxychlorthane Isomer	27304-13-8 10 µg/mL in	MeOH	P-331S
		MeOH	P-583S			MeOH	P-331S-0.1X
Nitrpyrin	1929-82-4	NEAT	P-489N			Hexane	P-331S-H
		MeOH	P-489S	MeOH	P-290S		
4-Nitroanisole	100-17-4	NEAT	P-273N	Oxydemeton-methyl	301-12-2	NEAT	P-277N
		MeOH	P-273S	Oxyfluorfen	42874-03-3	MeOH	P-277S
Nitrofen	1836-75-5	NEAT	P-363N	<i>Oxythioquinox</i>	see Chinomethionate		
		MeOH	P-363S	<i>Paarlan</i>	see Isopropalin		
Nitrothal-isopropyl	10552-74-6	NEAT	P-695N	Paraoxon	311-45-5	NEAT	P-453N
		MeOH	P-695S			MeOH	P-453S
<i>Nix-Scald</i>	see Ethoxyquin			Paraquat dichloride tetrahydrate	1910-42-5	NEAT	P-051N ✦
<i>Nomersan</i>	see TEPP					MeOH	P-051S
cis-Nonachlor	5103-73-1	NEAT	P-297N	Parathion	56-38-2	NEAT	P-070N
		MeOH	P-297S			MeOH	P-070S
trans-Nonachlor	39765-80-5	NEAT	P-184N	<i>Paridol</i>	see Methyl parathion		
		MeOH	P-184S	<i>PCA</i>	see Pyrazon		
Norflurazon	27314-13-2	NEAT	P-217N	<i>PCNB</i>	see Pentachloronitrobenzene		
		MeOH	P-217S	<i>PCP methyl ether</i>	see Pentachloroanisole		
Norflurazon-desmethyl	23576-24-1	AcCN	P-1129S-CN *	<i>PDU</i>	see Fenuron		
Novaluron	116714-46-6	5 mg	P-966N-5MG	<i>PEBC</i>	see Tillam		
		MeOH	P-966S	<i>Pebulate</i>	see Tillam		
Noviflumuron	121451-02-3	AcCN	P-967S-CN *	Penconazole	66246-88-6	NEAT	P-450N
						MeOH	P-450S
<i>Nuarimol</i>	see Trimidal			Pencycuron	66063-05-6	NEAT	P-358N
<i>Nucidol</i>	see Diazinon					MeOH	P-358S
<i>Nuvacron</i>	see Monocrotophos			Pendimethalin	40487-42-1	NEAT	P-097N
<i>Nuvanol</i>	see Iodofenphos					MeOH	P-097S
<i>Octachlor</i>	see Chlordane			<i>Penoxalin</i>	see Pendimethalin		
<i>Octacide 264</i>	see MGK 264			Penoxsulam	219714-96-2	MeOH	P-1046S
<i>Octalox</i>	see Dieldrin			Pentachloroaniline	527-20-8	NEAT	P-875N
<i>Octamethylpyrophosphoramide</i>	see Schradan					AcCN	P-875S-CN
Octhillinone	26530-20-1	NEAT	P-788N	Pentachloroanisole	1825-21-4	NEAT	P-199N
						MeOH	P-199S
<i>OFF</i>	see Deet			Pentachloronitrobenzene	82-68-8	NEAT	P-113N
<i>Oftanol</i>	see Isobenphos					MeOH	P-113S
Ofurace	58810-48-3	10 µg/mL	P-653S-TP-0.1X	Pentanochlor	2307-68-8	NEAT	P-1067N
		Isooctane				MeOH	P-1067S
Omethoate	1113-02-6	NEAT	P-121N	Penthiopyrad	183675-82-3	AcCN	P-1131S-CN *
		MeOH	P-121S	Pentoxazone	110956-75-7	MeOH	P-1051S-0.1X
<i>Omite</i>	see Propargite			Permethrin (cis/trans)	52645-53-1	NEAT	P-128N
<i>OMPA</i>	see Schradan					MeOH	P-128S
<i>Omtan</i>	see Isobenzan			Perthane	72-56-0	NEAT	P-162N
<i>Optan</i>	see Fenoxaprop-ethyl					MeOH	P-162S
Orbencarb	34622-58-7	NEAT	P-433N	<i>Peropal</i>	see Azocyclotin		
		MeOH	P-433S	<i>Pestox III</i>	see Schradan		
<i>Orbit</i>	see Tilt			Pethoxamid	106700-29-2	NEAT	P-1047N
<i>Ordram</i>	see Molinate					MeOH	P-1047S
<i>Ornamec</i>	see Fluazifop-p-butyl			<i>Phenacide</i>	see Toxaphene		
<i>Orthene</i>	see Acephate			<i>Phenamiphos</i>	see Fenamiphos		
<i>Orthocide</i>	see Captan			Phenmedipham	13684-63-4	NEAT	P-392N
Orthosulfamuron	213464-77-8	Acetone	P-1045S-A			MeOH	P-392S
		NEAT	P-043N	Phenothiazine	92-84-2	NEAT	P-579N
Oryzalin	19044-88-3	MeOH	P-043S			MeOH	P-579S
				<i>Phenothrin</i>	see Sumithrin		
<i>Outfox</i>	see Cyprazine			Phenthoate	2597-03-7	NEAT	P-476N
Ovex	80-33-1	NEAT	P-425N			MeOH	P-476S
		MeOH	P-425S	Phenyl mercury acetate	62-38-4	NEAT	P-393N
<i>Ovochlor</i>	see Ovex					MeOH	P-393S
Oxabetrinil	74782-23-3	NEAT	P-995N	o-Phenylphenol	90-43-7	NEAT	P-460N
		MeOH	P-995S			MeOH	P-460S
Oxadiargyl	39807-15-3	NEAT	P-1031N	Phenyl valerate	20115-23-5	NEAT	P-734N
		AcCN	P-1031S-CN			MeOH	P-734S
Oxadiazon	19666-30-9	NEAT	P-236N	Phorate	298-02-2	NEAT	P-170N ✦
		MeOH	P-236S			MeOH	P-170S
Oxadixyl	77732-09-3	NEAT	P-560N	Phorate-oxon	2600-69-3	AcCN	P-1018S-CN
		MeOH	P-560S			10 µg/mL	P-1018S-T-0.1X
Oxamyl	23135-22-0	NEAT	P-161N			Toluene	
		MeOH	P-161S	Phorate-oxon sulfone	2588-06-9	AcCN	P-1161S-CN
Oxamyl oxime	30558-43-1	AcCN	P-1138S-CN	Phorate-oxon sulfoxide	2588-05-8	AcCN	P-1153S-CN
				Phorate sulfone	2588-04-7	Hexane	P-655S-H
Oxasulfuron	144651-06-9	NEAT	P-859N				
		AcCN	P-859S-CN				
Oxaziclomefone	153197-14-9	MeOH	P-1066S				

Pesticides at same low price in Neat (10 mg) or Solution (100 µg/mL) form
 Can't find a Pesticide? Search using CAS No. Index in back of the catalog.



Pesticides

Pesticide Standards

Compound	Synonym / CAS No.	Matrix	Cat. No.	Compound	Synonym / CAS No.	Matrix	Cat. No.
Phorate sulfoxide	2588-03-6	NEAT	P-732N	Prodiamine	29091-21-2	NEAT	P-739N
		MeOH	P-732S			MeOH	P-739S
Phosalone	2310-17-0	NEAT	P-163N	Profenofos	41198-08-7	NEAT	P-260N
		MeOH	P-163S			MeOH	P-260S
<i>Phosdrin</i>	see Mevinphos			Profluoralin	26399-36-0	NEAT	P-099N
<i>Phosethoprop</i>	see Ethoprop					MeOH	P-099S
Phosfolan	947-02-4	NEAT	P-234N	Prohexadione-calcium	127277-53-6	NEAT	P-1068N
		MeOH	P-234S			MeOH	P-1342S
<i>Phosmet</i>	see Imidan			<i>Prolate</i>	see Imidan		
Phosphamidon	13171-21-6	NEAT	P-075N	Promecarb	2631-37-0	NEAT	P-265N
		MeOH	P-075S			MeOH	P-265S
<i>Phosphothion</i>	see Malathion			Prometon	1610-18-0	NEAT	P-077N
<i>Phosvel</i>	see Leptophos					MeOH	P-077S
Phoxim	14816-18-3	NEAT	P-357N	Prometryne	7287-19-6	NEAT	P-078N
		MeOH	P-357S			MeOH	P-078S
<i>Phthalide</i>	see 1-Isobenzofuranone			Pronamide	23950-58-5	NEAT	P-164N
<i>Phthalthrin</i>	see Tetramethrin					MeOH	P-164S
Picloram	1918-02-1	NEAT	P-047N	Propachlor	1918-16-7	NEAT	P-215N
		MeOH	P-047S			MeOH	P-215S
Picloram methyl ester	14143-55-6	NEAT	P-198N	Propamacarb	24579-73-5	NEAT	P-312N
		MeOH	P-198S			MeOH	P-312S
Picolnafan	137641-05-5	NEAT	P-1061N	Propamacarb hydrochloride	25606-41-1	AcCN	P-1137S-CN *
		MeOH	P-1061S			NEAT	P-049N
<i>4-Picoline</i>	see 4-Aminopyridine			Propanil	709-98-8	MeOH	P-049S
Picoxystrobin	117428-22-5	NEAT	P-860N			Propaquizafop	111479-05-1
		AcCN	P-860S-CN	MeOH	P-908S		
Pindone	83-26-1	NEAT	P-394N	Propargite	2312-35-8	NEAT	P-251N
		MeOH	P-394S			MeOH	P-251S
Pinoxaden	243973-20-8	NEAT	P-1154N	Propazine	139-40-2	NEAT	P-079N
		AcCN	P-1154S-CN			MeOH	P-079S
Piperalin	3478-94-2	NEAT	P-663N	Propetamphos	31218-83-4	NEAT	P-417N
		AcCN	P-663S-CN			MeOH	P-417S
Piperonyl butoxide	51-03-6	NEAT	P-348N	Propham	122-42-9	NEAT	P-052N
		MeOH	P-348S			MeOH	P-052S
Piperophos	24151-93-7	NEAT	P-656N	<i>Prophos</i>	see Ethoprop		
Pirimicarb	23103-98-2	NEAT	P-304N	<i>Propiconazole</i>	see Tilt		
		MeOH	P-304S	Propineb	12071-83-9	NEAT	P-608N
Pirimicarb-desmethyl	30614-22-3	AcCN	P-1139S-CN	<i>Propoxur</i>	see Baygon		
Pirimiphos-ethyl	23505-41-1	NEAT	P-328N	Propoxycarbazone-sodium	181274-15-7	NEAT	P-1014N
		MeOH	P-328S			Water	P-1014S-W-0.5X
Pirimiphos-methyl	29232-93-7	NEAT	P-305N	Propylenethiourea (PTU)	2122-19-2	NEAT	P-861N
		MeOH	P-305S			AcCN	P-861S-CN
Pirimiphos-methyl-N-desethyl	67018-59-1	AcCN	P-1331S-CN	<i>Propyzamide</i>	see Pronamide		
<i>Pirimor</i>	see Pirimicarb			Proquinazid	189278-12-4	AcCN	P-1156S-CN
<i>Pival</i>	see Pindone			Prosulfocarb	52888-80-9	NEAT	P-742N
<i>PMA</i>	see Phenyl mercury acetate			Prosulfuron	94125-34-5	MeOH	P-742S
<i>Polytrin</i>	see Cypermethrin					NEAT	P-834N
Potassium dimethyl dithiocarbamate	128-03-0	AcCN	P-714S-CN *	<i>Protector 3L</i>	see Busan		
Potassium n-hydroxymethyl-n-methyl dithiocarbamate	51026-28-9	AcCN	P-715S-CN *			<i>Protex</i>	see Rotenone
Prallethrin	23031-36-9	MeOH	P-667S	Prothioconazole	178928-70-6	AcCN	P-965S-CN
<i>Pramitol</i>	see Prometon			<i>Prothiophos</i>	see Tokuthion		
Prebane	886-50-0	NEAT	P-119N	<i>Prowl</i>	see Pendimethalin		
		MeOH	P-119S	Proximpham	2828-42-4	NEAT	P-1081N
<i>Preeglone</i>	see Paraquat CL			<i>Pursuit</i>	see Imazethapyr	MeOH	P-1081S
<i>Prefar</i>	see Bensulide					Pymetrozin	123312-89-0
<i>Premerg</i>	see Trichlorfon			<i>Pynamin</i>	see Allethrin	AcCN	P-835S-CN
Pretilachlor	51218-49-6	NEAT	P-485N			Pyracarbolid	24691-76-7
<i>Primatol P</i>	see Propazine			Pyraclofos	77458-01-6	MeOH	P-716S
<i>Primatol Q</i>	see Prometryne			Pyraclostrobin	175013-18-0	NEAT	P-863N
<i>Primatol S</i>	see Simazine					AcCN	P-863S-CN
<i>Primaze</i>	see Prometryne			Pyraflufen-ethyl	129630-19-9	NEAT	P-1015N
<i>Primicid</i>	see Pirimiphos-ethyl					Acetone	P-1015S-A
Primisulfuron-methyl	86209-51-0	NEAT	P-833N	Pyrasulfotole	365400-11-9	AcCN	P-1144S-CN
		AcCN	P-833S-CN			Pyrazon	1698-60-8
<i>Princep</i>	see Simazine			Pyrazophos	13457-18-6	MeOH	P-395S
Probenazole	27605-76-1	NEAT	P-710N			NEAT	P-359N
Prochloraz	67747-09-5	Acetone	P-710S-A	Pyrazosulfuron-ethyl	93697-74-6	MeOH	P-359S
		NEAT	P-549N			MeOH	P-1332S
Procymidone	32809-16-8	MeOH	P-549S	Pyrazoxyfen	71561-11-0	NEAT	P-618N
		NEAT	P-430N			MeOH	P-618S
		MeOH	P-430S				

♦ Pesticides containing a carboxyl group may autoesterify in Methanol. These standards are intended for use as a post-esterification standard for GC analysis. For other types of analysis (ex. HPLC) we suggest a non-hydroxylic solvent such as Acetonitrile.

* ColdPAK required to maintain integrity of product.



NEATS in 10 mg, SOLUTIONS at 100 µg/mL in 1 mL, except as noted.

Pesticide Standards

Compound	Synonym / CAS No.	Matrix	Cat. No.	Compound	Synonym / CAS No.	Matrix	Cat. No.
Pyrethrins	8003-34-7	NEAT MeOH	P-187N P-187S	<i>Sanmarton</i>	see Fenvalerate		
<i>Pyrethrum</i>	see Pyrethrins			<i>Scepter</i>	see Imazaquin		
Pyributicarb	88678-67-5	MeOH	P-987S	Schradan	152-16-9	NEAT MeOH	P-418N P-418S
Pyridaben	96489-71-3	NEAT MeOH	P-693N P-693S	Sebuthylazin	7286-69-3	NEAT MeOH	P-432N P-432S
Pyridalyl	179101-81-6	NEAT MeOH	P-990N P-990S	Secbumeton	26259-45-0	NEAT MeOH	P-165N P-165S
Pyridaphenthion	119-12-0	MeOH	P-610S	<i>Select</i>	see Clethodim		
Pyridate	55512-33-9	NEAT AcCN	P-404N P-404S-CN	<i>Sencor</i>	see Metribuzin		
Pyrifluquinazon	337458-27-2	AcCN	P-1093S-CN	Sethoxydim	74051-80-2	NEAT AcCN	P-306N P-306S-CN *
Pyrimethanil	53112-28-0	NEAT MeOH	P-723N P-723S	<i>Sevin</i>	see Carbaryl		
Pyrimidifen	105779-78-0	MeOH	P-989S	Siduron	1982-49-6	NEAT MeOH	P-063N P-063S
<i>Pyriminil</i>	see Vacor			Silafloufen	105024-66-6	NEAT MeOH	P-717N P-717S
(E)-Pyriminobac-methyl	147411-69-6	MeOH 50 µg/mL	P-1030S-0.5X	<i>Silmurix</i>	see Schradan		
Pyrimisulfan	221205-90-9	AcCN	P-1203S-CN	Silvex †	93-72-1	NEAT MeOH AcCN	P-084N P-084S P-084S-CN
Pyriphenox	88283-41-4	MeOH	P-668S	Silvex 2-ethylhexyl ester	53404-76-5	NEAT MeOH	P-728N P-728S
Pyriproxyfen	95737-68-1	NEAT AcCN	P-795N P-795S-CN	Silvex methyl ester	4841-20-7	NEAT MeOH	P-115N P-115S
<i>Pyron</i>	see Pyridate			Simazine	122-34-9	NEAT MeOH	P-085N P-085S
Pyroquilon	57369-32-1	NEAT MeOH	P-696N P-696S	Simazine-2-hydroxy	2599-11-3	MeOH	P-1191S
Pyroxsulam	422556-08-9	NEAT MeOH	P-1060N P-1060S	Simeton	673-04-1	NEAT MeOH	P-501N P-501S
<i>Queletox</i>	see Fenthion			Simetryn	1014-70-6	NEAT MeOH	P-166N P-166S
Quinalphos	13593-03-8	NEAT MeOH	P-462N P-462S	<i>Sinbar</i>	see Terbacil		
Quinclorac †	84087-01-4	NEAT MeOH AcCN	P-692N P-692S P-692S-CN	<i>Siperin</i>	see Cypermethrin		
Quinmerac	90717-03-6	NEAT AcCN	P-836N P-836S-CN	<i>Sipscasan</i>	see Thiophanate-methyl		
Quinoclamine	2797-51-5	NEAT MeOH	P-985N P-985S	Sodium diethyldithiocarbamate trihydrate	20624-25-3	NEAT Water	P-505N P-505S-W
Quinoxifen	124495-18-7	5 mg MeOH	P-882N-5MG P-882S	<i>Solfac</i>	see Cyfluthrin		
<i>Quintozene</i>	see Pentachloronitrobenzene			<i>Sonalan</i>	see Ethalfuralin		
Quizalofop ethyl	76578-14-8	NEAT AcCN	P-293N P-293S-CN	<i>Sonar</i>	see Fluridone		
<i>Racumin</i>	see Coumatetralyl			<i>Spike</i>	see Tebuthiuron		
<i>Radapon</i>	see Dalapon acid			Spinetoram	187166-40-1 / mix of isomers J & L 187166-15-0	AcCN	P-1083S-CN
<i>Ramrod</i>	see Propachlor			Spinosad	168316-95-8	NEAT AcCN	P-864N P-864S-CN
<i>Reglone</i>	see Diquat dibromide			Spirodiclofen	148477-71-8	NEAT MeOH	P-938N P-938S
Resmethrin	10453-86-8	NEAT MeOH	P-325N P-325S	Spiromesifen	283594-90-1	AcCN	P-960S-CN
<i>Rezifilm</i>	see Thiram			Spirotetramat	203313-25-1	NEAT AcCN	P-1077N P-1077S-CN
Rimsulfuron	122931-48-0	NEAT AcCN	P-837N P-837S-CN *	Spiroxamine	118134-30-8	NEAT AcCN	P-869N P-869S-CN
<i>Rogor</i>	see Dimethoate			<i>Stam F-34</i>	see Propanil		
<i>Rogee</i>	see Propanil			<i>Strofos</i>	see Tetrachlorvinphos		
<i>Ronilan</i>	see Vinclozolin			<i>Stomp</i>	see Pendimethalin		
Ronnel	299-84-3	NEAT MeOH	P-080N P-080S	Strobane	8001-50-1	NEAT MeOH	P-339N P-339S
<i>Ronstar</i>	see Oxadiazon			<i>Suffix</i>	see Benzoylprop ethyl		
<i>Rospin</i>	see Chloropropylate			Sulcontrione	99105-77-8	NEAT MeOH	P-951N P-951S
Rotenone	83-79-4	NEAT MeOH	P-056N P-056S *	Sulfallate	95-06-7	NEAT MeOH	P-327N P-327S
<i>Roundup</i>	see Glyphosate			Sulfaquinoxaline	59-40-5	MeOH	P-681S
<i>Rovral</i>	see Iprodione			Sulfentrazone	122836-35-5	NEAT AcCN	P-798N P-798S-CN
<i>Roxion</i>	see Dimethoate			Sulfometuron methyl ester	74222-97-2	NEAT	P-336N
<i>Rubigan</i>	see Bloc			Sulfosulfuron	141776-32-1	10 µg/mL AcCN	P-865S-CN-0.1X
<i>Ruelene</i>	see Crufomate			Sulfotep	3689-24-5	NEAT MeOH	P-167N P-167S
S421	127-90-2	NEAT MeOH	P-749N P-749S	<i>Sulfox-cide</i>	see Sulfoxide		
<i>SADH</i>	see Alar						
Saflufenacil	372137-35-4	NEAT MeOH	P-1078N P-1078S				
<i>Safrotin</i>	see Propetamphos						
<i>Sancap</i>	see Dipropetryn						

Pesticides at same low price in Neat (10 mg) or Solution (100 µg/mL) form
 Most Pesticides are available in 1000 µg/mL (add -10X). Call or visit website for pricing.



Pesticides

Pesticide Standards

Compound	Synonym / CAS No.	Matrix	Cat. No.	Compound	Synonym / CAS No.	Matrix	Cat. No.
Sulfoxide	120-62-7	NEAT	P-396N	Terbacil	5902-51-2	NEAT	P-096N
		MeOH	P-396S			MeOH	P-096S
<i>Sulfoxyfl</i>	see Sulfoxide			Terbufos	13071-79-9	NEAT	P-208N
<i>Sulprofos</i>	see Bolstar					MeOH	P-208S
<i>Sumicidin</i>	see Fenvalerate			Terbufos sulfone	56070-16-7	MeOH	P-729S
<i>Sumifly</i>	see Fenvalerate			Terbufos sulfoxide	10548-10-4	NEAT	P-730N
<i>Sumipower</i>	see Fenvalerate					MeOH	P-730S
Sumithrin	26002-80-2	NEAT	P-050N	Terbumeton	33693-04-8	NEAT	P-504N
		MeOH	P-050S			MeOH	P-504S
<i>Sumitol</i>	see Secbumeton			Terbutylazine	5915-41-3	NEAT	P-169N
<i>Summit</i>	see Triadimenol					MeOH	P-169S
<i>Super X</i>	see Terrazole			Terbutylazine desethyl	30125-63-4	NEAT	P-613N
<i>Supracide</i>	see Methidathion					MeOH	P-613S
<i>Surcopur</i>	see Propanil			Terbutol	1918-11-2	NEAT	P-464N
<i>Surflan</i>	see Oryzalin					MeOH	P-464S
<i>Sutan</i>	see Butylate			<i>Terbutryn</i>	see Prebane		
<i>Swebate</i>	see Abate			<i>Terpene polychlorinates</i>	see Strobane		
Swep	1918-18-9	NEAT	P-061N	<i>Terraclor</i>	see Pentachloronitrobenzene		
		MeOH	P-061S	<i>Terracur P</i>	see Dasanit		
<i>Systhane</i>	see Myclobutanil			Terrazole	2593-15-9	NEAT	P-190N
<i>Systox</i>	see Demeton					MeOH	P-190S
2,4,5-T acid †	93-76-5	NEAT	P-168N	<i>Terre-Sytam</i>	see Dimefox		
		MeOH	P-168S	<i>Tersan</i>	see Thiram		
		AcCN	P-168S-CN	<i>Tersan SP</i>	see Chloroneb		
2,4,5-T butoxyethyl ester	2545-59-7	NEAT	P-441N	1,2,3,4-Tetrachlorobenzene	634-66-2	NEAT	P-999N
		AcCN	P-441S-CN			MeOH	P-999S
2,4,5-T n-butyl ester	93-79-8	NEAT	P-440N	1,2,3,5-Tetrachlorobenzene	634-90-2	NEAT	P-1001N
		AcCN	P-440S-CN			Isooctane	P-1001S-TP
2,4,5-T methyl ester	1928-37-6	NEAT	P-067N	1,2,4,5-Tetrachlorobenzene	95-94-3	NEAT	P-1003N
		MeOH	P-067S			MeOH	P-1003S
2,4,6-T †	575-89-3	NEAT	P-523N	1,2,3,4-Tetrachloro-5-nitrobenzene	879-39-0	NEAT	P-1000N
		MeOH	P-523S			MeOH	P-1000S
		AcCN	P-523S-CN	2,3,5,6-Tetrachloronitrobenzene	117-18-0	NEAT	P-467N
<i>Talstar</i>	see Bifenthrin					MeOH	P-467S
<i>Tame</i>	see Danitol			Tetrachlorvinphos	22248-79-9	NEAT	P-125N
<i>Tamaron</i>	see Monitor					MeOH	P-125S
<i>Tamogan</i>	see Bromadiolone			Tetraconazole	112281-77-3	NEAT	P-721N
<i>Target</i>	see MSMA					MeOH	P-721S
<i>TCA</i>	see Trichloroacetic acid			Tetradifon	116-29-0	NEAT	P-261N
<i>TCMTB</i>	see Busan					MeOH	P-261S
<i>TCNB</i>	see Tecnazene			cis-1,2,3,6-Tetrahydrophthalimide	1469-48-3	MeOH	P-116S
Tebuconazol	107534-96-3	NEAT	P-451N	1,2,3,6-Tetrahydrophthalimide	85-40-5	NEAT	P-621N
		MeOH	P-451S			MeOH	P-621S
Tebufenozide	112410-23-8	NEAT	P-726N	Tetramethrin	7696-12-0	NEAT	P-406N
		MeOH	P-726S			MeOH	P-406S
Tebufenpyrad	119168-77-3	NEAT	P-877N	Tetrasul	2227-13-6	NEAT	P-552N
		MeOH	P-877S			MeOH	P-552S
Tebupirimfos	96182-53-5	NEAT	P-727N	<i>Tetron</i>	see TEPP		
		MeOH	P-727S	Thiabendazole	148-79-8	NEAT	P-068N
Tebutam	35256-85-0	MeOH	P-879S			MeOH	P-068S
		Tebuthiuron	34014-18-1	NEAT	P-188N	NEAT	P-838N
		MeOH	P-188S	Thiacloprid	111988-49-9	AcCN	P-838S-CN
<i>Tecto</i>	see Thiabendazole			Thiacloprid-amide	676228-91-4	NEAT	P-1223N
<i>Tecnazene</i>	see 2,3,5,6-Tetrachloronitrobenzene					MeOH	P-1223S
<i>Tedion</i>	see Tetradifon			Thiamethoxam	153719-23-4	NEAT	P-866N
Teflubenzuron	83121-18-0	NEAT	P-452N			AcCN	P-866S-CN
		MeOH	P-452S	Thiazopyr	117718-60-2	NEAT	P-808N
Tefluthrin	79538-32-2	MeOH	P-568S *			MeOH	P-808S
		<i>Telodrin</i>	see Isobenzan			NEAT	P-369N
Tembotrione	335104-84-2	NEAT	P-1109N	Thidiazuron	51707-55-2	MeOH	P-369S
		AcCN	P-1109S-CN			NEAT	P-468N
<i>Temephos</i>	see Abate			Thifensulfuron methyl	79277-27-3	MeOH	P-468S
<i>Temik</i>	see Aldicarb					NEAT	P-1055N
<i>Temus</i>	see Bromadiolone			Thifluzamide	130000-40-7	MeOH	P-1055S
<i>Tenoran</i>	see Chloroxuron			<i>Thimet</i>	see Phorate		
TEPP	107-49-3	NEAT	P-207N	Thiobencarb	28249-77-6	NEAT	P-180N
						MeOH	P-180S

† Pesticides containing a carboxyl group may autoesterify in Methanol. These standards are intended for use as a post-esterification standard for GC analysis. For other types of analysis (ex. HPLC) we suggest a non-hydroxylic solvent such as Acetonitrile.

* ColdPAK required to maintain integrity of product.

For Pesticide Kits and Mixtures
see page 67



NEATS in 10 mg, SOLUTIONS at 100 µg/mL in 1 mL, except as noted.

Pesticide Standards

Compound	Synonym / CAS No.	Matrix	Cat. No.	Compound	Synonym / CAS No.	Matrix	Cat. No.
Thiocyclam hydrogen oxalate	31895-22-4	MeOH	P-688S	Trichloroacetic acid	76-03-9	100 mg MeOH	P-459N P-459S
<i>Thiodan I</i>	see Endosulfan I					AcCN	P-459S-CN
<i>Thiodan II</i>	see Endosulfan II			1,2,3-Trichlorobenzene	87-61-6	NEAT Isooctane	P-1002N P-1002S-TP
Thiodicarb	59669-26-0	NEAT MeOH	P-477N P-477S	1,2,4-Trichlorobenzene	120-82-1	NEAT MeOH	P-1004N P-1004S
4,4'-Thiodiphenol	2664-63-3	NEAT MeOH	P-117N P-117S	2,3,5-Trichlorobenzoic acid	50-73-7	NEAT MeOH	P-508N P-508S
Thiofanox	39196-18-4	NEAT MeOH	P-266N P-266S	Trichloronate	327-98-0	NEAT MeOH	P-127N P-127S
Thiofanox sulfone	39184-59-3	AcCN	P-839S-CN-0.1X	2,4,6-Trichlorophenol	88-06-2	NEAT MeOH	P-1006N P-1006S
Thiofanox sulfoxide	39184-27-5	NEAT MeOH	P-702N P-702S	2,4,6-Trichlorophenyl-4'-nitrophenyl ether see Chlornitrofen			
Thiometon	640-15-3	NEAT MeOH	P-486N P-486S	3,5,6-Trichloro-2-pyridinol	6515-38-4	NEAT MeOH	P-626N P-626S
Thionazin	297-97-2	MeOH	P-171S	<i>Trichloropyrphos</i>	see Dursban		
Thiophanate ♦	23564-06-9	NEAT MeOH AcCN	P-321N P-321S P-321S-CN	Triclopyr ♦	55335-06-3	NEAT MeOH AcCN	P-289N P-289S P-289S-CN
Thiophanate-methyl	23564-05-8	NEAT MeOH	P-349N P-349S	Triclopyr-2-butoxy ethyl ester	64700-56-7	NEAT AcCN	P-703N P-703S-CN
<i>Thiophos</i>	see Parathion			Triclopyr methyl ester	60825-26-5	MeOH	P-291S
Thiram	137-26-8	NEAT MeOH	P-118N P-118S	Tricresyl phosphate	1330-78-5	NEAT MeOH	P-209N P-209S
<i>Tiguvon</i>	see Fenthion			Tricyclazole	41814-78-2	NEAT MeOH	P-090N P-090S
Tillam	1114-71-2	NEAT MeOH	P-105N P-105S	Tridemorph	24602-86-6	NEAT MeOH	P-307N P-307S
Tiit	60207-90-1	NEAT MeOH	P-280N P-280S	Trietazine	1912-26-1	NEAT MeOH	P-492N P-492S
<i>Tomadorane</i>	see 4-CPA			Triethylphosphate	78-40-0	NEAT MeOH	P-335N P-335S
<i>Tobaz</i>	see Thiabendazole			O,O,O-Triethylphosphorothioate	126-68-1	NEAT MeOH	P-172N P-172S
Tokuthion	34643-46-4	NEAT MeOH	P-126N P-126S	<i>Trifene</i>	see Fenatrol		
<i>Tolban</i>	see Profluralin			Trifenmorph	1420-06-0	NEAT MeOH	P-300N P-300S
Tolclofos-methyl	57018-04-9	NEAT MeOH	P-557N P-557S	Trifloxystrobin	141517-21-7	NEAT AcCN	P-867N P-867S-CN
Tolyfluanide	731-27-1	NEAT MeOH	P-553N P-553S*	Triflumizole	68694-11-1	AcCN	P-479S-CN
<i>Torak</i>	see Dialifos			Triflururon	64628-44-0	NEAT MeOH	P-689N P-689S
<i>Tordon</i>	see Picloram			Trifluralin	1582-09-8	NEAT MeOH	P-197N P-197S
Toxaphene (Tech)	8001-35-2	NEAT MeOH	P-093N P-093S	Triflusulfuron-methyl	126535-15-7	NEAT AcCN	P-840N P-840S-CN
<i>2,4,5-TP</i>	see Silvex			Triforine	26644-46-2	NEAT MeOH	P-308N P-308S
<i>2,4,5-TP methyl ester</i>	see Silvex methyl ester			2,3,5-Triiodobenzoic acid ♦	88-82-4	NEAT MeOH AcCN	P-507N P-507S P-507S-CN
Tralkoxydim	87820-88-0	NEAT MeOH	P-405N P-405S	2,3,5-Trimethacarb	2655-15-4	NEAT MeOH	P-515N P-515S
Tralomethrin	66841-25-6	NEAT MeOH	P-478N P-478S	3,4,5-Trimethacarb	2686-99-9	NEAT MeOH	P-516N P-516S
Transfluthrin	118712-89-3	NEAT MeOH	P-743N P-743S	Trimethyl phosphate	512-56-1	NEAT MeOH	P-210N P-210S
<i>Tre fln</i>	see Trifluralin			Trimethylsulfonium iodide	2181-42-2	NEAT MeOH	P-1016N P-1016S
Triadimefon	43121-43-3	NEAT MeOH	P-069N P-069S	Trimidal	63284-71-9	NEAT MeOH	P-422N P-422S
Triadimenol	55219-65-3	NEAT MeOH	P-361N P-361S	Trinexapac-ethyl	95266-40-3	NEAT MeOH	P-1034N P-1034S
Triallate	2303-17-5	NEAT MeOH	P-268N P-268S	Triphenylphosphate	115-86-6	NEAT MeOH	P-192N P-192S
Triasulfuron	82097-50-5	NEAT AcCN	P-592N P-592S-CN	Triphenyltin chloride	639-58-7	NEAT MeOH	P-526N P-526S
Triaziflam	131475-57-5	MeOH	P-1346S	<i>Trithion</i>	see Carbophenothion		
1,2,4-Triazole	288-88-0	NEAT MeOH	P-627N P-627S	Triticonazole	131983-72-7	10 µg/mL Isooctane	P-868S-TP-0.1X
Triazophos	24017-47-8	NEAT MeOH	P-334N P-334S				
Tribenuron-methyl	101200-48-0	NEAT AcCN	P-666N P-666S-CN				
<i>Tribufos</i>	see DEF						
<i>Tributylphosphorotrithioite</i>	see Merphos						
bis(Tributyltin)oxide	56-35-9	NEAT MeOH	P-455N P-455S				
Trichlorfon	52-68-6	NEAT MeOH	P-044N P-044S				

Pesticides at same low price in Neat (10 mg) or Solution (100 µg/mL) form
 Most Pesticides are available in 1000 µg/mL (add -10X). Call or visit website for pricing.



Pesticides

NEATS in 10 mg, SOLUTIONS at 100 µg/mL in 1 mL, except as noted.

Pesticide Standards

Compound	Synonym / CAS No.	Matrix	Cat. No.	Compound	Synonym / CAS No.	Matrix	Cat. No.
<i>Trucidor</i>	see Vamidothion			Vernolate	1929-77-7	NEAT	P-111N
<i>Tugon</i>	see Trichlorfon					MeOH	P-111S
<i>Tupersan</i>	see Siduron			Vinclozolin	50471-44-8	NEAT	P-122N
<i>Uden</i>	see Baygon					MeOH	P-122S
Uniconazole	83657-22-1	AcCN	P-1092S-CN *	<i>Warbex</i>	see Famphur		
<i>Urab</i>	see Fenuron-TCA			Warfarin	81-81-2	NEAT	P-076N
<i>Urox</i>	see Monuron TCA					MeOH	P-076S
<i>Ustilan</i>	see Ethidimuron			<i>Waylay</i>	see Napropamide		
Vacor	53558-25-1	NEAT	P-240N	<i>Weedol</i>	see Paraquat CL		
		MeOH	P-240S	<i>Weedone</i>	see 2,4,5-T acid		
Vamidothion	2275-23-2	NEAT	P-350N	XMC	2655-14-3	NEAT	P-1085N
		MeOH	P-350S *			MeOH	P-1085S
<i>Vamidoate</i>	see Vamidothion			<i>Zectran</i>	see Mexacarbate		
<i>Vancide 89</i>	see Captan			<i>Zerlate</i>	see Ziram		
<i>Vandyke 264</i>	see MGK 264			Zineb	12122-67-7	NEAT	P-098N
Vanicide-20S		NEAT	P-073N	<i>Zinophos</i>	see Thionazin		
		MeOH	P-073S	Ziram	137-30-4	NEAT	P-324N
<i>Vapona</i>	see Dichlorvos					MeOH	P-324S
<i>Vapotone</i>	see TEPP			<i>Zolone</i>	see Phosalone		
<i>Vegadex</i>	see Sulfallate			Zoxamide	156052-68-5	AcCN	P-970S-CN *
<i>Velpar</i>	see Hexazinone						
<i>Vernam</i>	see Vernolate						

* ColdPAK required to maintain integrity of product.

EXACT WEIGHT for Neat Pesticides

Listed Catalog neat products are overfilled approximately 10%, however, pesticides can be provided with **EXACT WEIGHT**. Specify EXACT WEIGHT by ordering **X-WT** and the exact weight is noted on the product label. There is an additional charge for this service. Rinse the pesticide out of the vial with the appropriate amount of solvent to get a weight/volume standard and calculate the concentration.



Pesticides and Herbicides

Kits and Mixtures



Pesticide Kits and Mixtures

Neat Pesticide Kit

Z-004-SET ❖

20 x 10 mg

Aldrin	Dieldrin
α-BHC	Heptachlor
β-BHC	Heptachlor epoxide (Isomer B)
δ-BHC	Lindane (γ-BHC)
o,p'-DDD	Malathion
p,p'-DDD	Methoxychlor
o,p'-DDE	Mirex
p,p'-DDE	Parathion
o,p'-DDT	Carbaryl
p,p'-DDT	Toxaphene

Pesticide (Solid Waste) Kit

Z-017-SET

6 x 10 mg

2,4-D	Methoxychlor
Endrin	Silvex
Lindane	Toxaphene

Pesticide Mixture for Evaluating GC Columns

M-100

1 x 1 mL

At stated conc. (µg/mL) in Isooctane

13 comps.

Aldrin	0.050	p,p'-DDT	0.260
α-BHC	0.025	Dieldrin	0.120
β-BHC	0.100	Endrin	0.200
o,p'-DDD	0.200	Heptachlor	0.025
p,p'-DDD	0.190	Heptachlor epoxide (Isomer B)	0.080
p,p'-DDE	0.100	Lindane (γ-BHC)	0.025
o,p'-DDT	0.225		

Technical Note

Designed for evaluating the ability of a column to separate pesticides and their degradation products.

Pesticides in Solutions (Individual and Kits)

SOLUTIONS in Isooctane

Compound	Conc.	Cat. No.
Aldrin	200 ng/µL	P-002S-1
	2 ng/µL	P-002S-2
Chlordane	200 ng/µL	P-017S-1
	2 ng/µL	P-017S-2
2,4-D methyl ester	200 ng/µL	P-021S-1
p,p'-DDE	200 ng/µL	P-027S-1
	2 ng/µL	P-027S-2
p,p'-DDT	200 ng/µL	P-029S-1
	2 ng/µL	P-029S-2
Dieldrin	200 ng/µL	P-037S-1
	2 ng/µL	P-037S-2
Endrin	200 ng/µL	P-045S-1
	2 ng/µL	P-045S-2
Heptachlor	200 ng/µL	P-053S-1
	2 ng/µL	P-053S-2
Lindane	200 ng/µL	P-059S-1
	2 ng/µL	P-059S-2
Methoxychlor	200 ng/µL	P-064S-1
	2 ng/µL	P-064S-2
Silvex methyl ester	200 ng/µL	P-115S-1
Toxaphene	200 ng/µL	P-093S-1

Z-023-SET

21 x 1 mL

Technical Note

Convenient concentrations in Isooctane for use with different GC detectors. The concentrated solutions are suited for FID & TC detectors. The diluted solutions are suited for EC detectors.

❖ V-Rated packaging surcharge applies for international shipments.

Herbicide Kit and Mixtures

Herbicide Kit

Z-031-SET

15 x 1 mL

0.1 mg/mL each in MeOH

Atrazine	Prometryne
Dicamba	Prometon
Benfluralin	Propanil
Bentazon †	Propazine
Dacthal	Simazine
Dichlobenil	Tebuthiuron
	Trifluralin
Metolachlor	

† in Acetone

Herbicide Mix #1

M-HERB-1

0.1 mg/mL each in EtOAc

Atrazine
Bromacil
Cycloate
Eptam
Isopropalin
Hexazinone
Molinate

1 x 1 mL

13 comps.

Oxyfluorfen
Sencor
Sutan
Terbacil
Tillam
Trifluralin

Herbicide Mix #2

M-HERB-2

0.1 mg/mL each in EtOAc

Benfluralin
Metolachlor
Oxadiazon
Propachlor
Propazine

1 x 1 mL

9 comps.

Prowl
Simazine
Tolban
Vernam





Pesticides

Triazines & Metabolites, Phenylureas, Neonicotinoids and Fipronils

NEATS in 10 mg. SOLUTIONS at 100 µg/mL in MeOH, except -MC (in Methyl cellosolve)

Triazines and Metabolites

Compound	CAS No.	NEAT Cat. No.	10 mg	SOLUTION Cat. No.	1 mL
2,4-bis(Ethylamino)-6-diethylamino-s-triazine		P-536N		P-536S-MC	
2-Chloro-4-ethylamino-6-propylamino-s-triazine	90952-64-0	P-537N		P-537S-MC	
2,4-Dichloro-6-ethylamino-s-triazine	3440-19-5	P-538N		P-538S-MC	
2-Chloro-4-ethylamino-6-methylethylamino-s-triazine		P-539N		P-539S-MC	
2-Chloro-4-methylamino-6-sec-butylamino-s-triazine		P-540N		P-540S-MC	
2-Chloro-4-methylamino-6-diethylamino-s-triazine		P-541N		P-541S-MC	
2,3-Diuron	10290-37-6	P-632N		P-632S	
Atrazine desethyl	6190-65-4	P-343N		P-343S	
Atrazine-desisopropyl	1007-28-9	P-345N		P-345S	
Atrazine-desisopropyl-2-hydroxy	7313-54-4	P-344N		P-344S-MC	
Atrazine	1912-24-9	P-005N		P-005S	
Ametryn	834-12-8	P-003N		P-003S	
Cyanazine	21725-46-2	P-175N		P-175S	
Gesatamine	1610-17-9	P-189N		P-189S	
2-Hydroxyatrazine	2163-68-0	-----	----	P-326S-MC	
Imazethapyr	81335-77-5	-----	----	P-285S	
2-Isopropylamino-4,6-dichloro-s-triazine	3703-10-4	P-635N		P-635S	
2-Monuron		P-633N		P-633S	
Prometryne	7287-19-6	P-078N		P-078S	
Propazine	139-40-2	P-079N		P-079S	
Prometon	1610-18-0	P-077N		P-077S	
Sebuthylazin	7286-69-3	P-432N		P-432S	
Simazine	122-34-9	P-085N		P-085S	
Terbutylazine	5915-41-3	P-169N		P-169S	

Phenylurea Pesticide Mixtures

Phenylurea Pesticide Mixture

PES-PU-001

PES-PU-001-PAK

SAVE

1 x 1 mL

5 x 1 mL

8 comps.

200 µg/mL each in AcCN:Acetone

Diffubenzuron Fluometuron Propanil Tebuthiuron
Diuron Linuron Siduron Thidiazuron

Phenylurea Surrogate Mixture

PES-PU-SS

PES-PU-SS-PAK

SAVE

1 x 1 mL

5 x 1 mL

2 comps.

500 µg/mL each in MeOH:AcCN

Carbazole Monuron

Neonicotinoids and Fipronil - Honeybee Colony Collapse Disorder (CCD)

Research into honeybee colony collapse disorder (CCD) has revealed that this group of pesticides may be solely responsible for or a contributing factor to honeybee decline. Included in this group are the Neonicotinoids as well as Fipronil and Fipronil metabolites, all of which have been suspected as possible causative agents



Neonicotinoids

Compound	CAS	NEAT Cat. No.	Unit	SOLUTION Cat. No.	100 µg/mL Solvent	Unit
Acetamidprid	135410-20-7	P-820N	10 mg	P-820S-CN	AcCN	1 mL
6-Chloropyridine-3-carboxylic acid	5326-23-8	P-1267N	10 mg	P-1267S	MeOH	1 mL
Clothianidin	210880-92-5	P-947N	10 mg	P-947S	MeOH	1 mL
n-Desmethylthiamethoxam	171103-04-1	-----	-----	P-1266S	MeOH	1 mL
Dinotefuran	165252-70-0	-----	-----	P-986S-CN	AcCN	1 mL
Furathiocarb	65907-30-4	P-569N	10 mg	P-569S	MeOH	1 mL
6-Hydroxypyridine-3-carboxylic acid	5006-66-6	P-1226N	10 mg	P-1226S	MeOH	1 mL
Imidacloprid	138261-41-3	P-596N	10 mg	P-596S	MeOH	1 mL
2-Imidazolidone	120-93-4	P-1224N	10 mg	P-1224S	MeOH	1 mL
Nitenpyram	150824-47-8	P-858N	10 mg	P-858S-CN	AcCN	1 mL
Sulfoxaflor	946578-00-3	P-1133N	10 mg	P-1133S	MeOH	1 mL
Thiacloprid	111988-49-9	P-838N	10 mg	P-838S-CN	AcCN	1 mL
Thiacloprid-amide	676228-91-4	P-1223N	10 mg	P-1223S	MeOH	1 mL
Thiamethoxam	153719-23-4	P-866N	10 mg	P-866S-CN	AcCN	1 mL

Fipronil and Metabolites

Fipronil	120068-37-3	P-738N	10 mg	P-738S *	MeOH	1 mL
				P-738S-A *	Acetone	1 mL
Fipronil desulfinyl	205650-65-3	-----	-----	P-782S-A *	Acetone	1 mL
Fipronil sulfide	120067-83-6	P-781N-5MG	5 mg	P-781S-A *	Acetone	1 mL
Fipronil sulfone	120068-36-2	-----	-----	P-780S-A *	Acetone	1 mL
				P-FIP-MET-KIT *		4 x 1 mL
				P-738S-A, P-782S-A, P-781S-A, P-780S-A		

* ColdPAK required to maintain integrity of product.

Technical Note

Fipronil is in the phenyl pyrazole class of pesticides. It is a broad-spectrum insecticide used in many different applications. It is used in many commercial topical flea and tick treatments for cats and dogs. Fipronil is used in these types of applications because it is not readily absorbed through the skin, and has a comparatively low toxicity if ingested.

Fipronil produces three notable metabolites: Fipronil Sulfide, Fipronil Sulfone and Fipronil Desulfinyl. These metabolites form under different conditions, and are of particular interest, because unlike the parent compound, they can be more toxic and environmentally persistent.

Volatile Organic Compounds (VOCs)

VOC

Volatile Organic Chemicals (VOCs) are generally classified as compounds that under normal ambient conditions can vaporize. This group includes aldehydes and ketones, as well as some light aromatic and straight chain hydrocarbons.

VOCs can enter the environment through many different routes. Many solvents, cleaners, paint thinners, dry cleaning solvents, and degreasers used both in industry and homes contain these compounds. Although not usually water soluble, if these compounds are released to the environment, they can still be found as contaminants in air and soil, as well as waste and drinking water.

EPA Volatile Methods:

502 Volatiles (PID/ELCD), Volatile Surrogates & ISTDs	602 Purgeable Aromatics (PID)	8020 Aromatic Volatiles (PID)
503 VOC - Aromatics & Alkenes (PID/ELCD)	603 Acrolein & Acrylonitrile (FID)	8021 Halogenated Volatiles PID/ELCD
504 EDB & DBCP (ECD)	624 Purgeable Volatiles (GC/MS)	8030 Acrolein & Acrylonitrile (GC/FID)
524 Volatiles (GC/MS)	1666 PMI Volatiles (GC/MS)	8031 Acrylonitrile (GC/NPD)
551 Chlorinated Solvents, Trihalomethanes	8010 Halogenated Volatiles (ELCD)	8032 Acrylamide (GC/ECD)
556 Carbonyl Compounds (GC/ECD)	8011 EDB & DBCP (GC/MS)	8033 Acetonitrile (NPD)
601 Purgeable Halocarbons (ELCD)	8015B Non Halogenated Organics (GC/FID)	

NEATS are as stated, SOLUTIONS are in 1 mL

VOCs

Compound	Conc.	Matrix	Cat. No.	Compound	Conc.	Matrix	Cat. No.	
Acetonitrile 75-05-8	100 µg/mL	MeOH	APP-9-005	Bromoform 75-25-2	1 gram	NEAT	M-502-05N	
	10 mg/mL	Water	M-8015B/5031-02		0.2 mg/mL	MeOH	M-502-05	
	1 mg/mL	Water	M-8033		2 mg/mL	MeOH	M-502-05-10X	
	1 mg/mL	MeOH	APP-9-005-10X		5 mg/mL	MeOH	AS-E0212	
	5 mg/mL	MeOH	APP-9-005-50X		Bromomethane 74-83-9	100 µg/mL	MeOH	APP-9-032
5 mg/mL	IPA	AS-E0473	0.2 mg/mL	MeOH		M-502-06		
1 mg/mL	MeOH	M-8032	2 mg/mL	MeOH		M-502-06-10X		
Acrylamide 79-06-1	1 mg/mL	MeOH	M-8032	Bromotrichloromethane 75-62-7	100 mg	NEAT	K-009N	
Acrylonitrile 107-13-1	100 µg/mL	MeOH	APP-9-008		1,3-Butadiene 106-99-0	0.2 mg/mL	MeOH	S-406A
	10 mg/mL	Water	M-8015B/5031-04	2 mg/mL		MeOH	S-406A-10X	
	1 mg/mL	MeOH	APP-9-008-10X	n-Butylbenzene 104-51-8	100 mg	NEAT	V-002	
10 mg/mL	MeOH	AS-E0003	1 gram		NEAT	M-502-07N		
Allyl chloride 107-05-1	100 µg/mL	MeOH	APP-9-010		5 mg/mL	MeOH	AS-E1105	
	2 mg/mL	MeOH	APP-9-010-20X		0.2 mg/mL	MeOH	M-502-07	
	1 mg/mL	MeOH	AS-E0476		2 mg/mL	MeOH	M-502-07-10X	
n-Amylbenzene 538-68-1	100 mg	NEAT	V-001	Isobutylbenzene 538-93-2	100 mg	NEAT	V-003	
Azobenzene 103-33-3	2 mg/mL	CH ₂ Cl ₂	Z-014B-1		sec-Butylbenzene 135-98-8	100 mg	NEAT	V-004
	1 gram	NEAT	M-502-01N	1 gram		NEAT	M-502-08N	
Benzene 71-43-2	100 µg/mL	MeOH	APP-9-015	5 mg/mL		MeOH	AS-E1104	
	1 mg/mL	MeOH	AS-E0004	0.2 mg/mL		MeOH	M-502-08	
	0.2 mg/mL	MeOH	M-502-01	2 mg/mL		MeOH	M-502-08-10X	
	2 mg/mL	MeOH	M-502-01-10X	tert-Butylbenzene 98-06-6	1 gram	NEAT	M-502-09N	
0.2 mg/mL	MeOH	M-624-SS-01	5 mg/mL		MeOH	AS-E1106		
2 mg/mL	MeOH	M-624-SS-01-10X	0.2 mg/mL		MeOH	M-502-09		
Benzene-d₆ 1076-43-3	0.2 mg/mL	MeOH	M-624-SS-01	2 mg/mL	MeOH	M-502-09-10X		
Benzyl chloride 100-44-7	0.2 mg/mL	MeOH	M-8010-01	Carbon disulfide 75-15-0	100 µg/mL	MeOH	APP-9-035	
	5 mg/mL	AcCN	AS-E0169		2 mg/mL	MeOH	APP-9-035-20X	
2-Bromo-1-chloropropane 3017-95-6	20 mg/mL	MeOH	M-001R-3		5 mg/mL	MeOH	AS-E0363	
1-Bromo-2-nitrobenzene 577-19-5	1 mg/mL	Acetone	M-8081-IS-DC	Carbon tetrabromide 558-13-4	100 mg	NEAT	K-006N	
Bromobenzene 108-86-1	1 gram	NEAT	M-502-02N		Carbon tetrachloride 56-23-5	100 mg	NEAT	K-003N
	5 mg/mL	MeOH	AS-E0406			1 gram	NEAT	M-502-10N
	0.2 mg/mL	MeOH	M-502-02			100 µg/mL	MeOH	APP-9-036
	2 mg/mL	MeOH	M-502-02-10X			5 mg/mL	MeOH	AS-E0360
0.2 mg/mL	MeOH	M-502-10	Chloral hydrate 302-17-0	2 mg/mL		MeOH	M-502-10	
Bromochloroacetonitrile 83463-62-1	1 mg/mL	Acetone		AS-E1186	1 mg/mL	MeOH	M-E-1179-M *	
	5 mg/mL	Acetone		M-551B-1	1 mg/mL	Acetone	AS-E1179	
2-Bromochlorobenzene 694-80-4	0.2 mg/mL	MeOH		M-624-SS-12	5 mg/mL	Acetone	M-551B-2	
4-Bromochlorobenzene 106-39-8	2 mg/mL	MeOH		M-8020-SS-1	Chlorobenzene 108-90-7	100 mg	NEAT	A-001
Bromochloromethane 74-97-5	100 mg	NEAT	K-007N	1 gram		NEAT	M-502-11N	
	1 gram	NEAT	M-502-03N	100 µg/mL		MeOH	APP-9-039	
	10 mg/mL	MeOH	AS-E0136	1 mg/mL		MeOH	AS-E0006	
	0.2 mg/mL	MeOH	M-502-03	0.2 mg/mL		MeOH	M-502-11	
2 mg/mL	MeOH	M-502-03-10X	Bromodichloromethane 75-27-4	2 mg/mL	MeOH	M-502-11-10X		
2 mg/mL	MeOH	M-502-04		100 mg	NEAT	CLP-PI-3-5X		
2 mg/mL	MeOH	M-502-04-10X		Chlorobenzene-d₅ 3114-55-4	Chloroethane 75-00-3	100 µg/mL	MeOH	APP-9-042
5 mg/mL	MeOH	AS-E0046				1 mg/mL	MeOH	AS-E0015
0.2 mg/mL	MeOH	M-502-04				0.2 mg/mL	MeOH	M-502-12
2 mg/mL	MeOH	M-502-04-10X	2 mg/mL			MeOH	M-502-12-10X	
5 mg/mL	MeOH	AS-E0046	bis(2-Chloroethoxy)methane 111-91-1			100 µg/mL	CH ₂ Cl ₂	APP-9-026
25 µg/mL	MeOH	CLP-004		1 mg/mL	MeOH	APP-9-026-M-10X		
250 µg/mL	MeOH	CLP-004-10X		5 mg/mL	MeOH	AS-E0041		
0.15 mg/mL	MeOH	AS-E0233		1-Chloro-2-fluorobenzene 348-51-6	2 mg/mL	MeOH	S-163	
25 mg/mL	MeOH	CLP-004-1000X			1-Chloro-4-fluorobenzene 352-33-0	0.2 mg/mL	MeOH	M-624-SS-13
2.5 mg/mL	MeOH	CLP-004-100X	1-Chloro-3-nitrobenzene 121-73-3	1 mg/mL		Acetone	M-8091-SS-100X	
2 mg/mL	MeOH	CLP-004-80X						
0.2 mg/mL	MeOH	M-624-SS-03						
2 mg/mL	MeOH	M-624-SS-03-10X						
100 µg/mL	Acetone	M-551.1-IS						
10 mg/mL	Acetone	M-551.1-IS-100X						

* ColdPAK required to maintain integrity of product.

VOCs

Compound	Conc.	Matrix	Cat. No.	Compound	Conc.	Matrix	Cat. No.				
Chloroform 67-66-3	1 gram	NEAT	M-502-13N	1,3-Dichlorobenzene 541-73-1	100 mg	NEAT	A-003				
	0.2 mg/mL	MeOH	M-502-13		1 gram	NEAT	M-502-22N				
	2 mg/mL	MeOH	M-502-13-10X		100 µg/mL	MeOH	APP-9-065				
1-Chlorohexane 544-10-5	0.2 mg/mL	MeOH	M-8010R-1-04		0.2 mg/mL	MeOH	M-502-22				
	2 mg/mL	MeOH	M-8010R-1-04-10X		1 mg/mL	MeOH	AS-E0214				
Chloromethane 74-87-3	100 µg/mL	MeOH	APP-9-044	2 mg/mL	MeOH	M-502-22-10X					
	0.2 mg/mL	MeOH	M-502-14	2.0 mg/mL	Hexane	M-8120-03					
	2 mg/mL	MeOH	M-502-14-10X	1,4-Dichlorobenzene 106-46-7	100 mg	NEAT	A-004				
bis(2-Chloro-1-methylethyl)ether 108-60-1	100 mg	NEAT	FETH-02N		1 gram	NEAT	M-502-23N				
	Chloroprene 126-99-8	100 µg/mL	MeOH		APP-9-048-R1	100 µg/mL	MeOH	APP-9-066			
200 µg/mL		MeOH	APP-9-048-R1-2X		0.2 mg/mL	MeOH	M-502-23				
1 mg/mL		MeOH	APP-9-048-R1-10X		2 mg/mL	MeOH	M-502-23-10X				
2.0 mg/mL		MeOH	APP-9-048-R1-20X		5 mg/mL	MeOH	AS-E0025				
3-Chloropropionitrile 542-76-7	1 mg/mL	MeOH	AS-E0375		0.2 mg/mL	Acetone	M-8151-IS-2				
2-Chlorotoluene 95-49-8	1 gram	NEAT	M-502-15N		2.0 mg/mL	Hexane	M-8120-04				
	0.2 mg/mL	MeOH	M-502-15		1,4-Dichlorobenzene-d₄ 3855-82-1	2 mg/mL	MeOH	Z-014J-3-M-0.5X			
	2 mg/mL	MeOH	M-502-15-10X			4 mg/mL	CH ₂ Cl ₂	Z-014J-3			
	5 mg/mL	MeOH	AS-E0150	1,4-Dichlorobutane 110-56-5	0.2 mg/mL	MeOH	M-624-SS-05				
3-Chlorotoluene 108-41-8	5 mg/mL	MeOH	AS-E0151		20 mg/mL	MeOH	M-001R-2				
	4-Chlorotoluene 106-43-4	1 gram	NEAT	M-502-16N	1,4-Dichlorobutane-d₈ 83547-96-0	0.15 mg/mL	MeOH	AS-E0196			
0.2 mg/mL		MeOH	M-502-16	Dichlorodifluoromethane 75-71-8		100 µg/mL	MeOH	APP-9-069			
2 mg/mL		MeOH	M-502-16-10X		5000 µg/mL	MeOH	AS-E0346				
Cyclohexane 110-82-7	1 gram	NEAT	TK-102-08N		0.2 mg/mL	MeOH	M-502-24				
	2 mg/mL	MeOH	TK-102-08S-10X		2 mg/mL	MeOH	M-502-24-10X				
Decylbenzene 104-72-3	100 mg	NEAT	V-005	1,1-Dichloroethane 75-34-3	1 gram	NEAT	M-502-25N				
	Diallate 2303-16-4	1 mg/mL	AcCN		AS-E0623	100 µg/mL	MeOH	APP-9-070			
1000 µg/mL		MeOH	APP-9-057		0.2 mg/mL	MeOH	M-502-25				
100 mg		NEAT	K-010N		1 mg/mL	MeOH	AS-E0012				
Dibromochloromethane 124-48-1	1 gram	NEAT	M-502-17N	2 mg/mL	MeOH	M-502-25-10X					
	100 µg/mL	MeOH	APP-9-060	1,2-Dichloroethane 107-06-2	1 gram	NEAT	M-502-26N				
	0.2 mg/mL	MeOH	M-502-17		100 µg/mL	MeOH	APP-9-071				
	2 mg/mL	MeOH	M-502-17-10X	1 mg/mL	MeOH	AS-E0009					
1,2-Dibromo-3-chloropropane 96-12-8	1 gram	NEAT	M-502-18N	0.2 mg/mL	MeOH	M-502-26					
	0.2 mg/mL	MeOH	M-502-18	2 mg/mL	MeOH	M-502-26-10X					
	2 mg/mL	MeOH	M-502-18-10X	0.2 mg/mL	MeOH	M-624-SS-06					
	5 mg/mL	MeOH	AS-E0993	2.0 mg/mL	MeOH	M-624-SS-06-10X					
Dibromoacetone 3252-43-5	1 mg/mL	Acetone	M-551B-4	1,1-Dichloroethene 75-35-4	1 gram	NEAT	M-502-27N				
	1,2-Dibromoethane 106-93-4	1 gram	NEAT		M-502-19N **	100 µg/mL	MeOH	APP-9-072			
100 µg/mL		MeOH	APP-9-214		0.2 mg/mL	MeOH	M-502-27				
0.2 mg/mL		MeOH	M-502-19		2 mg/mL	MeOH	M-502-27-10X				
Dibromofluoromethane 1868-53-7	2 mg/mL	MeOH	M-502-19-10X	cis-1,2-Dichloroethene 156-59-2	1 gram	NEAT	M-502-28N				
	5 mg/mL	MeOH	AS-E0171		0.2 mg/mL	MeOH	M-502-28				
	2 mg/mL	MeOH	M-8260-SS-2		2 mg/mL	MeOH	M-502-28-10X				
	Dibromomethane 74-95-3	100 mg	NEAT	K-004N	10 mg/mL	MeOH	AS-E0173				
1 gram		NEAT	M-502-20N	trans-1,2-Dichloroethene 156-60-5	1 gram	NEAT	M-502-29N				
100 µg/mL	MeOH	APP-9-062	0.2 mg/mL		MeOH	APP-9-073					
0.2 mg/mL	MeOH	M-502-20	0.2 mg/mL		MeOH	M-502-29					
2 mg/mL	MeOH	M-502-20-10X	1 mg/mL		MeOH	AS-E0028					
a,a-Dibromo-m-xylene 626-15-3	5 mg/mL	Acetone	M-8081-IS-X	2 mg/mL	MeOH	M-502-29-10X					
	1,2-Dibromopropane 78-75-1	5 mg/mL	MeOH	M-552-IS	0.2 mg/mL	MeOH	M-502-61				
		10 mg/mL	Hexane	M-556-IS	2 mg/mL	MeOH	M-502-61-10X				
1,2-Dibromo-1,1,2,2-tetrafluoroethane 124-73-2	1000 µg/mL	MeOH	AS-E0463	Dichloromethane 75-09-2 (<i>Methylene chloride</i>)	100 mg	NEAT	K-001N				
	2,3-Dichloro-1-propene 78-88-6	4.2 mg/mL	MeOH		AS-E0170	1 gram	NEAT	M-502-39N			
trans-1,4-Dichloro-2-butene 110-57-6		100 µg/mL	MeOH		APP-9-068	100 µg/mL	MeOH	APP-9-074			
		2 mg/mL	MeOH		APP-9-068-20X	0.2 mg/mL	MeOH	M-502-39			
Dichloroacetone 3018-12-0	5 mg/mL	Acetone	M-551B-5	1 mg/mL	MeOH	AS-E0042					
	1,2-Dichlorobenzene 95-50-1	100 mg	NEAT	A-002	2 mg/mL	MeOH	M-502-39-10X				
1 gram		NEAT	M-502-21N	2 mg/mL	MeOH	M-502-IS-2-3					
100 µg/mL		MeOH	APP-9-064	Dichloromethane-d₂ 1665-00-5	1,2-Dichloropropane 78-87-5	1 gram	NEAT	M-502-30N			
0.2 mg/mL		MeOH	M-502-21			100 µg/mL	MeOH	APP-9-077			
2 mg/mL		MeOH	M-502-21-10X	1,2-Dichloropropane 594-20-7	0.2 mg/mL	MeOH	M-502-30				
5 mg/mL		MeOH	AS-E0023		1 mg/mL	MeOH	AS-E0030				
2.0 mg/mL		Hexane	M-8120-02		2 mg/mL	MeOH	M-502-30-10X				
1,2-Dichlorobenzene-d₄ 2199-69-1	0.15 mg/mL	MeOH	AS-E0776		1,3-Dichloropropane 142-28-9	1 gram	NEAT	M-502-31N			
	0.2 mg/mL	MeOH	M-624-SS-11	0.2 mg/mL		MeOH	M-502-31				
	2 mg/mL	MeOH	M-624-SS-11-10X	2 mg/mL		MeOH	M-502-31-10X				
1,2-Dichlorobenzene-d₄ 2199-69-1	1,3-Dichloropropene 542-75-6	1 gram	NEAT	M-502-31N	0.2 mg/mL	MeOH	M-502-31				
								2,2-Dichloropropene 594-20-7	1 gram	NEAT	M-502-32N
	2 mg/mL	MeOH	M-502-32-10X								
				5 mg/mL	MeOH	AS-E1167					
	2.0 mg/mL	Hexane	M-8120-02								
				1,3-Dichloropropene (cis/trans)	1 gram	NEAT	M-502-34N				
	0.2 mg/mL	MeOH	M-502-34								
				0.4 mg/mL	MeOH	M-502-34-R					
	4 mg/mL	MeOH	M-502-34-R-10X								
5 mg/mL				MeOH	AS-E0218						
	1,1-Dichloropropene	0.2 mg/mL	MeOH			M-502-33					
2 mg/mL				MeOH	M-502-33-10X						
	cis-1,3-Dichloropropene	100 µg/mL	MeOH			APP-9-078					
10061-01-5											

* ColdPAK required to maintain integrity of product.

** This product can not ship by air.

Volatile Organic Compounds (VOCs)

VOC

NEATS are as stated, SOLUTIONS are in 1 mL

VOCs

Compound	Conc.	Matrix	Cat. No.	Compound	Conc.	Matrix	Cat. No.
trans-1,3-Dichloropropene 10061-02-6	100 µg/mL	MeOH	APP-9-079	Hexachlorobutadiene 87-68-3	1 gram	NEAT	M-502-36N
1,1-Dichloro-1-propylene 563-58-6	5 mg/mL	MeOH	AS-E1166		100 µg/mL	MeOH	APP-9-113
2,4-Dichlorotoluene 95-73-8	5 mg/mL	MeOH	AS-E0149		0.2 mg/mL	MeOH	M-502-36
1,2,3,4-Diepoxybutane 1464-53-5	1 mg/mL	AcCN	AS-E0577		2 mg/mL	MeOH	M-502-36-10X
m-Diethylbenzene 141-93-5	100 mg	NEAT	V-007		5 mg/mL	MeOH	AS-E0050
o-Diethylbenzene 135-01-3	100 mg	NEAT	V-006	2.0 mg/mL	Hexane	M-8120-06	
p-Diethylbenzene 105-05-5	100 mg	NEAT	V-008	100 µg/mL	MeOH	APP-9-114	
1,4-Difluorobenzene 540-36-3	100 µg/mL	Isooctane	M-GRA-ST	1 mg/mL	MeOH	APP-9-114-10X	
Dimethyl sulfate 77-78-1	100 µg/mL	MeOH	M-624-SS-07	2.0 mg/mL	Hexane	M-8120-07	
	2 mg/mL	MeOH	M-624-SS-07-10X	100 µg/mL	MeOH	APP-9-115	
1,3-Dimethyl-2-nitrobenzene 81-20-9	1 mg/mL	AcCN	AS-E0389	1 mg/mL	MeOH	AS-E0011	
1,3-Dinitrobenzene 99-65-0	0.25 mg/mL	MtBE	M-507-SS	2.0 mg/mL	Hexane	M-8120-08	
	1.0 mg/mL	MtBE	M-507-SS-4X	100 µg/mL	MeOH	APP-9-116	
	100 µg/mL	CH ₂ Cl ₂	APP-9-089	2 mg/mL	CH ₂ Cl ₂	APP-9-116-D-20X	
2,5-Dinitrotoluene 619-15-8	1 mg/mL	CH ₂ Cl ₂	APP-9-089-10X	5 mg/mL	MeOH	AS-E0323	
	5 mg/mL	MeOH	AS-E0527	100 µg/mL	MeOH	APP-9-117	
	100 µg/mL	AcCN	M-8095-SS-03	1 mg/mL	MeOH	AS-E0364	
3,4-Dinitrotoluene 610-39-9	100 µg/mL	AcCN	M-8095-SS-01	100 mg	NEAT	V-015	
Dodecylbenzene 123-01-3	100 mg	NEAT	V-009	Hexadecylbenzene 1459-09-2	100 mg	NEAT	V-013
Epichlorohydrin 106-89-8	5 mg/mL	AcCN	AS-E0258				
1,2-Epoxybutane 106-88-7	5 mg/mL	AcCN	AS-E0286				
1,2-Epoxypropane(Propylene oxide) 75-56-9	1 mg/mL	AcCN	AS-E0308				
Ethyl acetate 141-78-6	10 mg/mL	Water	M-8015B/5031-12				
Ethyl methacrylate 97-63-2	100 µg/mL	MeOH	APP-9-105	p-Isopropyltoluene (p-Cymene) 99-87-6	1 gram	NEAT	M-502-37N
	1 mg/mL	MeOH	AS-E0687				
Ethyl methanesulfonate 62-50-0	100 µg/mL	CH ₂ Cl ₂	APP-9-106	0.2 mg/mL	MeOH	M-502-37	
	1 mg/mL	AcCN	AS-E0456	2 mg/mL	MeOH	M-502-37-10X	
Ethylbenzene 100-41-4	1 gram	NEAT	M-502-35N	1 gram	NEAT	M-502-38N	
	100 µg/mL	MeOH	APP-9-104	5 mg/mL	MeOH	AS-E1108	
	0.2 mg/mL	MeOH	M-502-35	0.2 mg/mL	MeOH	M-502-38	
	2 mg/mL	MeOH	M-502-35-10X	2 mg/mL	MeOH	M-502-38-10X	
	10 mg/mL	MeOH	AS-E0036	100 µg/mL	MeOH	APP-9-125	
Ethylbenzene-d ₁₀ 25837-05-2	0.2 mg/mL	MeOH	M-624-SS-08	1 mg/mL	MeOH	AS-E0686	
Ethylene glycol 107-21-1	2 mg/mL	Water	D-4291-93	1 mg/mL	AcCN	AS-E0044	
	10 mg/mL	Water	M-8015B/5031-13	Methyl 2-bromopropionate 5445-17-0	1 mg/mL	MtBE	M-552.1-SS-ME
Ethylene oxide 75-21-8	0.2 mg/mL	Isooctane	S-354-2	Methyl chloride 74-87-3	5 mg/mL	MeOH	AS-E0043
	5 mg/mL	Water	M-8015B/5031-14-R1 *	Methyl 2,3-dibromopropionate 1729-67-5	1 mg/mL	MtBE	M-552.2-SS-ME
m-Ethyltoluene 620-14-4	100 mg	NEAT	V-031	1-Methyl ethyl benzene 98-82-8	5 mg/mL	MeOH	AS-E0669
o-Ethyltoluene 611-14-3	100 mg	NEAT	V-010	Methyl iodide 74-88-4	100 µg/mL	MeOH	APP-9-130
p-Ethyltoluene 622-96-8	100 mg	NEAT	V-011	2.0 mg/mL	MeOH	APP-9-130-20X	
2-Fluoroacetamide 640-19-7	5 mg/mL	AcCN	AS-E0299	Methyl isothiocyanate 556-61-6	25 µg/mL	Acetone	M-1659-RPS
Fluorobenzene 462-06-6	0.15 mg/mL	MeOH	AS-E0232	Methyl methacrylate 80-62-6	100 µg/mL	MeOH	APP-9-131
	0.2 mg/mL	MeOH	M-624-SS-09	1 mg/mL	MeOH	AS-E0439	
	2 mg/mL	MeOH	M-524-IS-2	2 mg/mL	MeOH	APP-9-131-20X	
	20 mg/mL	MeOH	M-524-IS-2-10X	Methyl methanesulfonate 66-27-3	100 µg/mL	CH ₂ Cl ₂	APP-9-132
Fluorotrichloromethane 75-69-4	5 mg/mL	MeOH	AS-E0047	1 mg/mL	AcCN	AS-E0431	
Heptadecylbenzene 14752-75-1	100 mg	NEAT	V-014	Naphthalene 91-20-3	1 gram	NEAT	M-502-40N
Heptylbenzene 1078-71-3	100 mg	NEAT	V-012	1 mg/mL	MeOH	AS-E0053	
Hexachlorobenzene 118-74-1	100 mg	NEAT	A-012	2 mg/mL	MeOH	M-502-40-10X	
	100 µg/mL	MeOH	APP-9-112	Naphthalene-d ₈ 1146-65-2	0.2 mg/mL	CH ₂ Cl ₂	M-625-12
	1 mg/mL	Acetone	M-8091-IS-20X	4 mg/mL	CH ₂ Cl ₂	Z-014J-4	
	2 mg/mL	CH ₂ Cl ₂	APP-9-112-D-20X	Nitrobenzene 98-95-3	100 µg/mL	MeOH	APP-9-143
2.0 mg/mL	Hexane	M-8120-05		1 mg/mL	MeOH	APP-9-143-10X	
				5 mg/mL	MeOH	AS-E0054	
				0.2 mg/mL	CH ₂ Cl ₂	M-625-13	
				2 mg/mL	CH ₂ Cl ₂	M-625-13-10X	
				100 mg	NEAT	V-018	
				Nonylbenzene 1081-77-2	100 mg	NEAT	V-017
				Octadecylbenzene 4445-07-2	100 mg	NEAT	V-020
				Octylbenzene 2189-60-8	100 mg	NEAT	V-019
				Pentachlorobenzene 608-93-5	100 mg	NEAT	A-011
				100 µg/mL	MeOH	APP-9-173	
				2.5 mg/mL	MeOH	AS-E0260	
				100 µg/mL	MeOH	APP-9-174	
				2 mg/mL	MeOH	APP-9-174-20X	
				5 mg/mL	MeOH	AS-E0300	
				100 mg	NEAT	V-021	
				Pentadecylbenzene 2131-18-2	0.2 mg/mL	MeOH	M-624-SS-10
				Pentafluorobenzene 363-72-4			
				1,2-Propanediol 57-55-6	1 mg/mL	AcCN	AS-E0524

VOCs

NEATS are as stated, SOLUTIONS are in 1 mL

VOCs

Compound	Conc.	Matrix	Cat. No.	Compound	Conc.	Matrix	Cat. No.	
Propionic acid 79-09-4	1 g	NEAT	AP-010N	1,3,5-Trichlorobenzene 108-70-3	100 mg	NEAT	A-007	
	5 mg/mL	AcCN	AS-E0673		5 mg/mL	MeOH	AS-E0176	
Propionitrile 107-12-0	100 µg/mL	MeOH	APP-9-184	1,1,1-Trichloroethane 71-55-6	100 µg/mL	MeOH	APP-9-202	
	5 mg/mL	MeOH	AS-E0338		0.2 mg/mL	MeOH	M-502-49	
	10 mg/mL	Water	M-8015B/5031-25		1 mg/mL	MeOH	AS-E0010	
n-Propylbenzene (1-Phenylpropane) 103-65-1	100 mg	NEAT	V-022	1,1,2-Trichloroethane 79-00-5	2 mg/mL	MeOH	M-502-49-10X	
	1 gram	NEAT	M-502-41N		1 gram	NEAT	M-502-50N	
	0.2 mg/mL	MeOH	M-502-41		100 µg/mL	MeOH	APP-9-203	
	2 mg/mL	MeOH	M-502-41-10X		0.2 mg/mL	MeOH	M-502-50	
5 mg/mL	MeOH	AS-E1112	1 mg/mL		MeOH	AS-E0013		
Styrene 100-42-5	1 gram	NEAT	M-502-42N	Trichloroethene 79-01-6	2 mg/mL	MeOH	M-502-50-10X	
	100 µg/mL	MeOH	APP-9-189		1 gram	NEAT	M-502-51N	
	0.2 mg/mL	MeOH	M-502-42		100 µg/mL	MeOH	APP-9-204	
	2 mg/mL	MeOH	M-502-42-10X		0.2 mg/mL	MeOH	M-502-51	
	5 mg/mL	MeOH	AS-E0257		1 mg/mL	MeOH	AS-E0085	
TCMX (Tetrachloro-m-xylene) 877-09-8	100 µg/mL	Hexane	M-8082-SS	Trichlorofluoromethane 75-69-4	2 mg/mL	MeOH	M-502-51-10X	
	0.2 mg/mL	MeOH	S-279		100 µg/mL	MeOH	APP-9-205	
	1 mg/mL	Hexane	M-8082-SS-10X		0.2 mg/mL	MeOH	M-502-52	
1,2,3,4-Tetrachlorobenzene 634-66-2	100 mg	NEAT	A-008	1,1,2-Trichloropropane 598-77-6	2 mg/mL	MeOH	M-502-52-10X	
	1 mg/mL	MeOH	AS-E0225		200 µg/mL	MeOH	S-1321B	
1,2,3,5-Tetrachlorobenzene 634-90-2	100 mg	NEAT	A-009	1,2,3-Trichloropropane 96-18-4	1 gram	NEAT	M-502-53N	
1,2,4,5-Tetrachlorobenzene 95-94-3	100 mg	NEAT	A-010		100 µg/mL	MeOH	APP-9-208	
	100 µg/mL	MeOH	APP-9-191		0.2 mg/mL	MeOH	M-502-53	
	1.0 mg/mL	MeOH	APP-9-191-10X		1 mg/mL	MeOH	APP-9-208-10X	
	2.0 mg/mL	Hexane	M-8120-09		1 mg/mL	MtBE	M-552.1-IS	
	2.5 mg/mL	AcCN	AS-E0177		2 mg/mL	MeOH	M-502-53-10X	
1,1,1,2-Tetrachloroethane 630-20-6	1 gram	NEAT	M-502-43N		5 mg/mL	MeOH	AS-E0368	
	100 µg/mL	MeOH	APP-9-192	0.2 mg/mL	MeOH	M-624-SS-14		
	0.2 mg/mL	MeOH	M-502-43	a,a,a-Trichlorotoluene 98-07-7	Tridecylbenzene 123-02-4	100 mg	NEAT	V-027
	1 mg/mL	MeOH	AS-E0335			1,2,3-Trimethylbenzene 526-73-8	100 mg	NEAT
2 mg/mL	MeOH	M-502-43-10X	1 mg/mL				CH ₂ Cl ₂	V-028S-D-10X
1 gram	NEAT	M-502-44N	3 % w/w	Isocetane	M-GRA-FP			
1,1,1,2,2-Tetrachloroethane 79-34-5	100 µg/mL	MeOH	APP-9-193	1,2,4-Trimethylbenzene 95-63-6	100 mg	NEAT	V-029	
	0.2 mg/mL	MeOH	M-502-44		1 gram	NEAT	M-502-54N	
	2 mg/mL	MeOH	M-502-44-10X		0.2 mg/mL	MeOH	M-502-54	
	5 mg/mL	MeOH	AS-E0014		2 mg/mL	MeOH	M-502-54-10X	
	1 gram	NEAT	M-502-45N		5 mg/mL	MeOH	AS-E1107	
Tetrachloroethene 127-18-4	100 µg/mL	MeOH	APP-9-194	1,3,5-Trimethylbenzene 108-67-8	100 mg	NEAT	V-016	
	0.2 mg/mL	MeOH	M-502-45		1 gram	NEAT	M-502-55N	
	2 mg/mL	MeOH	M-502-45-10X		0.2 mg/mL	MeOH	M-502-55	
	5 mg/mL	MeOH	AS-E0083		2 mg/mL	MeOH	M-502-55-10X	
100 mg	NEAT	V-023	5 mg/mL		MeOH	AS-E1103		
Tetradecylbenzene 1459-10-5	100 mg	NEAT	V-023	1,3,5-Trinitrobenzene 99-35-4	100 µg/mL	MeOH	APP-9-210	
Tetrahydrofuran 109-99-9	0.2 mg/mL	MeOH	S-457S		2 mg/mL	MeOH	M-8270-10	
	2 mg/mL	MeOH	S-457S-10X		2.0 mg/mL	CH ₂ Cl ₂	APP-9-210-D-20X	
	1 mg/mL	Water	M-1671A-IS		100 mg	NEAT	V-030	
1,2,3,4-Tetramethylbenzene 488-23-3	100 mg	NEAT	V-024	Undecylbenzene 6742-54-7	Vinyl acetate 108-05-4	100 µg/mL	MeOH	APP-9-211 *
1,2,3,5-Tetramethylbenzene 527-53-7	100 mg	NEAT	V-025			2 mg/mL	MeOH	APP-9-211-20X *
1,2,4,5-Tetramethylbenzene 95-93-2	100 mg	NEAT	V-026			1 mg/mL	AcCN	AS-E0327
Toluene 108-88-3	1 gram	NEAT	M-502-46N	Vinyl chloride 75-01-4	100 µg/mL	MeOH	APP-9-212	
	100 µg/mL	MeOH	APP-9-198		0.2 mg/mL	MeOH	M-502-56	
	0.2 mg/mL	MeOH	M-502-46		1 mg/mL	MeOH	AS-E0536	
	1 mg/mL	MeOH	AS-E0084		2 mg/mL	MeOH	M-502-56-10X	
	2 mg/mL	MeOH	M-502-46-10X		Xylene (total) 1330-20-7	100 µg/mL	MeOH	APP-9-213
Toluene-d₈ 2037-26-5	0.25 mg/mL	MeOH	CLP-PS-3	m-Xylene 108-38-3		1 gram	NEAT	M-502-58N
	2.5 mg/mL	MeOH	CLP-PS-3-10X			0.2 mg/mL	MeOH	M-502-58
1,3,5-Tribromobenzene 626-39-1	50 µg/mL	Acetone	M-8121-IS		1 mg/mL	MeOH	AS-E0202	
Trichloroacetonitrile 545-06-2	5 mg/mL	Acetone	M-551B-7	2 mg/mL	MeOH	M-502-58-10X		
1,2,3-Trichlorobenzene 87-61-6	100 mg	NEAT	A-005	o-Xylene 95-47-6	1 gram	NEAT	M-502-57N	
	1 gram	NEAT	M-502-47N		0.2 mg/mL	MeOH	M-502-57	
	0.2 mg/mL	MeOH	M-502-47		1 mg/mL	MeOH	AS-E0201	
	2 mg/mL	MeOH	M-502-47-10X		2 mg/mL	MeOH	M-502-57-10X	
	5 mg/mL	MeOH	AS-E0175		p-Xylene 106-42-3	1 gram	NEAT	M-502-59N
1,2,4-Trichlorobenzene 120-82-1	100 mg	NEAT	A-006	0.2 mg/mL		MeOH	M-502-59	
	1 gram	NEAT	M-502-48N	1 mg/mL		MeOH	AS-E0203	
	100 µg/mL	MeOH	APP-9-201	2 mg/mL		MeOH	M-502-59-10X	
	0.2 mg/mL	MeOH	M-502-48					
1 mg/mL	MeOH	AS-E0007						
2 mg/mL	MeOH	M-502-48-10X						

* ColdPAK required to maintain integrity of product.

Analytes by Functional Group

Alcohols and Aldehydes



Individual standards are listed by **functional group**, by application and with their applicable USEPA methods.



Search by

✓ **Functional Group**

Application

EPA Method

For material of these functional groups, see Qualitative Analysis Kits section, pages 112-114

NEATS are as stated, SOLUTIONS are in 1 mL

Table of Contents

Alcohols	73
Aldehydes & Derivatives	73-74
Ketones	74
Phenols	75-76
Amines, Anilines and Aminos	76-78
Ethers	79
Halo Ethers	79
Haloacetic Acids	79
Fatty Acid Ethyl Esters	99
Phthalates	80-82

Alcohols & Aldehydes

Alcohols

Compound	CAS No.	Conc.	Matrix	Cat. No.
Allyl alcohol	107-18-6	1 mg/mL	MeOH	AS-E0475
		10 mg/mL	Water	M-8015B/5031-05
Benzyl alcohol	100-51-6	100 µg/mL	MeOH	APP-9-021
		5 mg/mL	MeOH	APP-9-021-50X
		5 mg/mL	AcCN	AS-E0326
1-Butanol	71-36-3	10 mg/mL	Water	M-8015B/5031-06
t-Butanol	75-65-0	10 mg/mL	Water	M-8015B/5031-07
		2 mg/mL	MeOH	S-410
1,3-Dichloro-2-propanol	96-23-1	5 mg/mL	MeOH	AS-E0928
Ethanol	64-17-5	10 mg/mL	Water	M-8015B/5031-11
Ethylene glycol	107-21-1	10 mg/mL	Water	M-8015B/5031-13
Isobutanol (Isobutyl alcohol)	78-83-1	10 mg/mL	Water	M-8015B/5031-15
		100 µg/mL	MeOH	APP-9-120
		2.0 mg/mL	MeOH	APP-9-120-20X
		5 mg/mL	MeOH	AS-E0659
Isopropanol	67-63-0	10 mg/mL	Water	M-8015B/5031-16
Methanol	67-56-1	10 mg/mL	Water	M-8015B/5031-17
Polyethylene glycol (PEG-600)	25322-68-3	2.5 mg/mL	THF	M-1673
1-Propanol	71-23-8	10 mg/mL	Water	M-8015B/5031-24
Propargyl alcohol	107-19-7	1 mg/mL	Cyclo-hexanone	AS-E0543

Alcohols

EPA Methods include:
1673, 8015

Aldehydes and Derivatives

Compound	CAS No.	Conc.	Matrix	Cat. No.
Acetaldehyde	75-07-0	1 mg/mL	MeOH	M-554-01 *
		1 mg/mL	Water	M-8315-01
Acetaldehyde-DNPH	1019-57-4	1 mg/mL	MeOH:AcCN	M-554-DNPH-01
		0.1 mg/mL	AcCN	M-8315-R-DNPH-01
Acrolein	107-02-8	100 µg/mL	MeOH:Water	APP-9-007 *
		1 mg/mL	MeOH:Water	APP-9-007-10X *
		100 µg/mL	Water	APP-9-007-W
		1.0 mg/mL	Water	APP-9-007-W-10X
		5 mg/mL	p-Dioxane	AS-E0002
		10 mg/mL	Water	M-8015B/5031-03
Acrolein-DNPH	888-54-0	0.1 mg/mL	AcCN	M-8315-R-DNPH-03
		1 µg/mL	AcCN	S-1275-1-03
Benzaldehyde-DNPH	1157-84-2	0.1 mg/mL	AcCN	M-8315-R-DNPH-04
Butanal	123-72-8	1 mg/mL	MeOH	M-554-02 *
Butanal-DNPH	1527-98-6	1 mg/mL	MeOH:AcCN	M-554-DNPH-02
		0.1 mg/mL	AcCN	M-8315-R-DNPH-05
Crotonaldehyde	123-73-9	1 mg/mL	AcCN	AS-E0479
		1 mg/mL	MeOH	M-554-03 *
		10 mg/mL	Water	M-8015B/5031-08
Crotonaldehyde-DNPH	1527-96-4	1 mg/mL	MeOH:AcCN	M-554-DNPH-03
		0.1 mg/mL	AcCN	M-8315-R-DNPH-06
Decanal	112-31-2	1 mg/mL	MeOH	M-554-05
Decanal-DNPH	1527-95-3	1 mg/mL	MeOH:AcCN	M-554-DNPH-05
		0.1 mg/mL	AcCN	M-8315-R-DNPH-08
2,5-Dimethylbenzaldehyde-DNPH	152477-96-8	0.1 mg/mL	AcCN	M-8315-R-DNPH-09

Aldehydes

EPA Methods include:
554, 556, 1667A, 8315, 8315A

* ColdPAK required to maintain integrity of product.

Aldehydes continued on next page

Analytes by Functional Group

Aldehydes and Ketones



NEATS are as stated, SOLUTIONS are in 1 mL

Aldehydes and Derivatives (continued)

Compound	CAS No.	Conc.	Matrix	Cat. No.
Formaldehyde	50-00-0	1 mg/mL	MeOH	M-554-06 *
		1 mg/mL	Water	M-8315-02
Formaldehyde-DNPH	1081-15-8	1.0 mg/mL	AcCN	M-1667A-DNPH-01
		1 mg/mL	MeOH:AcCN	M-554-DNPH-06
		0.1 mg/mL	AcCN	M-8315-R-DNPH-10
Formamide	75-12-7	5000 µg/mL	Water	M-1666A-DI-R-ADD2
2-Furaldehyde-DNPH	2074-02-4	1.0 mg/mL	AcCN	M-1667A-DNPH-02
Heptanal	111-71-7	1 mg/mL	MeOH	M-554-07
Heptanal-DNPH	2074-05-7	1 mg/mL	MeOH:AcCN	M-554-DNPH-07
		0.1 mg/mL	AcCN	M-8315-R-DNPH-11
Hexanal	66-25-1	1 mg/mL	MeOH	M-554-08
Hexanal-DNPH	1527-97-5	1 mg/mL	MeOH:AcCN	M-554-DNPH-08
		0.1 mg/mL	AcCN	M-8315-R-DNPH-12
Isobutyraldehyde	78-84-2	1.0 mg/mL	AcCN	M-1667A-03
Isobutyraldehyde-DNPH	2057-82-1	1.0 mg/mL	AcCN	M-1667A-DNPH-03
Isovaleraldehyde-DNPH	2256-01-1	0.1 mg/mL	AcCN	M-8315-R-DNPH-13
Nonanal	124-19-6	1 mg/mL	MeOH	M-554-09
Nonanal-DNPH	2348-19-8	1 mg/mL	MeOH:AcCN	M-554-DNPH-09
		0.1 mg/mL	AcCN	M-8315-R-DNPH-14
Octanal	124-13-0	1 mg/mL	MeOH	M-554-10
Octanal-DNPH	1726-77-8	1 mg/mL	MeOH:AcCN	M-554-DNPH-10
		0.1 mg/mL	AcCN	M-8315-R-DNPH-15
Paraldehyde	123-63-7	10 mg/mL	Water	M-8015B/5031-21
Pentanal	110-62-3	1 mg/mL	MeOH	M-554-11
Pentanal-DNPH	2057-84-3	1 mg/mL	MeOH:AcCN	M-554-DNPH-11
		0.1 mg/mL	AcCN	M-8315-R-DNPH-16
Propanal	123-38-6	1 mg/mL	MeOH	M-554-12 *
Propanal-DNPH	725-00-8	1 mg/mL	MeOH:AcCN	M-554-DNPH-12
		0.1 mg/mL	AcCN	M-8315-R-DNPH-17
<i>m</i> -Tolualdehyde-DNPH	2880-05-9	0.1 mg/mL	AcCN	M-8315-R-DNPH-18
<i>o</i> -Tolualdehyde-DNPH	1773-44-0	0.1 mg/mL	AcCN	M-8315-R-DNPH-19
<i>p</i> -Tolualdehyde-DNPH	2571-00-8	0.1 mg/mL	AcCN	M-8315-R-DNPH-20

Aldehydes

EPA Methods include:
554, 556, 1667A, 8315,
8315A

Ketones and Derivatives

Compound	CAS No.	Conc.	Matrix	Cat. No.
Acetone	67-64-1	100 µg/mL	MeOH	APP-9-003 *
		2 mg/mL	MeOH	APP-9-003-20X *
		5 mg/mL	MeOH	AS-E0284 *
		10 mg/mL	Water	M-8015B/5031-01
Acetone-DNPH	1567-89-1	0.1 mg/mL	AcCN	M-8315-R2-DNPH-02
Acetophenone	98-86-2	100 µg/mL	CH ₂ Cl ₂	APP-9-004
		2 mg/mL	CH ₂ Cl ₂	APP-9-004-20X
		5 mg/mL	MeOH	AS-E0411
2-Chloroacetophenone	532-27-4	100 µg/mL	Hexane	IRT-001S
2'-Chloroacetophenone	2142-68-9	100 µg/mL	Hexane	IRT-002S
3'-Chloroacetophenone	99-02-5	100 µg/mL	Hexane	IRT-003S
4'-Chloroacetophenone	99-91-2	100 µg/mL	Hexane	IRT-004S
Cyclohexanone	108-94-1	1 mg/mL	MeOH	M-554-04 *
Cyclohexanone-DNPH	1589-62-4	500 µg/mL	AcCN	AE-00046
		1 mg/mL	MeOH:AcCN	M-554-DNPH-04
		0.1 mg/mL	AcCN	M-8315-R-DNPH-07
1,1-Dichloro-2-propanone	513-88-2	5 mg/mL	Acetone	M-551B-6
2-Hexanone	591-78-6	100 µg/mL	MeOH	APP-9-118 *
		2.0 mg/mL	MeOH	APP-9-118-20X *
Isophorone	78-59-1	100 µg/mL	MeOH	APP-9-122
		1.0 mg/mL	MeOH	APP-9-122-10X
		1 mg/mL	MeOH	AS-E0052
Methyl ethyl ketone	78-93-3	100 µg/mL	MeOH	APP-9-129 *
		1 mg/mL	MeOH	APP-9-129-10X *
		2 mg/mL	MeOH	APP-9-129-20X *
		5 mg/mL	MeOH	AS-E0311 *
		10 mg/mL	Water	M-8015B/5031-18
4-Methyl-2-pentanone (Methyl isobutyl ketone)	108-10-1	10 mg/mL	Water	M-8015B/5031-19
		100 µg/mL	MeOH	APP-9-135
		2 mg/mL	MeOH	APP-9-135-20X
		5 mg/mL	MeOH	AS-E0349
2-Pentanone	107-87-9	10 mg/mL	Water	M-8015B/5031-22
1,1,1-Trichloro-2-propanone (1,1,1-Trichloroacetone)	918-00-3	5 mg/mL	Acetone	M-551B-8
		1 mg/mL	Acetone	AS-E1181
2',4',5'-Trifluoroacetophenone	129322-83-4	20 µg/mL	AcCN	M-556-SS
		2 mg/mL	AcCN	M-556-SS-100X

Ketones

EPA Methods include:
554, 556, 1667A, 8315,
8315A

* ColdPAK required to maintain integrity of product.

Analytes by Functional Group

Phenols



NEATS are as stated, SOLUTIONS are in 1 mL

Phenols

Compound	CAS No.	Conc.	Matrix	Cat. No.
Bisphenol A (BPA)	80-05-7	1000 µg/mL	MeOH	M-1626-01S
4-Chloro-3-cresol (4-Chloro-3-methylphenol)	59-50-7	1.0 mg/mL	MeOH	M-8040-01
		100 µg/mL	MeOH	APP-9-041
2-Chlorophenol	95-57-8	100 mg	NEAT	A-013
		100 µg/mL	MeOH	APP-9-046
		1.0 mg/mL	MeOH	M-8040-02
		5.0 mg/mL	MeOH	APP-9-046-50X
		2 mg/mL	CH ₂ Cl ₂	APP-9-046-D-20X
		5 mg/mL	MeOH	AS-E0022
2-Chlorophenol-d₄	93951-73-6	0.2 mg/mL	CH ₂ Cl ₂	M-625-20
3-Chlorophenol	108-43-0	100 mg	NEAT	A-014
		5 mg/mL	MeOH	AS-E0182
4-Chlorophenol	106-48-9	100 mg	NEAT	A-015
		5 mg/mL	MeOH	AS-E0183
m-Cresol	108-39-4	100 µg/mL	CH ₂ Cl ₂	APP-9-050
		1 mg/mL	CH ₂ Cl ₂	APP-9-050-10X
		5 mg/mL	MeOH	AS-E0251
		1.0 mg/mL	MeOH	M-8040-03
o-Cresol	95-48-7	100 µg/mL	CH ₂ Cl ₂	APP-9-051
		2 mg/mL	CH ₂ Cl ₂	APP-9-051-20X
		1.0 mg/mL	MeOH	M-8040-04
		5 mg/mL	MeOH	AS-E0250
p-Cresol	106-44-5	100 µg/mL	CH ₂ Cl ₂	APP-9-052
		2 mg/mL	CH ₂ Cl ₂	APP-9-052-20X
		1.0 mg/mL	MeOH	M-8040-05
		5 mg/mL	MeOH	AS-E0252
		1.0 mg/mL	MeOH	M-8040-06
2-Cyclohexyl-4,6-dinitrophenol	131-89-5	1.0 mg/mL	MeOH	M-8040-06
2,4-Dibromophenol	615-58-7	1.6 µg/mL	IPA	M-8041-SS
		16 µg/mL	IPA	M-8041-SS-10X
		160 µg/mL	IPA	M-8041-SS-100X
		1 mg/mL	IPA	M-8041-SS-625X
2,3-Dichlorophenol	576-24-9	100 mg	NEAT	A-016
2,4-Dichlorophenol	120-83-2	100 mg	NEAT	A-017
		100 µg/mL	MeOH	APP-9-075
		1.0 mg/mL	MeOH	M-8040-07
		5 mg/mL	MeOH	APP-9-075-50X
		5 mg/mL	MeOH	AS-E0029
		1 mg/mL	MtBE	M-552A-R-06
		100 mg	NEAT	A-018
2,5-Dichlorophenol	583-78-8	100 mg	NEAT	A-019
		100 µg/mL	CH ₂ Cl ₂	APP-9-076
		1.0 mg/mL	MeOH	M-8040-08
		5 mg/mL	MeOH	APP-9-076-M-50X
3,4-Dichlorophenol	95-77-2	100 mg	NEAT	A-020
3,5-Dichlorophenol	591-35-5	100 mg	NEAT	A-021
2,4-Dimethylphenol	105-67-9	100 µg/mL	MeOH	APP-9-087
		5 mg/mL	MeOH	APP-9-087-50X
		1.0 mg/mL	MeOH	M-8040-09
2,4-Dimethylphenol-3,5,6-d₃	93951-75-8	0.1 mg/mL	Acetone	AS-E0190
4,6-Dinitro-o-cresol	534-52-1	100 mg	NEAT	R-057N
		100 µg/mL	Toluene	R-057S
		1 mg/mL	MeOH	APP-9-090-10X
		5 mg/mL	MeOH	AS-E0058
2,4-Dinitrophenol	51-28-5	100 µg/mL	MeOH	APP-9-091
		1.0 mg/mL	MeOH	M-8040-10
		5 mg/mL	MeOH	APP-9-091-50X
2-Fluorophenol	367-12-4	0.1 mg/mL	Acetone	AS-E0193
		2 mg/mL	MeOH	CLP-AS-1
		0.2 mg/mL	CH ₂ Cl ₂	M-625-16
		2 mg/mL	CH ₂ Cl ₂	M-625-16-10X
		1.0 mg/mL	MeOH	M-8040-12
2-Methyl-4,6-dinitrophenol	534-52-1	1.0 mg/mL	MeOH	M-8040-12
2-Nitrophenol (<i>o</i> -Nitrophenol)	88-75-5	100 mg	NEAT	R-051N
		100 µg/mL	Toluene	R-051S
		100 µg/mL	MeOH	APP-9-144
		1.0 mg/mL	MeOH	M-8040-13
		5.0 mg/mL	MeOH	APP-9-144-50X
		5 mg/mL	MeOH	AS-E0662
3-Nitrophenol (<i>m</i> -Nitrophenol)	554-84-7	100 mg	NEAT	R-052N
		100 µg/mL	Toluene	R-052S
4-Nitrophenol (<i>p</i> -Nitrophenol)	100-02-7	100 µg/mL	MeOH	APP-9-145
		1.0 mg/mL	MeOH	M-8040-14
		100 µg/mL	MeOH	APP-9-145-50X
		5 mg/mL	MeOH	APP-9-145-50X

Phenols

EPA Methods include:
558, 604, 642, 8040,
8041, 8085

Technical Note

Phenols and Nitrosamines can react with the active sites on a column which can sometimes give inconsistent results from run to run. By saturating these sites, the problem should go away. To do this, run a standard that is between 2 to 5 times higher than your highest calibration point. This can be repeated if necessary until the problem is alleviated.

For Nonylphenols and Octylphenols see page 263

Phenols continued on next page

Analytes by Functional Group

Phenols, Amines, Anilines and Amino Compounds



NEATS are as stated, SOLUTIONS are in 1 mL

Phenols (continued)

Compound	CAS No.	Conc.	Matrix	Cat. No.
Pentachlorophenol	87-86-5	100 mg	NEAT	A-031
		100 µg/mL	MeOH	APP-9-176
		1 mg/mL	MeOH	APP-9-176-10X
		2 mg/mL	CH ₂ Cl ₂	APP-9-176-D-20X
		5 mg/mL	MeOH	AS-E0062
		25 µg/mL	CH ₂ Cl ₂	M-625C-2
		0.2 mg/mL	CH ₂ Cl ₂	M-625C-2-10X
Pentachlorophenol- ¹³ C ₆	85380-74-1	0.1 mg/mL	Acetone	AS-E0191
		0.2 mg/mL	CH ₂ Cl ₂	M-625-17
Pentafluorophenol	771-61-9	100 µg/mL	CH ₂ Cl ₂	APP-9-179
Phenol	108-95-2	5 mg/mL	MeOH	AS-E0063
		0.1 mg/mL	Acetone	AS-E0189
Phenol-d ₅	4165-62-2	0.2 mg/mL	CH ₂ Cl ₂	M-625-18
		2 mg/mL	CH ₂ Cl ₂	M-625-18-10X
		5 mg	NEAT	A-028
2,3,4,5-Tetrachlorophenol	4901-51-3	10 mg	NEAT	A-029-10MG
2,3,4,6-Tetrachlorophenol	58-90-2	100 µg/mL	MeOH	APP-9-195
		1.0 mg/mL	MeOH	M-8040-17
		100 mg	NEAT	A-030
2,3,5,6-Tetrachlorophenol	935-95-5	20 µg/mL	MtBE	M-8085-HERB-SS
2,4,6-Tribromophenol	118-79-6	0.2 mg/mL	CH ₂ Cl ₂	M-625-19
		0.2 mg/mL	MeOH	M-604-SS
		2 mg/mL	MeOH	CLP-AS-3
		6 mg/mL	MeOH	CLP-LC-SS-2
2,3,4-Trichlorophenol	15950-66-0	100 mg	NEAT	A-022
2,3,5-Trichlorophenol	933-78-8	100 mg	NEAT	A-023
		5 mg/mL	MeOH	AS-E0222
2,3,6-Trichlorophenol	933-75-5	100 mg	NEAT	A-024
		1 mg/mL	MeOH	AS-E0181
2,4,5-Trichlorophenol	95-95-4	100 mg	NEAT	A-025
		0.1 mg/mL	Acetone	CLP-FC
		100 µg/mL	MeOH	APP-9-206
		1.0 mg/mL	MeOH	M-8040-18
		5 mg/mL	MeOH	AS-E0179
2,4,6-Trichlorophenol	88-06-2	100 mg	NEAT	A-026
		100 µg/mL	MeOH	APP-9-207
		5 mg/mL	MeOH	APP-9-207-50X
		0.1 µg/mL	Acetone	M-1618-SE
		0.1 mg/mL	Acetone	M-1600-SPE
		1 mg/mL	MtBE	M-552A-7
		1.0 mg/mL	MeOH	M-8040-19
		10 mg	NEAT	A-027
3,4,5-Trichlorophenol	609-19-8	1 mg/mL	MeOH	M-1653-IS
		1 mg/mL	Acetone	M-1653-IS-R

Phenols

EPA Methods include:
558, 604, 642, 8040,
8041, 8085

Amines, Anilines and other Amino Compounds

Compound	CAS No.	Conc.	Matrix	Cat. No.
2-Amino-4-nitrotoluene	99-55-8	100 µg/mL	AcCN	RAC-03
		1 mg/mL	AcCN	RAC-03-10X
p-Aminoazobenzene	60-09-3	100 µg/mL	AcCN	RAC-21
		1000 µg/mL	AcCN	RAC-21-10X
o-Aminoazotoluene	97-56-3	100 µg/mL	AcCN	RAC-01
		1 mg/mL	AcCN	RAC-01-10X
2-Aminobiphenyl	90-41-5	10 mg	NEAT	R-062N
		100 µg/mL	Toluene	R-062S
		100 µg/mL	AcCN	RAC-22
		1000 µg/mL	AcCN	RAC-22-10X
4-Aminobiphenyl	92-67-1	10 mg	NEAT	R-063N
		100 µg/mL	Toluene	R-063S
		100 µg/mL	CH ₂ Cl ₂	APP-9-011
		100 µg/mL	AcCN	RAC-02
		1 mg/mL	AcCN	RAC-02-10X
Aniline	62-53-3	1 mg/mL	MeOH	AS-E0578
		100 mg	NEAT	L-001N
		100 µg/mL	MeOH	APP-9-012
Aniline-d ₅	4165-61-1	1 mg/mL	MeOH	APP-9-012-10X
		5 mg/mL	MeOH	AS-E0542
		0.2 mg/mL	CH ₂ Cl ₂	M-625-01
		2 mg/mL	CH ₂ Cl ₂	M-625-01-10X
o-Anisidine	90-04-0	100 µg/mL	AcCN	RAC-23
		1000 µg/mL	AcCN	RAC-23-10X

Amines, Anilines and Amino compounds

EPA Methods include:
605, 607, 620, 625,
1666, 8015, 8095, 8131,
8325

Analytes by Functional Group

Amines, Anilines and other Amino Compounds



NEATS are as stated, SOLUTIONS are in 1 mL

Amines, Anilines and other Amino Compounds (continued)

Compound	CAS No.	Conc.	Matrix	Cat. No.
Benzidine †	92-87-5	50 µg/mL	CH ₂ Cl ₂	M-625C-1
		2 mg/mL	CH ₂ Cl ₂	M-625C-1-40X
		100 µg/mL	AcCN	RAC-04
		1 mg/mL	AcCN	RAC-04-10X
Benzidine (as dihydrochloride) †	531-85-1	1 mg/mL	MeOH	AS-E0005
2-Bromo-4,6-dinitroaniline	1817-73-8	100 mg	NEAT	L-017N
4-Bromoaniline	106-40-1	100 mg	NEAT	L-007N
4-Chloro-2-nitroaniline	89-63-4	100 mg	NEAT	L-013N
2-Chloro-4,6-dinitroaniline	3531-19-9	100 mg	NEAT	L-015N
2-Chloro-4-nitroaniline	121-87-9	100 mg	NEAT	L-012N
2-Chloroaniline	95-51-2	100 mg	NEAT	L-002N
3-Chloroaniline	108-42-9	100 mg	NEAT	L-003N
4-Chloroaniline	106-47-8	100 mg	NEAT	L-004N
		100 µg/mL	AcCN	RAC-05
		1 mg/mL	AcCN	RAC-05-10X
		100 µg/mL	MeOH	APP-9-038
		5 mg/mL	MeOH	AS-E0305
3-Chloro-o-toluidine	87-60-5	100 µg/mL	AcCN	RAC-24
		1000 µg/mL	AcCN	RAC-24-10X
4-Chloro-o-toluidine	95-69-2	100 µg/mL	AcCN	RAC-06
		1 mg/mL	AcCN	RAC-06-10X
p-Cresidine	120-71-8	100 µg/mL	AcCN	RAC-07
		1.0 mg/mL	AcCN	RAC-07-10X
2,4-Diaminoaniline sulfate hydrate	123333-56-2	100 µg/mL	Pyridine	RAC-08
		1 mg/mL	Pyridine	RAC-08-10X
3,3'-Diaminobenzidine †	91-95-2	50 mg	NEAT	R-074N
		100 µg/mL	Toluene	R-074S
4,4'-Diaminodiphenylmethane (4,4'-Methylenedianiline)	101-77-9	100 mg	NEAT	R-077N
		100 µg/mL	Toluene	R-077S
		100 µg/mL	AcCN	RAC-09
		1 mg/mL	AcCN	RAC-09-10X
2,4-Diaminotoluene	95-80-7	100 mg	NEAT	R-078N
		100 µg/mL	Toluene	R-078S
		100 µg/mL	AcCN	RAC-10
		1 mg/mL	AcCN	RAC-10-10X
		1 mg/mL	MeOH	AS-E0932
2,6-Dibromo-4-nitroaniline	827-94-1	100 mg	NEAT	L-016N
2,6-Dichloro-4-nitroaniline	99-30-9	100 mg	NEAT	L-014N
3,4-Dichloroaniline	95-76-1	100 mg	NEAT	L-005N
3,3'-Dichlorobenzidine †	91-94-1	50 mg	NEAT	R-075N
		100 µg/mL	MeOH	APP-9-067
		1 mg/mL	MeOH	AS-E0026
		100 µg/mL	Toluene	R-075S
		100 µg/mL	AcCN	RAC-11
		1 mg/mL	AcCN	RAC-11-10X
		2 mg/mL	MeOH	Z-014F-2
		100 µg/mL	AcCN	RAC-12-10X
3,3'-Dimethoxybenzidine †	119-90-4	50 mg	NEAT	R-076N
		100 µg/mL	Toluene	R-076S
		100 µg/mL	AcCN	RAC-12
		1 mg/mL	AcCN	RAC-12-10X
3,3'-Dimethyl-4,4'-diaminodiphenylmethane	838-88-0	100 µg/mL	AcCN	RAC-14
		100 µg/mL	CH ₂ Cl ₂	APP-9-083
		1 mg/mL	AcCN	RAC-14-10X
4-Dimethylaminoazobenzene	60-11-7	10 mg	NEAT	R-079N
		100 µg/mL	Toluene	R-079S
2,6-Dimethylaniline	87-62-7	100 mg	NEAT	L-018N
		100 µg/mL	AcCN	L-018S-CN
3,3'-Dimethylbenzidine †	119-93-7	100 µg/mL	CH ₂ Cl ₂	APP-9-085
		2.0 mg/mL	CH ₂ Cl ₂	APP-9-085-20X
		100 µg/mL	AcCN	RAC-13
		1 mg/mL	AcCN	RAC-13-10X
a,a-Dimethylphenethylamine	122-09-8	100 µg/mL	CH ₂ Cl ₂	APP-9-086
		2.0 mg/mL	CH ₂ Cl ₂	APP-9-086-20X
2,4-Dinitroaniline	97-02-9	100 mg	NEAT	L-011N
Diphenylamine	122-39-4	100 µg/mL	CH ₂ Cl ₂	APP-9-097
		1 mg/mL	MeOH	M-620
		5 mg/mL	MeOH	AS-E0263
Ethylenediamine	107-15-3	1 mg/mL	MeOH	AS-E0358
4-Fluoroaniline	371-40-4	0.2 mg/mL	CH ₂ Cl ₂	M-625-08
		2 mg/mL	CH ₂ Cl ₂	M-625-08-10X
2-Methyl-4-nitroaniline	99-52-5	100 µg/mL	AcCN	M-8095-SS-02
Methylamine	74-89-5	2500 µg/mL	Water	M-1666A-DI-R-ADD1

† Subject to oxidation

continued on next page

Amines, Anilines and Amino compounds
EPA Methods include:
605, 607, 620, 625,
1666, 8015, 8095, 8131,
8325

Analytes by Functional Group

Amines, Anilines and other Amino Compounds



NEATS are as stated, SOLUTIONS are in 1 mL

Amines, Anilines and other Amino Compounds (continued)

Compound	CAS No.	Conc.	Matrix	Cat. No.
4,4'-Methylenebis(2-chloroaniline)	101-14-4	50 mg	NEAT	R-080N
		100 µg/mL	Toluene	R-080S
		100 µg/mL	AcCN	RAC-15
		1 mg/mL	AcCN	RAC-15-10X
		5 mg/mL	MeOH	AS-E0322
2-Naphthylamine	91-59-8	100 µg/mL	AcCN	RAC-16
		100 µg/mL	CH ₂ Cl ₂	APP-9-139
		1 mg/mL	AcCN	RAC-16-10X
		1 mg/mL	MeOH	AS-E0565
2-Nitroaniline	88-74-4	100 mg	NEAT	R-054N
		100 µg/mL	Toluene	R-054S
		100 µg/mL	CH ₂ Cl ₂	APP-9-140
		5 mg/mL	MeOH	AS-E0324
3-Nitroaniline	99-09-2	100 mg	NEAT	R-056N
		100 µg/mL	Toluene	R-055S
		100 µg/mL	CH ₂ Cl ₂	APP-9-141
4-Nitroaniline	100-01-6	100 mg	NEAT	R-056N
		100 µg/mL	Toluene	R-056S
		100 µg/mL	CH ₂ Cl ₂	APP-9-142
		5 mg/mL	MeOH	AS-E0342
		5 mg/mL	AcCN	AS-E0392
5-Nitro- <i>o</i> -toluidine	99-55-8	100 µg/mL	CH ₂ Cl ₂	APP-9-156
		5 mg/mL	MeOH	AS-E0344
N-Nitrosodiethylamine	55-18-5	100 µg/mL	CH ₂ Cl ₂	APP-9-148
		2 mg/mL	CH ₂ Cl ₂	APP-9-148-20X
		5 mg/mL	MeOH	AS-E0334
N-Nitrosodimethylamine	62-75-9	100 µg/mL	CH ₂ Cl ₂	APP-9-149
		1 mg/mL	MeOH	APP-9-149-M-10X
		5 mg/mL	MeOH	AS-E0059
N-Nitrosodi- <i>n</i> -butylamine	924-16-3	100 µg/mL	CH ₂ Cl ₂	APP-9-147
		2 mg/mL	CH ₂ Cl ₂	APP-9-147-20X
		0.5 mg/mL	Water	M-8015B/5031-20
N-Nitrosodi- <i>n</i> -propylamine	621-64-7	100 µg/mL	CH ₂ Cl ₂	APP-9-151
		2.5 mg/mL	CH ₂ Cl ₂	APP-9-151-25X
		5 mg/mL	MeOH	AS-E0061
N-Nitrosodiphenylamine	86-30-6	100 µg/mL	CH ₂ Cl ₂	APP-9-150
		1.0 mg/mL	MeOH	APP-9-150-M-10X
		5 mg/mL	MeOH	AS-E0060
N-Nitrosomethylethylamine (N-Nitroso-N-methyl ethylamine)	10595-95-6	100 µg/mL	CH ₂ Cl ₂	APP-9-152
		1 mg/mL	MeOH	AS-E0974
1-Nitrosopiperidine	100-75-4	5 mg/mL	MeOH	AS-E0458
4,4'-Oxydianiline	101-80-4	100 µg/mL	AcCN	RAC-17
		1 mg/mL	AcCN	RAC-17-10X
<i>p</i> -Phenylenediamine	106-50-3	100 µg/mL	MeOH	APP-9-180
		1 mg/mL	AcCN	AS-E0275
		2 mg/mL	MeOH	APP-9-180-20X
1-Propanamine	107-10-8	1 mg/mL	MeOH	AS-E0657
Pyridine	110-86-1	100 µg/mL	CH ₂ Cl ₂	APP-9-186-M
		2 mg/mL	CH ₂ Cl ₂	APP-9-186-M-20X
		5 mg/mL	MeOH	AS-E0271
		10 mg/mL	Water	M-8015B/5031-26
Pyridine- <i>d</i> ₅	7291-22-7	0.2 mg/mL	CH ₂ Cl ₂	M-625-15
		2.0 mg/mL	CH ₂ Cl ₂	M-625-15-10X
3,3',5,5'-Tetramethylbenzidine	54827-17-7	1 mg/mL	AcCN	RAC-IS
		1 mg/mL	Ethyl acetate	RAC-IS-EA
4,4'-Thiodianiline	139-65-1	100 µg/mL	AcCN	RAC-18
		1 mg/mL	AcCN	RAC-18-10X
		100 µg/mL	MeOH	APP-9-199
<i>o</i> -Toluidine	95-53-4	2 mg/mL	MeOH	AS-E0503
		100 µg/mL	AcCN	RAC-19
		1 mg/mL	AcCN	RAC-19-10X
		10 mg/mL	Water	M-8015B/5031-27
		100 mg	NEAT	L-006N
2,4,5-Trichloroaniline	636-30-6	100 µg/mL	AcCN	RAC-20
2,4,5-Trimethylaniline	137-17-7	100 µg/mL	AcCN	RAC-20
		1 mg/mL	AcCN	RAC-20-10X

Amines, Anilines and Amino compounds
EPA Methods include:
605, 607, 620, 625,
1666, 8015, 8095, 8131,
8325



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Analytes by Functional Group

Ethers, Haloethers and Haloacetic Acids



NEATS are as stated, SOLUTIONS are in 1 mL

Ethers

Compound	CAS No.	Conc.	Matrix	Cat. No.
bis(2-Chloroethyl)ether	111-44-4	100 µg/mL	MeOH	APP-9-027
		4.0 mg/mL	MeOH	APP-9-027-40X
		5.0 mg/mL	MeOH	AS-E0016
2-Chloroethylvinyl ether	110-75-8	2 mg/mL	MeOH	M-601C-10X
2,4-Dichlorophenyl-3'-methyl-4'-nitrophenyl ether	42488-57-3	1.0 mg/mL	Isooctane	E-020S
Diethyl ether	60-29-7	10 mg/mL	Water	M-8015B/5031-09
Dinoseb methyl ether	6099-79-2	0.2 mg/mL	Hexane	M-8150-08
p-Dioxane (1,4-Dioxane)	123-91-1	100 µg/mL	MeOH	APP-9-096
		1 mg/mL	MeOH	APP-9-096-10X
		10 mg/mL	MeOH	AS-E0480
		10 mg/mL	Water	M-8015B/5031-10
MtBE	1634-04-4	0.2 mg/mL	MeOH	S-078
		2 mg/mL	MeOH	S-078-10X
TAME	994-05-8	0.2 mg/mL	MeOH	S-1019

Ethers

EPA Methods:
601, 8150

Haloethers

Compound	CAS No.	Conc.	Matrix	Cat. No.
2-Chlorophenyl-4'-nitrophenyl ether	2091-61-4	1 mg/mL	Isooctane	E-005S
3-Chlorophenyl-4'-nitrophenyl ether	2303-23-3	1 mg/mL	Isooctane	E-006S
4-Chlorophenyl-4'-nitrophenyl ether	1836-74-4	1 mg/mL	Isooctane	E-007S
2,4-Dichlorophenyl-3'-methyl-4'-nitrophenyl ether	42488-57-3	1 mg/mL	Isooctane	E-020S
2,4-Dibromophenyl-4'-nitrophenyl ether	2671-93-4	1 mg/mL	Isooctane	E-004S
2,3-Dichlorophenyl-4'-nitrophenyl ether	82239-20-1	1 mg/mL	Isooctane	E-008S
2,5-Dichlorophenyl-4'-nitrophenyl ether	39145-48-7	1 mg/mL	Isooctane	E-010S
2,6-Dichlorophenyl-4'-nitrophenyl ether	2093-28-9	1 mg/mL	Isooctane	E-011S
3,5-Dichlorophenyl-4'-nitrophenyl ether	21105-77-1	1 mg/mL	Isooctane	E-012S
2,4-Dichlorophenyl-4'-nitrophenyl ether	1836-75-5	1 mg/mL	Isooctane	E-009S
3,4-Dichlorophenyl-4'-nitrophenyl ether	22532-80-5	1 mg/mL	Isooctane	E-013S
4-Nitrophenyl phenyl ether	620-88-2	1 mg/mL	Isooctane	E-003S
2,3,5-Trichlorophenyl-4'-nitrophenyl ether	142022-59-1	1 mg/mL	Isooctane	E-015S
2,3,6-Trichlorophenyl-4'-nitrophenyl ether	142022-58-0	1 mg/mL	Isooctane	E-016S
2,3,4-Trichlorophenyl-4'-nitrophenyl ether	142022-61-5	1 mg/mL	Isooctane	E-014S
2,4,5-Trichlorophenyl-4'-nitrophenyl ether	22532-68-9	1 mg/mL	Isooctane	E-017S
2,4,6-Trichlorophenyl-4'-nitrophenyl ether	1836-77-7	1 mg/mL	Isooctane	E-018S
3,4,5-Trichlorophenyl-4'-nitrophenyl ether		1 mg/mL	Isooctane	E-019S

Haloethers

EPA Method 8111

Haloacetic Acids and Esters

Compound	CAS No.	Conc.	Matrix	Cat. No.
Bromoacetic acid (Monobromoacetic acid)	79-08-3	40 µg/mL	MtBE	M-552.2A-07
		1 mg/mL	MtBE	M-552A-1
Bromochloroacetic acid	5589-96-8	40 µg/mL	MtBE	M-552.2A-01
		1 mg/mL	MtBE	M-552A-R-02
Bromodichloroacetic acid	71133-14-7	40 µg/mL	MtBE	M-552.2A-02
Chloroacetic acid (Monochloroacetic acid)	79-11-8	1 mg/mL	MtBE	M-552A-2
		60 µg/mL	MtBE	M-552.2A-08
Chlorodibromoacetic acid	5278-95-5	100 µg/mL	MtBE	M-552.2A-03
Dibromoacetic acid	631-64-1	20 µg/mL	MtBE	M-552.2A-05
		1 mg/mL	MtBE	M-552A-5
Dichloroacetic acid	79-43-6	60 µg/mL	MtBE	M-552.2A-06
		1 mg/mL	MtBE	M-552A-3
2,4-Dichlorophenylacetic acid	19719-28-9	2 µg/mL	Acetone	M-1618-SA
Methyl 2,4-dichlorophenylacetate	55954-23-9	0.1 mg/mL	MtBE	M-515-SS
		5 mg/mL	MtBE	M-515-SS-50X
Methyl bromoacetate	96-32-2	40 µg/mL	MtBE	M-552.2-02
		200 µg/mL	MeOH	M-552.1-02
Methyl bromochloroacetate	20428-74-4	40 µg/mL	MtBE	M-552.2-03
		200 µg/mL	MeOH	M-552.1-03
		1 mg/mL	MtBE	M-552-R-03
Methyl bromodichloroacetate	20428-76-6	40 µg/mL	MtBE	M-552.2-04
Methyl chloroacetate	96-34-4	60 µg/mL	MtBE	M-552.2-05
		300 µg/mL	MeOH	M-552.1-04
		1 mg/mL	MtBE	M-552-R-04
Methyl chlorodibromoacetate	20428-75-5	100 µg/mL	MtBE	M-552.2-06
Methyl dibromoacetate	6482-26-4	20 µg/mL	MtBE	M-552.2-07
		100 µg/mL	MeOH	M-552.1-05
Methyl dichloroacetate	116-54-1	60 µg/mL	MtBE	M-552.2-08
		300 µg/mL	MeOH	M-552.1-06
		200 µg/mL	MtBE	M-552.2-09 *
Methyl tribromoacetate	3222-05-7	200 µg/mL	MtBE	M-552.2-09 *
Methyl trichloroacetate	598-99-2	20 µg/mL	MtBE	M-552.2-10
		100 µg/mL	MeOH	M-552.1-07
Tribromoacetic acid	75-96-7	200 µg/mL	MtBE	M-552.2A-09
Trichloroacetic acid	76-03-9	20 µg/mL	MtBE	M-552.2A-10

Haloacetic Acids

EPA Methods:
552A, 552.1, 522.2, 515

* ColdPAK required to maintain integrity of product.

Analytes by Functional Group

Phthalates



The Consumer Products Safety Commission (CPSC) has proposed banning the use of several phthalates in materials for children's toys. In 2008 a congressional edict banned dibutyl, n-butyl benzyl and di-2-ethylhexyl (DEHP) phthalates as potential health risks.

Listed in 4 groups, Phthalates, Monophthalates, Deuterated Phthalates, Technical Mixtures and Phthalate Replacements

NEATS are as stated, SOLUTIONS are in 1 mL

Phthalates

Compound	CAS No.	Conc.	Matrix	Cat. No.
Benzyl butyl phthalate	85-68-7	100 mg	NEAT	ALR-082N
		100 µg/mL	MeOH	ALR-082S
		5 mg/mL	MeOH	AS-E0065
bis(2-n-Butoxyethyl)phthalate	117-83-9	100 mg	NEAT	J-112
bis(2-Ethoxyethyl)phthalate	605-54-9	100 mg	NEAT	J-111
bis(2-Ethylhexyl)phthalate	117-81-7	100 mg	NEAT	ALR-097N
		100 µg/mL	MeOH	ALR-097S
		1 mg/mL	MeOH	APP-9-029-10X
bis(2-Methoxyethyl)phthalate	117-82-8	100 mg	NEAT	J-106
bis(4-Methylpentyl)phthalate	71850-09-4	10 mg	NEAT	PHTH-022N
		100 mg	NEAT	PHTH-022S
bis(4-Methyl-2-pentyl)phthalate	146-50-9	10 mg	NEAT	J-109-10MG
		100 mg	NEAT	J-109
2-Butoxy-2-oxoethyl butyl phthalate	85-70-1	100 mg	NEAT	J-115
Diallyl phthalate	131-17-9	100 mg	NEAT	J-002
Diamyl phthalate	131-18-0	100 mg	NEAT	ALR-098N
		0.1 mg/mL	EtOAc	ALR-098S
Dibenzyl phthalate	523-31-9	100 mg	NEAT	J-104
Dibutyl phthalate	84-74-2	100 mg	NEAT	J-003
		100 µg/mL	MeOH	APP-9-063
		1 mg/mL	MeOH	APP-9-063-10X
		5 mg/mL	MeOH	AS-E0066
Dicyclohexyl phthalate	84-61-7	100 mg	NEAT	J-004
		100 µg/mL	MeOH	ALR-099S
		1 mg/mL	AcCN	AS-E0318
Didodecyl phthalate	2432-90-8	100 mg	NEAT	PHTH-018N
		100 µg/mL	MeOH	PHTH-018S
Diethyl phthalate	84-66-2	100 mg	NEAT	J-005
		100 µg/mL	MeOH	APP-9-081
		1 mg/mL	MeOH	APP-9-081-10X
		5 mg/mL	MeOH	AS-E0068
Dihexyl phthalate	84-75-3	100 mg	NEAT	ALR-100N
		100 µg/mL	MeOH	ALR-100S
Diisobutyl phthalate	84-69-5	100 mg	NEAT	J-113
Diisopentyl phthalate (Diisoamyl phthalate)	605-50-5	100 mg	NEAT	J-127
Diisopropyl phthalate	605-45-8	100 mg	NEAT	PHTH-019N
		100 µg/mL	MeOH	PHTH-019S
Dimethyl phthalate	131-11-3	100 mg	NEAT	J-010
		100 µg/mL	MeOH	APP-9-088
		1 mg/mL	MeOH	APP-9-088-10X
		5 mg/mL	MeOH	AS-E0069
		0.1 mg/mL	EtOAc	M-8032-IS
Di-n-heptyl phthalate	3648-21-3	100 mg	NEAT	PHTH-020N
		100 µg/mL	MeOH	PHTH-020S
Di-n-octyl phthalate	117-84-0	100 mg	NEAT	J-011
		100 µg/mL	MeOH	APP-9-095
		5 mg/mL	MeOH	AS-E0067
Diphenyl phthalate	84-62-8	100 mg	NEAT	J-013
Diundecyl phthalate	3648-20-2	100 mg	NEAT	PHTH-021N
		100 µg/mL	MeOH	PHTH-021S
Isophthalates				
Dimethyl isophthalate	1459-93-4	100 mg	NEAT	J-009
Diphenyl isophthalate	744-45-6	100 mg	NEAT	J-012
Terephthalates				
bis(2-Ethylhexyl) terephthalate	6422-86-2	100 mg	NEAT	J-121
Diethyl terephthalate	636-09-9	100 mg	NEAT	J-123
Dimethyl terephthalate	120-61-6	100 mg	NEAT	J-101
Monophthalates				
Monobenzyl phthalate (mBzP)	2528-16-7	100 mg	NEAT	ALR-134N
		100 µg/mL	AcCN	ALR-134S-CN
Monobutyl phthalate (mBP)	131-70-4	100 mg	NEAT	ALR-135N
		100 µg/mL	AcCN	ALR-135S-CN
Monocyclohexyl phthalate	7517-36-4	100 mg	NEAT	ALR-178N
		100 µg/mL	AcCN	ALR-178S-CN
Monoethyl phthalate (mEP)	2306-33-4	100 mg	NEAT	ALR-137N
		100 µg/mL	AcCN	ALR-137S-CN

Phthalates
EPA Methods:
506, 606, 8060, 8061

Phthalate Standards Reference Guide



includes technical and physical info

Download or view Reference Guide at AccuStandard.com

Analytes by Functional Group

Phthalates



NEATS are as stated, SOLUTIONS are in 1 mL

Phthalates (continued)

Monophthalates (continued)				
Compound	CAS No.	Conc.	Matrix	Cat. No.
Monoethylhexyl phthalate (mEHP)	4376-20-9	100 mg	NEAT	ALR-138N
		100 µg/mL	AcCN	ALR-138S-CN
Mono-2-heptyl phthalate		100 mg	NEAT	ALR-143N
		100 µg/mL	AcCN	ALR-143S-CN
Monohexyl phthalate	24539-57-9	100 mg	NEAT	ALR-175N
		100 µg/mL	AcCN	ALR-175S-CN
Monoisobutyl phthalate	30833-53-5	100 mg	NEAT	ALR-176N
		100 µg/mL	AcCN	ALR-176S-CN
Monoisononyl phthalate Mixture of C9 Isomers		100 mg	NEAT	ALR-142N
		100 µg/mL	AcCN	ALR-142S-CN
Monoisopropyl phthalate	35118-50-4	100 mg	NEAT	ALR-179N
		100 µg/mL	AcCN	ALR-179S-CN
Monomethyl phthalate	4376-18-5	100 mg	NEAT	ALR-139N
		100 µg/mL	AcCN	ALR-139S-CN
Monooctyl phthalate	5393-19-1	100 mg	NEAT	ALR-141N
		100 µg/mL	AcCN	ALR-141S-CN
Mono-n-pentyl phthalate	24539-56-8	100 mg	NEAT	ALR-177N
		100 µg/mL	AcCN	ALR-177S-CN
Deuterated Phthalates				
Dibenzylphthalate-d ₄	1015854-62-2	5 mg	NEAT	PHTH-D4-001N
		100 µg/mL	MeOH	PHTH-D4-001S
Dicyclohexyl phthalate-3,4,4,5,6-d ₄	358731-25-6	5 mg	NEAT	PHTH-D4-004N
		100 µg/mL	MeOH	PHTH-D4-004S
Diethyl phthalate-3,4,4,5,6-d ₄	93952-12-6	5 mg	NEAT	PHTH-D4-005N
		100 µg/mL	MeOH	PHTH-D4-005S
Di-iso-butyl phthalate-3,4,4,5,6-d ₄	358730-88-8	5 mg	NEAT	PHTH-D4-003N
		100 µg/mL	MeOH	PHTH-D4-003S
Dimethyl phthalate-3,4,4,5,6-d ₄	93951-89-4	5 mg	NEAT	PHTH-D4-007N
		100 µg/mL	MeOH	PHTH-D4-007S
Di-n-butyl phthalate-d ₄	93952-11-5	5 mg	NEAT	PHTH-D4-002N
		100 µg/mL	MeOH	PHTH-D4-002S
Di-n-hexyl phthalate-3,4,4,5,6-d ₄	1015854-55-3	5 mg	NEAT	PHTH-D4-006N
		100 µg/mL	MeOH	PHTH-D4-006S
Di-n-octyl phthalate-3,4,4,5,6-d ₄	93952-13-7	5 mg	NEAT	PHTH-D4-008N
		100 µg/mL	MeOH	PHTH-D4-008S
Di-n-pentyl phthalate-3,4,4,5,6-d ₄	358730-89-9	5 mg	NEAT	PHTH-D4-009N
		100 µg/mL	MeOH	PHTH-D4-009S
Di-n-propyl phthalate-3,4,4,5,6-d ₄	358731-29-0	5 mg	NEAT	PHTH-D4-010N
		100 µg/mL	MeOH	PHTH-D4-010S
bis(2-Ethylhexyl)phthalate-3,4,4,5,6-d ₄	93951-87-2	5 mg	NEAT	PHTH-D4-011N
		100 µg/mL	MeOH	PHTH-D4-011S
Set includes above 11 Deuterated Phthalates				
	NEAT Set		PHTH-D4N-SET	11 x 5 mg
	SOLUTION Set		PHTH-D4S-SET	11 x 1 mL
Phthalates - Technical Mixtures				
Benzyl 2-ethylhexyl phthalate	27215-22-1	100 mg	NEAT	ALR-165N
		100 µg/mL	MeOH	ALR-165S
n-Butyl benzyl phthalate	85-68-7	10 mg	NEAT	PHTH-014N
		100 µg/mL	MeOH	PHTH-014S
Butyl cyclohexyl phthalate	84-64-0	100 mg	NEAT	J-122
n-Butyl iso-butyl phthalate		10 mg	NEAT	PHTH-013N
		100 µg/mL	MeOH	PHTH-013S
Butyl octyl phthalate	84-78-5	100 mg	NEAT	J-001
Decyl octyl phthalate		10 mg	NEAT	PHTH-012N
		100 µg/mL	MeOH	PHTH-012S
Didecyl phthalate	84-77-5	100 mg	NEAT	J-120
Diisodecyl phthalate	26761-40-0	100 mg	NEAT	ALR-101N
		100 µg/mL	MeOH	ALR-101S
Diisoheptyl phthalate	71888-89-6	50 mg	NEAT	PHTH-017N
		100 µg/mL	MeOH	PHTH-017S
Diisoheptyl phthalate (Tech Mix)	68515-50-4	100 mg	NEAT	J-007
Diisononyl phthalate (C8 to C10 Isomers)	68515-48-0	100 mg	NEAT	ALR-102N
		100 µg/mL	MeOH	ALR-102S
Diisoctyl phthalate (C8 Isomers)	27554-26-3	100 mg	NEAT	ALR-103N
		100 µg/mL	MeOH	ALR-103S
Dinonyl phthalate	84-76-4	100 mg	NEAT	J-105
Hexyl 2-ethylhexyl phthalate	75673-16-4	100 mg	NEAT	J-016
		10 mg	NEAT	PHTH-015N
Isobutyl benzyl phthalate		100 µg/mL	MeOH	PHTH-015S
		100 mg	NEAT	J-014
Isobutylcyclohexyl phthalate	5334-09-8	10 mg	NEAT	PHTH-016N
Pentyl isopentyl phthalate	84777-06-0	100 µg/mL	MeOH	PHTH-016S
		100 mg	NEAT	J-015
n-Octyl n-decyl phthalate	119-07-3	100 mg	NEAT	J-015

Phthalates
EPA Methods:
506, 606, 8060, 8061



Phthalates



Phthalate Replacements
continued on next page

Analytes by Functional Group

Phthalates



World-wide concern over environmental and health-related factors associated with phthalates has led to restrictions of use in a wide array of products. This has resulted in the plastics industry generating a variety of alternatives.

In response, AccuStandard has developed a phthalate replacement product line comprised of 42 compounds representing 18 chemical classes.

Replacement Phthalates

	CAS No.	Conc.	Matrix	Cat. No.
Azelaic Acid Derivatives				
Diisodecyl azelate	28472-97-1	1000 µg/mL	Acetone	PLAS-PL-075S-A
Diisooctyl azelate	26544-17-2	1000 µg/mL	Acetone	PLAS-PL-076S-A
Dimethyl azelate	1732-10-1	1000 µg/mL	Acetone	PLAS-PL-077S-A
Di-n-hexyl azelate	109-31-9	1000 µg/mL	Acetone	PLAS-PL-078S-A
Di(2-ethylhexyl) azelate	103-24-2	1000 µg/mL	Acetone	PLAS-PL-081S-A
Adipic Acid Derivatives				
Di(tridecyl) adipate	16958-92-2	1000 µg/mL	Acetone	PLAS-PL-079S-A
Di(n-heptyl, n-nonyl) adipate	68515-75-3	1000 µg/mL	Hexane	PLAS-PL-080S
Diisobutyl adipate	141-04-8	1000 µg/mL	Hexane	PLAS-PL-082S
Diisodecyl adipate	27178-16-1	1000 µg/mL	Hexane	PLAS-PL-083S
Dimer Acid Derivatives				
bis(2-Hydroxyethyl) dimerate	68855-78-7	1000 µg/mL	Hexane	PLAS-PL-084S
Epoxy Derivatives				
Epoxidized linseed oil	8016-11-3	1000 µg/mL	Toluene	PLAS-PL-085S-T
2-Ethylhexyl epoxy tallate	61789-01-3	1000 µg/mL	Hexane	PLAS-PL-086S
Fumaric Acid Derivative				
Dibutyl fumarate	105-75-9	1000 µg/mL	Hexane	PLAS-PL-087S
Glycerol Derivative				
Glycerol triacetate	102-76-1	1000 µg/mL	Hexane	PLAS-PL-088S
Isobutyrate Derivative				
2,2,4-Trimethyl-1,3-pentanediol-diisobutyrate	6846-50-0	1000 µg/mL	Hexane	PLAS-PL-089S
Maleic Acid Derivatives				
Di(2-ethylhexyl)maleate [Dioctyl maleate]	142-16-5	1000 µg/mL	Hexane	PLAS-PL-090S
Di n-butyl maleate	105-76-0	1000 µg/mL	Hexane	PLAS-PL-091S
Mellitates				
Tricapryl trimellitate	27251-75-8	1000 µg/mL	Hexane	PLAS-PL-092S
Triisodecyl trimellitate	36631-30-8	1000 µg/mL	Hexane	PLAS-PL-093S
Tri-(n-octyl, n-decyl) trimellitate	67989-23-5	1000 µg/mL	Hexane	PLAS-PL-094S
Myristate				
Isopropyl myristate	110-27-0	1000 µg/mL	Hexane	PLAS-PL-095S
Oleic Acid Derivatives				
Glycerol monooleate	25496-72-4	1000 µg/mL	Hexane	PLAS-PL-096S
Methyl oleate	112-62-9	1000 µg/mL	Hexane	PLAS-PL-097S
n-Propyl oleate	111-59-1	1000 µg/mL	Hexane	PLAS-PL-098S
Tetrahydrofurfuryl oleate	5420-17-7	1000 µg/mL	Hexane	PLAS-PL-099S
Palmitic Acid derivative				
Isopropyl palmitate	142-91-6	1000 µg/mL	Hexane	PLAS-PL-100S
Benzoic Acid Derivatives				
Di(propylene glycol) dibenzoate	27138-31-4	1000 µg/mL	Hexane	PLAS-PL-101S
Polyethylene glycol 200 dibenzoate	9004-86-8	1000 µg/mL	Hexane	PLAS-PL-102S
Phosphoric Acid Derivatives				
t-Butylphenyl diphenyl phosphate	56803-37-3	1000 µg/mL	Hexane	PLAS-PL-103S
Tri-butoxyethyl phosphate	78-51-3	1000 µg/mL	Hexane	PLAS-PL-104S
Ricinoleic Acid Derivatives				
Butyl ricinoleate	151-13-3	1000 µg/mL	Hexane	PLAS-PL-105S
Glyceryl (triacetyl)ricinoleate	101-34-8	1000 µg/mL	Hexane	PLAS-PL-106S
n-Butyl acetyl ricinoleate	140-04-5	1000 µg/mL	Hexane	PLAS-PL-107S
Propylene glycol ricinoleate	26402-31-3	1000 µg/mL	Hexane	PLAS-PL-108S
Succinic acid Derivatives				
Diethyl succinate	123-25-1	1000 µg/mL	Hexane	PLAS-PL-109S
Sulfonic acid Derivatives				
o,p-Toluenesulfonamide	8013-74-9	1000 µg/mL	Hexane	PLAS-PL-110S
N-Ethyl o,p-toluenesulfonamide	8047-99-2	1000 µg/mL	Hexane	PLAS-PL-111S
Stearic acid Derivatives				
Ethylene glycol monostearate	111-60-4	1000 µg/mL	Hexane	PLAS-PL-112S
Isopropyl isostearate	68171-33-5	1000 µg/mL	Hexane	PLAS-PL-113S
n-Butyl stearate	123-95-5	1000 µg/mL	Hexane	PLAS-PL-114S
Glycerol monostearate	31566-31-1	1000 µg/mL	Toluene	PLAS-PL-115S-T
Propylene glycol monostearate	1323-39-3	1000 µg/mL	Hexane	PLAS-PL-116S





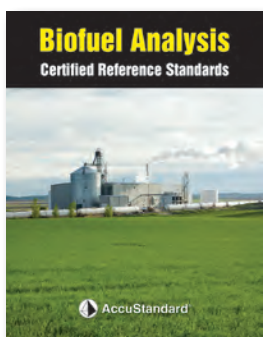
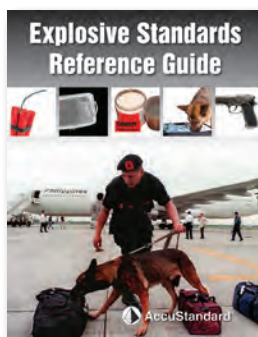
Search by
 Functional Group
 Application
 EPA Method

Methods by Application:
 Many different industries have specific needs for reference standards. In order to make it easy for chemists to find products applicable to their analyses, AccuStandard has created industry specific listings for these different applications.

Table of Contents

Explosives	84-87
Explosives and their Metabolites	84-85
EPA Methods 8330, 529 and 8095	85-86
DIN 38407-21	87
Gun Surveillance Standards	87
Inorganic ICP Standards for Gun Shot Residue	87
Organic Compounds for Firearm Discharge Analysis	87
Fuels and Hydrocarbons	310-313
Plastic Additives	88-94
Bisphenol Analog	92
Imidazoles (Caramel coloring)	95
Melamine	95
EFSA	95
Food Analytes (Food Constituents, Lipids)	95-99
Methyl Esters	96-97
Glycerides	96-97
AOCs Methods	97
FAMES	98
Vitamins and Preservatives	99
Cannabis Standards	100-101
Allergens (Personal Care Products)	102-107
Dyes	108-109
Perfluorinated Compounds (PFCs)	110
Odor Standards	110
Irritant Standards	110
Refrigerants	111
Qualitative Analysis Kits	112-113

Download Literature





Explosives

Explosive standards are traditionally used for the remediation of soil and water in locations where explosives have been stored. These same standards are now being used to calibrate baggage screening detectors at airports and other secure locations (embassies and other government buildings). They also are used by police departments and the military in K-9 odor recognition training for explosives.

AccuStandard has working relationships with both government and private sector K-9 training facilities and laboratories which provide valuable information and insight into the latest developments in explosives.

To assist in all aspects of explosive detection and analysis, AccuStandard synthesizes an array of explosives as well as metabolites, degradation products and raw materials. AccuStandard is the only U.S. commercial source for TATP, HMTD, HMDD and HNS.

In addition to catalog items, we offer special formulations for EPA method and customer-specific applications.

□ TNT Metabolites

Matrix Key

AcCN	Acetonitrile	DMF	Dimethyl formamide
MeOH	Methanol	EtOH	Ethanol

Explosives

Compound	CAS No.	Conc.	Matrix	Cat. No.	1 mL
2-Amino-4,6-dinitrotoluene □	35572-78-2	1 mg/mL	AcCN:MeOH (50:50)	M-8330-13	
		0.1 mg/mL	AcCN:MeOH (50:50)	M-8330-13-0.1X	
4-Amino-2,6-dinitrotoluene □	19406-51-0	1 mg/mL	AcCN:MeOH (50:50)	M-8330-14	
		0.1 mg/mL	AcCN:MeOH (50:50)	M-8330-14-0.1X	
3-Amino-1,2,4-triazol-5-one		100 µg/mL	AcCN	M-8330-ADD-55	
Ammonium picrate	131-74-8	0.1 mg/mL	AcCN	M-8330-ADD-27	
DEGDN	693-21-0	100 µg/mL	AcCN:MeOH (50:50)	M-8330-ADD-36	
1,2-Diaminopropane	78-90-0	0.1 mg/mL	MeOH	M-8330-ADD-9	
2,4-Diamino-6-nitrotoluene □	6629-29-4	0.1 mg/mL	AcCN	M-8330-ADD-12	
2,6-Diamino-4-nitrotoluene □	59229-75-3	0.1 mg/mL	AcCN	M-8330-ADD-13	
Diazodinitrophenol	4682-03-5	0.1 mg/mL	AcCN	M-8330-ADD-48	
		1 mg/mL	AcCN	M-8330-ADD-48-10X	
2,3-Dimethyl-2,3-dinitrobutane (DMNB)	3964-18-9	100 µg/mL	AcCN	M-8330-ADD-21	
3,5-Dinitroaniline	618-87-1	0.1 mg/mL	AcCN:MeOH (50:50)	M-8330-ADD-4	
1,2-Dinitrobenzene	528-29-0	1 mg/mL	MeOH	M-8330-SS	
1,3-Dinitrobenzene	99-65-0	1 mg/mL	AcCN:MeOH (50:50)	M-8330-01	
		0.1 mg/mL	AcCN:MeOH (50:50)	M-8330-01-0.1X	
1,2-Dinitroglycerin	621-65-8	100 µg/mL	AcCN:MeOH (50:50)	M-8330-ADD-33	
1,3-Dinitroglycerin	623-87-0	100 µg/mL	AcCN:MeOH (50:50)	M-8330-ADD-34	
2,4-Dinitrotoluene □	121-14-2	1 mg/mL	AcCN:MeOH (50:50)	M-8330-02	
		0.1 mg/mL	AcCN:MeOH (50:50)	M-8330-02-0.1X	
2,6-Dinitrotoluene □	606-20-2	1 mg/mL	AcCN:MeOH (50:50)	M-8330-03	
		0.1 mg/mL	AcCN:MeOH (50:50)	M-8330-03-0.1X	
3,4-Dinitrotoluene	610-39-9	1 mg/mL	MeOH	M-8330-IS	
3,5-Dinitrotoluene □	618-85-9	100 µg/mL	AcCN:MeOH (50:50)	M-8330-ADD-39	
Dipentaerythritol hexanitrate	13184-80-0	100 µg/mL	MeOH	M-8330-ADD-43	
EGDN	628-96-6	0.1 mg/mL	AcCN	M-8330-ADD-5	
Ethylcentralite		100 µg/mL	AcCN:MeOH (50:50)	M-8330-ADD-50	
Erythritol tetranitrate (ETN)	7297-25-8	0.1 mg/mL	AcCN	M-8330-ADD-47	
		1 mg/mL	AcCN	M-8330-ADD-47-10X	
Guanidine nitrate	506-93-4	0.1 mg/mL	MeOH	M-8330-ADD-10	
Hexahydro-1,3,5-trinitroso-1,3,5-triazine	13980-04-6	0.1 mg/mL	AcCN	M-8330-ADD-46	
		1 mg/mL	AcCN	M-8330-ADD-46-10X	
Hexanitrodiphenylamine	131-73-7	100 µg/mL	AcCN:MeOH (50:50)	M-8330-ADD-37	
Hexanitrostilbene (HNS) □	20062-22-0	0.1 mg/mL	AcCN	M-8330-ADD-26 *	
Hexamethylenetriperoxide diamine (HMTD)	283-66-9	0.1 mg/mL	AcCN	M-8330-ADD-25	
HMX	2691-41-0	1 mg/mL	AcCN:MeOH (50:50)	M-8330-04	
		0.1 mg/mL	AcCN:MeOH (50:50)	M-8330-04-0.1X	
Hydrazine	302-01-2	0.1 mg/mL	MeOH	M-8330-ADD-8	
2-Hydroxylamino-4,6-dinitrotoluene □ ★	59283-76-0	0.1 mg/mL	AcCN	M-8330-ADD-18 *	
4-Hydroxylamino-2,6-dinitrotoluene □ ★	59283-75-0	0.1 mg/mL	AcCN	M-8330-ADD-20 *	
Methylcentralite		100 µg/mL	AcCN:MeOH (50:50)	M-8330-ADD-49	
Nitrobenzene □	98-95-3	1 mg/mL	AcCN:MeOH (50:50)	M-8330-06	
		0.1 mg/mL	AcCN:MeOH (50:50)	M-8330-06-0.1X	
N-Nitrodimethylamine	4164-28-7	100 µg/mL	AcCN	M-8330-ADD-40	
2-Nitrodiphenylamine	119-75-5	100 µg/mL	AcCN:MeOH (50:50)	M-8330-ADD-51	
4-Nitrodiphenylamine	836-30-6	100 µg/mL	AcCN:MeOH (50:50)	M-8330-ADD-52	
Nitroglycerin	55-63-0	0.1 mg/mL	EtOH	M-8330-ADD-1	
		1.0 mg/mL	EtOH:MeOH (97:3)	M-8330-ADD-1-10X	
1-Nitroglycerin	624-43-1	100 µg/mL	AcCN:MeOH (50:50)	M-8330-ADD-31	
2-Nitroglycerin	620-12-2	100 µg/mL	AcCN:MeOH (50:50)	M-8330-ADD-32	
Nitroguanidine	556-88-7	0.1 mg/mL	MeOH	M-8330-ADD-6	
Nitromethane	75-52-5	0.1 mg/mL	MeOH	M-8330-ADD-7	
2-Nitrotoluene □	88-72-2	1 mg/mL	AcCN:MeOH (50:50)	M-8330-07	
		0.1 mg/mL	AcCN:MeOH (50:50)	M-8330-07-0.1X	
3-Nitrotoluene □	99-08-1	1 mg/mL	AcCN:MeOH (50:50)	M-8330-08	
		0.1 mg/mL	AcCN:MeOH (50:50)	M-8330-08-0.1X	
4-Nitrotoluene □	99-99-0	1 mg/mL	AcCN:MeOH (50:50)	M-8330-09	
		0.1 mg/mL	AcCN:MeOH (50:50)	M-8330-09-0.1X	
3-Nitro-1,2,4-triazol-5-one (NTO)	932-64-9	100 µg/mL	AcCN:MeOH (50:50)	M-8330-ADD-53	
Pentaerythritol trinitrate	1607-17-6	100 µg/mL	MeOH	M-8330-ADD-44	
PETN	78-11-5	0.1 mg/mL	MeOH	M-8330-ADD-2	
		1 mg/mL	MeOH	M-8330-ADD-2-10X	

★ 3 month stability

* ColdPAK required to maintain integrity of product.

Explosives continued on next page



Explosives (continued)

Compound	CAS No.	Conc.	Matrix	Cat. No.	1 mL
Picramic acid	96-91-3	100 µg/mL	AcCN:MeOH (50:50)	M-8330-ADD-22	
Picric acid	88-89-1	0.1 mg/mL	AcCN:MeOH (50:50)	M-8330-ADD-3	
Propyleneglycol dinitrate	6423-43-4	100 µg/mL	MeOH	M-8330-ADD-35	
PYX	38082-89-2	0.1 mg/mL	AcCN	M-8330-ADD-11	
RDX	121-82-4	1 mg/mL	AcCN:MeOH (50:50)	M-8330-05	
		0.1 mg/mL	AcCN:MeOH (50:50)	M-8330-05-0.1X	
TATP	17088-37-8	0.1 mg/mL	AcCN	M-8330-ADD-24 *	
TEGDN	111-22-8	0.1 mg/mL	AcCN:MeOH (50:50)	M-8330-ADD-41-R1	
2,2',6,6'-Tetranitro-4,4'-azotoluene □		0.1 mg/mL	AcCN	M-8330-ADD-17	
4,4',6,6'-Tetranitro-2,2'-azotoluene □		0.1 mg/mL	AcCN	M-8330-ADD-19	
2,2',6,6'-Tetranitro-4,4'-azoxytoluene □		0.1 mg/mL	AcCN	M-8330-ADD-15	
Tetryl	479-45-8	1 mg/mL	AcCN:MeOH (50:50)	M-8330-10	
		0.1 mg/mL	AcCN:MeOH (50:50)	M-8330-10-0.1X	
TNT	118-96-7	1 mg/mL	AcCN:MeOH (50:50)	M-8330-11	
		0.1 mg/mL	AcCN:MeOH (50:50)	M-8330-11-0.1X	
		40 µg/mL	DMF	M-8330-ADD-14-DMF	
1,3,5-Triamino-2,4,6-trinitrobenzene	3058-38-6	40 µg/mL	DMF	M-8330-ADD-14-DMF	
2,4,6-Triaminotoluene trihydrochloride (TNT free)	634-87-7	5 mg	NEAT	M-8330-ADD-23N-5MG	
Trimethylolethane trinitrate	3032-55-1	100 µg/mL	AcCN:MeOH (50:50)	M-8330-ADD-28	
1,3,5-Trinitrobenzene □	99-35-4	1 mg/mL	AcCN:MeOH (50:50)	M-8330-12	
		0.1 mg/mL	AcCN:MeOH (50:50)	M-8330-12-0.1X	
2,4,6-Trinitroresorcinol	82-71-3	1 mg/mL	AcCN:MeOH (50:50)	M-8330-ADD-29	

Method 8330 Multi-Component Formulations for Explosive Analysis

Mix A

M-8330A * 1 x 1 mL
0.1 mg/mL each in AcCN:MeOH (50:50)
7 comps.

M-8330A-10X * 1 x 1 mL
1.0 mg/mL each in AcCN:MeOH (50:50)
7 comps.

1,3-Dinitrobenzene	RDX
2,4-Dinitrotoluene	1,3,5-Trinitrobenzene
HMX	TNT
Nitrobenzene	

M-8330A-R * 1 x 1 mL
0.1 mg/mL each in AcCN:MeOH (50:50)
8 comps.

M-8330A-R-10X * 1 x 1 mL
1.0 mg/mL each in AcCN:MeOH (50:50)
8 comps.

2-Amino-4,6-dinitrotoluene	Nitrobenzene
1,3-Dinitrobenzene	RDX
2,4-Dinitrotoluene	1,3,5-Trinitrobenzene
HMX	TNT

Composite Explosive Mixture

M-8330-R-0.1X 1 x 1 mL
0.1 mg/mL each in AcCN:MeOH (50:50)

M-8330-R-0.5X 1 x 1 mL
0.5 mg/mL each in AcCN:MeOH (50:50)

1,3-Dinitrobenzene	3-Nitrotoluene
2,4-Dinitrotoluene	4-Nitrotoluene
2,6-Dinitrotoluene	Tetryl
HMX	TNT
RDX	1,3,5-Trinitrobenzene
Nitrobenzene	2-Amino-4,6-dinitrotoluene
2-Nitrotoluene	4-Amino-2,6-dinitrotoluene

Internal Standard

M-8330-IS 1 x 1 mL

M-8330-IS-PAK **SAVE** 5 x 1 mL

1.0 mg/mL in MeOH

3,4-Dinitrotoluene

Technical Note

Mix A and B provide better resolution between possible coeluting analytes, assisting the chemist to optimize the HPLC system. We suggest using the high concentration set M-8330-R-10X-SET when first performing Method 8330 development..

* ColdPAK required to maintain integrity of product.

Mix B

M-8330B * 1 x 1 mL
0.1 mg/mL each in AcCN:MeOH (50:50)
5 comps.

M-8330B-10X * 1 x 1 mL
1.0 mg/mL each in AcCN:MeOH (50:50)
5 comps.

Tetryl	3-Nitrotoluene
2,6-Dinitrotoluene	4-Nitrotoluene
2-Nitrotoluene	

M-8330B-R * 1 x 1 mL
0.1 mg/mL each in AcCN:MeOH (50:50)
7 comps.

M-8330B-R-10X * 1 x 1 mL
1.0 mg/mL each in AcCN:MeOH (50:50)
7 comps.

2-Amino-4,6-dinitrotoluene	2-Nitrotoluene
4-Amino-2,6-dinitrotoluene	3-Nitrotoluene
Tetryl	4-Nitrotoluene
2,6-Dinitrotoluene	

M-8330B-R2 * 1 x 1 mL
0.1 mg/mL each in AcCN:MeOH (50:50)
6 comps.

M-8330B-R2-10X * 1 x 1 mL
1.0 mg/mL each in AcCN:MeOH (50:50)
6 comps.

4-Amino-2,6-dinitrotoluene	2-Nitrotoluene
Tetryl	3-Nitrotoluene
2,6-Dinitrotoluene	4-Nitrotoluene

Surrogate Standard

M-8330-SS 1 x 1 mL

1.0 mg/mL in MeOH

1,2-Dinitrobenzene

Explosives by HPLC Set

M-8330-R-SET * 14 x 1 mL
Each at 100 µg/mL in AcCN:MeOH (50:50)

M-8330-R-10X-SET * 14 x 1 mL
Each at 1000 µg/mL in AcCN:MeOH (50:50)

1,3-Dinitrobenzene	3-Nitrotoluene
2,4-Dinitrotoluene	4-Nitrotoluene
2,6-Dinitrotoluene	Tetryl
HMX	TNT
RDX	1,3,5-Trinitrobenzene
Nitrobenzene	2-Amino-4,6-dinitrotoluene
2-Nitrotoluene	4-Amino-2,6-dinitrotoluene



Explosives

Explosives

Method 529 Explosive & Related Compounds by SPE & Capillary Column GC/MS

Method 529 Calibration Curve

All in µg/mL in Ethyl acetate

M-529-	01	02	03	04	05	06	07	08	09
2-Amino-4,6-dinitrotoluene	0.025	0.05	0.10	0.25	0.50	1.0	2.0	5.0	10
4-Amino-2,6-dinitrotoluene	0.025	0.05	0.10	0.25	0.50	1.0	2.0	5.0	10
3,5-Dinitroaniline	0.025	0.05	0.10	0.25	0.50	1.0	2.0	5.0	10
1,3-Dinitrobenzene	0.025	0.05	0.10	0.25	0.50	1.0	2.0	5.0	10
2,4-Dinitrotoluene	0.025	0.05	0.10	0.25	0.50	1.0	2.0	5.0	10
2,6-Dinitrotoluene	0.025	0.05	0.10	0.25	0.50	1.0	2.0	5.0	10
RDX	0.025	0.05	0.10	0.25	0.50	1.0	2.0	5.0	10
Nitrobenzene	0.025	0.05	0.10	0.25	0.50	1.0	2.0	5.0	10
2-Nitrotoluene	0.025	0.05	0.10	0.25	0.50	1.0	2.0	5.0	10
3-Nitrotoluene	0.025	0.05	0.10	0.25	0.50	1.0	2.0	5.0	10
4-Nitrotoluene	0.025	0.05	0.10	0.25	0.50	1.0	2.0	5.0	10
1,3,5-Trinitrobenzene	0.025	0.05	0.10	0.25	0.50	1.0	2.0	5.0	10
Tetryl	0.025	0.05	0.10	0.25	0.50	1.0	2.0	5.0	10
TNT	0.025	0.05	0.10	0.25	0.50	1.0	2.0	5.0	10

Full Scan MS Calibration Set

M-529-MS-SET 6 x 1 mL
 M-529-03, M-529-05, M-529-06
 M-529-07, M-529-08, M-529-09

SIM Calibration Set

M-529-SIM-SET 7 x 1 mL
 M-529-01, M-529-02, M-529-03, M-529-04
 M-529-05, M-529-06, M-529-07

Storage Condition: Freeze (<-10°C)

Internal Standard Stock Solution

M-529-IS 1 x 1 mL
 2.0 mg/mL Ethyl acetate
 3,4-Dinitrotoluene

Surrogate Analyte Stock Solutions

M-529-SS1 1 x 1 mL
 M-529-SS1-PAK 5 x 1 mL
 1000 µg/mL each in MeOH 2 comps.
 1,3,5-Trimethyl-2-nitrobenzene 1,2,4-Trimethyl-5-nitrobenzene

Internal Standard Fortification Solution

M-529-ISFS 1 x 1 mL
 200 µg/mL each in Ethyl acetate:AcCN (96:4) 14 comps.

M-529-SS2 1 x 1 mL
 M-529-SS2-PAK 5 x 1 mL
 1000 µg/mL each in CH₂Cl₂
 Nitrobenzene-d₅

2-Amino-4,6-dinitrotoluene Nitrobenzene
 4-Amino-2,6-dinitrotoluene 2-Nitrotoluene
 3,5-Dinitroaniline 3-Nitrotoluene
 1,3-Dinitrobenzene 4-Nitrotoluene
 2,4-Dinitrotoluene 1,3,5-Trinitrobenzene
 2,6-Dinitrotoluene Tetryl
 RDX TNT

Surrogate Analyte Fortification Solution

M-529-SAFS 1 x 1 mL
 100 µg/mL each in MeOH 3 comps.
 1,3,5-Trimethyl-2-nitrobenzene Nitrobenzene-d₅
 1,2,4-Trimethyl-5-nitrobenzene

Method 8095 Explosives by GC/ECD

This method is a companion to EPA Method 8330, utilizing the sensitivity and selectivity of the ECD.

Explosive Stock Solution A

M-8095-SSA-100X 1 x 1 mL
 M-8095-SSA-100X-PAK 5 x 1 mL
 100 µg/mL each in AcCN:MeOH (50:50) 10 comps. **SAVE**
 2-Amino-4,6-dinitrotoluene 1,3,5-Trinitrobenzene
 4-Amino-2,6-dinitrotoluene TNT
 1,3-Dinitrobenzene RDX
 2,6-Dinitrotoluene Tetryl
 2,4-Dinitrotoluene HMX

Explosive Stock Solution B

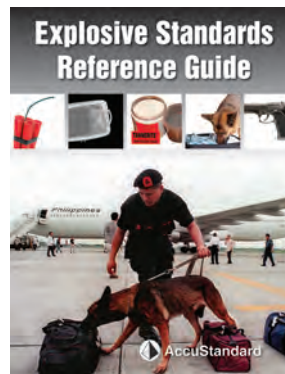
M-8095-SSB-100X 1 x 1 mL
 M-8095-SSB-100X-PAK 5 x 1 mL
 At stated conc. (µg/mL) in AcCN:MeOH (50:50) 7 comps. **SAVE**
 Nitrobenzene 500 Nitroglycerin 500
 3-Nitrotoluene 500 PETN 500
 2-Nitrotoluene 500 3,5-Dinitroaniline 100
 4-Nitrotoluene 500

Explosive Surrogate Standards

M-8095-SS-01 1 x 1 mL
 M-8095-SS-01-PAK 5 x 1 mL
 100 µg/mL in AcCN **SAVE**
 3,4-Dinitrotoluene

M-8095-SS-02 1 x 1 mL
 M-8095-SS-02-PAK 5 x 1 mL
 100 µg/mL in AcCN **SAVE**
 2-Methyl-4-nitroaniline

M-8095-SS-03 1 x 1 mL
 M-8095-SS-03-PAK 5 x 1 mL
 100 µg/mL in AcCN **SAVE**
 2,5-Dinitrotoluene



Download or view
 Reference Guide at
AccuStandard.com



DIN Explosive Standards

DIN 38407-21 Explosives

Examination of water, wastewater, and sludge for determination of selected explosives and related compounds by HPLC with UV detection

DIN38407-21-A	1 x 1 mL
10 µg/mL each in MeOH	12 comps.
Picric acid	Nitroglycerin
HMX	TNT
RDX	2-Nitrotoluene
Tetryl	PETN
EGDN	4-Nitrotoluene
DEGDN	3-Nitrotoluene

DIN 38407-21 Related Compounds

Examination of water, wastewater, and sludge for determination of selected explosives and related compounds by HPLC with UV detection

DIN38407-21-B	1 x 1 mL
10 µg/mL each in MeOH:AcCN (98:2)	8 comps.
1,3,5-Trinitrobenzene	
1,3-Dinitrobenzene	
4-Amino-2,6-dinitrotoluene	
2,2',4,4',6,6'-Hexanitrodiphenylamine	
2-Amino-4,6-dinitrotoluene	
2,6-Dinitrotoluene	
2,4-Dinitrotoluene	
Diphenylamine	

Gun Surveillance Standards

Inorganic ICP Standards for Gun Shot Residue

Starting Material	Unit	1000 µg/mL Cat. No.	10,000 µg/mL Cat. No.
Matrix			
Antimony	50 mL	-----	ICP-02N-10X-0.5
Sb Dilute HNO ₃ tr.	100 mL	ICP-02N-1	ICP-02N-10X-1
Tartaric acid	500 mL	ICP-02N-5	ICP-02N-10X-5
Barium	50 mL	-----	ICP-04N-10X-0.5
Ba(NO ₃) ₂	100 mL	ICP-04N-1	ICP-04N-10X-1
2-5% Nitric acid	500 mL	ICP-04N-5	ICP-04N-10X-5
Lead	50 mL	-----	ICP-29N-10X-0.5
Pb(NO ₃) ₂	100 mL	ICP-29N-1	ICP-29N-10X-1
2-5% Nitric acid	500 mL	ICP-29N-5	ICP-29N-10X-5

Gun Surveillance Standard

EXP-GSS	1 x 1 mL
At stated conc. (µg/mL) in AcCN	9 comps.
Dimethyl phthalate	200
2,4'-Dinitrodiphenylamine	50
2,4-Dinitrodiphenylamine	50
2-Nitrodiphenylamine	50
4-Nitrodiphenylamine	50
2,2'-Dinitrodiphenylamine	50
4,4'-Dinitrodiphenylamine	50
Diphenylamine	200
N-Nitrosodiphenylamine	75

Organic Compounds for Firearm Discharge Analysis

Compound	Conc.	Matrix	Cat. No.	1 mL
2,4-Dinitrotoluene	100 µg/mL	AcCN:MeOH	M-8330-02-0.1X	
C ₇ H ₆ N ₂ O ₄	1000 µg/mL	AcCN:MeOH	M-8330-02	
2,6-Dinitrotoluene	100 µg/mL	AcCN:MeOH	M-8330-03-0.1X	
C ₇ H ₆ N ₂ O ₄	1000 µg/mL	AcCN:MeOH	M-8330-03	
3,4-Dinitrotoluene	1000 µg/mL	AcCN:MeOH	M-8330-IS	
C ₇ H ₆ N ₂ O ₄				
Diphenylamine	100 µg/mL	DCM	APP-9-097	
C ₁₂ H ₁₁ N				
Ethylcentralite	100 µg/mL	AcCN:MeOH	M-8330-ADD-50	
C ₁₇ H ₂₀ N ₂ O				
Methylcentralite	100 µg/mL	AcCN:MeOH	M-8330-ADD-49	
C ₁₅ H ₁₆ N ₂ O				
2-Nitrodiphenylamine	100 µg/mL	AcCN:MeOH	M-8330-ADD-51	
C ₁₂ H ₁₀ N ₂ O ₂				
4-Nitrodiphenylamine	100 µg/mL	AcCN:MeOH	M-8330-ADD-52	
C ₁₂ H ₁₀ N ₂ O ₂				
1-Nitroglycerin ❖	100 µg/mL	AcCN:MeOH	M-8330-ADD-31	
C ₃ H ₅ N ₃ O ₉				
2-Nitroglycerin ❖	100 µg/mL	AcCN:MeOH	M-8330-ADD-32	
C ₃ H ₅ N ₃ O ₉				
N-Nitrosodiphenylamine	100 µg/mL	DCM	APP-9-150	
C ₁₂ H ₁₀ N ₂ O				
2-Nitrotoluene	1000 µg/mL	AcCN:MeOH	M-8330-07	
C ₇ H ₇ NO ₃				
3-Nitrotoluene	1000 µg/mL	AcCN:MeOH	M-8330-08	
C ₇ H ₇ NO ₃				
4-Nitrotoluene	1000 µg/mL	AcCN:MeOH	M-8330-09	
C ₇ H ₇ NO ₃				

Any compound without ❖ could contain possible isomers

Technical Note

We offer gunshot residue standards through our "AccuTrace" inorganic products. Custom solutions of Antimony, Barium and Lead are available for use with ICP instrumentation. Organic compounds identified in the discharge of a firearm are also available.





Plastic Additives

Plastics and other polymeric materials have become indispensable in our everyday lives. Although they offer many benefits, hazardous chemicals may be present in these materials. These hazardous materials can be introduced either intentionally as additives, or unintentionally as pollutants.

AccuStandard has collected or synthesized many of these polymer adjuncts and is pleased to present them in this newest unique product line as certified reference materials for monitoring these chemicals.

The occurrence, toxicity and analytical methods used in the detection, monitoring (for both presence and levels) of these chemical classes and individual compounds within these classes are more thoroughly described in the book the "Handbook for the Chemical Analysis of Plastic and Polymer Additives" 2nd Ed. (published in 2015 by CRC Press). Both manufacturers and analytical laboratories will find the CRC book to be an authoritative source of information that compliments this catalog.

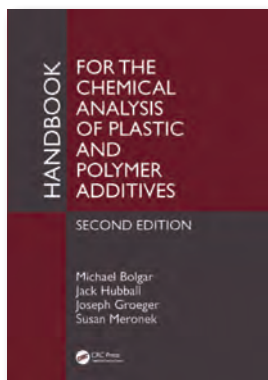
Calibrating with Certified Standards adds an additional layer of confidence in the analysis that can aid in meeting regulations, assisting in challenges from governmental regulations, and providing protection from legal issues that could be raised by consumers.

Below find a list of regulations that require analysis of many of these additives:

- EU Directives 2002/96/EC and 2002/95/EC WEEE (Waste Electrical and Electronic Equipment) that establishes limits for the content of a product that must be recyclable or reusable.
- EU Directive 2003/11/EC RoHS (restriction of the use of certain hazardous substances) restricting the use of six toxins from most electronic and electrical equipment.
- EU Directive 2002/72/EC relating to plastic materials and articles intended to come in contact with foodstuffs.
- EU Directive 2002/61/EC aryl amine breakdown products in azo dyes.
- EU Directive 67/548/EEC relating to the packaging of dangerous substances.
- FDA and The United States Code of Federal Regulations (CFR) - 21 CFR Parts 175-178 that regulate adhesives, components of coatings, paper and paperboard components, polymers and adjuvants as well as production aids.
- United States Environmental Protection Agency (USEPA) - Methods 606, 506-1 and 8061 regulating phthalates and adipates.

The perfect companion for your analysis!

The Handbook for Chemical Analysis of Plastic and Polymer Additives, 2nd Edition



Each Compound has:

Chemical Information

- Structure
- CAS Number (where applicable)
- RTECS Number (where available)
- Chemical Formula
- Molecular Weight
- IUPAC Name, other common names and some popular brand names (where available)

Physical Properties

- Appearance
- Melting and Boiling Points
- Stability
- Solubilities in several common solvents

Other Important Information

- Application
- Regulatory
- Environmental Impact
- Point of Release
- Toxicological Data

Analytical Data

- Mass Spectrum with key ions tabulated
- Chromatogram with conditions

This reference handbook contains the compounds in this catalog, with important reference data to aid in testing and compliance. There is also information to help with real world examples, tips for analysis in challenging matrices, and much more!

Cat. No: PLAS-CRC-BOOK2

Plastic Additive Standards Guide



Both the Handbook and Guide are organized into classes by additive type. Manufacturers can easily find Standards that match their particular application and product formulation for the following product categories:

- Medical Devices
- Food Packaging
- Pharmaceutical Packaging
- Toys
- Wire and Cable

This guide includes chemical structures, formulas, molecular weight, etc. Additional sections include Phthalates and Bisphenol Analog standards.

Visit our website to download

Table of Contents

Accelerants	89
Antidegradants	89
Antifoams	89
Antioxidants	89-90
Antiozonants	90
Blowing Agents	90
Coupling Agents	91
Crosslinking Agents	91
Flame Retardants	91, 28-41
Plasticizers	
BPA, Phthalates	92-93
Processing Aids	93
Retarders	93
Stearates	94
UV Stabilizers	94
Vegetable Oils	94
Deuterated Phthalates	94



Trade-named products are usually technical mixtures.

Solutions at 1000 µg/mL in Hexane, except where indicated
 ☆ Hexane:Acetone, -A Acetone, -T Toluene, -M Methanol, - DMSO

Plastic Additives

Accelerants

Trade Name	Chemical Name	CAS No.	NEAT (50 mg)	SOLN (1 mL)
Accelerator BBTS	N-(1,1-dimethylethyl)-2-benzo thiazolesulfenamido	95-31-8	PLAS-AC-003N	PLAS-AC-003S
Accelerator CBTS	N-cyclohexyl-2-benzothiazole sulfenamido	95-33-0	PLAS-AC-007N	-----
Accelerator EZ & EZ-SP	Zinc diethyldithiocarbamate	14324-55-1	PLAS-AC-006N	PLAS-AC-006S ☆
Accelerator MBT, MBT/MG	2-Mercaptobenzothiazole	149-30-4	PLAS-AC-001N	PLAS-AC-001S ☆
Activator OT Urea	Urea	57-13-6	PLAS-AC-005N	PLAS-AC-005S-A
Akroform ETU-22 PM	Ethylene thiourea	96-45-7	PLAS-AC-002N	PLAS-AC-002S ☆
Cure-Rite® IBT	Tetraisobutylthiuram disulfide	3064-73-1	PLAS-AC-004N	PLAS-AC-004S
Dipentamethylenethiuram tetrasulfide		120-54-7	PLAS-AC-009N	-----
1,3-Diphenyl-2-thiourea		102-08-9	PLAS-AC-008N	-----
1,3-Di-o-tolylguanidine		97-39-2	PLAS-AC-010N	-----

Antidegradants

Trade Name	Chemical Name	CAS No.	NEAT (50 mg)	SOLN (1 mL)
Akrochem® Antiox 12	Butylated reaction product of p-cresol and dicyclopentadiene	68610-51-5	PLAS-AD-001N	PLAS-AD-001S ☆
Ethanox® 314	1,3,5-Tris(3,5-di-tert-butyl-4-hydroxybenzyl)-1,3,5-triazine-2,4,6-(1H,3H,5H)-trione	27676-62-6	PLAS-AX-084N	PLAS-AX-084S
Ethanox® 703	2-,6-Di-tert-butyl-N-N-dimethylamino-p-cresol	88-27-7	PLAS-AX-085N	PLAS-AX-085S
Santoflex® IPPD	N-phenyl-N'-propan-2-yl-benzene-1,4-diamine	101-72-4	PLAS-AD-003N	PLAS-AD-003S ☆
Santoflex® 77PD	N,N'-bis(1,4-dimethylpentyl)-p-phenylenediamine	3081-14-9	PLAS-AD-002N	PLAS-AD-002S

Antifoams

Trade Name	Chemical Name	CAS No.	NEAT (50 mg)	SOLN (1 mL)
SF100	Dimethyl silicone fluid	9016-00-6	PLAS-AF-001N	PLAS-AF-001S

Antioxidants

Trade Name	Chemical Name	CAS No.	NEAT (50 mg)	SOLN (1 mL)
Alkanox® P27	bis(2,4-Di-tert-butylphenyl)pentaerythritol diphosphate and magnesium aluminum hydroxy carbonate hydrate	26741-53-7 / 11097-59-9	PLAS-AX-032N	-----
Alkanox® TNPP	Tris(mono-nonylphenyl) phosphite with up to 1% triisopropanol amine	26523-78-4	PLAS-AX-077N	PLAS-AX-077S
Anox® PP18	Octadecyl 3-(3,5-di-tert-butyl-4-hydroxyphenyl)propanoate	2082-79-3	PLAS-AX-114N	-----
Antioxidant 60	2H-benzimidazole-2-thione, 1,3-di-hydro-4(or 5)-methyl	53988-10-6	PLAS-AX-019N	PLAS-AX-019S-M
Antioxidant S	Benzenamine, N-phenyl, reaction products with 2,4,4-trimethylpentene	68411-46-1	PLAS-AX-057N	PLAS-AX-057S
2-(2H-Benzotriazol-2-yl)-4,6-bis(1-methyl-1-phenylethyl)phenol		3147-75-9	PLAS-AX-094N	-----
BLS® 234	2-[2-Hydroxy-3,5-di-(1,1-dimethylbenzyl)]-2H-benzotriazole	70321-86-7	PLAS-AX-088N	-----
BLS® 292	bis(1,2,2,6,6-pentamethyl-4-piperidiny)sebacate and Methyl(1,2,2,6,6-pentamethyl-4-piperidiny)sebacate	41556-26-7 / 8219-37-7	PLAS-AX-089N	-----
BLS® 1622	Dimethyl succinate polymer with 4-hydroxy-2,2,6,6-tetramethyl-1-piperidine ethanol	65447-77-0	PLAS-AX-096N	-----
BLS® 1944	Poly[[(1,1,3,3-tetramethylbutyl)amino]]-s-triazine-2,4-diy]][(2,2,6,6-tetramethyl-4-piperidyl)imino]]hexamethylene[(2,2,6,6-tetramethyl-4-piperidyl)imino]	70624-18-9	PLAS-AX-090N	-----
BNX 1077	Benzenepropanoic acid, 3,5-bis(1,1-dimethylethyl)-4-hydroxy-, isotridecyl ester	847488-62-4	PLAS-AX-087N	-----
BNX 1225TPR	Blend of BNX® 1010, Benefos® 1680 and SIS Block Copolymer	6683-19-8/31570-04-4/ 25038-32-8	PLAS-AX-091N	-----
2-tert-Butyl-6-(5-chloro-2H-benzotriazol-2-yl)-4-methylphenol		3896-11-5	PLAS-AX-093N	-----
4,4'-Butylidenebis(6-tert-butyl-m-cresol)		85-60-9	PLAS-AX-105N	-----
Cyanox® 1212	Lauryl stearylthiopropionate	13103-52-1	PLAS-AX-047N	PLAS-AX-047S
Cyanox® 1790	1,3,5-Tris(4-tert-butyl-3-hydroxy-2,6-dimethylbenzyl)-1,3,5-triazine-2,4,6-(1h,3h,5h)-trione	40601-76-1	PLAS-AX-005N	PLAS-AX-005S
Cyanox® 2246	2,2'-Methylene-bis-(4-methyl-6-tert-butyl-phenol)	119-47-1	PLAS-AX-013N	PLAS-AX-013S
Cyanox® 425	2,2'-Methylene-bis-(4-ethyl-6-tert-butyl-phenol)	88-24-4	PLAS-AX-012N	PLAS-AX-012S
Cyanox® LTDP	Dilaurylthiopropionate	123-28-4	PLAS-AX-041N	PLAS-AX-041S
Cyanox® STDP	Distearylthiopropionate	693-36-7	PLAS-AX-044N	PLAS-AX-044S
Dibenzylhydroxylamine		621-07-8	PLAS-AX-092N	-----
3,9-bis(2,4-Dicumylphenoxy)-2,4,8,10-tetraoxa-3,9-diphosphaspiro[5,5]undecane		154862-43-8	PLAS-AX-111N	-----
Diethyl 3,5-Di-tert-butyl-4-hydroxybenzyl phosphonate		976-56-7	PLAS-AX-110N	-----
N,N'-Diethylthiourea	1,3-Diethyl-2-thiourea	105-55-5	PLAS-AX-103N	-----
3,9-bis(Octadecyloxy)-2,4,8,10-tetraoxa-3,9-diphosphaspiro[5,5]undecane		3806-34-6	PLAS-AX-108N	-----
Distyryl biphenyl		27344-41-8	PLAS-AX-099N	-----
2,6-Di-tert-butyl-4-ethylphenol		4130-42-1	PLAS-AX-107N	-----
2,6-Di-tert-butylphenol		128-39-2	PLAS-AX-112N	-----
Ethanox® 310	Pentaerythritol tetrakis (3-(3,5-di-t-butyl-4-hydroxyphenyl)propionate	6683-19-8	PLAS-AX-086N	PLAS-AX-086S
Ethanox® 323	Nonylphenol disulfide oligomer		PLAS-AX-082N	PLAS-AX-082S
Ethanox® 330	1,3,5-Trimethyl-2,4,6-tris(3,5-di-tert-butyl-4-hydroxybenzyl) benzene	1709-70-2	PLAS-AX-021N	PLAS-AX-021S

Antioxidants continued on next page



Plastic Additives

Trade-named products are usually technical mixtures.

Solutions at 1000 µg/mL in Hexane, except where indicated
☆ Hexane:Acetone, -A Acetone, -T Toluene, -M Methanol, - DMSO

Antioxidants (Continued)

Trade Name	Chemical Name	CAS No.	NEAT (50 mg)	SOLN (1 mL)
Ethanox [®] 376	3,5-Di-tert-butyl-4-hydroxyhydrocinnamic acid, octadecyl ester	2082-79-3	PLAS-AX-054N	PLAS-AX-054S
Ethanox [®] 702	4,4'-Methylenebis(2,6-di-tert-butylphenol)	118-82-1	PLAS-AX-025N	PLAS-AX-025S
Ethanox [®] 703	2,6-Di-tert-butyl-N,N-dimethylamino-p-cresol	88-27-7	PLAS-AX-085N	PLAS-AX-085S
Ethaphos [®] 368	tris(2,4-Di-tert-butylphenyl) phosphite	31570-04-4	PLAS-AX-074N	PLAS-AX-074S
2,2'-Ethylidene-bis(4,6-di-tert-butylphenol)		35958-30-6	PLAS-AX-106N	-----
2-(2'-Hydroxy-3',5'-di-tert-amylphenyl) benzotriazole		25973-55-1	PLAS-AX-095N	-----
Irganox [®] 245	Triethyleneglycol bis[3-(3'-tert-butyl-4'-hydroxy-5'-methylphenyl)propionate]	36443-68-2	PLAS-AX-070N	PLAS-AX-070S
Irganox 259	Hexamethylene bis(3-(3,5-di-tert-butyl-4-hydroxyphenyl)propionate)	35074-77-2	PLAS-AX-045N	PLAS-AX-045S
Irganox 565	2,4-bis(n-Octylthio)-6-(4-hydroxy-3,5-di-tert-butylanilino)-1,3,5-triazine	991-84-4	PLAS-AX-014N	PLAS-AX-014S
Irganox 1035	Thiodiethylene bis(3,5-di-tert-butyl-4-hydroxyhydrocinnamate)	41484-35-9	PLAS-AX-069N	PLAS-AX-069S
Irganox 1081	6,6'-Di-tert-butyl-2,2'-thiodi-p-cresol	90-66-4	PLAS-AX-080N	PLAS-AX-080S
Irganox 1098	N,N'-1,6-Hexanediyol bis[3,5-bis(1,1-dimethylethyl)-4-hydroxy-benzenepropanamide]	23128-74-7	PLAS-AX-050N	PLAS-AX-050S ☆
Irganox 1425 WL	Ethyl 3,5-di-tert-butyl-4-hydroxybenzylphosphonate, calcium salt and polyethylene-wax mixture	65140-91-2 / 9002-88-4	PLAS-AX-079N	-----
Irganox 3125	3,5-Di-tert-butyl-4-hydroxyhydrocinnamic ester with 1,3,5-tris[2-hydroxyethyl]-s-triazine-2,4,6[1H,3H,5H]-trione	34137-09-2	PLAS-AX-020N	PLAS-AX-020S ☆
Irganox 3114 FF	1,3,5-Tris(3,5-di-tert-butyl-4-hydroxybenzyl)-1,3,5-triazine-2,4,6-(1H,3H,5H)-trione	27676-62-6	PLAS-AX-078N	PLAS-AX-078S
Irganox E 201	alpha-Tocopherol	10191-41-0	PLAS-AX-027N	PLAS-AX-027S
Irganox MD 1024	1,2-bis(3,5-Di-tert-butyl-4-hydroxyhydrocinnamoyl)hydrazide	32687-78-8	PLAS-AX-001N	PLAS-AX-001S ☆
Isonox [®] 132	2,6-Di-tert-butyl-4-sec-butylphenol	17540-75-9	PLAS-AX-018N	PLAS-AX-018S
Isonox 232	2,6-Di-tert-butyl-4-nonylphenol	4306-88-1	PLAS-AX-063N	PLAS-AX-063S
Lowinox [®] AH25	2,5-bis(1,1-Dimethylpropyl)-1,4-benzenediol	79-74-3	PLAS-AX-016N	PLAS-AX-016S
Lowinox CPL	Polymeric sterically hindered phenol	68610-51-5	PLAS-AX-059N	PLAS-AX-059S
Lowinox TBM-6	4,4'-Thiobis(2-tert-butyl-5-methylphenol)	96-69-5	PLAS-AX-024N	PLAS-AX-024S
Markstat [®] 60	Polyethylene glycol ether (<20% NaClO ₄)	7601-89-0	PLAS-AX-028N	PLAS-AX-028S
Naugard [®] 412S	beta-Laurylthiopropionate	29598-76-3	PLAS-AX-030N	PLAS-AX-030S
Naugard 445	4,4'-bis(alpha,alpha-Dimethylbenzyl)diphenylamine	10081-67-1	PLAS-AX-022N	PLAS-AX-022S
Naugard 635	4-(1-phenylethyl)-N-[4-(1-phenylethyl)phenyl]aniline	68442-68-2	PLAS-AX-113N	-----
Naugard 956	Proprietary blend of primary and secondary antioxidants		PLAS-AX-060N	PLAS-AX-060S-T
Naugard A	Acetone diphenylamine condensation products	68412-48-6	PLAS-AX-026N	PLAS-AX-026S
Naugard B-25	1:1 blend of Naugard [®] 10 and Naugard [®] 524	6683-19-8 / 31570-04-4	PLAS-AX-061N	PLAS-AX-061S
Naugard BHT	2,6-Di-tert-butyl-4-methylphenol	128-37-0	PLAS-AX-017N	PLAS-AX-017S
Naugard HM-22	Blend of phenolic primary and diphenylamine secondary antioxidants (Naugards 76 and 445)	10081-67-1 / 2082-79-3	PLAS-AX-033N	PLAS-AX-033S
Naugard J	N,N'-Diphenyl-p-phenylenediamine	74-31-7	PLAS-AX-048N	PLAS-AX-048S ☆
Naugard NBC	Nickel dibutyl dithiocarbamate	13927-77-0	PLAS-AX-051N	PLAS-AX-051S
Naugard PANA	N-Phenyl-1-naphthylamine	90-30-2	PLAS-AX-058N	PLAS-AX-058S
Naugard PHR	Tris(mono-nonylphenyl) phosphite with up to 1% triisopropanol amine	26523-78-4	PLAS-AX-076N	PLAS-AX-076S
Naugard PS-30	Benzenamine, N-phenyl, reaction products with 2,4,4-trimethylpentene	68411-46-1	PLAS-AX-038N	PLAS-AX-038S
Naugard PS-35	Butylated, octylated diphenylamine 2,6 di-tert-butyl-4-sec-butyl phenol	732-26-3	PLAS-AX-046N	PLAS-AX-046S
Naugard Q Extra	1,2-Dihydro-2,2,4-trimethylquinoline (polymerized)	26780-96-1	PLAS-AX-002N	PLAS-AX-002S
Naugard RM-51	Tris(mono-nonylphenyl)phosphite,2,2'-methylene bis (4-methyl-6-nonyl phenol)		PLAS-AX-034N	PLAS-AX-034S
Naugard Super Q	1,2-Dihydro-2,2,4-trimethylquinoline (polymerized)	26780-96-1	PLAS-AX-003N	PLAS-AX-003S
Naugard XL-1	2,2'-Oxamidobis[ethyl-3-(3,5-di-tert-butyl-4-hydroxyphenyl)propionate]	70331-94-1	PLAS-AX-008N	PLAS-AX-008S ☆
Propyl gallate	propyl 3,4,5-trihydroxybenzoate	121-79-9	PLAS-AX-109N	-----
bis(2,2,6,6-Tetramethyl-4-piperidyl) sebacate		52829-07-9	PLAS-AX-097N	-----
2,2'-(2,5-Thiophenediyl)bis(5-tert-butylbenzoxazole)		7128-64-5	PLAS-AX-098N	-----
Ultrinox [®] 626	bis(2,4-Di-tert-butylphenyl)pentaerythritol diphosphite	26741-53-7	PLAS-AX-031N	PLAS-AX-031S

Antiozonants

Trade Name	Chemical Name	CAS No.	NEAT (50 mg)	SOLN (1 mL)
Antiozonant NIBUD	Nickel dibutyl dithiocarbamate	13927-77-0	PLAS-AZ-001N	PLAS-AZ-001S
Akrowax [™] 195	Petroleum Wax	64742-42-3	PLAS-AZ-002N	-----

Blowing Agents, Plasticizers

Trade Name	Chemical Name	CAS No.	NEAT (50 mg)	SOLN (1 mL)
CPW-100	Chlorinated paraffin wax	63449-39-8	PLAS-BA-001N	PLAS-BA-001S
Celogen [®] AZ	Carbamoyliminourea	123-77-3	PLAS-BA-002N **	PLAS-BA-002S-DMSO
Celogen [®] RA	[(4-methylphenyl)sulfonylamino]urea	10396-10-8	PLAS-BA-003N	-----

** This product can not ship by air.



Coupling Agents

Trade Name	Chemical Name	CAS No.	NEAT (50 mg)	SOLN (1 mL)
Silquest® A-187	gamma-Glycidoxypropyltrimethoxysilane	2530-83-8	PLAS-CA-004N	PLAS-CA-004S
Silquest A-1100	gamma-Aminopropyltriethoxysilane	919-30-2	PLAS-CA-002N	PLAS-CA-002S
Silquest A-1102	gamma-Aminopropyltriethoxysilane (Tech grade)	919-30-2	PLAS-CA-003N	PLAS-CA-003S
Silquest A-1289	bis-(Triethoxysilylpropyl)tetrasulfane	40372-72-3	PLAS-CA-001N	PLAS-CA-001S
Silquest A-137	Octyltriethoxysilane	2943-75-1	PLAS-CA-005N	PLAS-CA-005S
Silquest A-2171	Vinylmethyldimethoxysilane	16753-62-1	PLAS-CA-006N	PLAS-CA-006S

Cross-Linking Agents

Trade Name	Chemical Name	CAS No.	NEAT (50 mg)	SOLN (1 mL)
F-300, F-1000, F-1500, F-2000, F-3000	Stearic acid	57-11-4	PLAS-CL-006N	PLAS-CL-006S
Perkacit® DPG	N,N'-Diphenylguanidine	102-06-7	PLAS-CL-004N	PLAS-CL-004S ☆
Perkacit MBT	2-Mercaptobenzothiazole	149-30-4	PLAS-CL-002N	PLAS-CL-002S
Perkacit MBTS	2,2'-Dithiobis(benzothiazole)	120-78-5	PLAS-CL-001N	PLAS-CL-001S
Perkacit NDBC	Nickel dibutyl dithiocarbamate	13927-77-0	PLAS-CL-005N	PLAS-CL-005S
Perkacit ZDEC	Zinc diethyldithiocarbamate	14324-55-1	PLAS-CL-007N	PLAS-CL-007S
Resimene® 3520	Hexamethoxy methyl melamine	3089-11-0	PLAS-CL-003N	PLAS-CL-003S

Flame Retardants (see PCB and PBDE section for complete listings)

Chemical Name	CAS No.	Matrix	SOLN (1 mL)
Aroclor® 1016 (Tech Mix)	12674-11-2	1000 µg/mL in Hexane 100 mg	C-216S-H-10X C-216N
Aroclor 1221 (Tech Mix)	11104-28-2	1000 µg/mL in Hexane 50 mg	C-221S-H-10X C-221N-50MG
Aroclor 1232 (Tech Mix)	11141-16-5	1000 µg/mL in Hexane	C-232S-H-10X
Aroclor 1242 (Tech Mix)	53469-21-9	1000 µg/mL in Hexane 50 mg	C-242S-H-10X C-242N-50MG
Aroclor 1248 (Tech Mix)	12672-29-6	1000 µg/mL in Hexane 50 mg	C-248S-H-10X C-248N-50MG
Aroclor 1254 (Tech Mix)	11097-69-1	1000 µg/mL in Hexane 50 mg	C-254S-H-10X C-254N-50MG
Aroclor 1260 (Tech Mix)	11096-82-5	1000 µg/mL in Hexane 50 mg	C-260S-H-10X C-260N-50MG
Aroclor 1262 (Tech Mix)	37324-23-5	1000 µg/mL in Hexane 50 mg	C-262S-H-10X C-262N-50MG
Aroclor 1268 (Tech Mix)	11100-14-4	1000 µg/mL in Hexane	C-268S-H-10X
Aroclor 5432 (Tech Mix)	63496-31-1	35 µg/mL in Toluene	T-432S
Aroclor 5442 (Tech Mix)	12642-23-8	35 µg/mL in Toluene	T-442S
Aroclor 5460 (Tech Mix)	11126-42-4	35 µg/mL in Toluene	T-460S
Aroclor 6050 (Tech Mix)	12767-79-2	35 µg/mL in Toluene	T-6050S
Decabromodiphenyl ether	1163-19-5	50 µg/mL in Isooctane:Toluene	BDE-209S
Firemaster BP4A (4,4'-(1-methylethylidene) bis (2,6-dibromophenol))	79-94-7	100 µg/mL in Toluene	FRS-006S
Halowax 1013 (56 %Cl)	1321-64-8	100 µg/mL in Methanol	N-1013S
Halowax 1014 (62 %Cl)	1335-87-1	100 µg/mL in Methanol	N-1014S
Halowax 1051 (70 %Cl)	2234-13-1	100 µg/mL in Methanol	N-1051S
Halowax 1099 (52 %Cl)	39450-05-0	100 µg/mL in Methanol	N-1099S
2,2',3,4,4',5',6-Heptabromodiphenyl ether	207122-16-5	50 µg/mL in Isooctane	BDE-183S
2,2',4,4'-Tetrabromodiphenyl ether	5436-43-1	50 µg/mL in Isooctane	BDE-047S
2,2',4,4',5-Pentabromodiphenyl ether	60348-60-9	50 µg/mL in Isooctane	BDE-099S
2,2',4,4',5,5'-Hexabromodiphenyl ether	68631-49-2	50 µg/mL in Isooctane	BDE-153S
2,2',4,4',5,6'-Hexabromodiphenyl ether	207122-15-4	50 µg/mL in Isooctane	BDE-154S
2,2',4,4',6-Pentabromodiphenyl ether	189084-64-8	50 µg/mL in Isooctane	BDE-100S
<i>m</i> -Terphenyl	92-06-8	100 mg	T-002N
<i>o</i> -Terphenyl	84-15-1	100 mg	T-001N
<i>p</i> -Terphenyl	92-94-4	100 mg	T-003N
Tetradecachloro- <i>m</i> -terphenyl	42429-89-0	35 µg/mL in Toluene	T-005S
Tetradecachloro- <i>o</i> -terphenyl		35 µg/mL in Toluene	T-004S
Tetradecachloro- <i>p</i> -terphenyl		35 µg/mL in Toluene	T-006S



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Plastic Additives

Plasticizers

Bisphenol A (2,2'-bis(4-hydroxyphenyl)propane, BPA) has been used in commercial and industrial applications since the 1970's. It has been the subject of numerous toxicological studies due to human exposure from leachate originating from polycarbonate plastics and epoxy-lined food and drink containers. Analogs of BPA have been the subject of recent health-related studies.

Bisphenol Analogs			* 1 mg/mL in MeOH	10 µg/mL in MeOH
Bisphenol A (BPA)	4,4'-Isopropylidene-diphenol	80-05-7	BPA-A-N 50 mg	M-1626-01S * BPA-A-S
Bisphenol A diglycidyl ether (BADGE)		1675-54-3	BADGE-001N	BADGE-001S
Bisphenol AF		1478-61-1	BPA-AF-N	BPA-AF-S
Bisphenol AP		1571-75-1	BPA-AP-N	BPA-AP-S
Bisphenol B		77-40-7	BPA-B-N-10MG	BPA-B-S
Bisphenol BP		1844-01-5	BPA-BP-N	BPA-BP-S
Bisphenol C		79-97-0	BPA-C-N	BPA-C-S
Bisphenol C-dichloride		14868-03-2	BPA-C2-N	BPA-C2-S
Bisphenol E		2081-08-5	BPA-E-N	BPA-E-S
Bisphenol F		620-92-8	BPA-F-N-10MG	BPA-F-S
Bisphenol G		127-54-8	BPA-G-N	BPA-G-S
Bisphenol M		13595-25-0	BPA-M-N	BPA-M-S
Bisphenol P		2167-51-3	BPA-P-N	BPA-P-S
Bisphenol PH		24038-68-4	BPA-PH-N	BPA-PH-S
Bisphenol S		80-09-1	BPA-S-N	BPA-S-S
Bisphenol TMC		129188-99-4	BPA-TMC-N-10MG	BPA-TMC-S
Bisphenol Z		843-55-0	BPA-Z-N	BPA-Z-S

In response to restrictions imposed as a result of world-wide concern over environmental and health-related issues of phthalates, the plastics industry is generating a variety of alternatives. These new plasticizers include 42 phthalate replacement compounds representing 18 chemical classes.

Trade Name	Chemical Name	CAS No.	NEAT (50 mg)	SOLN (1 mL)
Benzoflex® 2-45	Diethylene glycol dibenzoate	120-55-8	PLAS-PL-015N	PLAS-PL-015S
n-Butyl acetyl ricinoleate	Ricinoleic Acid Derivative	140-04-5	-----	PLAS-PL-107S
n-Butyl stearate	Stearic acid Derivative	123-95-5	-----	PLAS-PL-114S
t-Butylphenyl diphenyl phosphate	Phosphoric Acid Derivative	56803-37-3	-----	PLAS-PL-103S
Butyl ricinoleate	Ricinoleic Acid Derivative	151-13-3	-----	PLAS-PL-105S
Celogen® SD-125	50% Azodicarbonamide in a phthalate plasticizer		PLAS-PL-009N	PLAS-PL-009S
Citroflex® 2	2-Hydroxy-1,2,3-propanetricarboxylic acid, triethyl ester	77-93-0	PLAS-PL-028N	PLAS-PL-028S
Citroflex 4	2-Hydroxy-1,2,3-propanetricarboxylic acid, tributyl ester	77-94-1	PLAS-PL-030N	PLAS-PL-030S
Citroflex A-2	2-(Acetyloxy)-1,2,3-propanetricarboxylic acid, triethyl ester	77-89-4	PLAS-PL-001N	PLAS-PL-001S
Citroflex A-4	2-Acetoxy-1,2,3-propanetricarboxylic acid, tributyl ester	77-90-7	PLAS-PL-002N	PLAS-PL-002S
Citroflex B-6	n-Butyltri-n-hexyl citrate	82469-79-2	PLAS-PL-025N	PLAS-PL-025S
Cresyl diphenyl phosphate	(4-Methylphenyl) diphenyl phosphate	26444-49-5	PLAS-PL-059N	-----
Dibutyl fumarate	Fumaric Acid Derivative	105-75-9	-----	PLAS-PL-087S
Di n-butyl maleate	Maleic Acid Derivative	105-76-0	-----	PLAS-PL-091S
Dibutyl phthalate		84-74-2	PLAS-PL-013N	PLAS-PL-013S
Dibutyl sebacate	Dimethyl decanedioate	109-43-3	PLAS-PL-062N	-----
Diethyl adipate		141-28-6	PLAS-PL-043N	-----
Di(2-ethylhexyl)azelate	Azelic Acid Derivative	103-24-2	-----	PLAS-PL-081S-A
Di(2-ethylhexyl)maleate [Diocetyl maleate]	Maleic Acid Derivative	142-16-5	-----	PLAS-PL-090S
Diethyl succinate	Succinic acid Derivative	123-25-1	-----	PLAS-PL-109S
Di(n-heptyl, n-nonyl) adipate	Adipic Acid Derivative	68515-75-3	-----	PLAS-PL-080S
Di-n-hexyl azelate	Azelic Acid Derivative	109-31-9	-----	PLAS-PL-078S-A
Diisobutyl adipate	Adipic Acid Derivative	141-04-8	-----	PLAS-PL-085S
Diisooctyl azelate	Azelic Acid Derivative	26544-17-2	-----	PLAS-PL-076S-A
Diisodecyl azelate	Azelic Acid Derivative	28472-97-1	-----	PLAS-PL-075S-A
Diisodecyl adipate	Adipic Acid Derivative	27178-16-1	-----	PLAS-PL-083S
Diisooctyl phthalate	bis(6-Methylheptyl)benzene-1,2-dicarboxylate	27554-26-3	PLAS-PL-071N	-----
Dimethyl adipate	Dimethyl hexanedioate	627-93-0	PLAS-PL-070N	-----
Dimethyl azelate	Azelic Acid Derivative	1732-10-1	-----	PLAS-PL-077S-A
Dimethyl sebacate	Dimethyl decanedioate	106-79-6	PLAS-PL-061N	-----
Diocetyl phthalate (DOP)		117-81-7	PLAS-PL-019N	PLAS-PL-019S
Di(propylene glycol) dibenzoate	Benzoic Acid Derivative	27138-31-4	-----	PLAS-PL-101S
Disflamol® TKP	Tricresyl phosphate	1330-78-5	PLAS-PL-073N	-----
Disflamol® TP	Triphenyl phosphate	115-86-6	PLAS-PL-069N	-----
Di(tridecyl) adipate	Adipic Acid Derivative	16958-92-2	-----	PLAS-PL-079S-A
Epoxidized linseed oil	Epoxy Derivative	8016-11-3	-----	PLAS-PL-085S-T
Ethylene glycol monostearate	Stearic acid Derivative	111-60-4	-----	PLAS-PL-112S
N-Ethyl o,p-toluenesulfonamide	Succinic acid Derivative	8047-99-2	-----	PLAS-PL-111S
2-Ethylhexyl epoxy tallate	Epoxy Derivative	61789-01-3	-----	PLAS-PL-086S
2-Ethylhexyl sebacate	bis(2-Ethylhexyl) decanedioate	122-62-3	PLAS-PL-064N	-----
bis(2-Ethylhexyl)terephthalate	bis(2-Ethylhexyl) benzene-1,4-dicarboxylate	6422-86-2	PLAS-PL-065N	-----
Glycerol monooleate	Oleic Acid Derivative	25496-72-4	-----	PLAS-PL-096S
Glycerol monostearate	Stearic acid Derivative	31566-31-1	-----	PLAS-PL-115S-T
Glycerol triacetate	Glycerol Derivative	102-76-1	-----	PLAS-PL-088S
Glyceryl (triacetyl)ricinoleate	Ricinoleic Acid Derivative	101-34-8	-----	PLAS-PL-106S
Hercoflex® 900	1,3-Isobenzofurandione, polymer with 2,2'-(1,2-ethanediy)bis(oxy) bis(ethanol), benzoate	68186-30-1	PLAS-PL-038N	PLAS-PL-038S
Hi-Point® PD-1	Methyl ethyl ketone peroxide solution		PLAS-PL-024N	PLAS-PL-024S *



Trade-named products are usually technical mixtures.

Solutions at 1000 µg/mL in Hexane, except where indicated

☆ Hexane:Acetone, -A Acetone, -T Toluene, -M Methanol, -DMSO, -D Dichloromethane -CN Acetonitrile

Plasticizers (Continued)

Trade Name	Chemical Name	CAS No.	NEAT (50 mg)	SOLN (1 mL)
bis(2-Hydroxyethyl)dimerate	Dimer Acid Derivative	68855-78-7	-----	PLAS-PL-084S
Isopropyl isostearate	Stearic acid Derivative	68171-33-5	-----	PLAS-PL-113S
Isopropyl myristate	Myristate	110-27-0	-----	PLAS-PL-095S
Isopropyl palmitate	Palmitic Acid derivative	142-91-6	-----	PLAS-PL-100S
Jayflex® 77	Diisooheptyl phthalate	71888-89-6	PLAS-PL-017N	PLAS-PL-017S
Jayflex DIDP	Diisodecyl phthalate	68515-49-1	PLAS-PL-016N	PLAS-PL-016S
Jayflex DINP	Diisononyl phthalate	68515-48-0	PLAS-PL-018N	PLAS-PL-018S
Jayflex DTDPP	Diisotridecyl phthalate	68515-47-9	PLAS-PL-020N	PLAS-PL-020S
Jayflex L11P-E	Diundecyl phthalate	3648-20-2	PLAS-PL-021N	PLAS-PL-021S
Jayflex TINTM	Triisononyl trimellitate	53894-23-8	PLAS-PL-029N	PLAS-PL-029S
Laurex®	Zinc salt of lauric and related fatty acids		PLAS-PL-032N	PLAS-PL-032S
Markstat® 51	Poly(ethylene glycol) monolaurate	9004-81-3	PLAS-PL-003N	PLAS-PL-003S
Methyl O-Acetylricinoleate	Methyl (Z)-12-acetyloxyoctadec-9-enoate	140-03-4	PLAS-PL-063N	-----
Methyl oleate	Oleic Acid Derivative	112-62-9	-----	PLAS-PL-097S
Morfex® 150	Dicyclohexyl phthalate	84-61-7	PLAS-PL-014N	PLAS-PL-014S
Morfex 190	Butylphthalyl butyl glycolate	85-70-1	PLAS-PL-008N	PLAS-PL-008S
Morfex 560	Tri-n-hexyl trimellitate	1528-49-0	PLAS-PL-031N	PLAS-PL-031S
Morfex x-1125	Di(tridecyl) phthalate	119-06-2	PLAS-PL-033N	PLAS-PL-033S
Paraplex® G-30	Proprietary dibasic acid polyester mixture		PLAS-PL-027N	PLAS-PL-027S
Plasthall® DINP	Diisononyl phthalate	28553-12-0	PLAS-PL-072N	PLAS-PL-072S
Plasthall ESO	Epoxidized soybean oil	8013-07-8	PLAS-PL-035N	-----
Polycizer® butyl oleate	Butyl oleate	142-77-8	PLAS-PL-007N	PLAS-PL-007S
Polycizer DP 500	Dipropylene glycol dibenzoate	27138-31-4	PLAS-PL-011N	PLAS-PL-011S
Polyethylene glycol 200 dibenzoate	Benzoic Acid Derivative	9004-86-8	-----	PLAS-PL-102S
n-Propyl oleate	Oleic Acid Derivative	111-59-1	-----	PLAS-PL-098S
Propylene glycol monostearate	Stearic acid Derivative	1323-39-3	-----	PLAS-PL-116S
Propylene glycol ricinoleate	Ricinoleic Acid Derivative	26402-31-3	-----	PLAS-PL-108S
Santicizer® 141	2-Ethylhexyldiphenyl phosphate	1241-94-7	PLAS-PL-026N	PLAS-PL-026S
Santicizer 148	Mixture: isodecylphenyl phosphate (80-90%) / diisodecyl phenyl phosphate / triphenyl phosphate	29761-21-5	PLAS-PL-022N	PLAS-PL-022S
Santicizer 160	Benzyl butyl phthalate	85-68-7	PLAS-PL-004N	PLAS-PL-004S
Santicizer 261	Benzyl octyl phthalate	68515-40-2	PLAS-PL-005N	PLAS-PL-005S
Santicizer 278	Benzyl 3-isobutyroxy-1-isopropyl-2,2-dimethylpropyl phthalate	16883-83-3	PLAS-PL-074N	-----
Tetrahydrofurfuryl oleate	Oleic Acid Derivative	5420-17-7	-----	PLAS-PL-099S
o,p-Toluenesulfonamide	Succinic acid Derivative	8013-74-9	-----	PLAS-PL-110S
Tri-butoxyethyl phosphate	Phosphoric Acid Derivative	78-51-3	-----	PLAS-PL-104S
Tributylphosphate	Tributyl phosphate	126-73-8	PLAS-PL-068N	-----
Tricapryl trimellitate	Mellitate	27251-75-8	-----	PLAS-PL-092S
Triethylphosphate		78-40-0	PLAS-PL-067N	-----
Triisodecyl trimellitate	Mellitate	36631-30-8	-----	PLAS-PL-093S
Tri-(n-octyl, n-decyl) trimellitate	Mellitate	67989-23-5	-----	PLAS-PL-094S
2,2,4-Trimethyl-1,3-pentanediol-diisobutyrate	Isobutyrate Derivative	6846-50-0	-----	PLAS-PL-089S
2,2,4-Trimethyl-1,3-pentanediol-isobutyrate		25265-77-4	PLAS-PL-066N	-----
Trimellitate	1,2,4-Benzenetricarboxylic acid, tris(2-ethylhexyl) ester	3319-31-1	PLAS-PL-060N	-----
Vinsol® powder	Gum rosin	8050-09-7	PLAS-PL-037N	PLAS-PL-037S-D
Vinsol® resin	Gum rosin	8050-09-7	PLAS-PL-036N	PLAS-PL-036S-D

Processing Aids

Trade Name	Chemical Name	CAS No.	NEAT (50 mg)	SOLN (1 mL)
Akrochem® Ceresin Wax		8001-75-0	PLAS-PA-002N	-----
Kemamide® E ultra	Erucamide	112-84-5	PLAS-PA-001N	PLAS-PA-001S

Retarders

Trade Name	Chemical Name	CAS No.	NEAT (50 mg)	SOLN (1 mL)
Akrochem® Retarder BAX		65-85-0	PLAS-RT-011N	-----
2-Cyano-2-propyl benzodithioate		201611-85-0	PLAS-RT-002N	PLAS-RT-002S ☆
2-Cyano-2-propyl dodecyl trithiocarbamate		870196-83-1	PLAS-RT-004N	PLAS-RT-004S
4-Cyano-4-[(dodecylsulfanylthiocarbonyl)sulfanyl]pentanoic acid		870196-80-8	PLAS-RT-005N	PLAS-RT-005S
4-Cyano-4-(phenylcarbonothioylthio)pentanoic acid		201611-92-9	PLAS-RT-003N	PLAS-RT-003S
Cyanomethyl dodecyl trithiocarbonate		796045-97-1	PLAS-RT-006N	PLAS-RT-006S
Cyanomethyl methyl(phenyl)carbamodithioate		76926-16-4	PLAS-RT-009N	-----
2-(Dodecylthiocarbonothioylthio)-2-methylpropionic acid		461642-78-4	-----	PLAS-RT-010S
bis(Dodecylsulfanylthiocarbonyl)disulfide		870532-86-8	PLAS-RT-008N	PLAS-RT-008S
Retarder AK	Phthalic anhydride	85-44-9	PLAS-RT-001N	PLAS-RT-001S ☆
bis(Thiobenzoyl)disulfide		5873-93-8	PLAS-RT-007N	PLAS-RT-007S



Plastic Additives, ASTM D6042-92

Stearates

Trade Name	Chemical Name	CAS No.	NEAT (50 mg)	SOLN (1 mL)
Stearic acid RG (rubber grade)	Stearic acid	57-11-4	PLAS-ST-001N	PLAS-ST-001S
Stearic acid TP	Stearic acid	57-11-4	PLAS-ST-002N	PLAS-ST-002S

UV Stabilizers

Trade Name	Chemical Name	CAS No.	NEAT (50 mg)	SOLN (1 mL)
	2-(2-Hydroxy-5-methylphenyl)benzotriazole	2440-22-4	PLAS-UV-006N	PLAS-UV-006S-CN
	2-(5-tert-Butyl-2-hydroxyphenyl)benzotriazole	3147-76-0	PLAS-UV-007N	PLAS-UV-007S-CN
	2-(2H-Benzotriazol-2-yl)-4,6-bis(1-methyl-1-phenylethyl)phenol	70321-86-7	PLAS-UV-008N	PLAS-UV-008S-CN
	2-tert-Butyl-6(5-chloro-2H-benzotriazol-2-yl)-4-methylphenol	3896-11-5	PLAS-UV-009N	PLAS-UV-009S-CN
	2-(3,5-Di-tert-butyl-2-hydroxyphenyl)2H-benzotriazole	3846-71-7	PLAS-UV-010N	PLAS-UV-010S-CN
	2,4-Di-tert-butyl-6-(5-chloro-2H-benzotriazol-2-yl)phenol	3864-99-1	PLAS-UV-011N	PLAS-UV-011S-CN
	2-(2H-Benzotriazol-2-yl)-4,6-di-tert-pentylphenol	25973-55-1	PLAS-UV-012N	PLAS-UV-012S-CN
	2-(2-Hydroxy-5-tert-octylphenyl)benzotriazole	3147-75-9	PLAS-UV-013N	PLAS-UV-013S-CN
	2-(3-sec-Butyl-5-tert-butyl-2-hydroxyphenyl)benzotriazole	36437-37-3	-----	PLAS-UV-014S-CN
	2-(2H-Benzotriazol-2-yl)-4-methyl-6-(2-propenyl)phenol	2170-39-0	PLAS-UV-015N	PLAS-UV-015S-CN
UV Stabilizers Solution Set		Set of the above	PLAS-UV-STAB-SET	10 x 1 mL
Tinuvin® PED	2-(2-Hydroxy-5-methylphenyl)benzo triazole	2440-22-4	PLAS-UV-005N	PLAS-UV-005S
Uvinul® 3000	2,4-Dihydroxybenzophenone	131-56-6	PLAS-UV-001N	PLAS-UV-001S
Uvinul 3008	2-Hydroxy-4-octyloxybenzophenone	1843-05-6	PLAS-UV-002N	PLAS-UV-002S
Uvinul 3040	2-Hydroxy-4-methoxybenzophenone	131-57-7	PLAS-UV-003N	PLAS-UV-003S
Uvinul 3049	2,2-Dihydroxy-4,4-dimethoxybenzophenone	131-54-4	PLAS-UV-004N	PLAS-UV-004S

Vegetable Oils

Trade Name	Chemical Name	CAS No.	NEAT (50 mg)	SOLN (1 mL)
Akrofax™ A	Vulcanized vegetable oil	68952-47-6	PLAS-VA-001N	----- ---
Akrofax B	Vulcanized vegetable oil		PLAS-VA-002N	----- ---

Deuterated Phthalates

Trade Name	Chemical Name	CAS No.	NEAT	5 mg	SOLN (1 mL)
	Dibenzyl phthalate-d ₄	1015854-62-2	PHTH-D4-001N		PHTH-D4-001S
	Di-n-butyl phthalate-d ₄	93952-11-5	PHTH-D4-002N		PHTH-D4-002S
	Di-iso-butyl phthalate-3,4,5,6-d ₄	358730-88-8	PHTH-D4-003N		PHTH-D4-003S
	Dicyclohexyl phthalate-3,4,5,6-d ₄	358731-25-6	PHTH-D4-004N		PHTH-D4-004S
	Diethyl phthalate-3,4,5,6-d ₄	93952-12-6	PHTH-D4-005N		PHTH-D4-005S
	Di-n-hexyl phthalate-3,4,5,6-d ₄	1015854-55-3	PHTH-D4-006N		PHTH-D4-006S
	Dimethyl phthalate-3,4,5,6-d ₄	93951-89-4	PHTH-D4-007N		PHTH-D4-007S
	Di-n-octyl phthalate-3,4,5,6-d ₄	93952-13-7	PHTH-D4-008N		PHTH-D4-008S
	Di-n-pentyl phthalate-3,4,5,6-d ₄	358730-89-9	PHTH-D4-009N		PHTH-D4-009S
	Di-n-propyl phthalate-3,4,5,6-d ₄	358731-29-0	PHTH-D4-010N		PHTH-D4-010S
	bis(2-Ethylhexyl)phthalate-3,4,5,6-d ₄	93951-87-2	PHTH-D4-011N		PHTH-D4-011S
Sets of Deuterated Phthalates			PHTH-D4N-SET	PHTH-D4S-SET	
			11 x 5 mg	In MeOH	11 x 1 mL

CPSC Phthalate

CPSC Revised Phthalate Standard

PLAS-CPSC-R1 1 mL
500 µg/mL each in Cyclohexane
8 comps.

- bis(2-Ethylhexyl)phthalate
- Dibutyl phthalate
- Diisononyl phthalate
- Benzyl butyl phthalate
- Dipentyl phthalate
- Dihexyl phthalate
- Dicyclohexyl phthalateL
- Diisobutyl phthalate

ASTM Method D6042-92 Plastic Packaging Testing Standards

This method is used by both pharmaceutical companies and plastics manufacturers. The test ensures the quality of the plastic product during the manufacturing process, and as delivered to the pharmaceutical customer. Compounds are often added to the method's analyte list by pharmaceutical companies.

Calibration Mix

PLAS-CAL-001	1 x 1 mL
PLAS-CAL-001-PAK SAVE	5 x 1 mL
50 µg/mL each in Isopropanol 7 comps.	
BHT	Irganox 3114
Erucamide Slip	Irganox 1010
Vitamin E	Irganox 1076
Irgafos 168	

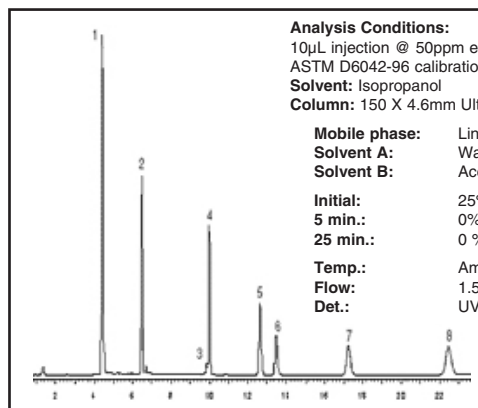
Internal Standard Mix

PLAS-IS-001	1 x 1 mL
PLAS-IS-001-PAK SAVE	5 x 1 mL
51.8 µg/mL in Isopropanol	
Tinuvin P	

Expanded List of Additives

Each at 50 µg/mL in Isopropanol

Ultranox 626	PLAS-CAL-002-1	1 mL
Santanox R	PLAS-CAL-002-2	1 mL
Ethanox 330	PLAS-CAL-002-3	1 mL
Ethanox 323	PLAS-CAL-002-4	1 mL
Ethanox 702	PLAS-CAL-002-5	1 mL
Ethanox 703	PLAS-CAL-002-6	1 mL
Irganox 1035	PLAS-CAL-002-7	1 mL



The figure shows the separation of the compounds on the method's analyte list, as analyzed by our HPLC specialists. The primary calibration standard mixture contains the common antioxidants and slips listed in ASTM D6042-96.

Component list:	1. Tinuvin® P	4. Irganox® 3114	7. Irganox 1076
	2. BHT	5. Irganox 1010	8. Irgafos® 168
	3. Erucamide	6. Vitamin E	

Analysis Conditions:

10µL injection @ 50ppm each component,
ASTM D6042-96 calibration mix and IS mix
Solvent: Isopropanol
Column: 150 X 4.6mm Ultra C8, 5µm, 100Å

Mobile phase: Linear gradient
Solvent A: Water
Solvent B: Acetonitrile

Initial: 25% A 75% B
5 min.: 0% A 100% B
25 min.: 0% A 100% B

Temp.: Ambient
Flow: 1.5mL/min.
Det.: UV @ 200nm



Food chemists routinely use AccuStandard's analytical reference standards for their food analysis. These include lipid, vitamin, preservative and antimicrobial standards. Each standard is methodically prepared, undergoes various quality control analyses and procedures, and is then packaged under the strict ISO guidelines.



Table of Contents

Melamine	95
EFSA	95
Imidazole	95
Lipids	96-99
Unsaturated Methyl Esters	96
Saturated Methyl Esters	96
Saturated Glycerides	96
Unsaturated Glycerides	97
AOCS, Method Ce1-62	97
NIH Profiling Mixes	97
Fatty Acid Methyl Ester (FAME) Mixes	98
Fatty Acid Ethyl Esters (FAEE)	99
Vitamins	99
Preservatives and Antimicrobials	99
Cannabis Standards	100-101

Melamine

Analysis for Melamine in pet food, formula milk, and other foodstuffs can now be more accurate and reliable with the Melamine Reference Standards Set: Melamine, Ammeline, Ammelide, Cyanuric acid, the method recommended Internal Standard, a column clean-up solution, and a Silylating Reagent.

FDA-PROP-001-SET 5 x 1 mL, 2 x 5 mL

		Cat. No.	1 mL
Melamine	1000 µg/mL in Diethylamine:Water (20:80)	FDA-PROP-001A	
Ammeline	1000 µg/mL in Diethylamine:Water (20:80)	FDA-PROP-001B	
Ammelide	1000 µg/mL in Diethylamine:Water (20:80)	FDA-PROP-001C	
Cyanuric acid	1000 µg/mL in Diethylamine:Water (20:80)	FDA-PROP-001D	

Internal Standard

FDA-PROP-001-IS 1 x 1 mL
1000 µg/mL in Pyridine

2,6-Diamino-4-chloropyrimidine

Silylating Reagent

FDA-PROP-001-DER 1 x 5 mL
At stated Vol. %

BSTFA [bis(trimethylsilyl)trifluoroacetamide] 99
TMCS 1

Column Clean-up Check

FDA-PROP-001-CHK 1 x 5 mL
At stated Vol. %

Sylon BFT 50
Pyridine 50

EFSA for Isopropylthioxanthone (ITX)

Responding to the hazard found in Italy, France, Spain, and Portugal, we have formulated Isopropylthioxanth-9-one (a photographical chemical) found in baby milk in Italy. The 2-isomer as well as the technical mixture also contains the 4-isomer.

2-Isopropylthioxanthone (ITX)

EFSA-ITX-01 1 x 1 mL

1.0 mg/mL in Isooctane

2-Isopropylthioxanth-9-one

Isopropylthioxanthone (ITX) mixed isomers

EFSA-ITX-02 1 x 1 mL

1.0 mg/mL in Isooctane

2-and 4-Isopropylthioxanth-9-one



Imidazole Standards (caramel coloring)

Over the past several years, there has been increased scrutiny of the caramel coloring used in food products, particularly cola-type soft drinks. There is concern for 4-methyl imidazole (4-MEI) that is created during the caramel coloring synthesis process. The concern arises because 4-MEI has been reported to be carcinogenic in high doses.

Compound	CAS	NEAT		SOLUTION	
		Cat. No.	Unit	Cat. No.	Unit
4-Methylimidazole (4-MEI)	822-36-6	FAC-001N	100 mg	FAC-001S-T	1 mL
1-Methylimidazole	616-47-7	FAC-002N	100 mg	FAC-002S-T	1 mL
2-Ethylimidazole	1072-62-4	FAC-003N	100 mg	FAC-003S-T	1 mL
2-Methylimidazole	693-98-1	FAC-004N	100 mg	FAC-004S-T	1 mL
4(5)-(Hydroxymethyl)imidazole	822-55-9	FAC-005N-25MG	25 mg	FAC-005S-M	1 mL
				100 µg/mL in MeOH	
				Quinoline (Internal Standard)	
				FAC-IS-T	1 mL
				50 µg/mL in Toluene	
				FAC-SET	6 x 1 mL





Food Analysis

Lipid Standards

Unsaturated Methyl Esters

99% Purity

Compound	CAS No.	NEAT 100 mg	10 mg/mL in Heptane SOLUTION 1 mL
Methyl cis-9-hexadecenoate (Palmitoleate) C16:1	1120-25-8	UFA-001N	UFA-001S
Methyl trans-9-hexadecenoate C16:1	10030-74-7	UFA-002N	UFA-002S
Methyl cis-6-octadecenoate (Petroselinate) C18:1	2777-58-4	UFA-003N	UFA-003S
Methyl trans-6-octadecenoate (Petroselaidate) C18:1		UFA-004N	UFA-004S
Methyl cis-9-octadecenoate (Oleate) C18:1	112-62-9	UFA-005N	UFA-005S
Methyl trans-9-octadecenoate (Elaidate) C18:1	1937-62-8	UFA-006N	UFA-006S
Methyl cis-11-octadecenoate (Vaccenate) C18:1	1937-63-9	UFA-007N	UFA-007S
Methyl 12-hydroxy-cis-9-octadecenoate (Ricinoleate) C18:1	141-24-2	UFA-008N	UFA-008S
Methyl linoleate (Linoleate) C18:2	112-63-0	UFA-010N *	UFA-010S
Methyl linolelaidate (Linoelaidate) C18:2	2566-97-4	UFA-011N *	UFA-011S
Methyl octadecadienoate (Conjugated) C18:2		UFA-012N *	UFA-012S
Methyl linolenate (Linolenate) C18:3	301-00-8	UFA-014N *	UFA-014S
Methyl g-linolenate (Gamma Linolenate) C18:3	16326-32-2	UFA-015N *	UFA-015S
Methyl trans-11-eicosenoate C20:1	69119-90-0	UFA-016N	UFA-016S
Methyl cis-8-eicosenoate C20:1	69119-99-9	UFA-017N	UFA-017S
Methyl cis-11-eicosenoate C20:1	2390-09-2	UFA-018N *	UFA-018S
Methyl cis-5-eicosenoate C20:1	20839-34-3	UFA-019N	UFA-019S
Methyl cis-11,14-eicosadienoate C20:2	2463-02-7	UFA-020N *	UFA-020S
Methyl cis-8,11,14-eicosatrienoate (Homogamma linolenate) C20:3	21061-10-9	UFA-022N *	UFA-022S *
Methyl cis-11,14,17-eicosatrienoate C20:3	55682-88-7	UFA-023N *	UFA-023S *
Methyl arachidonate (Arachidonate) C20:4	2566-89-4	UFA-024N *	UFA-024S
Methyl 5,8,11,14,17-eicosapentaenoate C20:5	2734-47-6	UFA-025N *	UFA-025S *
Methyl cis-7,10,13,16,19-docosapentaenoate (DPA) C22:5	108698-02-8	UFA-026N *	UFA-026S *
Methyl cis-13-docosenoate (Erucate) C22:1	1120-34-9	UFA-027N	UFA-027S
Methyl trans-13-docosenoate (Brassicidate) C22:1	7439-44-3	UFA-028N	UFA-028S
Methyl cis-13,16-docosadienoate C22:2	61012-47-3	UFA-029N *	UFA-029S
Methyl cis-13,16,19-docosatrienoate C22:3	108698-01-7	UFA-030N *	UFA-030S *
Methyl cis-7,10,13,16-docosatetraenoate C22:4	13487-42-8	UFA-031N *	UFA-031S *
Methyl cis-4,7,10,13,16,19-docosahexenoate C22:6	301-01-9	UFA-032N *	UFA-032S *
Methyl cis-15-tetracosenoate (Nervonate) C24:1	2733-88-2	UFA-033N *	UFA-033S
		UFA-N-SET * 30 x 100 mg	UFA-S-SET * 30 x 1 mL

Lipid Standards analyzed by both GLC and TLC are supplied with complete analytical documentation.

Neats and Solutions are sealed under Nitrogen Blanket

* ColdPAK required to maintain integrity of product.

Saturated Methyl Esters

Compound	CAS No.	NEAT 100 mg	10 mg/mL in Hexane SOLUTION 1 mL
Methyl octanoate (Caprylate) C8:0	111-11-5	SFA-001N	SFA-001S
Methyl nonoate (Pelargonate) C9:0	1731-84-6	SFA-002N	SFA-002S
Methyl decanoate (Caprate) C10:0	110-42-9	SFA-003N	SFA-003S
Methyl undecanoate C11:0	1731-86-8	SFA-004N	SFA-004S
Methyl dodecanoate (Laurate) C12:0	111-82-0	SFA-005N	SFA-005S
Methyl tridecanoate C13:0	1731-88-0	SFA-006N	SFA-006S
Methyl tetradecanoate (Myristate) C14:0	124-10-7	SFA-007N	SFA-007S
Methyl pentadecanoate C15:0	7132-64-1	SFA-008N	SFA-008S
Methyl hexadecanoate (Palmitate) C16:0	112-39-0	SFA-009N	SFA-009S
Methyl heptadecanoate (Margarate) C17:0	1731-92-6	SFA-010N	SFA-010S
Methyl octadecanoate (Stearate) C18:0	112-61-8	SFA-011N	SFA-011S
Methyl 12-hydroxystearate C18:0	141-23-1	SFA-012N	SFA-012S
Methyl nonadecanoate C19:0	1731-94-8	SFA-013N	SFA-013S
Methyl eicosanoate (Arachidate) C20:0	1120-28-1	SFA-014N	SFA-014S
Methyl heneicosanoate C21:0	6064-90-0	SFA-015N	SFA-015S
Methyl docosanoate (Behenate) C22:0	929-77-1	SFA-016N	SFA-016S
Methyl tricosanoate C23:0	2433-97-8	SFA-017N	SFA-017S
Methyl tetracosanoate (Lignocerate) C24:0	2442-49-1	SFA-018N	SFA-018S
		SFA-N-SET 18 x 100 mg	SFA-S-SET 18 x 1 mL

Saturated Glycerides

Compound	CAS No.	NEAT 100 mg	Compound	CAS No.	NEAT 100 mg
Trioctanoin (Caprylin) C8:0	538-23-8	GS-001N	Dipalmitin C16:0	26657-95-4	GS-014N
Dicaprylin C8:0	36354-80-0	GS-002N	Monopalmitin C16:0	542-44-9	GS-015N
Caprylin C8:0	19670-49-6	GS-003N	Trioctadecanoin (Stearin) C18:0	555-43-1	GS-016N
Tridecanoin (Caprin) C10:0	621-71-6	GS-004N	Distearin C18:0	1323-83-7	GS-017N
Dicaprin C10:0	53988-07-1	GS-005N	Monostearin C18:0	22610-63-5	GS-018N
Monocaprin C10:0	26402-22-2	GS-006N	Trieicosanoin (Arachidin) C20:0	620-64-4	GS-019N
Tridodecanoin (Laurin) C12:0	538-24-9	GS-007N	Diarachidin C20:0	60586-60-9	GS-020N
Dilaurin C12:0	27638-00-2	GS-008N	Arachidin C20:0		GS-021N
Monolaurin C12:0	142-18-7	GS-009N	Tridocosanoin (Behenin) C22:0	18641-57-1	GS-022N
Tritetradecanoin (Myristin) C14:0	555-45-3	GS-010N	Dibehenin C22:0		GS-023N
Dimyristin C14:0	53563-63-6	GS-011N	Behenin C22:0	6916-74-1	GS-024N
Monomyristin C14:0	589-68-4	GS-012N			GS-KIT
Trihexadecanoin (Palmitin) C16:0	555-44-2	GS-013N			

24 x 100 mg

Food Analysis

Lipids, AOCS, NHI/NIH



Unsaturated Glycerides

Compound	CAS No.	NEAT 10 mg	Compound	CAS No.	NEAT 10 mg
Myristolein C14:1 cis		UG-001N	Linolein C18:2 cis,cis	537-40-6	UG-019N *
Dimyristolein C14:1		UG-002N	Dilinolein C18:2	30606-27-0	UG-020N *
Monomyristolein C14:1	56399-71-4	UG-003N	Monolinolein C18:2	2277-28-3	UG-021N *
Palmitolein C16:1 cis	20246-55-3	UG-004N	Linolenin C18:3 cis,cis,cis	14465-68-0	UG-022N *
Dipalmitolein C16:1	113728-10-2	UG-005N	Dilinolenin C18:3		UG-023N *
Monopalmitolein C16:1	37515-61-0	UG-006N	Monolinolenin C18:3	26545-75-5	UG-024N *
Petroselinin 6 C18:1 cis	3296-43-3	UG-007N	gamma-Linolenin C18:3 cis,cis,cis		UG-025N *
Dipetroselinin 6 C18:1		UG-008N	Digamma Linolenin C18:3		UG-026N *
Monopetroselinin 6 C18:1		UG-009N	Monogamma Linolenin C18:3		UG-027N *
Olein 9 C18:1 cis	122-32-7	UG-010N	Triecosenoic C20:1 cis	80380-39-8	UG-028N
Diolein 9 C18:1	25637-84-7	UG-011N	Dieicosenoic C20:1	102783-82-4	UG-029N
Monoolein 9 C18:1	111-03-5	UG-012N	Monoeicosenoic C20:1		UG-030N
Trielaidin 9 C18:1 trans	537-39-3	UG-013N	cis-11,14-Trieicosadienoic C20:2 cis,cis		UG-031N *
Dielaiddin 9 C18:1 trans	98168-52-6	UG-014N	Dieicosadienoic C20:2		UG-032N *
Monoelaidin 9 C18:1 trans	2716-53-2	UG-015N	Monoeicosadienoic C20:2		UG-033N *
Vaccenin 11 C18:1 cis		UG-016N			UG-N-SET *
Divaccenin 11 C18:1		UG-017N			33 x 10 mg
Monovaccenin 11 C18:1		UG-018N			

AOCS, Method Ce1-62 Animal & Vegetable Reference Mixes

AOCS Animal & Vegetable Reference NEAT Mixtures	Cat. No.	Unit
Mix 1: Suitable standard for corn, cottonseed, kapok, poppyseed, rice, safflower, sesame, soybean, sunflower and walnut oils	AOCS-001N *	100 mg
Mix 2: Suitable standard for hempseed, linseed, perilla & rubberseed oils	AOCS-002N *	100 mg
Mix 3: Suitable standard for mustard seed, peanut and rapeseed oil	AOCS-003N *	100 mg
Mix 4: Suitable standard for NEATsfoot, olive and teaseed oils	AOCS-004N *	100 mg
Mix 5: Suitable standard for babassu, coconut, ouri-curi & palm kernel oils	AOCS-005N *	100 mg
Mix 6: Suitable standard for lard, beef tallow, mutton tallow and palm oil	AOCS-006N *	100 mg
AOCS Rapeseed Mix, Suitable standard for modern low erucic acid oils	AOCS-007N *	100 mg
	AOCS-SET *	7 x 100 mg

Methyl Ester (% Composition by Weight)

AOCS Reference Mix	Cat. No.	C8:0 Caprylate	C10:0 Caprate	C12:0 Laurate	C14:0 Myristate	C16:0 Palmitate	C16:1 Palmitoleate	C18:0 Stearate	C18:1 Oleate	C18:2 Linoleate	C18:3 Linolenate	C20:0 Arachidate	C20:1 Eicosenoate	C22:0 Behenate	C22:1 Erucate	C24:0 Lignocerate
RM-1 *	AOCS-001N					6.0		3.0	35.0	50.0	3.0	3.0				
RM-2 *	AOCS-002N					7.0		5.0	18.0	36.0	34.0					
RM-3 *	AOCS-003N				1.0	4.0		3.0	45.0	15.0	3.0	3.0		3.0	20.0	3.0
RM-4 *	AOCS-004N					11.0		3.0	80.0	6.0						
RM-5 *	AOCS-005N	7.0	5.0	48.0	15.0	7.0		3.0	12.0	3.0						
RM-6 *	AOCS-006N				2.0	30.0	3.0	14.0	41.0	7.0	3.0					
Rapeseed *	AOCS-007N				1.0	4.0		3.0	60.0	12.0	5.0	3.0	1.0	3.0	5.0	3.0

NHI/NIH Fatty Acid Methyl Ester Profiling Mixes

Methyl Ester (% Composition by Weight)

NHI/NIH Reference Mix	Cat. No.	C8:0 Caprylate 100 mg	C10:0 Caprate	C12:0 Laurate	C14:0 Myristate	C16:0 Palmitate	C16:1 Palmitoleate	C18:0 Stearate	C18:1 Oleate	C20:0 Arachidate	C22:0 Behenate	C24:0 Lignocerate
NHI-A	NHI-001N				25.0	10.0		65.0				
NHI-B	NHI-002N				4.0	40.0		56.0				
NHI-C *	NHI-003N		1.5	3.0	6.0	12		19.4		33.2		
NHI-D	NHI-004N				11.8	23.6	6.9	13.1	44.6			
NHI-E	NHI-005N		6.3	9.1	12.0	23.3	49.2					
NHI-F *	NHI-006N				2.5	4.2		7.3		13.6	25.4	47.0

Designed to test reliability of chromatographic system when performing quantitative analysis of Fatty Acids.

NHI-SET * 6 x 100 mg

* ColdPAK required to maintain integrity of product.



Food Analysis

FAMES

Fatty Acid Methyl Esters (FAMES)

These mixes and kits are suitable for determining peak identification and establishing chromatographic retention times.

Saturated Straight Chain Kit

FAME-001-R1-KIT

10 units

Purity 99%, 100 mg each

Methyl caproate (C6:0)
Methyl caprylate (C8:0)
Methyl caprate (C10:0)
Methyl laurate (C12:0)
Methyl myristate (C14:0)
Methyl palmitate (C16:0)
Methyl stearate (C18:0)
Methyl arachidate (C20:0)
Methyl behenate (C22:0)
Methyl lignocerate (C24:0)

Saturated Straight Chain Kit

FAME-002-R1-KIT

19 units

Purity 99%, 100 mg each

Methyl caproate (6:0)
Methyl heptanoate (7:0)
Methyl caprylate (8:0)
Methyl nonanoate (9:0)
Methyl caprate (10:0)
Methyl undecanoate (11:0)
Methyl laurate (12:0)
Methyl tridecanoate (13:0)
Methyl myristate (14:0)
Methyl pentadecanoate (15:0)
Methyl palmitate (16:0)
Methyl heptadecanoate (17:0)
Methyl stearate (18:0)
Methyl nonadecanoate (19:0)
Methyl arachidate (20:0)
Methyl heneicosanoate (21:0)
Methyl behenate (22:0)
Methyl tricosanoate (23:0)
Methyl lignocerate (24:0)

Odd Carbon Straight Chain Kit

FAME-005-R1-KIT

9 units

Purity 99%, 100 mg each

Methyl heptanoate (C7:0)
Methyl nonanoate (C9:0)
Methyl undecanoate (C11:0)
Methyl tridecanoate (C13:0)
Methyl pentadecanoate (C15:0)
Methyl heptadecanoate (C17:0)
Methyl nonadecanoate (C19:0)
Methyl heneicosanoate (C21:0)
Methyl tricosanoate (C23:0)

Unsaturated Straight Chain Kit

FAME-003-R1-KIT *

14 units

Purity 99%, 10 mg each

Methyl myristoleate (14:1)
Methyl palmitoleate (16:1)
Methyl petroselinic (18:1)
Methyl elaidate (18:1)
Methyl cis-vaccenate (18:1, cis)
Methyl linoleate (18:2, cis)
Methyl linolelaidate (18:2, trans)
Methyl linolenate (18:3)
Methyl cis-11-eicosenoate (20:1)
Methyl arachidonate (20:4)
Methyl erucate (22:1)
Methyl cis-4,7,10,13,16,19-docosahexaenoate (22:6)
Methyl nervonate (24:1)
Methyl oleate (18:1)

Methyl Ester Mix #1

FAMQ-001 *

40 mg

Approximately 10 mg of each in a qualitative mix

4 comps.

Methyl 11-eicosenoate (20:1)
Methyl 11,14-eicosadienoate (20:2)
Methyl arachidonate (20:4)
Methyl 5,8,11,14,17-eicosapentaenoate (20:5)

Fatty Acid Methyl Ester Mix #2

FAMQ-002 *

50 mg

Approximately 10 mg of each in a qualitative mix

5 comps.

Methyl 11-eicosenoate (20:1)
Methyl 11,14-eicosadienoate (20:2)
Methyl 11,14,17-eicosatrienoate (20:3)
Methyl arachidonate (20:4)
Methyl 5,8,11,14,17-eicosapentaenoate (20:5)

Volatile Acid Standard Solution

FAMQ-004

1 x 100 mL

10mM of each component in deionized water with 2% MeOH

10 comps.

Formic acid Isovaleric acid
Acetic acid n-Valeric acid
Propionic acid Isocaproic acid (4-Methyl valeric acid)
Isobutyric acid Hexanoic acid (n-Caproic acid)
Butyric acid Heptanoic acid

Standards of Interest

For FAME standards refer to Biofuels in the Petrochemical section.

FAME Quantitative Standard Mix

FAMQ-005 *

1 x 1 mL

At stated conc. (mg/mL) in CH₂Cl₂ (total of 10 mg/mL)

37 comps.

Methyl butyrate (C4:0)	0.4
Methyl caproate (C6:0)	0.4
Methyl caprylate (C8:0)	0.4
Methyl caprate (C10:0)	0.4
Methyl undecanoate (C11:0)	0.2
Methyl laurate (C12:0)	0.4
Methyl tridecanoate (C13:0)	0.2
Methyl myristate (C14:0)	0.4
Methyl myristoleate (C14:1)	0.2
Methyl pentadecanoate (C15:0)	0.2
Methyl cis-10-pentadecenoate (C15:1)	0.2
Methyl palmitate (C16:0)	0.6
Methyl palmitoleate (C16:1)	0.2
Methyl Hheptadecanoate (C17:0)	0.2
Methyl cis-10-heptadecenoate (C17:1)	0.2
Methyl stearate (C18:0)	0.4
Methyl elaidate (C18:1n9t)	0.2
Methyl oleate (C18:1n9c)	0.4
Methyl linolelaidate (C18:2n6t)	0.2
Methyl linoleate (C18:2n6c)	0.2
Methyl arachidate (C20:0)	0.4
Methyl g-linolenate (C18:3n6)	0.2
Methyl cis-11-eicosenoate (C20:1)	0.2
Methyl linolenate (C18:3n3)	0.2
Methyl heneicosanoate (C21:0)	0.2
Methyl cis-11,14-eicosadienoate (C20:2)	0.2
Methyl behenate (C22:0)	0.4
Methyl cis-8,11,14-eicosatrienoate (C20:3n6)	0.2
Methyl erucate (C22:1n9)	0.2
Methyl cis-11,14,17-eicosatrienoate (C20:3n3)	0.2
Methyl arachidonate (C20:4n6)	0.2
Methyl tricosanoate (C23:0)	0.2
Methyl cis-13,16-docosadienoate (C22:2)	0.2
Methyl lignocerate (C24:0)	0.4
Methyl cis-5,8,11,14,17-eicosapentaenoate (C20:5n3)	0.2
Methyl nervonate (C24:1)	0.2
Methyl-cis-4,7,10,13,16,19-docosahexaenoate (C22:6n3)	0.2

* ColdPAK required to maintain integrity of product.

Food Analysis

FAMES, Vitamin, Preservative & Antimicrobial Standards



NEATS as stated, SOLUTIONS in 1 mL

Fatty Acid Ethyl Esters

Compound	CAS No.	Conc.	Matrix	Cat. No.
Ethyl arachidate	18281-05-5	100 mg	NEAT	FAEE-008N
		10 mg/mL	Hexane	FAEE-008S
Ethyl behenate	5908-87-2	100 mg	NEAT	FAEE-009N
		10 mg/mL	Hexane	FAEE-009S
Ethyl caprate	110-38-3	100 mg	NEAT	FAEE-003N
		10 mg/mL	Hexane	FAEE-003S
Ethyl caprylate	106-32-1	100 mg	NEAT	FAEE-002N
		10 mg/mL	Hexane	FAEE-002S
Ethyl erucate	37910-77-3	100 mg	NEAT	FAEE-011N
		10 mg/mL	Hexane	FAEE-011S
Ethyl heptadecanoate	14010-23-2	100 mg	NEAT	FAEE-015N
		10 mg/mL	Hexane	FAEE-015S
Ethyl laurate	106-33-2	100 mg	NEAT	FAEE-004N
		10 mg/mL	Hexane	FAEE-004S
Ethyl lignocerate	24634-95-5	100 mg	NEAT	FAEE-010N
		10 mg/mL	Hexane	FAEE-010S
Ethyl linoleate	544-35-4	100 mg	NEAT	FAEE-012N
		10 mg/mL	Hexane	FAEE-012S
Ethyl linolenate	1191-41-9	100 mg	NEAT	FAEE-016N
		10 mg/mL	Hexane	FAEE-016S
Ethyl linolenate gamma	31450-14-3	100 mg	NEAT	FAEE-020N
		10 mg/mL	Hexane	FAEE-020S
Ethyl myristate	124-06-1	100 mg	NEAT	FAEE-005N
		10 mg/mL	Hexane	FAEE-005S
Ethyl nervonate	137888-64-3	100 mg	NEAT	FAEE-013N
		10 mg/mL	Hexane	FAEE-013S
Ethyl oleate	111-62-6	100 mg	NEAT	FAEE-014N
		10 mg/mL	Hexane	FAEE-014S
Ethyl palmitate	628-97-7	100 mg	NEAT	FAEE-006N
		10 mg/mL	Hexane	FAEE-006S
Ethyl palmitoleate	56219-10-4	100 mg	NEAT	FAEE-001N
		10 mg/mL	Hexane	FAEE-001S
Ethyl stearate	111-61-5	100 mg	NEAT	FAEE-007N
		10 mg/mL	Hexane	FAEE-007S

Vitamin Standards

Water Soluble				Fat Soluble				
	CAS No.	Unit	Cat. No.		CAS No.	Unit	Cat. No.	
Thiamine • HCl	B1 67-03-8	1 gram	VIT-001N	DL-a-Tocopherol	E 10191-41-0	100 mg	VIT-012N	
Riboflavin	B2 83-88-5	1 gram	VIT-002N	Cholecalciferol	D3 67-97-0	100 mg	VIT-013N	
Pyridoxine • HCl	B6 58-56-0	1 gram	VIT-003N	Retinol palmitate	A, Palmitate 79-81-2	100 mg	VIT-014N	
L-Ascorbic acid	C 50-81-7	1 gram	VIT-004N	DL-a-Tocopherol acetate	7695-91-2	100 mg	VIT-015N	
Nicotinic acid	Niacin 59-67-6	1 gram	VIT-005N	Phylloquinone	K1 84-80-0	100 mg	VIT-016N	
Nicotinamide	98-92-0	1 gram	VIT-006N	Menaquinone	K2 863-61-6	100 mg	VIT-017N	
Folic Acid	M 59-30-3	1 gram	VIT-007N	Menadiene	K3 58-27-5	100 mg	VIT-018N	
Calcium-D-pantothenate	B5 137-08-6	100 mg	VIT-008N	β-Carotene (Substantially free of alpha Carotene)	7235-40-7	10 mg	VIT-019N	
d-Biotin	H 58-85-5	100 mg	VIT-009N-R1	D-a-Tocopherol succinate	E 4345-03-3	100 mg	VIT-020N	
Cyanocobalamin	B12 68-19-9	25 mg	VIT-010N-R1	Ergocalciferol	D2 50-14-6	100 mg	VIT-022N	
			VIT-WSK-R1-SET	10 units			VIT-FSK-R2-SET	10 units

Technical Note

Always store Standards properly, away from light sources. Each Standard is provided with an actual lot analysis and additional transfer vial and label.

Preservative and Antimicrobial Standards

Compound	Purity	CAS No.	Unit	Cat. No.
Benzoic acid	99 %	65-85-0	1 gram	AP-001N
Sodium benzoate	99 %	532-32-1	1 gram	AP-002N
Potassium nitrite	97 %	7758-09-0	1 gram	AP-003N
Sodium nitrite	99 %	7632-00-0	1 gram	AP-004N
Sodium nitrate	99 %	7631-99-4	1 gram	AP-005N
Potassium nitrate	99 %	7757-79-1	1 gram	AP-006N
Methyl paraben	99 %	99-76-3	1 gram	AP-007N
Ethyl paraben	99 %	120-47-8	1 gram	AP-008N
Butyl paraben	99 %	94-13-3	1 gram	AP-009N
Propionic acid	99 %	79-09-4	1 gram	AP-010N
Sodium propionate	97 %	137-40-6	1 gram	AP-011N
Calcium propionate	97 %	4075-81-4	1 gram	AP-012N
Sorbic acid	99 %	110-44-1	1 gram	AP-013N
Potassium sorbate	99 %	24634-61-5	1 gram	AP-014N

AP-KIT

14 x 1 gram



Cannabis Standards

AccuStandard offers standards for testing cannabinoids, terpenes, pesticide contaminants and residual solvents. Since the requirements differ by state, we have developed standards specific to state requirements. For additional information, contact our Technical Service Department.

Cannabis Testing

Cannabis Terpenes

Cannabis Terpenes

SOLUTIONS at 100 µg/mL in PT Methanol, 1 mL

Compound	CAS	Cat. No.
(-)-alpha-Bisabolol	23089-26-1	CP-TER-001S
beta-Pinene	18172-67-3	CP-TER-002S
(-)-Borneol	464-45-9	CP-TER-003S
(-)-Caryophyllene oxide	1139-30-6	CP-TER-004S
(-)-Guaiol	489-86-1	CP-TER-005S
(-)-Isopulegol	89-79-1	CP-TER-006S
(+)-Borneol	464-43-7	CP-TER-007S
(+)-Fenchone	4695-62-9	CP-TER-008S
Eucalyptol	470-82-6	CP-TER-009S
alpha-Humulene	6753-98-6	CP-TER-010S
alpha-Pinene	80-56-8	CP-TER-011S
alpha-Terpinene	99-86-5	CP-TER-012S
beta-Caryophyllene	87-44-5	CP-TER-013S
beta-Myrcene	123-35-3	CP-TER-014S
Camphene	79-92-5	CP-TER-015S
Camphor	76-22-2	CP-TER-016S
3-Carene	13466-78-9	CP-TER-017S
(R)-Limonene	5989-27-5	CP-TER-018S
gamma-Terpinene	99-85-4	CP-TER-019S
Geraniol	106-24-1	CP-TER-020S
L-(-)-Fenchone	7787-20-4	CP-TER-021S
Linalool	78-70-6	CP-TER-022S
Nerolidol	7212-44-4	CP-TER-023S
Ocimene	13877-91-3	CP-TER-024S
p-Cymene	99-87-6	CP-TER-025S
Terpinolene	586-62-9	CP-TER-026S
Valencene (Tech)	4630-07-3	CP-TER-027S
Terpineol	8000-41-7	CP-TER-028S
Farnesene (mixture of isomers)		CP-TER-029S

Cannabis Terpene Mix Set

CP-TER-MIX-SET

2 x 1 mL
CP-TER-MIX-01, CP-TER-MIX-02

Cannabis Terpene Mix 1

CP-TER-MIX-001

100 µg/mL each in PT Methanol

1 mL
14 comps.

(-)-alpha-Bisabolol	Camphene
(-)-Caryophyllene oxide	Camphor
(-)-Isopulegol	Linalool
(+)-Fenchone	Nerolidol
Eucalyptol	Ocimene
beta-Caryophyllene	Valencene (Tech)
beta-Myrcene	3-Carene

Cannabis Terpene Mix 2

CP-TER-MIX-002

100 µg/mL each in PT Methanol

1 mL
14 comps.

beta-Pinene	(R)-Limonene
(-)-Guaiol	gamma-Terpinene
(+)-Borneol	Geraniol
(-)-Borneol	L-(-)-Fenchone
alpha-Humulene	p-Cymene
alpha-Pinene	Terpinolene
alpha-Terpinene	Terpineol

Cannabinoid Standards

Each at 1000 µg/mL in PT Methanol

1 mL

Compound	CAS	Cat. No.
Cannabidiol (CBD)	13956-29-1	CP-CBD-01S
Delta-8-Tetrahydrocannabinol (THC-8)	5957-75-5	CP-8-THC-01S
Delta-9-Tetrahydrocannabinol (THC-9)	1972-08-3	CP-9-THC-01S
Delta-9-Tetrahydrocannabinolic acid A (THCA-A)	23978-85-0	CP-THCA-A-01S
Cannabigerol (CBG)	25654-31-3	CP-CBG-01S
Cannabichromene (CBC)	20675-51-8	CP-CBC-01S

Cannabinoid Mix Standard

CP-CANNA-MIX-01

1000 µg/mL each in PT Methanol

1 mL
3 comps.

Restrictions may apply contact us for details.

Cannabidiol (CBD)	Delta-9-Tetrahydrocannabinol (THC)
Cannabinol (CBN)	





Oregon Cannabis Pesticides

The Oregon Health Association (OHA) has classified and submitted three prioritized groupings of residue cannabis pesticides:

- Fungicides
- Pyrethroids
- Organophosphates

In June of 2015, a white paper titled "Pesticide Use on Cannabis" published by the Cannabis Safety Institute originally contained 188 active compounds.

From the targeted 188 active compounds, a working group with the OHA had numerous analytical laboratories study the toxicological effects and the historical natural application of each of the compounds for crop and human ingestion. The results reduced the original number of targeted compounds to 59 pesticides. These pesticides remain on the State of Oregon list. AccuStandard, Inc. offers three individual mixes of these 59 compounds.

Oregon Cannabis Pesticide Set

CP-ORE-SET 3 x 1 mL
CP-ORE-01, CP-ORE-02, CP-ORE-03

Oregon Cannabis Pesticide Mix 1

CP-ORE-01 1 mL
100 µg/mL each in Acetonitrile 20 comps.

Abamectin	Daminozide	Methomyl
Acequinocyl	(E)-Fenpyroximate	Oxamyl
Aldicarb	Fenoxycarb	Propoxur
Carbaryl	Fonicamid	Spinosad
Carbofuran	Hexythiazox	Spirotetramat
Chlorantraniliprole	Imidacloprid	Thiamethoxam
Clofentezine	Methiocarb	

Oregon Cannabis Pesticide Mix 2

CP-ORE-02 1 mL
100 µg/mL each in Acetonitrile 16 comps.

Acephate	Dursban	Naled
Bifenthrin	Ethoprop	Permethrin
Cyfluthrin	Etofenprox	Phosmet
Cypermethrin	Malathion	Prallethrin
Diazinon	Methyl parathion	Pyrethrins
Dimethoate		

Oregon Cannabis Pesticide Mix 3

CP-ORE-03 1 mL
100 µg/mL each in Acetonitrile 23 comps.

Acetamidprid	Fludioxonil	Propiconazole
Azoxystrobin	Imazalil	Pyridaben
Bifenazate	Kresoxim-methyl	Spiromesifen
Boscalid	Metalaxyl	Spiroxamine
Chlorfenapyr	MGK-264	Tebuconazol
Dichlorvos	Myclobutanil	Thiacloprid
Etoazole	Paclobutrazol	Trifloxystrobin
Fipronil	Piperonyl butoxide	

Independently prepared lots available

* ColdPAK required to maintain integrity of product.

Oregon Cannabis Residual Solvents

CP-ORE-RS-01 1 mL
1000 µg/mL each in Water 11 comps.

Acetone	2-Ethoxyethanol	Isopropyl acetate
Acetonitrile	Ethyl acetate	Methanol
sec-Butanol	Ethyl ether	Isopropanol
1,4-Dioxane	Ethylene glycol	

CP-ORE-RS-02 1 mL
1000 µg/mL each in Ethanol 18 comps.

Benzene	n-Heptane	n-Pentane
Cumene	Hexane	Tetrahydrofuran
Cyclohexane	Ethylbenzene	Toluene
Dichloromethane	Isopentane	o-Xylene
2,2-Dimethylbutane	2-Methylpentane	p-Xylene
2,3-Dimethylbutane	3-Methylpentane	m-Xylene

CP-ORE-RS-03 1 mL
1000 µg/mL each in Ethanol 4 comps.

sec-Butanol	Isobutane	Neopentane
n-Propane		

CP-ORE-RS-04 * 1 mL
1000 µg/mL in Ethanol

Ethylene oxide

Nevada Pesticide Standard

Nevada Pesticide Mix

CP-NV-PEST 1 mL
100 µg/mL each in Acetonitrile 25 comps.

Abamectin	Etoazole	Pyrethrins
Acequinocyl	Fenhexamid	Quintozene
Alar	Fonicamid	Spinetoram
Bifenazate	Fludioxonil	Spinosad
Bifenthrin	Imazalil	Spirotetramat
Captan	Imidacloprid	Thiamethoxam
Cyfluthrin	Myclobutanil	Thiophanate-methyl
Cypermethrin	Piperonyl butoxide	Trifloxystrobin
Dimethomorph		

Elemental analysis for heavy metals are available in the Inorganic section of the catalog.





Allergens

In the cosmetic industry, almost any product that contains water also contains some preservatives. The most commonly used preservatives have been linked to skin allergies and sensitivities. In addition to the preservatives used, fragrances and emulsifiers also cause allergic reactions.

Allergens

Compound	CAS No.	Conc.	Matrix	Cat. No.	1 mL
2-Acetylpyridine	1122-62-9	100 mg 100 µg/mL	NEAT MeOH	ALR-066N ALR-066S	
Alkylphenol ethoxylates:					
Nonylphenol-ethylene oxide condensate (Nonoxynol-9)	26027-38-3	100 mg 100 µg/mL	NEAT MeOH	ALR-079N ALR-079S	
Polyethylene glycol nonaphenyl ether (Triton N-101)	123359-41-1	100 mg 100 µg/mL	NEAT MeOH	ALR-078N ALR-078S	
Allylthiocyanate	57-06-7	100 mg 1000 µg/mL	NEAT EtOH	ALR-028N ALR-028S-ET-10X	
Amyl cinnamal	122-40-7	100 mg 1000 µg/mL	NEAT AcCN	ALR-001N ALR-001S-CN-10X	
Amylcinnamyl alcohol	101-85-9	1000 µg/mL	EtOH	ALR-008S-ET-10X	
Anisyl alcohol	105-13-5	100 mg 1000 µg/mL	NEAT EtOH	ALR-014N ALR-014S-ET-10X	
Arsenic	7440-38-2	1000 µg/mL	2-5% HNO ₃	ALR-MET-01S	
Balsam of Peru	8007-00-9	100 mg 100 µg/mL	NEAT MeOH	ALR-080N ALR-080S	
Benzophenone-3 (Bp-3)	131-57-7	100 mg 100 µg/mL	NEAT AcCN	ALR-081N ALR-081S-CN	
Benzyl alcohol	100-51-6	100 mg 1000 µg/mL	NEAT EtOH	ALR-002N ALR-002S-ET-10X	
Benzyl benzoate	120-51-4	100 mg 1000 µg/mL	NEAT EtOH	ALR-019N ALR-019S-ET-10X	
Benzyl butyl phthalate	85-68-7	100 mg 100 µg/mL	NEAT MeOH	ALR-082N ALR-082S	
Benzyl cinnamate	103-41-3	100 mg 1000 µg/mL	NEAT EtOH	ALR-015N ALR-015S-ET-10X	
Benzyl cyanide	140-29-4	100 mg 1000 µg/mL	NEAT EtOH	ALR-029N ALR-029S-ET-10X	
Benzyl 2-ethylhexyl phthalate	27215-22-1	100 mg 100 µg/mL	NEAT MeOH	ALR-165N ALR-165S	
Benzyl paraben	94-18-8	100 mg 100 µg/mL	NEAT MeOH	ALR-083N ALR-083S	
Benzyl salicylate	118-58-1	100 mg 1000 µg/mL	NEAT AcCN	ALR-009N ALR-009S-CN-10X	
Bithionol	97-18-7	100 mg 100 µg/mL	NEAT MeOH	ALR-084N ALR-084S	
5-Bromo-5-nitro-1,3-dioxane (Bronidox L) (BND)	30007-47-7	100 mg 100 µg/mL	NEAT MeOH	ALR-074N ALR-074S	
2-Bromo-2-nitropropane-1,3-diol (Bronopol)	52-51-7	100 mg 100 µg/mL	NEAT MeOH	ALR-067N ALR-067S	
2-(4-tert-Butylbenzyl)propionaldehyde (Tech)	80-54-6	1000 µg/mL	AcCN	ALR-017S-CN-10X	
Butylated hydroxyanisole (BHA)	25013-16-5	100 mg 100 µg/mL	NEAT MeOH	ALR-087N ALR-087S	
Butylated hydroxytoluene (BHT & 2,6-DBPC)	128-37-0	100 mg 100 µg/mL	NEAT MeOH	ALR-088N ALR-088S	
Butylene glycol	107-88-0	100 mg 100 µg/mL	NEAT MeOH	ALR-089N ALR-089S	
Butyl-methoxydibenzoylmethane (B-MDM) Sunblock, Parsol1789	70356-09-1	100 µg/mL	MeOH	ALR-086S	
Butyl paraben	94-26-8	100 mg 100 µg/mL	NEAT MeOH	ALR-085N ALR-085S	
p-tert-Butylphenol	98-54-4	100 mg 1000 µg/mL	NEAT EtOH	ALR-030N ALR-030S-ET-10X	





Compound	CAS No.	Conc.	Matrix	Cat. No.	1 mL
Cetone Alpha (Tech)	127-51-5	1000 µg/mL	AcCN	ALR-024S-CN-10X	
Chloroacetamide	79-07-2	100 mg	NEAT	ALR-090N	
		100 µg/mL	MeOH	ALR-090S	
		100 mg	NEAT	ALR-091N	
Chloroform	67-66-3	100 µg/mL	MeOH	ALR-091S	
		100 mg	NEAT	ALR-068N	
2-Chloropyridine	109-09-1	100 µg/mL	MeOH	ALR-068S	
		1000 µg/mL	2-5% HNO ₃	ALR-MET-02S	
Chromium	7440-47-3	1000 µg/mL	2-5% HNO ₃	ALR-MET-02S	
Cinnamal	104-55-2	100 mg	NEAT	ALR-010N	
		1000 µg/mL	AcCN	ALR-010S-CN-10X	
		100 mg	NEAT	ALR-003N	
Cinnamyl alcohol	104-54-1	1000 µg/mL	EtOH	ALR-003S-ET-10X	
		100 mg	NEAT	ALR-004N	
		1000 µg/mL	AcCN	ALR-004S-CN-10X	
Citral	5392-40-5	100 mg	NEAT	ALR-020N	
		1000 µg/mL	EtOH	ALR-020S-ET-10X	
		100 µg/mL	MeOH	ALR-094N	
β-Citronellol	106-22-9	100 mg	NEAT	ALR-094S-T	
		1000 µg/mL	2-5% HNO ₃	ALR-MET-03S	
		100 mg	NEAT	ALR-011N	
Coal Tar (black)	8007-45-2	1000 µg/mL	AcCN	ALR-011S-CN-10X	
		100 µg/mL	Toluene	ALR-094S-T	
		100 mg	NEAT	ALR-094N	
Cobalt	7440-48-4	1000 µg/mL	2-5% HNO ₃	ALR-MET-03S	
Coumarin	91-64-5	100 mg	NEAT	ALR-011N	
		1000 µg/mL	AcCN	ALR-011S-CN-10X	
		100 µg/mL	Pyridine	ALR-070S-R1	
2,4-Diaminoanisole	615-05-4	100 µg/mL	Pyridine	ALR-070S-R1	
2,4-Diaminophenol dihydrochloride	137-09-7	100 mg	NEAT	ALR-063N	
		100 µg/mL	MeOH	ALR-063S	
		100 mg	NEAT	ALR-098N	
Diamyl phthalate	131-18-0	100 µg/mL	MeOH	ALR-098S	
		100 mg	NEAT	ALR-106N	
Diazolidinyl urea	78491-02-8	100 µg/mL	MeOH	ALR-106S	
		10 mg	NEAT	ALR-107N-10MG	
Dibromsalon (Halogenated salicylanilides)	87-12-7	100 µg/mL	MeOH	ALR-107S	
		100 mg	NEAT	ALR-099N	
Dicyclohexyl phthalate	84-61-7	100 µg/mL	MeOH	ALR-099S	
		100 mg	NEAT	ALR-109N	
Diethanolamine (DEA)	111-42-2	100 µg/mL	MeOH	ALR-109S	
		100 mg	NEAT	ALR-097N	
Di(2-ethylhexyl)phthalate (DEHP)	117-81-7	100 µg/mL	MeOH	ALR-097S	
		100 mg	NEAT	ALR-033N	
		1000 µg/mL	EtOH	ALR-033S-ET-10X	
Diethyl maleate	141-05-9	100 mg	NEAT	ALR-110N	
		100 µg/mL	MeOH	ALR-110S	
Diethyl phthalate	84-66-2	100 mg	NEAT	ALR-100N	
		100 µg/mL	MeOH	ALR-100S	
Dihexyl phthalate	84-75-3	100 mg	NEAT	ALR-047N	
		100 µg/mL	MeOH	ALR-047S-ET-10X	
		1000 µg/mL	EtOH	ALR-047S-ET-10X	
Dihydroabietyl alcohol	26266-77-3	100 mg	NEAT	ALR-034N	
		1000 µg/mL	Acetone	ALR-034S-A-10X	
Dihydrocoumarin	119-84-6	100 mg	NEAT	ALR-101N	
		100 µg/mL	MeOH	ALR-101S	
		100 mg	NEAT	ALR-102N	
Diisodecyl phthalate (Tech)	26761-40-0	100 µg/mL	MeOH	ALR-102S	
		100 mg	NEAT	ALR-103N	
Diisononyl phthalate (Tech)	68515-48-0	100 µg/mL	MeOH	ALR-103S	
		100 mg	NEAT	ALR-038N	
Diisooctyl phthalate (Tech)	27554-26-3	100 µg/mL	MeOH	ALR-038S	
		100 mg	NEAT	ALR-038S-ET-10X	
		1000 µg/mL	EtOH	ALR-111N	
Dimethyl citraconate	617-54-9	100 mg	NEAT	ALR-111S	
		100 µg/mL	MeOH	ALR-040N	
Dimethyl phthalate (DMP)	131-11-3	100 mg	NEAT	ALR-040N	
		100 µg/mL	MeOH	ALR-040S-A-10X	
		1000 µg/mL	Acetone	ALR-040S-A-10X	
6,10-Dimethyl-3,5,9-undecatrien-2-one (Pseudoionone)	141-10-6	100 mg	NEAT	ALR-104N	
		100 µg/mL	MeOH	ALR-104S	
		100 mg	NEAT	ALR-105N	
Di-n-butyl phthalate (DBP)	84-74-2	100 µg/mL	MeOH	ALR-105S	
		100 mg	NEAT	ALR-062N	
Di-n-octyl phthalate	117-84-0	100 µg/mL	MeOH	ALR-062S	
		100 mg	NEAT	ALR-041N	
1,4-Dioxane	123-91-1	100 µg/mL	MeOH	ALR-041S-ET-10X	
		100 mg	NEAT	ALR-064N	
Diphenylamine	122-39-4	100 µg/mL	MeOH	ALR-064S	
		100 mg	NEAT	ALR-065N	
2-Ethoxyethanol	110-80-5	100 µg/mL	MeOH	ALR-065S	
		100 mg	NEAT	ALR-042N	
2-Ethoxyethanol acetate	111-15-9	100 µg/mL	MeOH	ALR-042S-ET-10X	
		100 mg	NEAT	ALR-113N	
Ethyl acrylate	140-88-5	100 µg/mL	MeOH	ALR-113S	
		100 mg	NEAT	ALR-114N	
Ethyl paraben	120-47-8	100 µg/mL	MeOH	ALR-114S	
		100 mg	NEAT	ALR-174S-CN	
Ethylene diamine dihydrochloride	333-18-6	100 µg/mL	MeOH	ALR-005N	
		100 mg	NEAT	ALR-005S-ET-10X	
2-Ethylhexyl salicylate	118-60-5	100 µg/mL	AcCN	ALR-174S-CN	
Eugenol	97-53-0	100 mg	NEAT	ALR-005N	
		1000 µg/mL	EtOH	ALR-005S-ET-10X	

Allergens continued on next page



Allergens

Allergens

Compound	CAS No.	Conc.	Matrix	Cat. No.	1 mL
Farnesol (Mixed isomers)	4602-84-0	100 mg	NEAT	ALR-016N	
		1000 µg/mL	EtOH	ALR-016S-ET-10X	
Formaldehyde	50-00-0	100 µg/mL	Water	ALR-115S-W	
Freon #11 Trichlorofluoromethane	75-69-4	200 µg/mL	MeOH	ALR-CFC-013S-2X	
Freon #12 Dichlorodifluoromethane	75-71-8	200 µg/mL	MeOH	ALR-CFC-008S-2X	
Freon #13 Chlorotrifluoromethane	75-72-9	200 µg/mL	MeOH	ALR-CFC-007S-2X	
Freon #13b1 Bromotrifluoromethane	75-63-8	200 µg/mL	MeOH	ALR-CFC-001S-2X	
Freon #21 Dichlorofluoromethane	75-43-4	200 µg/mL	MeOH	ALR-CFC-009S-2X	
Freon #22 Chlorodifluoromethane	75-45-6	200 µg/mL	MeOH	ALR-CFC-003S-2X	
Freon #23 Trifluoromethane	75-46-7	200 µg/mL	MeOH	ALR-CFC-015S-2X	
Freon #40 Chloromethane	74-87-3	200 µg/mL	MeOH	ALR-CFC-005S-2X	
Freon #113 1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	200 µg/mL	MeOH	ALR-CFC-014S-2X	
Freon #114 1,2-Dichloro-1,1,2,2-tetrafluoroethane	76-14-2	200 µg/mL	MeOH	ALR-CFC-010S-2X	
Freon #115 Chloropentafluoroethane	76-15-3	200 µg/mL	MeOH	ALR-CFC-006S-2X	
Freon #134a Tetrafluoroethane	811-97-2	200 µg/mL	MeOH	ALR-CFC-012S-2X	
Freon #142b 1-Chloro-1,1-difluoroethane	75-68-3	200 µg/mL	MeOH	ALR-CFC-002S-2X	
Freon #152a 1,1-Difluoroethane	75-37-6	200 µg/mL	MeOH	ALR-CFC-011S-2X	
Freon #160 Chloroethane	75-00-3	200 µg/mL	MeOH	ALR-CFC-004S-2X	
Geraniol	106-24-1	100 mg	NEAT	ALR-012N	
		1000 µg/mL	EtOH	ALR-012S-ET-10X	
trans-2-Heptenal	18829-55-5	100 mg	NEAT	ALR-044N	
		1000 µg/mL	AcCN	ALR-044S-CN-10X	
Heptyl paraben	1085-12-7	100 mg	NEAT	ALR-117N	
		100 µg/mL	MeOH	ALR-117S	
trans-2-Hexenal diethyl acetal	67746-30-9	100 mg	NEAT	ALR-045N	
		1000 µg/mL	EtOH	ALR-045S-ET-10X	
trans-2-Hexenal dimethyl acetal	18318-83-7	100 mg	NEAT	ALR-046N	
		1000 µg/mL	MeOH	ALR-046S-10X	
Hexachlorophene (HCP)	70-30-4	100 mg	NEAT	ALR-118N	
		100 µg/mL	MeOH	ALR-118S	
Hexyl cinnamaldehyde	101-86-0	1000 µg/mL	EtOH	ALR-021S-ET-10X	
Homosalate (HMS)	118-56-9	100 µg/mL	AcCN	ALR-119S-CN	
Hydroquinone monoethyl ether (4-Ethoxyphenol)	622-62-8	100 mg	NEAT	ALR-048N	
		1000 µg/mL	EtOH	ALR-048S-ET-10X	
p-Hydroxyanisole	150-76-5	100 mg	NEAT	ALR-145N	
		100 µg/mL	MeOH	ALR-145S	
4-Hydroxybenzoic acid (Paraben)	99-96-7	100 mg	NEAT	ALR-069N	
		100 µg/mL	AcCN	ALR-069S-CN	
Hydroxy-citronellal	107-75-5	100 mg	NEAT	ALR-006N	
		1000 µg/mL	AcCN	ALR-006S-CN-10X	
tris(Hydroxymethyl)nitromethane (Tris Nitro)	126-11-4	100 mg	NEAT	ALR-169N	
		100 µg/mL	MeOH	ALR-169S	
Hydroxymethylpentylcyclohexenecarboxaldehyde	31906-04-4	100 mg	NEAT	ALR-013N	
		1000 µg/mL	AcCN	ALR-013S-CN-10X	
Imidazolidinyl urea	39236-46-9	100 mg	NEAT	ALR-120N	
		100 µg/mL	MeOH	ALR-120S	
α-Ionone	127-41-3	100 mg	NEAT	ALR-171N	
		100 µg/mL	MeOH	ALR-171S	
β-Ionone	79-77-6	100 mg	NEAT	ALR-172N	
		100 µg/mL	MeOH	ALR-172S	
Isobutyl paraben	4247-02-3	100 mg	NEAT	ALR-121N	
		100 µg/mL	MeOH	ALR-121S	
Isoeugenol	97-54-1	100 mg	NEAT	ALR-007N	
		1000 µg/mL	EtOH	ALR-007S-ET-10X	
Isopropyl paraben	4191-73-5	100 mg	NEAT	ALR-122N	
		100 µg/mL	MeOH	ALR-122S	
Lanolin, anhydrous	8006-54-0	100 mg	NEAT	ALR-123N	
		100 µg/mL	Acetone	ALR-123S-A	
Lead	7439-92-1	1000 µg/mL	2-5% HNO ₃	ALR-MET-04S	
d-Limonene	5989-27-5	100 mg	NEAT	ALR-022N	
		1000 µg/mL	EtOH	ALR-022S-ET-10X	
Linalool	78-70-6	100 mg	NEAT	ALR-018N	
		1000 µg/mL	EtOH	ALR-018S-ET-10X	
Mercury	7439-97-6	1000 µg/mL	10% HNO ₃	ALR-MET-05S	
Metabromsalon	2577-72-2	100 mg	NEAT	ALR-128N	
		100 µg/mL	MeOH	ALR-128S	
7-Methoxycoumarin	531-59-9	100 mg	NEAT	ALR-050N	
		1000 µg/mL	AcCN	ALR-050S-CN-10X	
4-(p-Methoxyphenyl)-3-butene-2-one	943-88-4	1000 µg/mL	AcCN	ALR-051S-CN-10X	
4-Methoxy-m-phenylenediamine-sulfate hydrate	123333-56-2	100 mg	NEAT	ALR-072N	
1-(p-Methoxyphenyl)-1-penten-3-one	104-27-8	100 mg	NEAT	ALR-052N	
		1000 µg/mL	AcCN	ALR-052S-CN-10X	
4-Methyl-benzylidene camphor (4-MBC)	36861-47-9	100 mg	NEAT	ALR-073N	
		100 µg/mL	MeOH	ALR-073S	
6-Methylcoumarin (6-MC)	92-48-8	100 mg	NEAT	ALR-075N	
		100 µg/mL	MeOH	ALR-075S	
7-Methylcoumarin	2445-83-2	100 mg	NEAT	ALR-054N	
		1000 µg/mL	AcCN	ALR-054S-CN-10X	
Methyl heptyne carbonate	111-12-6	100 mg	NEAT	ALR-023N	
		1000 µg/mL	EtOH	ALR-023S-ET-10X	



Compound	CAS No.	Conc.	Matrix	Cat. No.	1 mL
5-Methyl-2,3-hexanedione (Acetyl isovaleryl)	13706-86-0	100 mg	NEAT	ALR-055N	
		1000 µg/mL	AcCN	ALR-055S-CN-10X	
Methyl methacrylate monomer	80-62-6	100 mg	NEAT	ALR-129N	
		100 µg/mL	MeOH	ALR-129S	
Methyl paraben	99-76-3	100 mg	NEAT	ALR-130N	
		100 µg/mL	MeOH	ALR-130S	
Methyl trans-2-butenate	623-43-8	100 mg	NEAT	ALR-053N	
		1000 µg/mL	MeOH	ALR-053S-10X	
Methyldibromoglutaronitrile	35691-65-7	100 mg	NEAT	ALR-132N	
		100 µg/mL	MeOH	ALR-132S	
Methylene chloride	75-09-2	100 mg	NEAT	ALR-133N	
		100 µg/mL	MeOH	ALR-133S	
Methyleugenol	93-15-2	100 mg	NEAT	ALR-061N	
		1000 µg/mL	EtOH	ALR-061S-ET-10X	
Monobenzyl phthalate (mBzP)	2528-16-7	100 mg	NEAT	ALR-134N	
		100 µg/mL	AcCN	ALR-134S-CN	
Monobutyl phthalate (mBP)	131-70-4	100 mg	NEAT	ALR-135N	
		100 µg/mL	AcCN	ALR-135S-CN	
Monocyclohexyl phthalate	7517-36-4	100 mg	NEAT	ALR-178N	
		100 µg/mL	AcCN	ALR-178S-CN	
Monoethanolamine (MEA) (2-Aminoethanol)	141-43-5	100 mg	NEAT	ALR-136N	
		100 µg/mL	MeOH	ALR-136S	
Monoethyl phthalate (mEP)	2306-33-4	100 mg	NEAT	ALR-137N	
		100 µg/mL	AcCN	ALR-137S-CN	
Monoethylhexyl phthalate (mEHP)	4376-20-9	100 mg	NEAT	ALR-138N	
		100 µg/mL	AcCN	ALR-138S-CN	
Mono-2-heptyl phthalate		100 mg	NEAT	ALR-143N	
		100 µg/mL	AcCN	ALR-143S-CN	
Monohexyl phthalate	24539-57-9	100 mg	NEAT	ALR-175N	
		100 µg/mL	AcCN	ALR-175S-CN	
Monoisobutyl phthalate	30833-53-5	100 mg	NEAT	ALR-176N	
		100 µg/mL	AcCN	ALR-176S-CN	
Monoisononyl phthalate		100 mg	NEAT	ALR-142N	
		100 µg/mL	AcCN	ALR-142S-CN	
Monoisopropyl phthalate	35118-50-4	100 mg	NEAT	ALR-179N	
		100 µg/mL	AcCN	ALR-179S-CN	
Monomethyl phthalate	4376-18-5	100 mg	NEAT	ALR-139N	
		100 µg/mL	AcCN	ALR-139S-CN	
Monooctyl phthalate	5393-19-1	100 mg	NEAT	ALR-141N	
		100 µg/mL	AcCN	ALR-141S-CN	
Mono-n-pentyl phthalate	24539-56-8	100 mg	NEAT	ALR-177N	
		100 µg/mL	AcCN	ALR-177S-CN	
Musk ambrette	83-66-9	1000 µg/mL	AcCN	ALR-056S-CN-10X	
Nickel	7440-02-0	1000 µg/mL	2-5% HNO ₃	ALR-MET-06S	
N-Phenyl-p-phenylenediamine	101-54-2	100 mg	NEAT	ALR-140N	
		100 µg/mL	MeOH	ALR-140S	
Octyl-dimethyl-PABA (OD-PABA)(Padimate O)	21245-02-3	100 mg	NEAT	ALR-146N	
		100 µg/mL	MeOH	ALR-146S	
		100 mg	NEAT	ALR-144N	
Octyl-methoxycinnamate (OMC)	5466-77-3	100 µg/mL	MeOH	ALR-144S	
		100 mg	NEAT	ALR-058N	
4-Phenyl-3-buten-2-one	122-57-6	1000 µg/mL	AcCN	ALR-058S-CN-10X	
		100 mg	NEAT	ALR-127N	
<i>m</i> -Phenylenediamine (MPD)	108-45-2	100 µg/mL	MeOH	ALR-127S	
		100 mg	NEAT	ALR-147N	
<i>p</i> -Phenylenediamine (PPD)	106-50-3	100 µg/mL	MeOH	ALR-147S	
		100 mg	NEAT	ALR-149N-MW200	
Polyethylene glycol (PEG), appr. Molecular weight 200	25322-68-3	100 µg/mL	MeOH	ALR-149S-MW200	
		100 mg	NEAT	ALR-149N-MW400	
Polyethylene glycol (PEG), appr. Molecular weight 400	25322-68-3	100 µg/mL	MeOH	ALR-149S-MW400	
		100 mg	NEAT	ALR-149N-MW600	
Polyethylene glycol (PEG), appr. Molecular weight 600	25322-68-3	100 µg/mL	MeOH	ALR-149S-MW600	
		100 mg	NEAT	ALR-149N-MW1500	
Polyethylene glycol (PEG), appr. Molecular weight 1500	25322-68-3	100 µg/mL	MeOH	ALR-149S-MW1500	
		100 mg	NEAT	ALR-149N-MW4000	
Polyethylene glycol (PEG), appr. Molecular weight 4000	25322-68-3	100 µg/mL	MeOH	ALR-149S-MW4000	
		100 mg	NEAT	ALR-150S	
Polyvinylpyrrolidone PVP/PA Copolymer	9003-39-8	100 µg/mL	MeOH	ALR-150S	
Potassium dichromate	7778-50-9	1000 µg/mL	Water	ALR-MET-07S	
Potassium sorbate	24634-61-5	100 mg	NEAT	ALR-152N	
		100 µg/mL	MeOH	ALR-152S	
Propyl paraben	94-13-3	100 mg	NEAT	ALR-153N	
		100 µg/mL	MeOH	ALR-153S	
Propylene glycol (PG)	57-55-6	100 µg/mL	MeOH	ALR-154S	
Protocatechuic acid	99-50-3	100 mg	NEAT	ALR-155N	
		100 µg/mL	AcCN	ALR-155S-CN	
Pyrocatechol	120-80-9	100 mg	NEAT	ALR-156N	
		100 µg/mL	MeOH	ALR-156S	
Quaternium-15	51229-78-8	100 mg	NEAT	ALR-157N	
		100 µg/mL	MeOH	ALR-157S	

Allergens continued on next page

Allergens & EU Directive List



Allergens

Compound	CAS No.	Conc.	Matrix	Cat. No.	1 mL
Resorcinol	108-46-3	100 mg	NEAT	ALR-158N	
		100 µg/mL	MeOH	ALR-158S	
Salicylic acid	69-72-7	100 mg	NEAT	ALR-173N	
		100 µg/mL	Water	ALR-173S-W	
Sodium hydroxide	1310-73-2	100 mg	NEAT	ALR-159N	
		100 µg/mL	MeOH	ALR-159S	
Sodium nitrite	7632-00-0	100 mg	NEAT	ALR-160N	
		100 µg/mL	Water	ALR-160S-W	
Talc	14807-96-6	100 mg	NEAT	ALR-161N	
Tetrachlorosalicylanilide	1154-59-2	100 mg	NEAT	ALR-162N	
		100 µg/mL	MeOH	ALR-162S	
Thimerosal	54-64-8	100 mg	NEAT	ALR-163N	
		100 µg/mL	MeOH	ALR-163S	
Thiuram (Thiram) (Tetramethylthiouoram disulfide)	137-26-8	100 mg	NEAT	ALR-164N	
		100 µg/mL	MeOH	ALR-164S	
Tribomsalan	87-10-5	100 mg	NEAT	ALR-167N	
		100 µg/mL	MeOH	ALR-167S	
Triethanolamine (TEA)	102-71-6	100 mg	NEAT	ALR-168N	
		100 µg/mL	MeOH	ALR-168S	
Verbena oil (Lippia citriodora Kunth)	8024-12-2	100 mg	NEAT	ALR-060N	
		1000 µg/mL	EtOH	ALR-060S-ET-10X	
Vinyl chloride	75-01-4	100 µg/mL	MeOH	ALR-170S	
Zirconium	7440-67-7	1000 µg/mL	2-5% HNO ₃	ALR-MET-08S	

EU Directive 76/768/EEC

EU Directive List of 24 Regulated Contact Allergens:

ALR-EU24-SET 24 x 1 mL
Each at 1000 µg/mL

Compound	CAS No.	Cat. No	1 mL
Amyl cinnamal	122-40-7	ALR-001S-CN-10X	
Amylcinnamyl alcohol	101-85-9	ALR-008S-ET-10X	
Anisyl alcohol	105-13-5	ALR-014S-ET-10X	
Benzyl alcohol	100-51-6	ALR-002S-ET-10X	
Benzyl benzoate	120-51-4	ALR-019S-ET-10X	
Benzyl cinnamate	103-41-3	ALR-015S-ET-10X	
Benzyl salicylate	118-58-1	ALR-009S-CN-10X	
2-(4-tert-Butylbenzyl)propionaldehyde (technical grade)	80-54-6	ALR-017S-CN-10X	
Cetone Alpha (Tech)	127-51-5	ALR-024S-CN-10X	
Cinnamal	104-55-2	ALR-010S-CN-10X	
Cinnamyl alcohol	104-54-1	ALR-003S-ET-10X	
Citral	5392-40-5	ALR-004S-CN-10X	
b-Citronellol	106-22-9	ALR-020S-ET-10X	
Coumarin	91-64-5	ALR-011S-CN-10X	
Eugenol	97-53-0	ALR-005S-ET-10X	
Farnesol (Mixed isomers)	4602-84-0	ALR-016S-ET-10X	
Geraniol	106-24-1	ALR-012S-ET-10X	
Hexyl cinnamaldehyde	101-86-0	ALR-021S-ET-10X	
Hydroxy-citronellal	107-75-5	ALR-006S-CN-10X	
Hydroxymethylpentylcyclohexenecarboxaldehyde	31906-04-4	ALR-013S-CN-10X	
Isoeugenol	97-54-1	ALR-007S-ET-10X	
d-Limonene	5989-27-5	ALR-022S-ET-10X	
Linalool	78-70-6	ALR-018S-ET-10X	
Methyl heptyne carbonate	111-12-6	ALR-023S-ET-10X	

EU Directive List of substances that may be banned:

ALR-EU36-R2-SET 24 x 1 mL
Each at 1000 µg/mL

Compound	CAS No.	Cat. No	1 mL
Allylthiocyanate	57-06-7	ALR-028S-ET-10X	
Benzyl cyanide	140-29-4	ALR-029S-ET-10X	
p-tert-Butylphenol	98-54-4	ALR-030S-ET-10X	
Diethyl maleate	141-05-9	ALR-033S-ET-10X	
Dihydroabietyl alcohol	26266-77-3	ALR-047S-ET-10X	
Dihydrocoumarin	119-84-6	ALR-034S-A-10X	
Dimethyl citraconate	617-54-9	ALR-038S-ET-10X	
6,10-Dimethyl-3,5,9-undecatrien-2-one (Pseudoionone)	141-10-6	ALR-040S-A-10X	
Diphenylamine	122-39-4	ALR-041S-ET-10X	
Ethyl acrylate	140-88-5	ALR-042S-ET-10X	
trans-2-Heptenal	18829-55-5	ALR-044S-CN-10X	
trans-2-Hexenal diethyl acetal	67746-30-9	ALR-045S-ET-10X	
trans-2-Hexenal dimethyl acetal	18318-83-7	ALR-046S-10X	
Hydroquinone monoethyl ether (4-Ethoxyphenol)	622-62-8	ALR-048S-ET-10X	
7-Methoxycoumarin	531-59-9	ALR-050S-CN-10X	
4-(p-Methoxyphenyl)-3-butene-2-one	943-88-4	ALR-051S-CN-10X	
1-(p-Methoxyphenyl)-1-penten-3-one	104-27-8	ALR-052S-CN-10X	
7-Methylcoumarin	2445-83-2	ALR-054S-CN-10X	
5-Methyl-2,3-hexanedione (Acetyl isovaleryl)	13706-86-0	ALR-055S-CN-10X	
Methyl trans-2-butenoate	623-43-8	ALR-053S-10X	
Methyleugenol	93-15-2	ALR-061S-ET-10X	
Musk ambrette (solution only)	83-66-9	ALR-056S-CN-10X	
4-Phenyl-3-buten-2-one	122-57-6	ALR-058S-CN-10X	
Verbena oil (Lippia citriodora Kunth)	8024-12-2	ALR-060S-ET-10X	

Technical Mixtures

When a compound has a purity identified as "Technical" or "Tech Mixture" it means that the standard is not comprised of just one main compound. These are mixtures of multiple chemicals that make up a particular product and every chemical in the mix are components that define the product. The analysis considers all compounds in the product. Aroclors, flame retardants, PBDE technical grade, halowaxes, and some allergens, plastic additives, and dyes are classified as "Technical Mixtures".

Key to Catalog Numbers

N	NEAT, 100 mg
S	Solution in Methanol
S-A	Solution in Acetone
S-CN	Solution in Acetonitrile
S-ET	Solution in Ethanol
S-T	Solution in Toluene
S-W	Solution in Water

Allergens by Type



Sun Block

ALR-SUN-SET 6 x 1 mL
Each at 100 µg/mL

Compound	CAS No.	Cat. No.	1 mL
Benzophenone-3 (Bp-3)	131-57-7	ALR-081S-CN	
Butyl-methoxydibenzoylmethane(B-MDM) Sunblock, Parsol 1789	70356-09-1	ALR-086S	
Homosalate (HMS)	118-56-9	ALR-119S-CN	
4-Methyl-benzylidene camphor (4-MBC)	36861-47-9	ALR-073S	
Octyl-dimethyl-PABA (OD-PABA) (Padimate O)	21245-02-3	ALR-146S	
Octyl-methoxycinnamate (OMC)	5466-77-3	ALR-144S	

Parabens

ALR-PAR-SET 11 x 1 mL
Each at 100 µg/mL

Compound	CAS No.	Cat. No.	1 mL
Benzyl paraben	94-18-8	ALR-083S	
Butyl paraben	94-26-8	ALR-085S	
Ethyl paraben	120-47-8	ALR-113S	
Heptyl paraben	1085-12-7	ALR-117S	
4-Hydroxybenzoic acid (Paraben)	99-96-7	ALR-069S-CN	
Isobutyl paraben	4247-02-3	ALR-121S	
Isopropyl paraben	4191-73-5	ALR-122S	
Methyl paraben	99-76-3	ALR-130S	
Potassium sorbate	24634-61-5	ALR-152S	
Propyl paraben	94-13-3	ALR-153S	
Protocatechuic acid	99-50-3	ALR-155S-CN	

Phthalates

ALR-PHT-SET 17 x 1 mL
Each at 100 µg/mL

Compound	CAS No.	Cat. No.	1 mL
Benzyl butyl phthalate	85-68-7	ALR-082S	
Diamyl phthalate	131-18-0	ALR-098S	
Dicyclohexyl phthalate	84-61-7	ALR-099S	
Di(2-ethylhexyl) phthalate (DEHP)	117-81-7	ALR-097S	
Diethyl phthalate	84-66-2	ALR-110S	
Dihexyl phthalate	84-75-3	ALR-100S	
Diisodecyl phthalate	26761-40-0	ALR-101S	
Diisononyl phthalate	68515-48-0	ALR-102S	
Diisooctyl phthalate	27554-26-3	ALR-103S	
Dimethyl phthalate (DMP)	131-11-3	ALR-111S	
Di-n-butyl phthalate (DBP)	84-74-2	ALR-104S	
Di-n-octyl phthalate	117-84-0	ALR-105S	
Monobenzyl phthalate (mBzP)	2528-16-7	ALR-134S-CN	
Monobutyl phthalate (mBP)	131-70-4	ALR-135S-CN	
Monoethyl phthalate (mEP)	2306-33-4	ALR-137S-CN	
Monoethylhexyl phthalate (mEHP)	4376-20-9	ALR-138S-CN	
Monomethyl phthalate	4376-18-5	ALR-139S-CN	

Chlorofluorocarbon Propellants (CFCs)

ALR-CFC-SET 15 x 1 mL
Each at 200 µg/mL

Freon	Compound	CAS No.	Cat. No.	1 mL
Freon #11	Trichlorofluoromethane	75-69-4	ALR-CFC-013S-2X	
Freon #12	Dichlorodifluoromethane	75-71-8	ALR-CFC-008S-2X	
Freon #13	Chlorotrifluoromethane	75-72-9	ALR-CFC-007S-2X	
Freon #13b1	Bromotrifluoromethane	75-63-8	ALR-CFC-001S-2X	
Freon #21	Dichlorofluoromethane	75-43-4	ALR-CFC-009S-2X	
Freon #22	Chlorodifluoromethane	75-45-6	ALR-CFC-003S-2X	
Freon #23	Trifluoromethane	75-46-7	ALR-CFC-015S-2X	
Freon #40	Chloromethane	74-87-3	ALR-CFC-005S-2X	
Freon #113	1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	ALR-CFC-014S-2X	
Freon #114	1,2-Dichloro-1,1,2,2-tetrafluoroethane	76-14-2	ALR-CFC-010S-2X	
Freon #115	Chloropentafluoroethane	76-15-3	ALR-CFC-006S-2X	
Freon #134a	Tetrafluoroethane	811-97-2	ALR-CFC-012S-2X	
Freon #142b	1-Chloro-1,1-difluoroethane	75-68-3	ALR-CFC-002S-2X	
Freon #152a	1,1-Difluoroethane	75-37-6	ALR-CFC-011S-2X	
Freon #160	Chloroethane	75-00-3	ALR-CFC-004S-2X	

Metals

ALR-MET-SET 8 x 100 mL
Each at 1000 µg/mL 2-5% HNO₃, except † in Water

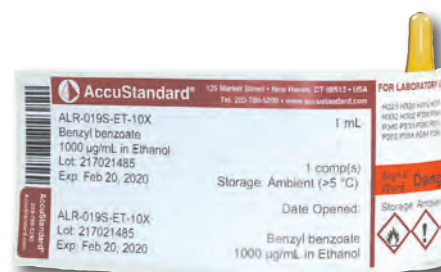
Compound	CAS No.	Cat. No.	100 mL
Arsenic	7440-38-2	ALR-MET-01S	
Chromium	7440-47-3	ALR-MET-02S	
Cobalt	7440-48-4	ALR-MET-03S	
Lead	7439-92-1	ALR-MET-04S	
Mercury	7439-97-6	ALR-MET-05S *	
Nickel	7440-02-0	ALR-MET-06S	
Potassium dichromate	7778-50-9	ALR-MET-07S †	
Zirconium	7440-67-7	ALR-MET-08S	

† in Water, * 10% HNO₃

Personal Care Products

Compound	Matrix	Cat. No.	Unit
Triclosan	100 µg/mL	PCC-001S	1 mL
	1000 µg/mL	PCC-001S-10X	1 mL
	NEAT	PCC-001N	100 mg

Key to Catalog Numbers	
N	NEAT, 100 mg
S	Solution in Methanol
S-A	Solution in Acetone
S-CN	Solution in Acetonitrile
S-ET	Solution in Ethanol
S-T	Solution in Toluene
S-W	Solution in Water
MET	2-5% Nitric acid



Azo dyes may pose cancer risks and have been restricted in many countries, most notably of the European Union.

Neats at 100 mg. Solutions at 100 µg/mL in MeOH, except as noted.

Individual Dyes

Compound	Synonym	CAS No.	NEAT Cat. No.	100 mg	Solution Cat. No.	1 mL
2-Amino-3-nitrophenol		603-85-0	DYE-107N		DYE-107S	
2-Amino-4-chlorophenol		95-85-2	-----		DYE-034S *	
2-Amino-5-(diethylamino)toluene monohydrochloride		2051-79-8	DYE-104N		DYE-104S	
2-Aminophenol		95-55-6	DYE-108N		DYE-108S	
Acid Red 26	<i>Ponceau Xylidine</i>	3761-53-3	-----		DYE-031S	
Acid Violet 7		4321-69-1	DYE-121N		DYE-121S	
Acid Violet 9		6252-76-2	DYE-122N		DYE-122S	
Acid Violet 19		3244-88-0	DYE-123N		DYE-123S	
Acid Violet 20			DYE-124N		DYE-124S	
Acid Violet 30			DYE-125N-5MG		DYE-125S	
Acid Violet 49		1694-09-3	DYE-120N		DYE-120S	
Basic Blue 7		2390-60-5	DYE-113N		DYE-113S	
<i>Basic Blue 26</i>	see Victoria Blue					
Basic Fuchsin		569-61-9	DYE-049N		DYE-049S	
Basic Red 2		477-73-6	DYE-114N		DYE-114S	
Basic Red 9		569-61-9	-----		DYE-030S	
Basic Violet 1		8004-87-3	DYE-027N		DYE-027S	
Basic Violet 3	Crystal Violet	548-62-9	DYE-028N		DYE-028S	
Basic Violet 14		632-99-5	-----		DYE-012S	
<i>Congo Red</i>	see Direct Red 28					
Crocein Scarlet 3b		5413-75-2	DYE-115N		DYE-115S	
<i>Crystal Violet</i>	see Basic Violet 3					
D & C Red 7		5281-04-9	DYE-060N		DYE-060S	
2,4-Diaminodiphenylamine		136-17-4	DYE-102N		-----	
2,6-Diaminopyridine		141-86-6	DYE-103N		DYE-103S	
N,N-Dimethyl-1,4-phenylenediamine		99-89-9	DYE-106N		DYE-106S	
Direct Black 38		1937-37-7	-----		DYE-013S	
Direct Blue 6		2602-46-2	-----		DYE-014S	
Direct Red 28	<i>Congo Red</i>	573-58-0	-----		DYE-064S	
Disperse Blue 1		2475-45-8	-----		DYE-001S	
Disperse Blue 3		2475-46-9	-----		DYE-004S	
Disperse Blue 7		3179-90-6	-----		DYE-015S	
Disperse Blue 26		3860-63-7	-----		DYE-016S	
Disperse Blue 35			-----		DYE-009S	
Disperse Blue 102		12222-97-8	-----		DYE-017S	
Disperse Blue 124		61951-51-7	-----		DYE-010S	
Disperse Brown 1		23355-64-8	DYE-051N		DYE-051S	
Disperse Orange 1		2581-69-3	-----		DYE-005S	
Disperse Orange 3		730-40-5	-----		DYE-006S	
Disperse Orange 11		82-28-0	-----		DYE-002S	
Disperse Orange 37		13301-61-6	-----		DYE-011S	
Disperse Red 1		2872-52-8	-----		DYE-007S	
Disperse Red 11		2872-48-2	-----		DYE-018S	
Disperse Red 17		3179-89-3	-----		DYE-019S	
Disperse Yellow 1		119-15-3	-----		DYE-053S	
Disperse Yellow 3		2832-40-8	DYE-003N		DYE-003S	
Disperse Yellow 9		6373-73-5	-----		DYE-008S	
Eosin Y		15086-94-9	DYE-127N		DYE-127S	
Eriochrome Black A		3618-58-4	DYE-109N		DYE-109S	
FD & C Blue 1		3844-45-9	DYE-062N		DYE-062S	
FD & C Blue 2		860-22-0	DYE-063N		DYE-063S	
FD & C Red 3		16423-68-0	DYE-057N		DYE-057S	
FD & C Red 40		25956-17-6	DYE-056N		-----	
FD & C Yellow 5		1934-21-0	DYE-058N		DYE-058S	
Food Yellow 3	<i>Sunset Yellow FCF</i>	2783-94-0	DYE-024N		DYE-024S	
Metanil Yellow		587-98-4	DYE-117N		DYE-117S	
Methyl Blue		28983-56-4	DYE-128N		DYE-128S	
2,3-Naphthalenediol		92-44-4	-----		DYE-033S *	
2-Nitro-1,4-phenylenediamine		5307-14-2	DYE-110N		DYE-110S	
Orange II sodium salt		633-96-5	DYE-116N		DYE-116S	
Para Red		6410-10-2	DYE-026N		DYE-026S **	
Ponceau SX		4548-53-2	-----		DYE-112S	
<i>Ponceau Xylidine</i>	see Acid Red 26					
Rhodamine B		81-88-9	-----		DYE-118S	
Solvent Orange 7	Sudan II	3118-97-6	DYE-021N		DYE-021S	
Solvent Red 19	<i>Sudan Red 7B</i>	6368-72-5	DYE-025N		DYE-025S	
Solvent Red 23	<i>Sudan III</i>	85-86-9	DYE-022N		DYE-022S	
Solvent Red 24	<i>Sudan IV</i>	85-83-6	DYE-023N		DYE-023S	
Solvent Yellow 1		60-09-3	-----		DYE-029S	
Solvent Yellow 14	<i>Sudan I, Solvent Orange R</i>	842-07-9	DYE-020N		DYE-020S	
Sudan II	Solvent Orange 7	3118-97-6	DYE-045N		DYE-045S	
Timbasol Brown trans oxide			DYE-055N		DYE-055S	
Victoria Blue	<i>Basic Blue 26</i>	2580-56-5	DYE-111N		DYE-111S	

* in AcCN
** in THF

EU Directive 2002/61/EC Determination of Aryl Amine Breakdown Products in Azo Dyes

Individual Aryl Amine Standards

Compound	100 µg/mL in AcCN 1 mL	1000 µg/mL in AcCN 1 mL	10 µg/mL in Ethyl acetate for 10 mL 10 mL
<i>o</i> -Aminoazotoluene	RAC-01	RAC-01-10X	RAC-01-EA-0.1X-10ML
4-Aminobiphenyl	RAC-02	RAC-02-10X	RAC-02-EA-0.1X-10ML
2-Amino-4-nitrotoluene	RAC-03	RAC-03-10X	RAC-03-EA-0.1X-10ML
Benzidine †	RAC-04	RAC-04-10X	RAC-04-EA-0.1X-10ML
4-Chloroaniline	RAC-05	RAC-05-10X	RAC-05-EA-0.1X-10ML
4-Chloro- <i>o</i> -toluidine	RAC-06	RAC-06-10X	RAC-06-EA-0.1X-10ML
<i>p</i> -Cresidine	RAC-07	RAC-07-10X	RAC-07-EA-0.1X-10ML
2,4-Diaminoanisole *	RAC-08	RAC-08-10X	RAC-08-EA-0.1X-10ML
4,4'-Diaminodiphenylmethane	RAC-09	RAC-09-10X	RAC-09-EA-0.1X-10ML
2,4-Diaminotoluene	RAC-10	RAC-10-10X	RAC-10-EA-0.1X-10ML
3,3'-Dichlorobenzidine †	RAC-11	RAC-11-10X	RAC-11-EA-0.1X-10ML
3,3'-Dimethoxybenzidine †	RAC-12	RAC-12-10X	RAC-12-EA-0.1X-10ML
3,3'-Dimethylbenzidine †	RAC-13	RAC-13-10X	RAC-13-EA-0.1X-10ML
3,3'-Dimethyl-4,4'-diaminodiphenylmethane	RAC-14	RAC-14-10X	RAC-14-EA-0.1X-10ML
4,4'-Methylenebis(2-chloroaniline)	RAC-15	RAC-15-10X	RAC-15-EA-0.1X-10ML
2-Naphthylamine	RAC-16	RAC-16-10X	RAC-16-EA-0.1X-10ML
4,4'-Oxydianiline	RAC-17	RAC-17-10X	RAC-17-EA-0.1X-10ML
4,4'-Thiodianiline	RAC-18	RAC-18-10X	RAC-18-EA-0.1X-10ML
<i>o</i> -Toluidine	RAC-19	RAC-19-10X	RAC-19-EA-0.1X-10ML
2,4,5-Trimethylaniline	RAC-20	RAC-20-10X	RAC-20-EA-0.1X-10ML
<i>p</i> -Aminoazobenzene	RAC-21	RAC-21-10X	RAC-21-EA-0.1X-10ML
2-Aminobiphenyl	RAC-22	RAC-22-10X	RAC-22-EA-0.1X-10ML
<i>o</i> -Anisidine	RAC-23	RAC-23-10X	RAC-23-EA-0.1X-10ML
3-Chloro- <i>o</i> -toluidine	RAC-24	RAC-24-10X	RAC-24-EA-0.1X-10ML

RAC-R1-SET 24 x 1 mL
100 µg/mL * In the form of the Sulfate hydrate 171 µg/mL in Pyridine (100 µg/mL as the base)

RAC-R1-10X-SET 24 x 1 mL
1000 µg/mL * In the form of the Sulfate hydrate 1,710 µg/mL in Pyridine (1000 µg/mL as the base)

† Subject to oxidation

Carcinogenic Aryl Amine Mix

AE-00049-R1 1 x 1 mL
10 µg/mL in Ethyl acetate 23 comps.

AE-00049-R1-10ML 1 x 10 mL
10 µg/mL in Ethyl acetate 23 comps.

o-Aminoazotoluene
4-Aminobiphenyl
2-Amino-4-nitrotoluene
Benzidine †
4-Chloroaniline
4-Chloro-*o*-toluidine
p-Cresidine
4,4'-Diaminodiphenylmethane
2,4-Diaminotoluene
3,3'-Dichlorobenzidine †
3,3'-Dimethoxybenzidine †
3,3'-Dimethylbenzidine †
3,3'-Dimethyl-4,4'-diaminodiphenylmethane
4,4'-Methylenebis(2-chloroaniline)
2-Naphthylamine
4,4'-Oxydianiline
4,4'-Thiodianiline
o-Toluidine
2,4,5-Trimethylaniline
p-Aminoazobenzene
2-Aminobiphenyl
o-Anisidine
3-Chloro-*o*-toluidine

Internal Standards

RAC-IS 1 x 1 mL
1000 µg/mL in AcCN

RAC-IS-EA 1 x 1 mL
1000 µg/mL in Ethyl acetate

3,3',5,5'-Tetramethylbenzidine †

AE-00049-SET 2 x 1 mL
AE-00049-R1, RAC-08



EU Directive 67/548/EEC Dyes

Criterion #22 Regulated Dyes Carcinogenic

Compound	100 µg/ml in MeOH Cat. No.	1 mL
Disperse Blue 1	DYE-001S	
Disperse Orange 11	DYE-002S	
Disperse Yellow 3	DYE-003S	
Basic Violet 14	DYE-012S	
Direct Black 38	DYE-013S	
Direct Blue 6	DYE-014S	

Criterion #23 Regulated Dye Disperse dyes, Sensitizing

Compound	100 µg/ml in MeOH Cat. No.	1 mL
Disperse Blue 3	DYE-004S	
Disperse Orange 1	DYE-005S	
Disperse Orange 3	DYE-006S	
Disperse Red 1	DYE-007S	
Disperse Yellow 9	DYE-008S	
Disperse Blue 35	DYE-009S	
Disperse Blue 124	DYE-010S	
Disperse Orange 37	DYE-011S	
Disperse Blue 7	DYE-015S	
Disperse Blue 26	DYE-016S	
Disperse Blue 102	DYE-017S	
Disperse Red 11	DYE-018S	
Disperse Red 17	DYE-019S	

EU Directive 76/768/EEC Substances contained in Hair Dyes Ban

Compound	CAS No.	NEAT 100 mg Cat. No.	100 µg/ml in MeOH 1 mL Cat. No.
2-Amino-3-nitrophenol	603-85-0	DYE-107N	DYE-107S
2-Amino-5-(diethylamino)toluene monohydrochloride	2051-79-8	DYE-104N	DYE-104S
2-Aminophenol	95-55-6	DYE-108N	DYE-108S
Basic Blue 7	2390-60-5	DYE-113N	DYE-113S
Basic Red 2	477-73-6	DYE-114N	DYE-114S
Crocein Scarlet 3b	5413-75-2	DYE-115N	DYE-115S
2,4-Diaminodiphenylamine	136-17-4	DYE-102N	-----
2,6-Diaminopyridine	141-86-6	DYE-103N	DYE-103S
N,N-Dimethyl-1,4-phenylenediamine	99-89-9	DYE-106N	DYE-106S
Eriochrome Black A	3618-58-4	DYE-109N	DYE-109S
2-Nitro-1,4-phenylenediamine	5307-14-2	DYE-110N	DYE-110S
Ponceau SX	4548-53-2	-----	DYE-112S
Victoria Blue	2580-56-5	DYE-111N	DYE-111S

PFCs, Odor and Irritant Standards

Perfluorinated Compounds (PFCs)

Per- and polyfluoroalkyl substances (PFAS) are man-made compounds and comprise a large group of fluorinated chemicals that have been produced since the 1950s. They have been used in the manufacture of stain, oil and water-resistant industrial and consumer products, and are found in products such as firefighting foams, cleaners, cosmetics, paints, adhesives and insecticides. PFAS have high thermal and chemical stability which makes them practically non-biodegradable, bio-accumulative and persistent in the environment. They are highly resistant to degradation in aquatic environments and became a high concern for the contamination of drinking water.

The two best known groups of this family of chemicals are the perfluorocarboxylic acids (PFCAs), which include perfluorooctanoic acid (PFOA), and the perfluorosulfonates (PFASs), which include perfluorooctane sulfonate (PFOS).

AccuStandard offers EPA method 537 (Determination of Selected Perfluorinated Alkyl Acids in Drinking Water). The method contains 14 PFASs, but an extended version of 24 compounds will be available soon. Please check the website for updates.



Compound	CAS No.	Conc.	Matrix	Cat. No.	1 mL
Perfluorooctanoic acid	335-67-1	100 mg	NEAT	PFOA-001N	
		100 µg/mL	MeOH	PFOA-001S	
Perfluorobutanoic acid	375-22-4	100 µg/mL	MeOH	PFOA-002S	
Perfluorodecanoic acid	335-76-2	100 µg/mL	MeOH	PFOA-003S	
Perfluorododecanoic acid	307-55-1	100 µg/mL	MeOH	PFOA-004S	
Perfluoroheptanoic acid	375-85-9	100 µg/mL	MeOH	PFOA-005S	
Perfluorohexanoic acid	307-24-4	100 µg/mL	MeOH	PFOA-006S	
Perfluorononanoic acid	375-95-1	100 µg/mL	MeOH	PFOA-007S	
Perfluoropentanoic acid	2706-90-3	100 µg/mL	MeOH	PFOA-008S	
Perfluoroundecanoic acid	2058-94-8	100 µg/mL	MeOH	PFOA-009S	
2H,2H,3H,3H-Perfluoroundecanoic acid	34598-33-9	100 µg/mL	MeOH	PFOA-010S	
Perfluorooctane sulfonic acid	1763-23-1	100 µg/mL	MeOH	PFOS-001S	
Potassium perfluorooctanesulfonate	2795-39-3	100 mg	NEAT	PFOS-002N	
		100 µg/mL	MeOH	PFOS-002S	
Scotchgard™ Pre-2002 Formulation (Tech mix)		100 µg/mL	MeOH	PFOS-SCG-001S	
Scotchgard™ Post-2002 Formulation (Tech mix)		100 µg/mL	MeOH	PFOS-SCG-002S	

Registered Trademarks
Scotchgard 3M

Odor Standards

The determination of odor in drinking water, waste water, and solids also include Japanese quantitative standards to meet the standard methods odor testing parameters. Odor Chemical Reference Materials, include both quantitative and qualitative standards.

Individual Odor Standards

Solutions are in 1 mL, except * in 10 mL

Compound	CAS No.	Conc.	Matrix	Cat. No.
Cumene	98-82-8	10 mg	NEAT	ODOR-06N
(+/-) Geosmin	16423-19-1	2 µg/mL	MeOH	ODOR-01S
Indan	496-11-7	10 mg	NEAT	ODOR-12N
Indene	95-13-6	10 mg	NEAT	ODOR-11N
2-Isobutyl-3-methoxypyrazine *	24683-00-9	1000 µg/mL	MeOH	ODOR-17S-10ML
2-Isopropyl-3-methoxypyrazine *	25773-40-4	1000 µg/mL	MeOH	ODOR-16S-10ML
cis-3-Hexenyl acetate	3681-71-8	10 mg	NEAT	ODOR-08N
cis-3-Hexen-1-ol	928-96-1	10 mg	NEAT	ODOR-09N
2-Methylbenzofuran	4265-25-2	10 mg	NEAT	ODOR-14N
2-Methylisoborneol	2371-42-8	2 µg/mL	MeOH	ODOR-02S
Methyl isobutyl ketone	108-10-1	10 mg	NEAT	ODOR-10N
Naphthalene	91-20-3	10 mg	NEAT	ODOR-13N
trans-2, cis-6-Nonadienal	557-48-2	10 mg	NEAT	ODOR-03N
Styrene	100-42-5	10 mg	NEAT	ODOR-04N
Toluene	108-88-3	10 mg	NEAT	ODOR-05N
2,4,6-Trichloroanisole *	87-40-1	1000 µg/mL	MeOH	ODOR-15S-10ML
m-Xylene	108-38-3	10 mg	NEAT	ODOR-07N

Odor Set

ODOR-STM-SET 12 x 10 mg

trans-2, cis-6-Nonadienal
Styrene
Toluene
Cumene
m-Xylene
cis-3-Hexenyl acetate
cis-3-Hexen-1-ol
Methyl isobutyl ketone
Indene
Indan
Naphthalene
2-Methylbenzofuran

Japan Drinking Water Odor Standard

ODOR-JDWOS 1 x 1 mL
100 µg/mL each in MeOH 2 comps.

(+/-) Geosmin
2-methylisoborneol

Irritant Standards

Irritants are chemicals that can cause a reversible inflammation of nasal passages, tear ducts, or skin. Chemicals that are classified as irritants would usually be classified as corrosives in a more concentrated form such as tear gas and mace.

Compound	CAS No.	Conc.	Matrix	Cat. No.
2-Chloroacetophenone	532-27-4	100 µg/mL	Hexane	IRT-001S
2'-Chloroacetophenone	2142-68-9	100 µg/mL	Hexane	IRT-002S
3'-Chloroacetophenone	99-02-5	100 µg/mL	Hexane	IRT-003S
4'-Chloroacetophenone	99-91-2	100 µg/mL	Hexane	IRT-004S
2'-Methylacetophenone	577-16-2	100 µg/mL	Hexane	IRT-005S

CFCs and Refrigerants

Refrigerants - Chlorofluorohydrocarbons (CFCs)

Chlorofluorohydrocarbons (CFCs) are ozone-depleting substances that were used primarily in air-conditioning and refrigeration systems. Under the Clean Air Act, CFCs were to be phased out of production in the U.S. by January 1, 1996. In order to monitor various refrigerants that may be present in the environment, the following single and multi-component mixes are offered to help labs screen for these compounds.

Compound	CAS No.	Conc.	Solvent	Cat. No.	1 mL
Bromochlorodifluoromethane	353-59-3	0.2 mg/mL	MeOH	M-REF-X-01	
Bromotrifluoromethane (Freon #13b1)	75-63-8	0.2 mg/mL	MeOH	M-REF-01	
1-Chloro-1,1-difluoroethane (Freon #142b)	75-68-3	0.2 mg/mL	MeOH	M-REF-02	
2-Chloro-1,1,1,2-tetrafluoroethane (Freon #124)	2837-89-0	0.2 mg/mL	MeOH	M-REF-X-02	
Chlorodifluoromethane (Freon #22)	75-45-6	0.2 mg/mL	MeOH	M-REF-03	
Chloroethane (Freon #160)	75-00-3	0.2 mg/mL	MeOH	M-REF-04	
Chloromethane	74-87-3	0.2 mg/mL	MeOH	M-REF-05	
Chloropentafluoroethane	76-15-3	0.2 mg/mL	MeOH	M-REF-06	
Chlorotrifluoromethane (Freon #13)	75-72-9	0.2 mg/mL	MeOH	M-REF-07	
1,2-Dibromotetrafluoroethane	124-73-2	0.2 mg/mL	MeOH	M-REF-X-03	
1,1-Dichloro-1-fluoroethane (Freon #141B)	1717-00-6	0.2 mg/mL	MeOH	M-REF-X-04	
1,2-Dichloro-1,1,2,2-tetrafluoroethane (Freon #114)	76-14-2	0.2 mg/mL	MeOH	M-REF-10	
2,2-Dichloro-1,1,1-trifluoroethane (Freon #123)	306-83-2	0.2 mg/mL	MeOH	M-REF-X-05	
Dichlorodifluoromethane (Freon #12)	75-71-8	0.2 mg/mL	MeOH	M-REF-08	
Dichlorofluoromethane (Freon #21)	75-43-4	0.2 mg/mL	MeOH	M-REF-09	
1,1-Difluoroethane (Freon 152a)	75-37-6	0.2 mg/mL	MeOH	M-REF-11	
Pentafluoroethane (Freon #125)	354-33-6	0.2 mg/mL	MeOH	M-REF-X-06	
1,1,2,2-Tetrafluoroethane (Freon #134)	359-35-3	0.2 mg/mL	MeOH	M-REF-X-07	
Tetrafluoroethane	811-97-2	0.2 mg/mL	MeOH	M-REF-12	
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	0.2 mg/mL	MeOH	M-REF-14	
		2.0 mg/mL	MeOH	M-REF-14-10X	
Trichlorofluoromethane	75-69-4	0.2 mg/mL	MeOH	M-REF-13	
1,1,1-Trifluoroethane (Freon #143A)	420-46-2	0.2 mg/mL	MeOH	M-REF-X-08	
Trifluoromethane (Freon #23)	75-46-7	0.2 mg/mL	MeOH	M-REF-15	



CFCs & Refrigerants

Refrigerant Solutions (CFCs)

M-REF 1 x 1 mL
0.2 mg/mL each in MeOH 15 comps.

Each at 0.2 mg/mL in MeOH 1 mL

Freon #	Compound	Cat. No.
13b1	Bromotrifluoromethane	M-REF-01
142b	1-Chloro-1,1-difluoroethane	M-REF-02
22	Chlorodifluoromethane	M-REF-03
160	Chloroethane	M-REF-04
40	Chloromethane	M-REF-05
115	Chloropentafluoroethane	M-REF-06
13	Chlorotrifluoromethane	M-REF-07
12	Dichlorodifluoromethane	M-REF-08
21	Dichlorofluoromethane	M-REF-09
114	1,2-Dichloro-1,1,2,2-tetrafluoroethane	M-REF-10
152a	1,1-Difluoroethane	M-REF-11
134a	Tetrafluoroethane	M-REF-12
11	Trichlorofluoromethane	M-REF-13
113	1,1,2-Trichloro-1,2,2-trifluoroethane	M-REF-14
23	Trifluoromethane	M-REF-15

M-REF-SET 15 x 1 mL
Each at 0.2 mg/mL in MeOH

Additional Individual Refrigerant Solutions (CFCs)

M-REF-X 1 x 1 mL
0.2 mg/mL each in MeOH 8 comps. (not including Freon 113a)

Each at 0.2 mg/mL in MeOH 1 mL

Freon #	Compound	Cat. No.
12B1	Bromochlorodifluoromethane	M-REF-X-01
124	2-Chloro-1,1,1,2-tetrafluoroethane	M-REF-X-02
114B2	1,2-Dibromotetrafluoroethane	M-REF-X-03
141b	1,1-Dichloro-1-fluoroethane	M-REF-X-04
123	2,2-Dichloro-1,1,1-trifluoroethane	M-REF-X-05
125	Pentafluoroethane	M-REF-X-06
134	1,1,2,2-Tetrafluoroethane	M-REF-X-07
143a	1,1,1-Trifluoroethane	M-REF-X-08
113a	1,1,1-Trichlorotrifluoroethane (Freon 113a)	M-REF-X-09

M-REF-X-R1-SET 9 x 1 mL
Each at 0.2 mg/mL in MeOH



Qualitative Analysis Kits

Kits

Alcohols

C₁-C₅ Alcohols

PS-111C-R1-SET

14 ampules

NEATs at 1 mL each.

Methanol
Ethanol
1-Propanol
2-Propanol
1-Butanol
2-Butanol
2-Methyl-1-propanol
2-Methyl-2-propanol
1-Pentanol
2-Pentanol
3-Pentanol
2-Methyl-1-butanol
3-Methyl-1-butanol
2-Methyl-2-butanol

nC₆-C₂₂ Alcohols

PS-121C-R1-SET

14 ampules

NEATs at 1 mL each. Solutions are Wt.% in Ethylbenzene, 1 mL each.

1-Hexanol	NEAT
1-Heptanol	NEAT
1-Octanol	NEAT
1-Nonanol	NEAT
1-Decanol	NEAT
1-Undecanol	NEAT
1-Dodecanol	10%
1-Tridecanol	10%
1-Tetradecanol	10%
1-Pentadecanol	10%
1-Hexadecanol	10%
1-Octadecanol	5%
1-Eicosanol	5%
1-Docosanol	5%

C₆-C₈ Alcohols

PS-131C-R1-SET

14 ampules

NEATs at 1 mL each.

1-Hexanol
2-Hexanol
3-Hexanol
2-Methyl-1-pentanol
4-Methyl-2-pentanol
2-Methyl-3-pentanol
3-Methyl-3-pentanol
2-Ethyl-1-butanol
3,3-Dimethyl-2-butanol
1-Heptanol
2-Heptanol
2,4-Dimethyl-3-pentanol
1-Octanol
2-Octanol

Food Additives

Antioxidants

PS-920CX-R1-SET

15 vials

NEATs at 10 mg each.

BHA (2 and 3- <i>tert</i> -Butyl-4-methoxy phenol)
BHT (2,6- <i>di-tert</i> -Butyl-4-methyl phenol)
4-Hydroxymethyl-2,6- <i>di-tert</i> -butyl phenol
THBP (2,4,5-Trihydroxybutyrophenone)
Ethoxyquin (1,2-Dihydro-6-ethoxy-2,2,4-trimethyl quinoline)
<i>tert</i> -Butyl hydroquinone
DLTDP (Dilaurylthiodipropionate)
Thiodipropionic acid
Propyl gallate
Ascorbyl palmitate
Ascorbic acid
Erythorbic acid (<i>iso</i> -Ascorbic acid)
Tocopherols (mixed)
Glycine
Lecithin

Capillary Column Probe Solutions (also Grob Mixes)

AccuStandard has assembled the following test mixtures based on suggestions by Grob 1 and 2 for evaluating capillary column performance. The alkanes in these mixtures can be used for evaluating instrumental effects and determining separation number and efficiency (PS-CP-02-1ML, PS-CP-03-1ML, PS-CP-04-1ML, PS-CP-05A-1ML, PS-CP-06A-1ML). Grob 2 has suggested a more complete mixture, the Non-Polar Columns Test Mix PS-CP-01-1ML provides a more complete capillary column test because a wider variety of organic compounds are included.

Non-Polar Columns

Test Mix

PS-CP-01-1ML

1 mL

At the stated conc. (mg/mL) in CH₂Cl₂

Methyl decanoate	0.42
Methyl undecanoate	0.42
Methyl dodecanoate	0.41
2,3-Butanediol	0.53
Dicyclohexylamine	0.31
2,6-Dimethylaniline	0.32
2,6-Dimethylphenol	0.32
2-Ethylhexanoic acid	0.38
Nonanal	0.40
Octanol	0.36
<i>n</i> -Undecane	0.29
<i>n</i> -Decane	0.28

Contains interactive and labile components.

Refrigerate when not in use.

Alkane C₈-C₁₂ Mixture

PS-CP-02-1ML

1 mL

0.5 mg/mL each in *n*-Hexane

5 comps.

<i>n</i> -Octane	<i>n</i> -Undecane
<i>n</i> -Nonane	<i>n</i> -Dodecane
<i>n</i> -Decane	

Alkane C₁₃-C₂₀ Mixture

PS-CP-03-1ML

1 mL

0.5 mg/mL each in *n*-Hexane

8 comps.

<i>n</i> -Tridecane
<i>n</i> -Tetradecane
<i>n</i> -Pentadecane
<i>n</i> -Hexadecane
<i>n</i> -Heptadecane
<i>n</i> -Octadecane
<i>n</i> -Nonadecane
<i>n</i> -Eicosane

Alkane C₂₂-C₃₂

Even Number Mixture

PS-CP-04-1ML

1 mL

0.5 mg/mL each in *n*-Hexane

6 comps.

<i>n</i> -Docosane	<i>n</i> -Octacosane
<i>n</i> -Tetracosane	<i>n</i> -Tricosane
<i>n</i> -Hexacosane	<i>n</i> -Dotriacontane

Alkane C₃₄-C₄₄

Even Number Mixture

PS-CP-05A-1ML

1 mL

0.5 mg/mL each in *n*-Hexane

4 comps.

<i>n</i> -Tetracontane
<i>n</i> -Hexatriacontane
<i>n</i> -Octatriacontane
<i>n</i> -Tetracontane

Alkane C₈-C₄₀ Mixture

PS-CP-06A-1ML

1 mL

0.5 mg/mL each in *n*-Hexane

23 comps.

<i>n</i> -Octane	<i>n</i> -Eicosane
<i>n</i> -Nonane	<i>n</i> -Docosane
<i>n</i> -Decane	<i>n</i> -Tetracosane
<i>n</i> -Undecane	<i>n</i> -Hexacosane
<i>n</i> -Dodecane	<i>n</i> -Octacosane
<i>n</i> -Tridecane	<i>n</i> -Triacontane
<i>n</i> -Tetradecane	<i>n</i> -Dotriacontane
<i>n</i> -Pentadecane	<i>n</i> -Tetracontane
<i>n</i> -Hexadecane	<i>n</i> -Hexatriacontane
<i>n</i> -Heptadecane	<i>n</i> -Octatriacontane
<i>n</i> -Octadecane	<i>n</i> -Tetracontane
<i>n</i> -Nonadecane	



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Certificate of Analysis (COAs) and Safety Data Sheets (SDS)



Hydrocarbons

Alkanes nC₆-nC₁₉

PS-211C-R1-SET

14 ampules

NEATs at 1 mL each. Solutions are Wt.% in Ethylbenzene, 1 mL each.

<i>n</i> -Hexane	NEAT
<i>n</i> -Heptane	NEAT
<i>n</i> -Octane	NEAT
<i>n</i> -Nonane	NEAT
<i>n</i> -Decane	NEAT
<i>n</i> -Undecane	NEAT
<i>n</i> -Dodecane	NEAT
<i>n</i> -Tridecane	NEAT
<i>n</i> -Tetradecane	NEAT
<i>n</i> -Pentadecane	NEAT
<i>n</i> -Hexadecane	10%
<i>n</i> -Heptadecane	10%
<i>n</i> -Octadecane	10%
<i>n</i> -Nonadecane	10%

Alkanes nC₁₉-nC₄₀

PS-261C-R1-SET

14 ampules

At the stated Wt.% in Ethylbenzene, 1 mL each.

<i>n</i> -Nonadecane	10%
<i>n</i> -Eicosane	10%
<i>n</i> -Heneicosane	10%
<i>n</i> -Docosane	10%
<i>n</i> -Tricosane	10%
<i>n</i> -Tetracosane	10%
<i>n</i> -Pentacosane	10%
<i>n</i> -Hexacosane	10%
<i>n</i> -Octacosane	10%
<i>n</i> -Triacontane	1%
<i>n</i> -Dotriacontane	1%
<i>n</i> -Hexatriacontane	1%
<i>n</i> -Octatriacontane	1%
<i>n</i> -Tetracontane	1%

Fatty Acids

Fatty Acids C₃-C₁₈

PS-651C-R1-SET

14 vials

NEAT at the stated quantities

Propionic acid	1 mL
Butyric acid	1 mL
Valeric acid	1 mL
Caproic acid	1 mL
Heptanoic acid	1 mL
Caprylic acid	1 mL
Pelargonic acid	1 mL
Capric acid	1 mL
<i>n</i> -Hendecanoic acid	1 mL
10-Hendecenoic acid	10 mg
Lauric acid	10 mg
Myristic acid	10 mg
Palmitic acid	10 mg
Stearic acid	10 mg

PCBs and Pesticides

PS-590D-R1-SET

15 ampules

At 100 µg/mL in MeOH, 1 mL each.

Aroclor 1016
Aroclor 1221
Aroclor 1232
Aroclor 1242
Aroclor 1248
Aroclor 1254
Aroclor 1260
<i>p,p</i> -DDT
<i>p,p'</i> -DDE
<i>p,p'</i> -TDE
Heptachlor
Heptachlor epoxide (Isomer B)
Aldrin
Dieldrin
Lindane

Capillary Column Probe Solutions (also Grob Mixes)

The PS-CP-01 mixture provides a more complete capillary column test because a wider variety of organic compounds is included. Test mixture PS-CP-01 contains interactive and labile components. Refrigerate when not in use.

Non-Polar Columns Test

Mix

PS-CP-01-1ML 1 mL

At the stated conc. (mg/mL) in CH₂Cl₂
12 comps.

Methyl decanoate	0.42
Methyl undecanoate	0.42
Methyl dodecanoate	0.41
2,3-Butanediol	0.53
Dicyclohexylamine	0.31
2,6-Dimethylaniline	0.32
2,6-Dimethylphenol	0.32
2-Ethylhexanoic acid	0.38
Nonanal	0.40
Octanol	0.36
Undecane	0.29
Decane	0.28

Sulfur Compounds

Calibration Mixture

PS-71C 1 mL vial

NEAT at the stated Wt.% listed
Mercaptan Mixture PS-71C

Ethyl mercaptan	13.4
<i>n</i> -Propyl mercaptan	22.4
isobutyl mercaptan	28.6
<i>n</i> -Butyl mercaptan	35.6



Environmental Protection Agency (EPA) Methods

Analytes in EPA Methods		Pages 117-127
CLP Volatiles (including OLM 4.1 & 4.2)		128-131
CLP Semi-Volatiles (including OLM 4.1 & 4.2)		132-138
CLP Pesticides & PCBs		139-141
500 Series	Method Standards for Drinking Water	143-170
501	Trihalomethanes (ECD or PID/ELCD)	144
502.2	Volatiles (PID/ELCD) & Volatile Surrogates & Internal Standards	144-147
503.1	VOC - Aromatics & Alkenes (PID/ELCD)	148
504	EDB & DBCP (ECD)	148
504.1	EDB, DBCP, TCP (ECD)	148
505	Organohalide Pesticides & Aroclors (ECD)	148
506	Phthalate Esters	148
507	Nitrogen/Phosphorous Pesticides (NPD)	149
508 and 508A	Chlorinated Pesticides & Aroclors (ECD)	150
508.1	Chlorinated Pesticides, Herbicides & Organo-halides (ECD)	151
509	Ethylene thiourea (ECD)	151
515.1 and 515.2	Chlorinated Pesticides (ECD)	152
515.3 and 515.4	Chlorinated Acids (ECD)	153
521	Nitrosamines (SPE & Capillary Column GC)	154
524.2	Volatiles (GC/MS)	154
524.3	Purgeable Organic Compounds (GC/MS)	154
525.1	Semi-Volatiles, PCB Congeners, Chlorinated Pesticides (GC/MS)	155
525.2	Semi-Volatiles, PCB Congeners, Pesticides (GC/MS)	156-158
526	Semi-Volatiles (GC/MS)	159
527	Pesticides & Flame Retardants (SPE & Capillary GC/MS)	159
528	Phenols (GC/MS)	160
529	Explosives & Related Compounds (SPE & Capillary GC/MS)	160
531 & 531.1	Carbamates (HPLC)	161
532	Phenylureas (HPLC)	161
535	Acetamide-Herbicide Degradates (LCMS)	161
537	Perflourinated Compounds (PFCs)	162
547	Glyphosate (HPLC)	162
548	Endothall (ECD)	162
548.1	Endothall (GC/MS)	162
549.1/549.2	Diquat & Paraquat (HPLC)	162
550 & 550.1	Polynuclear Aromatic Hydrocarbons (HPLC)	162
551	Chlorinated Solvents, also Trihalomethanes (ECD)	162
551.1A	Disinfection By-products (ECD)	163
552 & 552.1	Haloacetic acids (ECD)	164
552.2	Haloacetic acids & Dalapon (ECD)	165
553	Benzidines & Nitrogen Pesticides (HPLC/MS)	166
554	Derivatized Carbonyl Compounds (HPLC)	166
555	Chlorinated Pesticides (HPLC)	166
556 & 556.1	Carbonyl Compounds (GC/ECD)	166
National Primary Drinking Water Standards		167-169
EPA Consent Decree Water Protocol		170
600 Series	Method Standards for Wastewater	171-182
601	Purgeable Halocarbons by Purge & Trap (ELCD)	172
601/602	Purgeable Halocarbons (ELCD)	173
603	Acrolein & Acrylonitrile (FID)	174
604	Phenols (FID), Phenols as PFB Derivatives (ECD)	174
604.1	Hexachlorophene & Dichloroprene (HPLC)	174, 182
605	Benzidines (HPLC)	174
606	Phthalate Esters (ECD)	174
607	Nitrosamines (NPD)	174
608	Pesticides & PCBs (ECD)	174
608.1, 608.2	Pesticides (ECD)	175
609	Nitroaromatics & Isophorone (ECD/FID)	175
610	Polynuclear Aromatic Hydrocarbons (FID/HPLC)	175
611	Haloethers (ECD/ELCD)	175
612	Chlorinated Hydrocarbons (ECD)	175
613	Dioxin (2,3,7,8-TCDD) (GC/MS)	175
614, 614.1	Organophosphorus Pesticides (NPD)	175
615	Chlorinated Herbicides (ECD)	176
617	Chlorinated Pesticides & PCB's (ECD)	176
618	Volatile Pesticides (ECD)	176
619	Triazine Herbicides (NPD)	176
620	Diphenylamine (NPD)	176
622	Organophosphorus Pesticides (NPD)	177
622.1	Thiophosphate Pesticides (NPD)	177
624	Purgeable Volatiles (GC/MS)	177
625	BN/A Semivolatiles, Pesticides, Aroclors (GC/MS)	178-181
627	Dinitroaniline Pesticides (ECD)	181
629	Cyanazine (HPLC)	182
631	Carbendazim (HPLC)	182
632	Carbamates & Urea Pesticides (HPLC)	181
632.1	Carbamates & Amides (HPLC)	181
633	Organonitrogen Pesticides (NPD)	181
634	Thiocarbamate Pesticides (NPD)	181
635	Rotenone (HPLC)	182
636	Bensulide (HPLC)	182
638	Oryzalin (HPLC)	182
639	Bendiocarb (HPLC)	182

Environmental Protection Agency (EPA) Methods

Table of Contents

600 Series	Method Standards for Wastewater	Pages 171-182
640	Mercaptobenzothiazole (HPLC)	182
641	Thiabendazole (HPLC)	182
642	Biphenyl & Phenylphenol (HPLC)	182
643	Bentazon (HPLC)	182
644	Picloram (HPLC)	182
645	Amine Pesticides & Lethane (NPD)	182
680	Pesticides & PCB Congeners (GC/MS)	182
1300 Series	Toxicity Characteristic Leaching Procedure	183-184
1311	TCLP	183-184
1312	Synthetic Leaching Procedure	184
1600 Series		185-196
1613	Dioxins & Furans (HRGC/HRMS)	185
1614	Polybrominated diphenyl ethers	186
1618	Organochloride & Phosphorus Pesticides	187
1653	Chlorinated Phenolics in Pulp & Paper	188
1656	Organo Halide Pesticides	188-189
1657	Organo Phosphorus Pesticides	190
1658	Phenoxy - acid Herbicides	191
1659	Dazomet	191
1664	Oil and Grease	191
1665	PMI Semi-Volatiles (GC/MS)	191
1666A	PMI Volatiles (GC/MS)	192
1667A	PMI Pollutants (HPLC)	193
1668	209 PCB Congeners (GC)	194-195
1671	PMI Semi-Volatiles (GC/FID)	196
1673	PEG-600 (HPLC)	196
5031	Azeotropic Distillation (GC/FID)	204
8000 Series	Method Standards for Solid Waste	197-242
8000, APP IX	Appendix IX Individual Analytes	198-199
8000, APP IX	Appendix IX Mixtures	199-200
8000	Volatile & Semi-Volatile Mixtures	200
8000 Series	Volatile Internal/Surrogate Standards	201
8010, 8010A/B	Halogenated Volatiles (ELCD)	202-203
8011	EDB & DBCP (GC/MS)	203
8015A, 8015B	Non Halogenated Organics (FID)	204
8020	Aromatic Volatiles (PID)	204
8021B	Halogenated Volatiles (PID/ELCD)	205-206
8030A	Acrolein & Acrylonitrile (FID)	206
8031	Acrylonitrile (NPD)	206
8032, 8032A	Acrylamide (ECD)	206
8033	Acetonitrile (NPD)	206
8040, 8040A	Phenols (FID)	207
8041	Phenols as PFB Derivatives (FID/ECD)	208
8060	Phthalate Esters (ECD)	208
8061A	Phthalate Esters (ECD)	208
8070A	Nitrosamines (NPD/TEA)	208
8080A	Organochlorine Pesticides & PCBs	209
8081/8081A/B	Organochlorine Pesticides (ECD)	209-213
8082	PCBs (ECD)	214
8085	Pesticides (AED)	215
8090	Nitroaromatics & Isophorone (TCD/FID)	216
8091	Nitroaromatics & Cyclic Ketones (ECD/NPD)	216
8095	Explosives (ECD)	217
8100	Polynuclear Aromatic Hydrocarbons (FID)	217
8110	Haloethers (FID)	217
8111	Haloethers (HECD)	218
8120, 8120A	Chlorinated Hydrocarbons (ECD)	218
8121	Chlorinated Hydrocarbons (ECD)	218
8131	Aniline & Derivatives (NPD/AFD/TSD)	218
8140	Organophosphorous Pesticides (NPD/ELCD/FPD)	219
8141A	Additions to Method 8140 (GC/NPD)	219
8150A, 8150B	Chlorinated Herbicides (ECD)	220-221
8151/8151A	Chlorinated Herbicides (ECD)	222
8240, 8240A	Volatiles (GC/MS)	222
8240 & 8260	Combined Method Volatile Organics	223, 226
8260B	Volatiles (GC/MS)	224-225
8270, 8270C/D	Semi-Volatile (GC/MS)	227-236
8272	PAHs (GC/MS)	237
8275A	Semi-Volatiles (Thermal Chromatography)	237
8280A	Dioxins & Furans (HRGC/LRMS)	237
8310	Polynuclear Aromatic Hydrocarbons (HPLC)	238
8315, 8315A	Ketones/Aldehydes (HPLC)	239
8316	Acrolein, Acrylamide, Acrylonitrile (HPLC)	239
8318	N-Methylcarbamates (HPLC)	239
8321	Solvent Extractable Non-Volatiles (HPLC)	240
8323	Organometallic Tin Analysis (Ion Trap MS)	240
8325	Benzidine & Nitrogen Pesticides (HPLC/MS)	240
8330	Explosives (HPLC)	241-242
8410	Semi-Volatiles (FTIR)	242
8430	bis(2-Chloroethyl)ether & Hydrolysis Products	242
8440	Total Petroleum Hydrocarbons (IR)	242

Custom Formulations

- ✓ Fast Turnaround
- ✓ 30-Plus Years Custom Formulation Experience
- ✓ Custom Standards are a cost and time saving alternative

Custom QC options

1. Gravimetric/Volumetric Certification:

Each compound is measured gravimetrically and QC verified instrumentally (where applicable). Every component in the Standard will be within +/- 0.5% of the requested value unless otherwise stated on the Certificate of Analysis. The solutions are diluted to volume using Class A glassware. A Certificate of Analysis accompanies each Standard and documents the gravimetric values used.

2. Full Quantitative Certification:

This QA/QC method includes extended GC, GC/MS or LC analysis using both internal calibration standards plus statistical analysis.



Custom Quotation Requests

Custom formulations can be requested by contacting
Technical Service: techservice@accustandard.com or
using our website AccuStandard.com.

See back of the catalog for detailed information

Analytes in EPA Methods



Alphabetical List of Individual Standards for EPA Methods

AccuStandard has compiled an easy to use alphabetical list of all the popular single component solutions available for EPA methods, alphabetized by Chemical Name. Additionally, the CAS number index in the back of the catalog can easily be used to find a component with multiple synonyms.

For a complete listing by product types see

- PCB Congeners (pages 2-7)
- PBDE Congeners (pages 28-30)

- Pesticides (pages 50-66)
- Appendix IX (pages 198-199)

If you would like a different solvent or concentration than is listed, contact Technical Service.

Solvent Key for Individual Solutions

M Methanol D Methylene chloride H Hexane W Water
A Acetone CN Acetonitrile MT *tert*-Butyl methyl ether



Analytes in EPA Methods

Analytes in EPA Methods

Compound CAS No.	Conc. (µg/mL)	Solv.	Cat. No.	1 mL	Compound CAS No.	Conc. (µg/mL)	Solv.	Cat. No.	1 mL
Acenaphthene 83-32-9	100	M	APP-9-001		4-Aminobiphenyl 92-67-1	100	D	APP-9-011	
Acenaphthene-d₁₀ 15067-26-2	1,000	M	APP-9-001-10X		Aminocarb 2032-59-9	100	CN	M-632-01	
Acenaphthylene 208-96-8	500	M	M-548.1-IS			100	M	P-062S	
	100	M	APP-9-002		2-Amino-4,6-dinitrotoluene 35572-78-2	100	M:CN	M-8330-13-0.1X	
Acephate 30560-19-1	1,000	M	APP-9-002-10X			1,000	M:CN	M-8330-13	
Acetaldehyde 75-07-0	100	A	P-200S-A		4-Amino-2,6-dinitrotoluene 19406-51-0	100	M:CN	M-8330-14-0.1X	
	1,000	A	P-200S-A-10X			1,000	M:CN	M-8330-14	
Acetaldehyde-DNPH 1019-57-4	1,000	W	M-8315-01		4-Aminopyridine 504-24-5	100	M	P-407S	
	1,000	M	M-554-01 *		Anilazine 101-05-3	100	H:A 80:20	P-287S-H	
Acetochlor 34256-82-1	100	CN	M-8315-R-DNPH-01			100	M	APP-9-012	
	100	M	P-465S		Aniline 62-53-3	1,000	M	APP-9-012-10X	
Acetone 67-64	100	M	APP-9-003 *			200	D	M-625-01	
	10,000	W	M-8015B/5031-01		Aniline-d₅ 4165-61-1	2,000	D	M-625-01-10X	
Acetone-DNPH 1567-89-1	100	CN	M-8315-R2-DNPH-02		Anthracene 120-12-7	100	M	APP-9-013	
	100	M	APP-9-005			1,000	M	APP-9-013-10X	
Acetonitrile 75-05-8	1,000	M	APP-9-005-10X		Anthracene-d₁₀ 1719-06-8	200	D	M-625-02	
Acetophenone 98-86-2	100	D	APP-9-004		Aramite 140-57-8	100	M	P-132S	
	2,000	D	APP-9-004-20X		Asulam 3337-71-1	100	M	P-276S	
2-Acetylaminofluorene 53-96-3	100	D	APP-9-006		Atrazine 1912-24-9	100	M	P-005S	
	100	M	P-245S			1,000	M	P-005S-10X	
Acifluorfen 50594-66-6	1,000	M	P-245S-10X		Atrazine desethyl 6190-65-4	100	M	P-343S	
Acifluorfen methyl ester 50594-67-7	100	M	P-246S		Atrazine-desisopropyl 1007-28-9	100	M	P-345S	
	1,000	M	P-246S-10X		Azamethiphos 35575-96-3	100	M	P-352S	
Acrolein 107-02-8	100	M:W	APP-9-007 *		Azinphos-ethyl 2642-71-9	100	M	P-201S	
	1,000	M:W	APP-9-007-10X *			1,000	H	M-8141A-1-01	
Acrolein-DNPH 888-54-0	100	CN	M-8315-R-DNPH-03		Azinphos-methyl 86-50-0	100	M	P-007S	
	1,000	CN	M-8315-R-DNPH-03-10X			1,000	H	M-8140-01	
Acrylamide 79-06-1	1,000	M	M-8032		Azobenzene 103-33-3	2,000	D	Z-014B-1	
Acrylonitrile 107-13-1	100	M	APP-9-008		Barbamate (Barban) 101-27-9	100	M	P-202S	
	1,000	M	APP-9-008-10X			100	CN	M-632-02	
Alachlor 15972-60-8	100	M	P-102S		Baycarb 3766-81-2	100	M	P-347S	
	1,000	M	P-102S-10X		Baygon 114-26-1	100	M	P-009S	
Alanap 132-66-1	100	M	P-274S			100	CN	M-531-07	
Aldicarb 116-06-3	100	M	P-001S		Benazolin 3813-05-6	100	M	P-397S	
	100	CN	M-531-06		Bendiocarb 22781-23-3	100	M	P-203S	
Aldicarb sulfone 1646-88-4	100	CN	M-531-02			100	CN	M-639	
	100	M	M-8318-02		Benfluralin 1861-40-1	100	M	P-237S	
Aldicarb sulfoxide 1646-87-3	100	M	P-131S		Benfuracarb 82560-54-1	100	M	P-454S	
	100	CN	M-531-01			1000	M	P-454S-10X	
Aldrin 309-00-2	100	M	P-002S		Benomyl 17804-35-2	100	CN	P-104S-CN *	
	1,000	M	P-002S-10X		Bensulfuron-methyl 83055-99-6	100	M	P-597S	
Allethrin 584-79-2	100	M	P-267S						
Allyl alcohol 107-18-6	10,000	W	M-8015B/5031-05						
Allyl chloride 107-05-1	100	M	APP-9-010						
	2,000	M	APP-9-010-20X						
Ametryn 834-12-8	100	M	P-003S						
	1,000	M	P-003S-10X						

Analytes in EPA Methods continued on next page



Analytes in EPA Methods

Analytes in EPA Methods

Compound CAS No.	Conc. (µg/mL)	Solv.	Cat. No.	1 mL	Compound CAS No.	Conc. (µg/mL)	Solv.	Cat. No.	1 mL
Bensulide 741-58-2	100	CN	M-636		4-Bromochlorobenzene 106-39-8	2,000	M	M-8020-SS-1	
Bentazon 25057-89-0	100	A	P-177S-A		Bromochlorodifluoromethane 353-59-3	200	M	M-REF-X-01	
Bentazon methyl 61592-45-8	1000	A	P-177S-A-10X		Bromochloromethane 74-97-5	200	M	M-502-03	
Benz[a]anthracene 56-55-3	100	M	APP-9-016		2-Bromo-1-chloropropane 3017-95-6	2,000	M	M-502-03-10X	
Benz[a]anthracene-d₁₂ 1718-53-2	1,000	M	APP-9-016-10X		Bromodichloroacetic acid 71133-14-7	200	M	M-624-SS-04	
Benzaldehyde-DNPH 1157-84-2	200	D	M-625-03		Bromodichloromethane 75-27-4	20,000	M	M-001R-3	
Benzene 71-43-2	2,000	D	M-625-03-10X		Bromodichloromethane 75-27-4	40	MT	M-552.2A-02	
Benzene-d₆ 1076-43-3	100	CN	M-8315-R-DNPH-04		Bromodichloromethane 75-27-4	200	M	M-502-04	
Benzidine † 92-87-5	2,000	M	M-502-01		4-Bromo-3,5-dimethylphenyl-N-methylcarbamate 672-99-1	2,000	M	M-502-04-10X	
Benz[a]pyrene 50-32-8	2,000	M	M-502-01-10X		p-Bromofluorobenzene 460-00-4	100	CN	M-531-IS	
Benzo[b]fluoranthene 205-99-2	200	M	M-624-SS-01		Bromoform 75-25-2	100	A	M-551.1-IS	
Benzo[g,h,i]perylene 191-24-2	2,000	M	M-624-SS-01-10X		Bromomethane 74-83-9	200	M	M-624-SS-03	
Benzo[k]fluoranthene 207-08-9	50	D	M-625C-1		1-Bromo-2-nitrobenzene 577-19-5	200	M	M-502-05	
Benzoic acid 65-85-0	2000	D	M-625C-1-40X		4-Bromophenyl phenyl ether 101-55-3	2,000	M	M-502-05-10X	
Benzyl alcohol 100-51-6	100	M	APP-9-020		Bromophos-ethyl 4824-78-6	200	M	M-502-06	
Benzyl benzoate 120-51-4	500	CN	M-8310-FL-05		2-Bromopropanoic acid 598-72-1	2,000	M	M-502-06-10X	
Benzyl butyl phthalate 85-68-7	100	M	APP-9-017		Bromotrifluoromethane 75-63-8 (Freon #13b1)	1,000	A	M-8081-IS-DC	
Benzyl chloride 100-44-7	1,000	M	APP-9-017-10X		Buena 2163-80-6	100	M	APP-9-033	
α-BHC 319-84-6	100	M	APP-9-018		Butachlor 23184-66-9	100	M	P-372S	
β-BHC 319-85-7	500	CN	M-8310-FL-08		1,3-Butadiene 106-99-0	1,000	M	P-372S-10X	
δ-BHC 319-86-8	2,000	D	Z-014D-1		Butanal 123-72-8	1,000	MT	M-552.1-SS	
BHC Tech 608-73-1	100	M	APP-9-021		t-Butanol 75-65-0	200	M	M-REF-01	
BifenoX 42576-02-3	5,000	H	APP-9-021-50X		Butylate 2008-41-5	100	M	P-279S	
Bifenthrin 82657-04-3	100	M	M-8061-IS		n-Butylbenzene 104-51-8	100	M	P-191S	
Bitertanol 55179-31-2	100	M	APP-9-034		sec-Butylbenzene 135-98-8	1,000	M	P-191S-10X	
Bloc 60168-88-9	200	M	M-8010-01		tert-Butylbenzene 98-06-6	200	M	S-406A	
Bolstar 35400-43-2	100	M	P-010S		Captafol 2425-06-1	2,000	M	S-406A-10X	
Botran 99-30-9	1,000	M	P-010S-10X		Captan 133-06-2	1,000	M	M-554-02 *	
Bromacil 314-40-9	100	M	P-011S		Carbaryl 63-25-2	100	M	M-8315-R-DNPH-05	
Brominal 1689-84-5	1,000	M	P-011S-10X		Carbazole 86-74-8	1,000	M;CN	M-554-DNPH-02	
Bromoacetic acid 79-08-3	100	M	P-012S		Carbendazim 10605-21-7	10,000	W	M-8015B/5031-06	
4-Bromoanisole	100	M	P-012S-10X		Carbofuran 1563-66-2	2,000	M	S-410	
Bromobenzene 108-86-1	100	M	P-081S		Carbon disulfide 75-15-0	100	M	M-8015B/5031-07	
2-Bromobiphenyl 2052-07-5	100	M	P-257S		Carbon tetrachloride 56-23-5	100	M	P-088S	
Bromochloroacetic acid 5589-96-8	100	M	P-445S		Carbophenothion 786-19-6	1,000	M	P-088S-10X	
Bromochloroacetonitrile 83463-62-1	1000	M	P-445S-10X		Carbosulfan 55285-14-8	200	M	M-502-07	
2-Bromochlorobenzene 694-80-4	100	M	P-351S		Carboxin 5234-68-4	200	M	M-502-08	
	100	M	P-086S			2,000	M	M-502-09-10X	
	100	M	P-108S			100	M	P-254S	
	1,000	H	M-8140-02			100	M	P-083S	
	100	M	P-013S			1,000	M	P-083S-10X	
	100	M	P-181S			1,000	M	M-634-IS	
	100	M	P-256S			100	CN	M-631	
	40	MT	M-552.2A-07			100	M	P-278S	
	1,000	MT	M-552A-1			100	CN	M-531-08	
	50	M	BAN-03			100	M	P-106S	
	200	M	M-502-02			100	M	APP-9-035	
	2,000	M	M-502-02-10X			2000	M	APP-9-035-20X	
	1,000	A	M-8081-SS-X			200	M	M-502-10	
	40	MT	M-552.2A-01			2,000	M	M-502-10-10X	
	1,000	MT	M-552A-R-02			100	M	P-095S	
	5,000	A	M-551B-1			1,000	H	M-8141A-1-02	
	200	M	M-624-SS-12			100	M	P-446S	

† Subject to oxidation

* ColdPAK required to maintain integrity of product.

Analytes in EPA Methods



Solvent Key for Individual Solutions

M Methanol D Methylene chloride H Hexane W Water
A Acetone CN Acetonitrile MT *tert*-Butyl methyl ether

Analytes in EPA Methods

Compound CAS No.	Conc. (µg/mL)	Solv.	Cat. No.	1 mL	Compound CAS No.	Conc. (µg/mL)	Solv.	Cat. No.	1 mL
Chloral hydrate 302-17-0	5,000	A	M-551B-2		4-Chlorophenyl phenyl ether 7005-72-3	100	M	APP-9-047	
Chloramben 133-90-4	1,000	M	M-E-1179-M *		Chloropicrin 76-06-2	5,000	A	M-551B-3	
Chloramben methyl ester 7286-84-2	100	M	P-243S		Chloroprene 126-99-8	100	M	P-398S	
Chlorbenside 103-17-3	100	M	P-272S		Chloroprene 126-99-8	100	M	APP-9-048-R1	
α-Chlordane 5103-71-9	1,000	M	P-107S		3-Chloro-1,2-propanediol 96-24-2	1,000	M	APP-9-048-R1-10X	
Chlordane 12789-03-6	100	M	P-107S-10X		Chloropropylate 5836-10-2	100	M	P-408S	
γ-Chlordane 5103-74-2	100	M	P-134S		2-Chloro-1,1,1,2-tetrafluoroethane 2837-89-0 (Freon #124)	100	M	P-213S	
Chlordene 3734-48-3	100	H	P-134S-H		Chlorothalonil 1897-45-6	200	M	M-REF-X-02	
Chlorfenvinphos 470-90-6	1,000	M	P-017S		Chlorothalonil 1897-45-6	100	M	P-222S	
Chlorfluorecol-methyl ester 2536-31-4	100	M	P-135S		2-Chlorotoluene 95-49-8	1,000	M	P-222S-10X	
Chlorimuron-ethyl 90982-32-4	1,000	M	P-135S-10X		4-Chlorotoluene 106-43-4	200	M	M-502-15	
bis(2-Chloro-1-methylethyl)ether 108-60-1	100	M	P-136S		Chlorotrifluoromethane 75-72-9 (Freon #13)	2,000	M	M-502-15-10X	
Chloroacetic acid 79-11-8	100	M	P-139S		Chlorotrifluoromethane 75-72-9 (Freon #13)	200	M	M-502-16	
p-Chloroaniline 106-47-8	60	MT	M-552.2A-08		Chlorpropham 101-21-3	2,000	M	M-502-16-10X	
Chlorobenzene 108-90-7	1,000	MT	M-552A-2		Chlorpyrifos 2921-88-2	100	M	M-REF-07	
Chlorobenzilate 510-15-6	100	M	APP-9-038		Chlorpyrifos-methyl 5598-13-0	100	M	M-632-05	
Chlorodibromoacetic acid 5278-95-5	200	M	M-502-11		Chlorsulfuron 64902-72-3	100	M	P-221S	
1-Chloro-1,1-difluoroethane 75-68-3 (Freon #142b)	2,000	M	M-502-11-10X		Chrysene 218-01-9	1,000	H	M-8140-03	
Chlorodifluoromethane 75-45-6 (Freon #22)	100	M	M-REF-03		Chrysene-d₁₂ 1719-03-5	100	M	P-223S	
Chloroethane 75-00-3 (Freon #160)	100	CN	P-133S-CN		Chlorsulfuron 64902-72-3	100	CN	P-262S-CN	
bis(2-Chloroethoxy)methane 111-91-1	1,000	CN	P-133S-CN-10X		Chrysene 218-01-9	100	M	APP-9-049	
bis(2-Chloroethyl)ether 111-44-4	400	M	APP-9-027		Chrysene-d₁₂ 1719-03-5	500	CN	M-8310-FL-09	
2-Chloroethylvinyl ether 110-75-8	200	M	APP-9-026-M-10X		Clethodim 99129-21-2	2,500	T	M-680B	
1-Chloro-2-fluorobenzene 348-51-6	2,000	M	M-601C *		Clethodim 99129-21-2	4,000	D	Z-014J-2	
1-Chloro-4-fluorobenzene 352-33-0	200	M	M-601C-10X *		Clopyralid methyl ester 1532-24-7	100	CN	P-602S-CN *	
Chloroform 67-66-3	200	M	S-163		Coumaphos 56-72-4	100	M	P-488S	
1-Chlorohexane 544-10-5	2,000	M	M-502-12		4-CPA 122-88-3	1,000	H	M-8140-04	
Chloromethane 74-87-3	2,000	M	M-502-12-10X		m-Cresol 108-39-4	100	D	APP-9-050	
bis(Chloromethyl)ether 542-88-1	100	H	APP-9-026		o-Cresol 95-48-7	1,000	D	APP-9-050-10X	
4-Chloro-3-methylphenol 59-50-7	100	M	APP-9-027		p-Cresol 106-44-5	100	D	APP-9-051	
2-Chloronaphthalene 91-58-7	100	M	APP-9-027-40X		Crotonaldehyde 123-73-9	2,000	D	APP-9-051-20X	
4-Chloro-3-nitrobenzotrifluoride 121-17-5	1,000	A	M-601C *		Crotonaldehyde-DNPH 1527-96-4	100	M	APP-9-052	
Chloropentafluoroethane 76-15-3	200	M	M-601C-10X *		Crotonaldehyde-DNPH 1527-96-4	1,000	M:CN	M-554-DNPH-03	
2-Chlorophenol 95-57-8	100	M	S-163		Cruformate 299-86-5	100	M	P-292S	
2-Chlorophenol-d₄ 93951-73-6	200	D	M-624-SS-13		Cyanazine 21725-46-2	100	CN	M-629	
					Cycloate 1134-23-2	100	M	P-175S	
					Cyclohexanone 108-94-1	100	M	P-248S	
					Cyclohexanone-DNPH 1589-62-4	1,000	M	M-554-04 *	
					Cypermethrin 52315-07-8	100	CN	M-8315-R-DNPH-06	
					Cyprazine 22936-86-3	100	M:CN	M-554-DNPH-04	
					Cyromazine 66215-27-8	100	M	P-225S *	
					2,4-D 94-75-7	1,000	M	P-225S-10X *	
					2,6-D acid 575-90-6	100	M	P-420S	
						100	H	P-420S-H	
						100	M	P-296S	
						100	M	P-020S	
						200	M	M-8150S-A-01	
						100	M	P-690S	
						100	CN	P-690S-CN	

Analytes in EPA Methods continued on next page



Analytes in EPA Methods

Analytes in EPA Methods

Compound CAS No.	Conc. (µg/mL)	Solv.	Cat. No.	1 mL	Compound CAS No.	Conc. (µg/mL)	Solv.	Cat. No.	1 mL
2,4-D butoxyethyl ester 1929-73-3	10	mg	P-438N		2,4-Diamino-6-nitrotoluene 6629-29-4	100	CN	M-8330-ADD-12	
2,4-D ethyl ester 533-23-3	100	M	P-636S		Diazinon 333-41-5	100	M	P-033S	
2,4-D ethylhexyl ester 1928-43-4	100	H	P-439S-H		Dibenz[a,h]anthracene 53-70-3	1,000	H	M-622-06	
2,4-D methyl ester 1928-38-7	100	M	P-021S		Dibenzofuran 132-64-9	100	M	APP-9-058	
Dacthal 1861-32-1	200	H	M-8150-01		Dibromoacetic acid 631-64-1	500	CN	M-8310-FL-10	
Dalapon acid 75-99-0	100	M	P-196S		Dibromoacetonitrile 3252-43-5	100	M	APP-9-059	
Dalapon methyl ester 17640-02-7	20	MT	M-552.2A-04		4,4'-Dibromobiphenyl 92-86-4	20	MT	M-552.2A-05	
Danitol 39515-41-8	200	M	M-8150S-A-05 *		Dibromoacetone 124-48-1	1,000	MT	M-552A-5	
Dasanit 115-90-2	200	M	M-552.1-01		1,2-Dibromo-3-chloropropane 96-12-8	5,000	A	M-551B-4	
Dazomet 533-74-4	200	H	M-8150-05		1,2-Dibromoethane 106-93-4	200	D	M-625-05	
2,4-D-PFB	100	M	P-263S		Dibromochloromethane 124-48-1	2,000	D	M-625-05-10X	
2,4-DB acid 94-82-6	100	M	P-263S-10X		1,2-Dibromoethane 106-93-4	200	M	M-502-17	
2,4-DB methyl ester 18625-12-2	100	M	P-235S		1,2-Dibromoethane 106-93-4	2,000	M	M-502-18-10X	
DCPA diacid 2136-79-0	25	A	P-235S-H-10X		Dibromofluoromethane 1868-53-7	200	M	M-502-19	
p,p'-DDA 83-05-6	100	M	M-1659-MS		Dibromomethane 74-95-3	2,000	M	M-502-19-10X	
o,p'-DDD 53-19-0	100	M	P-465S		a,a-Dibromo-m-xylene 626-15-3	200	M	M-502-20	
p,p'-DDD 72-54-8	100	MT	M-8150-02-PFB		4,4'-Dibromooctafluorobiphenyl 10386-84-2	1,000	A	M-8081-IS-X	
o,p'-DDE 3424-82-6	100	M	P-141S		1,2-Dibromopropane 78-75-1	200	D	M-625-06	
p,p'-DDE 72-55-9	200	M	M-8150S-A-02		2,3-Dibromopropionic acid 600-05-5	2,000	D	M-625-06-10X	
4,4'-DDMU 1022-22-6	100	M	P-228S		1,2-Dibromotetrafluoroethane 124-73-2	5,000	M	M-552-IS	
o,p'-DDT 789-02-6	100	M	P-024S		Dibutylchloroendate 1770-80-5	10,000	H	M-556-IS	
p,p'-DDT 50-29-3	100	M	P-025S		1,2-Dibromotetrafluoroethane 124-73-2	1,000	MT	M-552.2-SS	
DDT, Tech 8017-34-3	1000	M	P-025S-10X		Dicamba 1918-00-9	20,000	MT	M-552-SS	
Decachlorobiphenyl 2051-24-3	100	M	P-026S		Dicamba methyl ester 6597-78-0	200	M	M-REF-X-03	
Decafluorobiphenyl 434-90-2	100	M	P-027S		Dicaphon 2463-84-5	2	A	M-1618-SS	
Decafluorotriphenylphosphine 5074-71-5	100	M	P-027S-10X		Dichlobenil 1194-65-6	100	M	P-109S	
Decanal 112-31-2	1000	M	P-424S		Dichlorofenthion 97-17-6	100	M	P-008S	
Decanal-DNPH 1527-95-3	100	M	P-028S		Dichlorone 117-80-6	200	M	M-8150S-A-06	
Deet (Off®) 134-62-3	100	M	P-029S		Dichloromid 37764-25-3	100	M	P-071S	
DEF 6 78-48-8	100	M	P-029S		Dichloroacetic acid 79-43-6	200	H	M-8150-06	
Deltamethrin 52918-63-5	100	M	P-029S		Dichloroacetone 1194-65-6	100	M	P-035S	
Demeton-S 126-75-0	100	M	P-029S		Dichloroacetonitrile 3018-12-0	1,000	M	P-035S-10X	
Demeton-S-methyl 919-86-8	100	M	P-029S		1,2-Dichlorobenzene 95-50-1	100	M	P-275S	
DFTPP 5074-71-5	50	A	M-1653-TS		1,2-Dichlorobenzene-d₄ 2199-69-1	100	M	P-211S	
DFTPPO	100	D	M-525-TS		1,3-Dichlorobenzene 541-73-1	200	M	P-253S	
Diallate 2303-16-4	100	CN	M-553-PC		1,4-Dichlorobenzene 106-46-7	100	M	P-675S	
2,6-Diamino-4-nitrotoluene 59229-75-3	100	M	P-142S		1,4-Dichlorobenzene-d₄ 3855-82-1	60	MT	M-552.2A-06	
					3,3'-Dichlorobenzidine † 91-94-1	1,000	MT	M-552A-3 *	
					3,5-Dichlorobenzoic acid 51-36-5	5,000	A	M-551B-5	
					4,4'-Dichlorobenzophenone 90-98-2	200	M	M-502-21	
					4,4'-Dichlorobiphenyl 2050-68-2	2,000	M	M-502-21-10X	
					1,4-Dichlorobutane 110-56-5	200	M	M-624-SS-11	
						2,000	M	M-624-SS-11-10X	
						200	M	M-502-22	
						2,000	M	M-502-22-10X	
						200	M	M-502-23	
						2,000	M	M-502-23-10X	
						2,000	M	Z-014J-3-M-0.5X	
						4,000	D	Z-014J-3	
						100	M	APP-9-067	
						2,000	M	Z-014F-2	
						100	M	P-242S	
						1,000	M	P-242S-10X	
						100	M	P-295S	
						1,000	M	P-295S-10X	
						500	MT	M-508-SS	
						200	M	M-624-SS-05	

† Subject to oxidation

* ColdPAK required to maintain integrity of product.

Analytes in EPA Methods



Solvent Key for Individual Solutions

M Methanol D Methylene chloride H Hexane W Water
A Acetone CN Acetonitrile MT *tert*-Butyl methyl ether

Analytes in EPA Methods

Compound CAS No.	Conc. (µg/mL)	Solv.	Cat. No.	1 mL	Compound CAS No.	Conc. (µg/mL)	Solv.	Cat. No.	1 mL
trans-1,4-Dichloro-2-butene 110-57-6	100	M	APP-9-068		Diethyl phthalate 84-66-2	100	M	APP-9-081	
Dichlorodifluoromethane 75-71-8 (Freon #12)	200	M	M-502-24		1,4-Difluorobenzene 540-36-3	1,000	M	APP-9-081-10X	
1,1-Dichloroethane 75-34-3	2,000	M	M-502-24-10X		2,2'-Difluorobiphenyl 388-82-9	200	M	M-624-SS-07	
1,2-Dichloroethane 107-06-2	2,000	M	M-502-25-10X		4,4'-Difluorobiphenyl 398-23-2	2,000	M	M-624-SS-07-10X	
1,2-Dichloroethane-d₄ 17060-07-0	200	M	M-502-26		1,1-Difluoroethane 75-37-6 (Freon 152a)	200	D	M-625-07	
cis-1,2-Dichloroethene 156-59-2	2,000	M	M-502-26-10X		Dimefox 115-26-4	100	CN	M-550-IS	
1,1-Dichloroethene 75-35-4	200	M	M-502-27		Dimethoate 60-51-5	100	M	P-299S	
trans-1,2-Dichloroethene 156-60-5	2,000	M	M-502-27-10X		Dimethyl phosphate 813-78-5	1,000	H:A	M-8141-01	
1,1-Dichloro-1-fluoroethane 1717-00-6 (Freon #141B)	200	M	M-502-29		Dimethyl phthalate 131-11-3	1,000	M	P-039S-10X	
Dichlorofluoromethane 75-43-4 (Freon #21)	200	M	M-502-29-10X		Dimethyl-2,3-dinitrobutane 3964-18-9	100	M	P-442S	
Dichloromethane 75-09-2	2,000	M	M-REF-X-04		1,3-Dimethyl-2-nitrobenzene 81-20-9	100	CN	M-8330-ADD-21	
Dichloromethane-d₂ 1665-00-5	2,000	M	M-502-61		4-Dimethylaminoazobenzene 60-11-7	250	MT	M-507-SS	
Dichlorophen 97-23-4	100	M	M-502-39		7,12-Dimethylbenz[a]anthracene 57-97-6	1,000	MT	M-507-SS-4X	
2,4-Dichlorophenol 120-83-2	1,000	M	M-502-39-10X		2,5-Dimethylbenzaldehyde-DNPH 152477-96-8	100	D	APP-9-083	
2,6-Dichlorophenol 87-65-0	100	D	P-232S		3,3'-Dimethylbenzidine † 119-93-7	100	D	APP-9-084	
2,3-Dichlorophenoxyacetic acid 2976-74-1	100	M	M-552A-6		a,a-Dimethylphenethylamine 122-09-8	100	D	APP-9-085	
2,4-Dichlorophenylacetic acid 19719-28-9	100	A	M-8040-08		2,4-Dimethylphenol 105-67-9	2000	D	APP-9-086	
1,2-Dichloropropane 78-87-5	200	M	P-470S		Di-n-butyl phthalate 84-74-2	100	M	APP-9-086-20X	
1,3-Dichloropropane 142-28-9	2,000	M	M-8150B-SS		Dinex 131-89-5	100	M	APP-9-087	
2,2-Dichloropropane 594-20-7	2,000	M	M-8150B-SS-10X		3,5-Dinitroaniline 618-87-1	1,000	M	M-8040-09	
1,1-Dichloro-2-propanone 513-88-2	5,000	A	M-502-30		1,2-Dinitrobenzene 528-29-0	100	CN:M	APP-9-063	
1,1-Dichloropropene 563-58-6	200	M	M-502-31-10X		1,3-Dinitrobenzene 99-65-0	100	M	APP-9-063-10X	
trans-1,3-Dichloropropene 10061-02-6	100	M	M-502-32		4,6-Dinitro-o-cresol 534-52-1	1,000	M	P-427S-10X	
1,3-Dichloropropene (cis/trans) 542-75-6	400	M	M-502-32-10X		2,4-Dinitrophenol 51-28-5	100	M	APP-9-088	
cis-1,3-Dichloropropene 10061-01-5	100	M	M-502-33		2,4-Dinitrophenylhydrazine 119-26-6	1,000	M	APP-9-088-10X	
1,2-Dichloro-1,1,2,2-tetrafluoroethane 76-14-2 (Freon #114)	200	M	M-502-33-10X		2,4-Dinitrotoluene 121-14-2	100	M	M-8040-10	
2,2-Dichloro-1,1,1-trifluoroethane 306-83-2 (Freon #123)	200	M	M-REF-10		2,5-Dinitrotoluene 619-15-8	1,000	CN	M-1667A-DERV-10ML in 10 mL	
Dichlorprop 120-36-5	100	M	M-REF-X-05		2,6-Dinitrotoluene 606-20-2	100	M:CN	M-8330-02-0.1X	
Dichlorprop methyl ester 57153-17-0	100	M	P-143S		3,4-Dinitrotoluene 610-39-9	1,000	M:CN	M-8330-03	
Dichlorvos 62-73-7	1,000	M	M-8150S-A-07		Dinocap 39300-45-3	100	M	M-8330-03-0.1X	
Diclofop methyl 51338-27-3	100	M	P-229S		Di-n-octyl phthalate 117-84-0	100	CN	M-8095-SS-01	
Dicrotophos 141-66-2	100	M	M-8150-07		Dinoseb 88-85-7	100	M	M-8330-IS	
Dieldrin 60-57-1	100	M	P-036S		Dinoseb methyl ether 6099-79-2	100	M	P-288S	
Diethyl ether 60-29-7	10,000	W	M-8140-07		Dioxacarb 6988-21-2	200	H	M-8150-08	
Diethyl phosphate (mono- & di-)	100	M	P-303S		p-Dioxane 123-91-1	100	M	M-8318-05	
			P-443S			1,000	M	APP-9-095	
								APP-9-096	
								APP-9-096-10X	

Analytes in EPA Methods continued on next page



Analytes in EPA Methods

Analytes in EPA Methods

Compound CAS No.	Conc. (µg/mL)	Solv.	Cat. No.	1 mL	Compound CAS No.	Conc. (µg/mL)	Solv.	Cat. No.	1 mL
Dioxathion 78-34-2	100 1,000	M H	P-219S M-8141A-1-04		Fenamiphos 22224-92-6	100	M	P-114S	
Diphenamid 957-51-7	100	M	P-173S		Fenitrothion 122-14-5	100	M	P-259S	
Diphenylamine 122-39-4	100 1,000	D M	APP-9-097 M-620		Fenoxaprop-ethyl 66441-23-4	100	M	P-365S	
Diquat dibromide monohydrate (as Diquat)	100	M	P-231S		Fenoxycarb 72490-01-8	100	M	P-686S	
Disulfoton 298-04-4	100 1,000	M H	P-042S M-8140-08		Fensulfothion 115-90-2	1,000	H:A	M-8140-10	
Disulfoton sulfone 2497-06-5	100	M	P-582S		Fenthion 55-38-9	100 1,000	M H	P-148S M-8140-11	
2,4-DP ethyl hexyl 79270-78-3	100	M	P-429S		Fenuron 101-42-8	100 100	M CN	P-004S M-632-07	
Dursban 2921-88-2	100 1,000	M M	P-094S P-094S-10X		Fenuron-TCA 4482-55-7	100	M	P-006S	
Dyfonate 944-22-9	100	M	P-087S		Fenvalerate 51630-58-1	100	M	P-194S *	
EGDN 628-96-6	100	CN:M	M-8330-ADD-5		Ferbam 14484-64-1	100	M	P-110S	
Endosulfan I 959-98-8	100 10	M MT	P-091S M-548-IS		Fipronil 120068-37-3	100 100	A M	P-738S-A P-738S	
Endosulfan II 33213-65-9	100 1,000	M M	P-092S P-092S-10X		Fipronil sulfide 120067-83-6	100	A	P-781S-A	
Endosulfan sulfate 1031-07-8	100 1,000	M M	P-145S P-145S-10X		Fipronil sulfone 120068-36-2	100	A	P-780S-A	
Endothall 145-73-3	100 1,000	M M	P-183S P-183S-10X		Flamprop-methyl 52756-25-9	100	M	P-366S	
Endothall dimethyl ester	100	M	M-548.1-ME		Fluazifop-butyl 69806-50-4	100	M	P-310S	
Endothall pentafluorophenyl hydrazine derivative	100	MT	M-548-CAL		Fluazifop-p-butyl 79241-46-6	100	M	P-601S	
Endrin 72-20-8	100 1,000	M M	P-045S P-045S-10X		Fluchloralin 33245-39-5	100	M	P-270S	
Endrin aldehyde 7421-93-4	100 1,000	M M	P-046S P-046S-10X		Fluometuron 2164-17-2	100 100	M CN	P-014S M-632-09	
Endrin ketone 53494-70-5	100	M	P-146S		Fluoranthene 206-44-0	100 500	M CN	APP-9-108 M-8310-FL-11	
EPN 2104-64-5	100 1,000	A H	P-220S-A M-8141-02		Fluorene 86-73-7	100 500	M M	APP-9-109 M-8310-FL-12	
Ethalfuralin 55283-68-6	100	M	P-269S		4-Fluoroaniline 371-40-4	200 2,000	D D	M-625-08 M-625-08-10X	
Ethanol 64-17-5	10,000	W	M-8015B/5031-11		Fluorobenzene 462-06-6	20 2,000	M M	M-524-IS-2-10X M-524-IS-2	
Ethephon 16672-87-0	100	M	P-239S		2-Fluorobiphenyl 321-60-8	200 2,000	D D	M-625-09 M-625-09-10X	
Ethion 563-12-2	100 1,000	M H	P-048S M-8141A-1-05		1-Fluoronaphthalene 321-38-0	200 2,000	D D	M-625-10 M-625-10-10X	
Ethoprop 13194-48-4	100 1,000	M H	P-129S M-8140-09		2-Fluoronaphthalene 323-09-1	200	D	M-625-11	
Ethyl acetate 141-78-6	10,000	W	M-8015B/5031-12		2-Fluorophenol 367-12-4	200 2,000	D D	M-625-16 M-625-16-10X	
Ethyl carbamate 51-79-6	100	M	P-419S		Flurenol methyl ester 1216-44-0	100	M	P-412S	
Ethyl methacrylate 97-63-2	100	M	APP-9-105		Fluridone 59756-60-4	100	M	P-193S	
Ethyl methanesulfonate 62-50-0	100	D	APP-9-106		Tau-Fluvalinate 102851-06-9	100 100	CN M	P-356S-CN P-356S	
Ethylbenzene 100-41-4	200 2,000	M M	M-502-35 M-502-35-10X		Folpet 133-07-3	100	M	P-258S *	
Ethylbenzene-d₁₀ 25837-05-2	200	M	M-624-SS-08		Formaldehyde 50-00-0	1,000 1,000	W M	M-8315-02 M-554-06 *	
Ethylene glycol 107-21-1	10,000	W	M-8015B/5031-13		Formaldehyde-DNPH 1081-15-8	100 1,000	CN M:CN	M-8315-R-DNPH-10 M-554-DNPH-06	
Ethylene oxide 75-21-8	5,000	W	M-8015B/5031-14-R1 *		Formothion 2540-82-1	100	CN	P-149S-CN *	
bis(2-Ethylhexyl)adipate 103-23-1	100 1,000	M M	P-233S P-233S-10X		Glyphosate 1071-83-6	100 1,000	W W	M-547 P-015S-W-10X	
bis(2-Ethylhexyl)phthalate 117-81-7	100 1,000	M M	APP-9-029 APP-9-029-10X		Guanidine nitrate 506-93-4	100	M	M-8330-ADD-10	
Famphur 52-85-7	100 1,000	M H	P-147S M-8141A-1-06		Haloxypop 69806-34-4	100 100	M CN	P-496S P-496S-CN	
Fenamiosulf 140-56-7	100 1,000	M M	P-058S P-058S-10X		Haloxypop-methyl 69806-40-2	100	M	P-497S	

* ColdPAK required to maintain integrity of product.

Analytes in EPA Methods



Solvent Key for Individual Solutions

M Methanol D Methylene chloride H Hexane W Water
A Acetone CN Acetonitrile MT *tert*-Butyl methyl ether

Analytes in EPA Methods

Compound CAS No.	Conc. (µg/mL)	Solv.	Cat. No.	1 mL	Compound CAS No.	Conc. (µg/mL)	Solv.	Cat. No.	1 mL
Heptachlor 76-44-8	100	M	P-053S		Kepone 143-50-0	100	M	P-152S	
	1,000	M	P-053S-10X			1,000	M	P-152S-10X	
Heptachlor epoxide (Isomer A) 28044-83-9	100	M	P-294S		3-Ketocarbafuran 16709-30-1	100	A	P-298S-A	
Heptachlor epoxide (Isomer B) 1024-57-3	100	M	P-054S		Leptophos 21609-90-5	100	M	P-206S	
	1,000	M	P-054S-10X			1,000	H	M-8141A-1-07	
Heptanal 111-71-7	1,000	M	M-554-07		Lindane (γ-BHC) 58-89-9	100	M	P-059S	
						1,000	M	P-059S-10X	
Heptanal-DNPH 2074-05-7	100	CN	M-8315-R-DNPH-11		Linuron 330-55-2	100	M	P-022S	
	1,000	M:CN	M-554-DNPH-07			100	CN	M-632-10	
Hexachlorobenzene 118-74-1	1,000	A	M-8091-IS-20X		Lontrel 1702-17-6	100	M	P-224S	
	2,000	H	M-8120-05						
Hexachlorobutadiene 87-68-3	200	M	M-502-36		Malathion 121-75-5	1,000	H	M-8141-03	
	2,000	M	M-502-36-10X			100	M	P-060S	
Hexachlorocyclopentadiene 77-47-4	100	M	APP-9-114		MCPA acid 94-74-6	100	M	P-153S	
	2,000	H	M-8120-07			2,000	M	M-8150S-A-09	
Hexachloroethane 67-72-1	100	M	APP-9-115		MCPA methyl ester 2436-73-9	100	M	P-038S	
	2,000	H	M-8120-08			2,000	H	M-8150-09	
Hexachlorophene 70-30-4	100	M	APP-9-116		MCPB acid 94-81-5	100	M	P-370S	
	2,000	D	APP-9-116-D-20X						
Hexachloropropene 1888-71-7	100	M	APP-9-117		MCPB methyl ester 57153-18-1	100	M	P-371S	
Hexanal 66-25-1	1,000	M	M-554-08 *		MCPP acid 7085-19-0	100	CN	P-154S-CN	
						2,000	M	M-8150S-A-10	
Hexanal-DNPH 1527-97-5	100	CN	M-8315-R-DNPH-12		MCPP methyl ester 23844-56-6	100	M	P-040S	
	1,000	M:CN	M-554-DNPH-08			2,000	H	M-8150-10	
2-Hexanone 591-78-6	100	M	APP-9-118 *		Mecoprop, 2-Ethylhexyl ester 71526-69-7	100	M	P-502S	
Hexazinone 51235-04-2	100	M	P-123S		Mercaptobenzothiazole 149-30-4	100	CN	M-640	
	1,000	M	P-123S-10X						
HMX 2691-41-0	100	M:CN	M-8330-04-0.1X		Merphos 150-50-5	1,000	H	M-8140-12	
	1,000	M:CN	M-8330-04						
Hydrazine 302-01-2	100	M	M-8330-ADD-8		Metalaxyl 57837-19-1	100	M	P-120S	
2-Hydroxyatrazine 2163-68-0	100	M:A	P-326S		Metaldehyde 9002-91-9	100	M	P-600S	
						100	CN	P-600S-CN	
3-Hydroxycarbofuran 16655-82-6	100	CN	M-531-05		Metamitron 41394-05-2	100	M	P-252S	
	100	M	M-8318-06						
Imidan 732-11-6	100	M	P-055S		Metazachlor 67129-08-2	100	M	P-249S	
	1,000	H	M-8141A-1-08						
Indeno[1,2,3-cd]pyrene 193-39-5	100	M	APP-9-119		Methacrylonitrile 126-98-7	100	M	APP-9-125	
	500	CN	M-8310-FL-13						
Iodofenphos 18181-70-9	100	M	P-379S		Methanol 67-56-1	10,000	W	M-8015B/5031-17	
Ioxynil 1689-83-4	100	M	P-522S		Methapyrilene 91-80-5	100	D	APP-9-126	
						1,000	D	APP-9-126-10X	
Iprodione 36734-19-7	100	A	P-016S-A		Methidathion 950-37-8	100	M	P-195S	
	100	CN	P-016S-CN						
Isobutanol 78-83-1	100	M	APP-9-120		Methiocarb 2032-65-7	100	M	M-8318-07	
	10,000	W	M-8015B/5031-15			100	CN	M-531-11	
Isodrin 465-73-6	1,000	M	APP-9-121-10X		Methomyl 16752-77-5	100	CN	M-531-04	
						1,000	CN	M-531-04-10X	
Isofenphos 25311-71-1	100	M	P-018S		Methoprene 40596-69-8	100	M	P-157S	
Isophorone 78-59-1	100	M	APP-9-122		Methoxychlor 72-43-5	100	M	P-064S	
	1,000	M	APP-9-122-10X			1,000	M	P-064S-10X	
Isopropalin 33820-53-0	100	M	P-100S		o,p'-Methoxychlor 30667-99-3	100	M	P-535S	
Isopropanol 67-63-0	10,000	W	M-8015B/5031-16		p,p'-Methoxychlor-olefin 2132-70-9	100	M	P-466S	
						1,000	M	P-466S-10X	
Isopropylbenzene 98-82-8	200	M	M-502-37		Methyl-2,3-dibromopropionate 1729-67-5	1,000	MT	M-552.2-SS-ME	
	2,000	M	M-502-37-10X						
p-Isopropyltoluene (p-Cymene) 99-87-6	200	M	M-502-38		Methyl bromoacetate 96-32-2	200	M	M-552.1-02	
	2,000	M	M-502-38-10X						
Isosafrole 120-58-1	100	D	APP-9-123		Methyl bromochloroacetate 20428-74-4	200	M	M-552.1-03	
						1,000	MT	M-552-R-03	
Isovaleraldehyde-DNPH 2256-01-1	100	CN	M-8315-R-DNPH-13		Methyl bromodichloroacetate 20428-76-6	40	MT	M-552.2-04	
Karmex 330-54-1	100	M	P-227S		Methyl 2-bromopropionate 5445-17-0	1,000	MT	M-552.1-SS-ME	
	100	CN	M-632-06						
Kelthane 115-32-2	100	M	P-057S						

Analytes in EPA Methods continued on next page



Analytes in EPA Methods

Analytes in EPA Methods

Compound CAS No.	Conc. (µg/mL)	Solv.	Cat. No.	1 mL	Compound CAS No.	Conc. (µg/mL)	Solv.	Cat. No.	1 mL
Methyl chlorodibromoacetate 20428-75-5	100	MT	M-552.2-06		Nabam 142-59-6	100	M	P-383S	
3-Methylcholanthrene 56-49-5	100	D	APP-9-128		Naled 300-76-5	100	M	P-159S	
Methyl dibromoacetate 6482-26-4	20 100	MT M	M-552.2-07 M-552.1-05		Naphthalene 91-20-3	1,000 200	M M	M-8140-15 M-502-40	
Methyl dichloroacetate 116-54-1	60 300	MT M	M-552.2-08 M-552.1-06		Naphthalene-d ₈ 1146-65-2	500 200	M D	M-8310-FL-16 M-625-12	
Methyl-3,5-dichlorobenzoate 2905-67-1	100 1,000	M M	P-247S P-247S-10X		1-Naphthalene acetamide 86-86-2	4,000	D	Z-014J-4	
Methyl-2,4-Dichlorophenylacetate 55954-23-9	100	M	P-214S		1-Naphthol 90-15-3	100	M	P-512S	
Methyl ethyl ketone 78-93-3	1,000 10,000	M W	APP-9-129-10X * M-8015B/5031-18		1,4-Naphthoquinone 130-15-4	100	CN D	M-531-10 P-1007S	
Methyl iodide 74-88-4	100 2000	M M	APP-9-130 APP-9-130-20X		1-Naphthylamine 134-32-7	100	D	APP-9-137	
Methyl isobutyl ketone 108-10-1	10,000	W	M-8015B/5031-19		2-Naphthylamine 91-59-8	100	D	APP-9-138	
Methyl isothiocyanate 556-61-6	25	A	M-1659-RPS		Napropamide 15299-99-7	100	M	APP-9-139	
Methyl methacrylate 80-62-6	100 2000	M M	APP-9-131 APP-9-131-20X		Neburon 555-37-3	100 100	M CN	P-179S M-632-1-3	
Methyl methanesulfonate 66-27-3	100	D	APP-9-132		Niclosamide 50-65-7	100	M	P-041S M-632-16	
1-Methylnaphthalene 90-12-0	500	CN	M-8310-FL-14		m-Nitroaniline 99-09-2	100	D	P-160S	
2-Methylnaphthalene 91-57-6	100 500	D CN	APP-9-133 M-8310-FL-15		o-Nitroaniline 88-74-4	100	D	APP-9-141	
2-Methyl-4-nitroaniline 99-52-5	100	CN	M-8095-SS-02		p-Nitroaniline 100-01-6	100	D	APP-9-140	
3-Methyl-4-nitrophenol 2581-34-2	100	M	P-509S		4-Nitroanisole 100-17-4	100	M	APP-9-142	
Methyl nonyl ketone 112-12-9	100 100	M CN	P-415S P-415S-CN		Nitrobenzene 98-95-3	100 1,000	M:CN M:CN	P-273S M-8330-06-0.1X M-8330-06	
Methyl paraoxon 950-35-6	100	M	P-311S		Nitrobenzene-d ₅ 4165-60-0	200 2000	D D	M-625-13 M-625-13-10X	
Methyl parathion 298-00-0	100 1,000	M H	P-065S M-8140-13		Nitroguanidine 556-88-7	100	M	M-8330-ADD-6	
4-Methyl-2-pentanone 108-10-1	100 2000	M M	APP-9-135 APP-9-135-20X		Nitromethane 75-52-5	100	M	M-8330-ADD-7	
Methyl tribromoacetate 3222-05-7	200	MT	M-552.2-09 *		5-Nitro-o-toluidine 99-55-8	100	D	APP-9-156	
Methyl trichloroacetate 598-99-2	100 20	M MT	M-552.1-07 M-552.2-10		o-Nitrophenol 88-75-5	100	M	APP-9-144	
Metolachlor 51218-45-2	100 1,000	M M	P-158S P-158S-10X		p-Nitrophenol 100-02-7	100	M	APP-9-145	
Metribuzin 21087-64-9	100 1,000	M M	P-089S P-089S-10X		4-Nitroquinoline-1-oxide 56-57-5	100	D	APP-9-146	
Metsulfuron methyl 74223-64-6	100	M	P-463S *		N-Nitrosodiethylamine 55-18-5	100 2000	D D	APP-9-148 APP-9-148-20X	
Mevinphos 7786-34-7	100 1,000	M H	P-074S M-8140-14		N-Nitrosodimethylamine 62-75-9	100 1,000	D M	APP-9-149 APP-9-149-M-10X	
Mexacarbate 315-18-4	100	M	P-030S		N-Nitrosodi-n-butylamine 924-16-3	100 500	D W	APP-9-147 M-8015B/5031-20	
MGK-264 113-48-4	100	M	P-082S		N-Nitrosodi-n-propylamine 621-64-7	100	D	APP-9-151	
MGK-326 136-45-8	100	M	P-342S		N-Nitrosodiphenylamine 86-30-6	100 1,000	D M	APP-9-150 APP-9-150-M-10X	
Mirex 2385-85-5	100 1000	M M	P-066S P-066S-10X		N-Nitrosomethylethylamine 10595-95-6	100	D	APP-9-152	
Molinate 2212-67-1	100	M	P-176S		N-Nitrosomorpholine 59-89-2	100	D	APP-9-153	
Monitor 10265-92-6	100 1000	M M	P-155S P-155S-10X		N-Nitrosopiperidine 100-75-4	100	D	APP-9-154	
Monocrotophos 6923-22-4	100 1,000	M H	P-112S M-8141-04		N-Nitrosopyrrolidine 930-55-2	100	D	APP-9-155	
Monuron 150-68-5	100	CN	M-632-14		2-Nitrotoluene 88-72-2	100 1,000	M:CN M:CN	M-8330-07-0.1X M-8330-07	
Monuron TCA 140-41-0	100 100	M CN	P-034S M-632-15		3-Nitrotoluene 99-08-1	100 1,000	M:CN M:CN	M-8330-08-0.1X M-8330-08	
MtBE 1634-04-4	2,000	M	M-8020-QC		4-Nitrotoluene 99-99-0	100 1,000	M:CN M:CN	M-8330-09-0.1X M-8330-09	
Myclobutanil 88671-89-0	100 1,000	M M	P-330S P-330S-10X		cis-Nonachlor 5103-73-1	100 1,000	M M	P-297S P-297S-10X	

* ColdPAK required to maintain integrity of product.

Analytes in EPA Methods



Solvent Key for Individual Solutions

M Methanol D Methylene chloride H Hexane W Water
A Acetone CN Acetonitrile MT *tert*-Butyl methyl ether

Analytes in EPA Methods

Analytes in EPA Methods

Compound CAS No.	Conc. (µg/mL)	Solv.	Cat. No.	1 mL	Compound CAS No.	Conc. (µg/mL)	Solv.	Cat. No.	1 mL
trans-Nonachlor 39765-80-5	100	M	P-184S		Phenol-d₅ 4165-62-2	200 2,000	D D	M-625-18 M-625-18-10X	
Nonanal 124-19-6	1,000	M	M-554-09		Phenthoate 2597-03-7	100	M	P-476S	
Nonanal-DNPH 2348-19-8	100 1,000	CN M:CN	M-8315-R-DNPH-14 M-554-DNPH-09		p-Phenylenediamine 106-50-3	100	M	APP-9-180	
Octanal 124-13-0	1,000	M	M-554-10		o-Phenylphenol 90-43-7	100	M	P-460S	
Octanal-DNPH 1726-77-8	100 1,000	CN M:CN	M-8315-R-DNPH-15 M-554-DNPH-10		Phorate 298-02-2	100 1,000	M H	P-170S M-8140-16	
Omethoate 1113-02-6	100 1,000	M M	P-121S P-121S-10X		Phorate sulfone 2588-04-7	100	H	P-655S-H	
Oryzalin 19044-88-3	100 100	CN M	M-638 P-043S		Phosalone 2310-17-0	100	M	P-163S	
Oxadiazon 19666-30-9	100 1,000	M M	P-236S P-236S-10X		Phosfolan 947-02-4	100 1,000	M M	P-234S P-234S-10X	
Oxamyl 23135-22-0	100 100	M CN	P-161S M-531-03		Phosphamidon 13171-21-6	100 1,000	M H	P-075S M-8141A-1-09	
Oxycarboxin 5259-88-1	100	M	P-391S		Picloram 1918-02-1	100 100	M CN	P-047S M-644	
Oxylordane Isomer 27304-13-8	100 100	M H	P-331S P-331S-H		Picloram methyl ester 14143-55-6	100	M	P-198S	
Oxydemeton-methyl 301-12-2	100	M	P-290S		2-Picoline 109-06-8	100 10,000	M W	APP-9-182 M-8015B/5031-23	
Oxyfluorfen 42874-03-3	100	M	P-277S		Picramic acid 96-91-3	100	CN:M	M-8330-ADD-22	
Paraldehyde 123-63-7	10,000	W	M-8015B/5031-21		Picric acid 88-89-1	100	CN:M	M-8330-ADD-3	
Paraoxon 311-45-5	100 1,000	M M	P-453S P-453S-10X		Pirimicarb 23103-98-2	100	M	P-304S	
Paraquat CL tetrahydrate 1910-42-5 (as Paraquat)	100	M	P-051S		Pirimiphos-methyl 29232-93-7	100	M	P-305S	
Parathion 56-38-2	100 1,000	M H	P-070S M-622-19		Prebane 886-50-0	100	M	P-119S	
Pendimethalin 40487-42-1	100 1,000	M M	P-097S P-097S-10X		Profenofos 41198-08-7	100	M	P-260S	
Pentachloroanisole 1825-21-4	100	M	P-199S		Profluralin 26399-36-0	100 1,000	M M	P-099S P-099S-10X	
Pentachlorobenzene 608-93-5	100	M	APP-9-173		Promecarb 2631-37-0	100	M	M-8318-09	
Pentachloroethane 76-01-7	100	M	APP-9-174		Prometon 1610-18-0	100	M	M-619-04	
Pentachloronitrobenzene 82-68-8	100 1,000	MT MT	M-508-IS M-508-IS-10X		Prometryne 7287-19-6	100	M	M-619-05	
Pentachlorophenol 87-86-5	25 1,000	D M	M-625C-2 M-8040-15		Pronamide 23950-58-5	100	M	P-164S	
Pentafluorobenzene 363-72-4	200	M	M-624-SS-10		Propachlor 1918-16-7	100 1,000	M M	P-215S P-215S-10X	
Pentafluoroethane 354-33-6 (Freon #125)	200	M	M-REF-X-06		Propanal 123-38-6	1,000	M	M-554-12 *	
Pentafluorophenol 771-61-9	200	D	M-625-17		Propanal-DNPH 725-00-8	100 1,000	CN M:CN	M-8315-R-DNPH-17 M-554-DNPH-12	
Pentanal 110-62-3	1,000	M	M-554-11		Propanil 709-98-8	100	CN	M-632.1-2	
Pentanal-DNPH 2057-84-3	100 1,000	CN M:CN	M-8315-R-DNPH-16 M-554-DNPH-11		1-Propanol 71-23-8	10,000	W	M-8015B/5031-24	
2-Pentanone 107-87-9	10,000	W	M-8015B/5031-22		Propargite 2312-35-8	100	M	P-251S	
Permethrin 52645-53-1	100	M	P-128S		Propazine 139-40-2	100	M	M-619-06	
Perthane 72-56-0	100	M	P-162S		Propham 122-42-9	100 100	CN M	M-632-18 P-052S	
PETN 78-11-5	100	M	M-8330-ADD-2		Propionitrile 107-12-0	100 10,000	M W	APP-9-184 M-8015B/5031-25	
Phenacetin 62-44-2	100 1,000	D D	APP-9-177 APP-9-177-10X		n-Propylbenzene 103-65-1	200 2,000	M M	M-502-41 M-502-41-10X	
Phenanthrene 85-01-8	100 200	M D	APP-9-178 Z-013-15		Propyleneglycol dinitrate 6423-43-4	100	M	M-8330-ADD-35	
Phenanthrene-d₁₀ 1517-22-2	200	D	M-625-14		Pyrazon 1698-60-8	100 1,000	M M	P-395S P-395S-10X	
Phenol 108-95-2	100 1,000	D M	APP-9-179 M-8040-16						

Analytes in EPA Methods continued on next page



Analytes in EPA Methods

Analytes in EPA Methods

Compound CAS No.	Conc. (µg/mL)	Solv.	Cat. No.	1 mL	Compound CAS No.	Conc. (µg/mL)	Solv.	Cat. No.	1 mL
Pyrazoxyfen 71561-11-0	100	M	P-618S		Terrazole 2593-15-9	100	M	P-190S	
Pyrene 129-00-0	100	M	APP-9-185		1,2,4,5-Tetrachlorobenzene 95-94-3	100	M	APP-9-191	
	500	CN	M-8310-FL-18			2,000	H	M-8120-09	
Pyrene-d₁₀ 1718-52-1	50	A	M-525-SS		1,1,1,2-Tetrachloroethane 630-20-6	200	M	M-502-43	
						2,000	M	M-502-43-10X	
Pyridine 110-86-1	100	M	APP-9-186-M		1,1,2,2-Tetrachloroethane 79-34-5	200	M	M-502-44	
	10,000	W	M-8015B/5031-26			2,000	M	M-502-44-10X	
Pyridine-d₅ 7291-22-7	200	D	M-625-15		Tetrachloroethene 127-18-4	200	M	M-502-45	
	2000	D	M-625-15-10X			2,000	M	M-502-45-10X	
PYX 38082-89-2	100	CN	M-8330-ADD-11		2,3,5,6-Tetrachloronitrobenzene 117-18-0	100	M	P-467S	
Quizalofop ethyl 76578-14-8	100	CN	P-293S-CN		2,3,4,6-Tetrachlorophenol 58-90-2	100	M	APP-9-195	
						1,000	M	M-8040-17	
RDX 121-82-4	100	M:CN	M-8330-05-0.1X		Tetrachlorvinphos 22248-79-9	100	M	P-125S	
	1,000	M:CN	M-8330-05			1,000	H	M-8140-18	
Ronnel 299-84-3	100	M	P-080S		Tetradifon 116-29-0	100	M	P-261S	
	1,000	H	M-8140-17						
Rotenone 83-79-4	100	M	P-056S *		Tetrafluoroethane 811-97-2	200	M	M-REF-12	
	100	CN	M-635						
Safrole 94-59-7	100	M	APP-9-187		1,1,2,2-Tetrafluoroethane 359-35-3 (Freon #134)	200	M	M-REF-X-07	
Secbumeton 26259-45-0	100	M	M-619-07		Tetrahydrofuran 109-99-9	1,000	W	M-1671A-IS	
Siduron 1982-49-6	100	M	P-063S		Tetryl 479-45-8	100	M:CN	M-8330-10-0.1X	
	100	CN	M-632-20			1,000	M:CN	M-8330-10	
Silvex 93-72-1	100	M	P-084S		Thiabendazole 148-79-8	100	M	P-068S	
	1,000	M	P-084S-10X			100	CN	M-641	
Silvex methyl ester 4841-20-7	100	M	P-115S		Thiobencarb 28249-77-6	100	M	P-180S	
						1,000	M	P-180S-10X	
Simazine 122-34-9	100	M	P-085S		4,4'-Thiodiphenol 2664-63-3	100	M	P-117S	
	1,000	M	M-507F			1,000	M	P-117S-10X	
Simetryn 1014-70-6	100	M	M-619-08		Thiofanox 39196-18-4	100	M	P-266S	
Styrene 100-42-5	200	M	M-502-42		Thionazin 297-97-2	100	M	P-171S	
	2,000	M	M-502-42-10X						
Sulfotep 3689-24-5	100	M	P-167S		Thiophanate 23564-06-9	100	M	P-321S	
	1,000	H	M-8141-06			100	CN	P-321S-CN	
Sulfoxide 120-62-7	100	M	P-396S		Thiram 137-26-8	100	M	P-118S	
Sumithrin 26002-80-2	100	M	P-050S			1,000	M	P-118S-10X	
Sweep 1918-18-9	100	M	P-061S		Tillam 1114-71-2	100	M	P-105S	
	100	CN	M-632-21			1,000	M	P-105S-10X	
2,4,6-T 575-89-3	100	M	P-523S		Tilt 60207-90-1	100	M	P-280S	
	100	CN	P-523S-CN						
2,4,5-T acid 93-76-5	100	M	P-168S		TNT 118-96-7	100	M:CN	M-8330-11-0.1X	
	1,000	M	P-168S-10X			1,000	M:CN	M-8330-11	
2,4,5-T butoxyethyl ester 2545-59-7	100	CN	P-441S-CN		Tokuthion 34643-46-4	100	M	P-126S	
						1,000	H	M-8140-19	
2,4,5-T methyl ester 1928-37-6	100	M	P-067S		m-Tolualdehyde-DNPH 2880-05-9	100	CN	M-8315-R-DNPH-18	
	200	H	M-8150-03		o-Tolualdehyde-DNPH 1773-44-0	100	CN	M-8315-R-DNPH-19	
2,4,5-T n-butyl ester 93-79-8	100	CN	P-440S-CN		p-Tolualdehyde-DNPH 2571-00-8	100	CN	M-8315-R-DNPH-20	
TAME 994-05-8	200	M	S-1019		Toluene 108-88-3	200	M	M-502-46	
						2,000	M	M-502-46-10X	
TCMX 877-09-8	100	H	M-8082-SS		o-Toluidine 95-53-4	100	M	APP-9-199	
	1,000	H	M-8082-SS-10X			10,000	W	M-8015B/5031-27	
Tebuconazol 107534-96-3	100	M	P-451S		Toxaphene 8001-35-2	1,000	M	P-093S-10X	
	1000	M	P-451S-10X			2,500	A	M-525-5	
Tebuthiuron 34014-18-1	100	M	P-188S		2,4,5-TP 93-72-1	200	M	M-8150S-A-04	
Tefluthrin 79538-32-2	100	M	P-568S *		2,4,5-TP methyl ester 4841-20-7	200	H	M-8150-04	
TEPP 107-49-3	1,000	H	M-8141-07		2,4,5-TP-PFB	100	MT	M-8150-04-PFB	
Terbacil 5902-51-2	100	M	P-096S		Triadimefon 43121-43-3	100	M	P-069S	
Terbufos 13071-79-9	100	M	P-208S		Triallate 2303-17-5	100	M	P-268S	
	1,000	H	M-8141A-1-10						
Terbutylazine 5915-41-3	100	M	M-619-10		1,2,4-Triazole 288-88-0	100	M	P-627S	
p-Terphenyl-d₁₄ 1718-51-0	500	D	M-525-FS-2		Triazophos 24017-47-8	100	M	P-334S	

* ColdPAK required to maintain integrity of product.

Analytes in EPA Methods



Solvent Key for Individual Solutions

M Methanol D Methylene chloride H Hexane W Water
A Acetone CN Acetonitrile MT *tert*-Butyl methyl ether

Analytes in EPA Methods

Compound CAS No.	Conc. (µg/mL)	Solv.	Cat. No.	1 mL	Compound CAS No.	Conc. (µg/mL)	Solv.	Cat. No.	1 mL
Tribromoacetic acid 75-96-7	200	MT	M-552.2A-09		Tricyclazole 41814-78-2	100	M	P-090S	
1,3,5-Tribromobenzene 626-39-1	50	A	M-8121-IS		Triethylphosphate 78-40-0	100	M	P-335S	
2,4,6-Tribromophenol 118-79-6	200	D	M-625-19		O,O,O-Triethylphosphorothioate 126-68-1	100	M	P-172S	
2,4,6-Tribromophenol-PFB	200	M	M-604-SS			1,000	H	P-172S-H-10X	
	200	M	M-604-SS-PFB		2',4',5'-Trifluoroacetophenone 129322-83-4	20	CN	M-556-SS	
Tributylphosphate 126-73-8	1,000	A	M-8141A-SS-01		1,1,1-Trifluoroethane 420-46-2 (Freon #143A)	200	M	M-REF-X-08	
Trichlorfon 52-68-6	100	M	P-044S		Trifluoromethane 75-46-7 (Freon #23)	200	M	M-REF-15	
1,1,2-Trichloro-1,2,2-trifluoroethane 76-13-1	200	M	M-REF-14		a,a,a-Trifluorotoluene	200	M	M-602-SS	
	2,000	M	M-REF-14-10X			2,000	M	M-602-SS-10X	
1,1,1-Trichloro-2-propanone 918-00-3	5,000	A	M-551B-8		Trifluralin	100	M	P-197S	
Trichloroacetic acid 76-03-9	20	MT	M-552.2A-10			1,000	M	P-197S-10X	
	1,000	MT	M-552A-4 *		2,3,5-Triiodobenzoic acid	100	M	P-507S	
Trichloroacetonitrile 545-06-2	5,000	A	M-551B-7			100	CN	P-507S-CN	
1,2,3-Trichlorobenzene 87-61-6	200	M	M-502-47		2,3,5-Trimethacarb 2655-15-4	100	M	P-515S	
	2,000	M	M-502-47-10X		3,4,5-Trimethacarb 2686-99-9	100	M	P-516S	
1,2,4-Trichlorobenzene 120-82-1	200	M	M-502-48		Trimethyl phosphate	100	M	P-210S	
	2,000	M	M-502-48-10X						
2,3,5-Trichlorobenzoic acid 50-73-7	100	M	P-508S		1,2,4-Trimethylbenzene	200	M	M-502-54	
	100	CN	P-508S-CN			2,000	M	M-502-54-10X	
1,1,1-Trichloroethane 71-55-6	200	M	M-502-49		1,3,5-Trimethylbenzene	200	M	M-502-55	
	2,000	M	M-502-49-10X			2,000	M	M-502-55-10X	
1,1,2-Trichloroethane 79-00-5	200	M	M-502-50		1,3,5-Trinitrobenzene	100	M:CN	M-8330-12-0.1X	
	2,000	M	M-502-50-10X			1,000	M:CN	M-8330-12	
Trichloroethene 79-01-6	200	M	M-502-51		Triphenylphosphate	500	MT	M-507-IS	
	2,000	M	M-502-51-10X			5,000	MT	M-507-IS-10X	
Trichlorofluoromethane (Freon #11) 75-69-4	200	M	M-502-52		Vacor	100	M	P-240S	
	2,000	M	M-502-52-10X			100	CN	M-632-1-1	
Trichloronate 327-98-0	100	M	P-127S		Vernolate	100	M	P-111S	
	1,000	H	M-8140-20						
2,4,5-Trichlorophenol 95-95-4	100	A	CLP-FC		Vinclozolin	100	M	P-122S	
	1,000	M	M-8040-18			1,000	M	P-122S-10X	
2,4,6-Trichlorophenol 88-06-2	1,000	MT	M-552A-R-08 *		Vinyl acetate	100	M	APP-9-211 *	
	1,000	M	M-8040-19			2000	M	APP-9-211-20X *	
3,4,5-Trichlorophenol 609-19-8	1,000	M	M-1653-IS		Vinyl chloride	200	M	M-502-56	
	1,000	A	M-1653-IS-R			2,000	M	M-502-56-10X	
1,1,2-Trichloropropane 598-77-6	200	M	S-1321B		o-Xylene	200	M	M-502-57	
						2,000	M	M-502-57-10X	
1,2,3-Trichloropropane 96-18-4	200	M	M-502-53		m-Xylene	200	M	M-502-58	
	2,000	M	M-502-53-10X			2,000	M	M-502-58-10X	
a,a,a-Trichlorotoluene 98-07-7	200	M	M-624-SS-14		p-Xylene	200	M	M-502-59	
Triclopyr 55335-06-3	100	M	P-289S			2,000	M	M-502-59-10X	
	100	CN	P-289S-CN		Xylene (total)	100	M	APP-9-213	
Triclopyr methyl ester 60825-26-5	100	M	P-291S						
Tricresyl phosphate 1330-78-5	100	M	P-209S		Ziram	100	CN	M-630-1-0.1X	
						100	M	P-324S	

* ColdPAK required to maintain integrity of product.



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In 1980, the US Congress addressed the problem of cleaning up abandoned and inactive dump sites by enacting the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and the Superfund Amendments and Reauthorization Act (SARA). These acts mandated the clean-up of the worst abandoned or inactive waste sites in the nation as well as leaking underground storage tanks.

These standards are routinely used for other testing protocols. An outgrowth of this legislation was the Contract Laboratory Program (CLP) which was established to perform Superfund analyses.

CLP methods are designed for both volatile and semi-volatile compounds. EPA Target Compounds are listed in the OLM 04.1 and OLM 04.2 Statement of Work.

Table of Contents

Volatiles	128-131
Target Compound List	128-131
OLM 4.1 and OLM 4.2 Volatiles	128-130
Low Concentration Target Compound List	131
Semi-Volatiles	132-138
Priority Pollutant Standards	132-133
Target Compound List and Auxillary Standards	134
Semi-Volatiles	135-136
GPC Solutions	136
Low Concentration Target Compound List	137
OLM 04.1 and OLM 04.2 Semi-Volatiles	138
Pesticide Mixtures	139-141
Pesticides, PCBs and Aroclors	139-140
Working Levels	141

VOC Selected Target Compound Solutions

Volatile Target Compounds List (TCL)

CLP-022-SET * 2 x 1 mL
CLP-022-PART-A, CLP-022-PART-B

Part A

CLP-022-PART-A 1 x 1 mL
0.5 mg/mL each in MeOH 29 comps.

Benzene	1,2-Dichloropropane
Bromodichloromethane	<i>cis</i> -1,3-Dichloropropene
Bromoform	<i>trans</i> -1,3-Dichloropropene
Bromomethane	Ethylbenzene
Carbon tetrachloride	1,1,2,2-Tetrachloroethane
Chlorobenzene	Tetrachloroethene
Chloroethane	Toluene
Chloroform	1,1,1-Trichloroethane
Chloromethane	1,1,2-Trichloroethane
Dibromochloromethane	Trichloroethene
1,1-Dichloroethane	Vinyl chloride
Dichloromethane	<i>m</i> -Xylene
1,2-Dichloroethane	<i>p</i> -Xylene
1,1-Dichloroethylene	
<i>cis</i> -1,2-Dichloroethylene	
<i>trans</i> -1,2-Dichloroethylene	

Certificate will reflect actual *cis/trans* ratio

Part B

CLP-022-PART-B * 1 x 1 mL
0.5 mg/mL each in MeOH 8 comps.

Acetone	2-Hexanone	Vinyl acetate
2-Butanone	4-Methyl-2-pentanone	<i>o</i> -Xylene
Carbon disulfide	Styrene	

Volatile Target Compounds List (TCL)

Gases

CLP-022G		1 x 1 mL
CLP-022G-PAK	SAVE	5 x 1 mL
0.2 mg/mL each in MeOH		29 comps.
CLP-022G-10X		1 x 1 mL
CLP-022G-10X-PAK	SAVE	5 x 1 mL
2.0 mg/mL each in MeOH		4 comps.
Bromomethane	Chloromethane	Vinyl chloride
Chloroethane		

Ketones

CLP-022K *		1 x 1 mL
0.2 mg/mL each in MeOH		
CLP-022K-10X *		1 x 1 mL
2.0 mg/mL each in MeOH		
CLP-022K-25X *		1 x 1 mL
5.0 mg/mL each in MeOH		4 comps.
Acetone	2-Hexanone	4-Methyl-2-pentanone
2-Butanone		

Technical Note

Volatile Target Compound List (TCL) has two versions. SOW OLM 01.8 is the complete list CLP-022 and CLP-022-R2 is designed for the TCLP OLM 03.1 method and does not contain Vinyl Acetate. CLP-022-SET is a combination and can be used as an alternate source of reference material.

Volatile Target Compounds List (TCL)

CLP-022 * 1 x 1 mL
0.2 mg/mL each in MeOH 37 comps.

Acetone	<i>cis</i> -1,3-Dichloropropene
Benzene	<i>trans</i> -1,3-Dichloropropene
Bromodichloromethane	Ethylbenzene
Bromoform	2-Hexanone
Bromomethane	4-Methyl-2-pentanone
2-Butanone	Styrene
Carbon disulfide	1,1,2,2-Tetrachloroethane
Carbon tetrachloride	Tetrachloroethene
Chlorobenzene	Toluene
Chloroethane	1,1,1-Trichloroethane
Chloroform	1,1,2-Trichloroethane
Chloromethane	Trichloroethene
Dibromochloromethane	Vinyl acetate
1,1-Dichloroethane	Vinyl chloride
Dichloromethane	<i>m</i> -Xylene
1,2-Dichloroethane	<i>o</i> -Xylene
1,1-Dichloroethylene	<i>p</i> -Xylene
<i>cis</i> -1,2-Dichloroethylene	
<i>trans</i> -1,2-Dichloroethylene	
1,2-Dichloropropane	

Certificate will reflect actual *cis/trans* ratio

CLP-022-R2 * 1 x 1 mL
0.2 mg/mL each in MeOH 36 comps.

Acetone	1,2-Dichloropropane
Benzene	<i>cis</i> -1,3-Dichloropropene
Bromodichloromethane	<i>trans</i> -1,3-Dichloropropene
Bromoform	Ethylbenzene
Bromomethane	2-Hexanone
2-Butanone	4-Methyl-2-pentanone
Carbon disulfide	Styrene
Carbon tetrachloride	1,1,2,2-Tetrachloroethane
Chlorobenzene	Tetrachloroethene
Chloroethane	Toluene
Chloroform	1,1,1-Trichloroethane
Chloromethane	1,1,2-Trichloroethane
Dibromochloromethane	Trichloroethene
1,1-Dichloroethane	Vinyl chloride
Dichloromethane	<i>m</i> -Xylene
1,2-Dichloroethane	<i>o</i> -Xylene
1,1-Dichloroethylene	<i>p</i> -Xylene
<i>cis</i> -1,2-Dichloroethylene	
<i>trans</i> -1,2-Dichloroethylene	

Certificate will reflect actual *cis/trans* ratio

* ColdPAK required to maintain integrity of product.

Contract Laboratory Program (CLP) Auxiliary Volatiles

CLP

Every CLP product is furnished with analytical documentation

- Quantitative analysis by comparison to a separately prepared Standard.
- Target conc. analytically determined to be within a 95% confidence interval.
- A chromatogram of lot with analytes by elution order and instrumental parameters.
- Certificate with actual gravimetric/volumetric weights, purities

Volatiles

Volatile Calibration Check Compounds (CCC)

CLP-020	1 x 1 mL
CLP-020-PAK SAVE	5 x 1 mL
0.2 mg/mL each in MeOH	
6 comps.	
CLP-020-10X	1 x 1 mL
CLP-020-10X-PAK SAVE	5 x 1 mL
2.0 mg/mL each in MeOH	
6 comps.	
Chloroform	Ethylbenzene
1,1-Dichloroethane	Toluene
1,2-Dichloropropane	Vinyl chloride

Volatile System Performance Check Compounds (SPCC)

CLP-021	1 x 1 mL
CLP-021-PAK SAVE	5 x 1 mL
0.2 mg/mL each in MeOH	
5 comps.	
CLP-021-10X	1 x 1 mL
CLP-021-10X-PAK SAVE	5 x 1 mL
2.0 mg/mL each in MeOH	
5 comps.	
Bromoform	1,1-Dichloroethane
Chlorobenzene	1,1,1,2,2-Tetrachloroethane
Chloromethane	

Purgeable Surrogate Standard

CLP-PS	1 x 1 mL
CLP-PS-PAK SAVE	5 x 1 mL
0.25 mg/mL each in MeOH	
3 comps.	
CLP-PS-4X	1 x 1 mL
CLP-PS-4X-PAK SAVE	5 x 1 mL
1.0 mg/mL each in MeOH	
3 comps.	
CLP-PS-10X	1 x 1 mL
CLP-PS-10X-PAK SAVE	5 x 1 mL
2.5 mg/mL each in MeOH	
3 comps.	
<i>p</i> -Bromofluorobenzene	Toluene-d ₈
1,2-Dichloroethane-d ₄	

Purgeable Internal / Surrogate Standard

CLP-PIPS	1 x 1 mL
CLP-PIPS-PAK SAVE	5 x 1 mL
2.5 mg/mL each in MeOH	
6 comps.	
Bromochloromethane	1,2-Dichloroethane-d ₄
<i>p</i> -Bromofluorobenzene	1,4-Difluorobenzene
Chlorobenzene-d ₅	Toluene-d ₈

Purgeable Organic Matrix Spiking Solution

CLP-003-R	1 x 1 mL
CLP-003-R-PAK SAVE	5 x 1 mL
0.25 mg/mL each in MeOH	
5 comps.	
CLP-003-R-10X	1 x 1 mL
CLP-003-R-10X-PAK SAVE	5 x 1 mL
2.5 mg/mL each in MeOH	
5 comps.	
Benzene	Toluene
Chlorobenzene	Trichloroethene
1,1-Dichloroethane	

Purgeable Internal Standard

CLP-PI-0.25X	1 x 1 mL
CLP-PI-0.25X-PAK SAVE	5 x 1 mL
0.25 mg/mL each in MeOH	
3 comps.	
CLP-PI	1 x 1 mL
CLP-PI-PAK SAVE	5 x 1 mL
1.0 mg/mL each in MeOH	
3 comps.	
CLP-PI-2.5X	1 x 1 mL
CLP-PI-2.5X-PAK SAVE	5 x 1 mL
2.5 mg/mL each in MeOH	
3 comps.	
Bromochloromethane	1,4-Difluorobenzene
Chlorobenzene-d ₅	

Higher Concentrations are the Same Price

Hexadecane Extraction Volatiles

CLP-BTEX	1 x 1 mL
CLP-BTEX-PAK SAVE	5 x 1 mL
0.2 mg/mL each in MeOH	
6 comps.	
CLP-BTEX-10X	1 x 1 mL
CLP-BTEX-10X-PAK SAVE	5 x 1 mL
2.0 mg/mL each in MeOH	
6 comps.	
Benzene	<i>m</i> -Xylene
Ethylbenzene	<i>o</i> -Xylene
Toluene	<i>p</i> -Xylene

CLP-001B	1 x 1 mL
1.0 mg/mL each in MeOH	2 comps.
<i>n</i> -Decane	<i>n</i> -Nonane

Instrument Performance Check Solution

CLP-004	1 x 1 mL
CLP-004-PAK SAVE	5 x 1 mL
25 µg/mL in MeOH	
CLP-004-10X	1 x 1 mL
CLP-004-10X-PAK SAVE	5 x 1 mL
250 µg/mL in MeOH	
CLP-004-80X	1 x 1 mL
CLP-004-80X-PAK SAVE	5 x 1 mL
2000 µg/mL in MeOH	
CLP-004-100X	1 x 1 mL
CLP-004-100X-PAK SAVE	5 x 1 mL
2500 µg/mL in MeOH	
CLP-004-1000X	1 x 1 mL
25 mg/mL in MeOH	
<i>p</i> -Bromofluorobenzene	

Aldehydes and Ketones in Alcohol Solvents

Standards containing aldehydes and ketones in methanol are given shorter expiration periods because of their tendency to form acetals and ketals. AccuStandard adds stabilizers to inhibit this reaction. To enhance stability, freezer storage is required.

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Volatiles continued on next page

CLP OLM 04.1 & 04.2 - Volatiles

The set of volatile standards along with a complete semi-volatile series meets OLM 04.1, and also can be used for OLM 04.2.

CLP OLM 04.1 & 04.2 - Volatile Target Cmpd. List

CLP-022-R3		1 x 1 mL
CLP-022-R3-PAK	SAVE	5 x 1 mL
200 µg/mL in MeOH		40 comps.
Benzene	1,2-Dichloropropane	
Bromodichloromethane	<i>cis</i> -1,3-Dichloropropene	
Bromoform	<i>trans</i> -1,3-Dichloropropene	
Carbon disulfide	Ethylbenzene	
Carbon tetrachloride	Isopropylbenzene	
Chlorobenzene	Methyl acetate	
Chloroform	Methylcyclohexane	
1,2-Dibromo-3-chloropropane	MtBE	
Cyclohexane	Styrene	
Dibromochloromethane	1,1,2,2-Tetrachloroethane	
1,2-Dibromoethane	Tetrachloroethene	
1,2-Dichlorobenzene	Toluene	
1,3-Dichlorobenzene	1,2,4-Trichlorobenzene	
1,4-Dichlorobenzene	1,1,1-Trichloroethane	
1,1-Dichloroethane	1,1,2-Trichloroethane	
1,2-Dichloroethane	Trichloroethene	
1,1-Dichloroethene	1,1,2-Trichloro-1,2,2-trifluoroethane	
<i>cis</i> -1,2-Dichloroethene	<i>m</i> -Xylene	
<i>trans</i> -1,2-Dichloroethene	<i>p</i> -Xylene	
Dichloromethane	<i>o</i> -Xylene	

Gases

M-502B		1 x 1 mL
M-502B-PAK	SAVE	5 x 1 mL
0.2 mg/mL each in MeOH		6 comps.
Bromomethane	Dichlorodifluoromethane	
Chloromethane	Trichlorofluoromethane	
Chloroethane	Vinyl chloride	

Ketones

CLP-022K *		1 x 1 mL
0.2 mg/mL each in MeOH		
CLP-022K-10X *		1 x 1 mL
2.0 mg/mL each in MeOH		4 comps.
Acetone	2-Hexanone	
2-Butanone	4-Methyl-2-pentanone	

CLP 04.1 & 04.2 Screening Mix

CLP-BTEX		1 x 1 mL
CLP-BTEX-PAK	SAVE	5 x 1 mL
0.2 mg/mL each in MeOH		6 comps.
Benzene	<i>m</i> -Xylene	
Ethylbenzene	<i>o</i> -Xylene	
Toluene	<i>p</i> -Xylene	

CLP OLM 04.1 & 04.2 - Volatiles Set

CLP-VOC-SET *		9 x 1 mL
CLP-022-R3	CLP-BTEX	CLP-PIPS
M-502B	CLP-PS-10X	CLP-003R-10X
CLP-022K-10X	CLP-PI-2.5X	CLP-004-10X

Purgeable Surrogate Standard

CLP-PS-10X		1 x 1 mL
CLP-PS-10X-PAK	SAVE	5 x 1 mL
2.5 mg/mL each in MeOH		3 comps.
<i>p</i> -Bromofluorobenzene	Toluene-d ₈	
1,2-Dichloroethane-d ₄		

Purgeable Internal Standard

CLP-PI-2.5X		1 x 1 mL
CLP-PI-2.5X-PAK	SAVE	5 x 1 mL
2.5 mg/mL each in MeOH		3 comps.
Bromochloromethane	1,4-Difluorobenzene	
Chlorobenzene-d ₅		

Purgeable Internal/Surrogate Standard

CLP-PIPS		1 x 1 mL
CLP-PIPS-PAK	SAVE	5 x 1 mL
2.5 mg/mL each in MeOH		6 comps.
Bromochloromethane	1,2-Dichloroethane-d ₄	
<i>p</i> -Bromofluorobenzene	1,4-Difluorobenzene	
Chlorobenzene-d ₅	Toluene-d ₈	

Purgeable Organic Matrix Spiking Solution

CLP-003-R-10X		1 x 1 mL
CLP-003-R-10X-PAK	SAVE	5 x 1 mL
2.5 mg/mL each in MeOH		5 comps.
Benzene	Toluene	
Chlorobenzene	Trichloroethene	
1,1-Dichloroethene		

Instrument Performance Check Solution

CLP-004-10X		1 x 1 mL
CLP-004-10X-PAK	SAVE	5 x 1 mL
250 µg/mL in MeOH		
<i>p</i> -Bromofluorobenzene		

* ColdPAK required to maintain integrity of product.

Low Concentration SOW (10/92) Organic Analysis of Water

Volatile Target Compounds Mix

CLP-022-LC 0.2 mg/mL each in MeOH (except indicated)	1 x 1 mL 42 comps.
Acetone (1.0 mg/mL)	1,1-Dichloroethylene
Benzene	cis-1,2-Dichloroethylene
Bromochloromethane	trans-1,2-Dichloroethylene
Bromodichloromethane	1,2-Dichloropropane
Bromoform	cis-1,3-Dichloropropene
Bromomethane	trans-1,3-Dichloropropene
2-Butanone (1.0 mg/mL)	Ethylbenzene
Carbon disulfide	2-Hexanone (1.0 mg/mL)
Carbon tetrachloride	4-Methyl-2-pentanone (1.0 mg/mL)
Chlorobenzene	Styrene
Chloroethane	1,1,2,2-Tetrachloroethane
Chloroform	Tetrachloroethene
Chloromethane	Toluene
Dibromochloromethane	1,1,1-Trichloroethane
1,2-Dibromo-3-chloropropane	1,1,2-Trichloroethane
1,2-Dibromoethane	Trichloroethene
1,2-Dichlorobenzene	Vinyl chloride
1,3-Dichlorobenzene	o-Xylene
1,4-Dichlorobenzene	m-Xylene
1,1-Dichloroethane	p-Xylene
Dichloromethane	
1,2-Dichloroethane	

Certificate will reflect actual cis/trans ratio

Laboratory Control Sample Spiking Solution

CLP-LCS-V CLP-LCS-V-PAK 0.2 mg/mL each in MeOH	SAVE	1 x 1 mL 5 x 1 mL 12 comps.
Benzene		cis-1,3-Dichloropropene *
Bromoform		Tetrachloroethene
Carbon tetrachloride		1,1,2-Trichloroethane
1,2-Dibromoethane		Trichloroethene
1,4-Dichlorobenzene		Vinyl chloride
1,2-Dichloroethane		
1,2-Dichloropropane		

* may contain trace amounts of trans isomer

Tuning Solution / Surrogate

Standard Mix

CLP-004 CLP-004-PAK 25 µg/mL in MeOH	SAVE	1 x 1 mL 5 x 1 mL
CLP-004-10X CLP-004-10X-PAK 0.25 mg/mL in MeOH	SAVE	1 x 1 mL 5 x 1 mL
CLP-004-100X CLP-004-100X-PAK 2.5 mg/mL in MeOH	SAVE	1 x 1 mL 5 x 1 mL
CLP-004-1000X 2.5 mg/mL in MeOH		1 x 1 mL

p-Bromofluorobenzene

Internal Standard Mix

CLP-LC-IS CLP-LC-IS-PAK SAVE 25 µg/mL each in MeOH	1 x 1 mL 5 x 1 mL 3 comps.
CLP-LC-IS-10X CLP-LC-IS-10X-PAK SAVE 0.25 mg/mL each in MeOH	1 x 1 mL 5 x 1 mL 3 comps.
CLP-LC-IS-100X CLP-LC-IS-100X-PAK SAVE 2.5 mg/mL each in MeOH	1 x 1 mL 5 x 1 mL 3 comps.
Chlorobenzene-d ₅	1,4-Difluorobenzene
1,4-Dichlorobenzene-d ₄	

Storage Conditions

Most VOC formulations require refrigeration or freezer storage to inhibit adverse reactions among the components. It is imperative that these conditions are followed.



Organic 2-Part Labels (ampules or vials)

Part One can be placed into a laboratory journal to document the standard used for the analysis. This label section includes the catalog number, description, lot number, expiration date, safety information, proper storage conditions and documents AccuStandard as the manufacturer.

Part Two duplicates required information for labeling transfer vial(s) with correct information.

Priority Pollutants - Standards for Calibration of Capillary GC/MS

The EPA procedures call for fused silica capillary column analysis of priority pollutants. AccuStandard has assembled the following mixtures to be used in calibrating this analytical system. These mixtures are highly concentrated to aid in the establishment of response factors.

Base/Neutrals - Mix #1

Z-014A		1 x 1 mL
Z-014A-PAK	SAVE	5 x 1 mL
2.0 mg/mL each in CH ₂ Cl ₂		

4-Bromophenylphenyl ether
Butyl benzyl phthalate
bis(2-Chloroethoxy)methane
bis(2-Chloroethyl) ether
bis(2-Chloro-1-methylethyl) ether
4-Chlorophenylphenyl ether
Diethyl phthalate
Dimethyl phthalate
Di-*n*-butyl phthalate
Di-*n*-octyl phthalate
bis(2-Ethylhexyl)phthalate
N-Nitrosodimethylamine
N-Nitrosodi-*n*-propylamine
N-Nitrosodiphenylamine

Base/Neutrals - Mix #2

Z-014B		1 x 1 mL
Z-014B-PAK	SAVE	5 x 1 mL
2.0 mg/mL each in CH ₂ Cl ₂		

Azobenzene
2-Chloronaphthalene
1,2-Dichlorobenzene
1,3-Dichlorobenzene
1,4-Dichlorobenzene
2,4-Dinitrotoluene
2,6-Dinitrotoluene
Hexachlorobenzene
Hexachlorobutadiene
Hexachlorocyclopentadiene
Hexachloroethane
Isophorone
Nitrobenzene
1,2,4-Trichlorobenzene

Benzidine Mix

Z-014F		1 x 1 mL
Z-014F-PAK	SAVE	5 x 1 mL
2.0 mg/mL each in MeOH		

Benzidine †
3,3'-Dichlorobenzidine †

Phenols Mix

Z-014H		1 x 1 mL
Z-014H-PAK	SAVE	5 x 1 mL
2.0 mg/mL each in CH ₂ Cl ₂		

4-Chloro-3-methylphenol
2-Chlorophenol
2,4-Dichlorophenol
2,4-Dimethylphenol
2,4-Dinitrophenol
2-Methyl-4,6-dinitrophenol
2-Nitrophenol
4-Nitrophenol
Pentachlorophenol
Phenol
2,4,6-Trichlorophenol

Technical Note

2,4-Dinitrophenol, 4-Nitrophenol, and Pentachlorophenol are susceptible to adsorption on active surfaces found in injection ports or contaminated columns.

Toxic Substances - Mix #1

Z-014D		1 x 1 mL
Z-014D-PAK	SAVE	5 x 1 mL
2.0 mg/mL each in CH ₂ Cl ₂		

Benzoic acid
2-Methylphenol
4-Methylphenol
2,4,5-Trichlorophenol

Toxic Substances - Mix #2

Z-014E		1 x 1 mL
Z-014E-PAK	SAVE	5 x 1 mL
2.0 mg/mL each in CH ₂ Cl ₂		

Aniline
Benzyl alcohol
4-Chloroaniline
Dibenzofuran
2-Methylnaphthalene
2-Nitroaniline
3-Nitroaniline
4-Nitroaniline

Internal Standards Mixture

Z-014J		1 x 1 mL
Z-014J-PAK	SAVE	5 x 1 mL
4.0 mg/mL each in CH ₂ Cl ₂		

Z-014J-0.5X		1 x 1 mL
Z-014J-0.5X-PAK	SAVE	5 x 1 mL
2.0 mg/mL each in CH ₂ Cl ₂		

Acenaphthene-d₁₀
Chrysene-d₁₂
1,4-Dichlorobenzene-d₄
Naphthalene-d₈
Perylene-d₁₂
Phenanthrene-d₁₀

† Subject to oxidation

PAH Mix

Z-014G		1 x 1 mL
Z-014G-PAK	SAVE	5 x 1 mL
2.0 mg/mL each in CH ₂ Cl ₂ : Benzene (50:50)		
16 comps.		

Acenaphthene
Acenaphthylene
Anthracene
Benz[a]anthracene
Benz[a]pyrene
Benzo[b]fluoranthene
Benzo[g,h,i]perylene
Benzo[k]fluoranthene
Chrysene
Dibenz[a,h]anthracene
Fluoranthene
Fluorene
Indeno[1,2,3-cd]pyrene
Naphthalene
Phenanthrene
Pyrene

PAH Mix

Z-014G-R		1 x 1 mL
Z-014G-R-PAK	SAVE	5 x 1 mL
2.0 mg/mL each in CH ₂ Cl ₂ : Benzene (50:50)		
17 comps.		

Acenaphthene
Acenaphthylene
Anthracene
Benz[a]anthracene
Benz[a]pyrene
Benzo[b]fluoranthene
Benzo[g,h,i]perylene
Benzo[k]fluoranthene
Carbazole
Chrysene
Dibenz[a,h]anthracene
Fluoranthene
Fluorene
Indeno[1,2,3-cd]pyrene
Naphthalene
Phenanthrene
Pyrene

Expanded PAH Mix

Z-014G-FL		1 x 1 mL
2.0 mg/mL each in CH ₂ Cl ₂ : Benzene (50:50)		
18 comps.		

Acenaphthene
Acenaphthylene
Anthracene
Benz[a]anthracene
Benz[a]pyrene
Benzo[b]fluoranthene
Benzo[g,h,i]perylene
Benzo[k]fluoranthene
Chrysene
Dibenz[a,h]anthracene
Fluoranthene
Fluorene
Indeno[1,2,3-cd]pyrene
Naphthalene
Phenanthrene
Pyrene
1-Methylnaphthalene
2-Methylnaphthalene

Priority Pollutants - Standards for Calibration of Capillary GC/MS - Complete Sets (Continued)

Pesticides - Mix #1

Z-014C 1 x 1 mL
 Z-014C-PAK **SAVE** 5 x 1 mL
 2.0 mg/mL each in Toluene:Hexane (50:50)
 16 comps.

Aldrin Dieldrin
 α-BHC Endosulfan I
 β-BHC Endosulfan II
 γ-BHC Endosulfan sulfate
 δ-BHC Endrin
 4,4'-DDD Endrin aldehyde
 4,4'-DDE Heptachlor
 4,4'-DDT Heptachlor epoxide (Isomer B)

Pesticides - Mix #2

Z-014C-R 1 x 1 mL
 Z-014C-R-PAK **SAVE** 5 x 1 mL
 2.0 mg/mL each in Toluene:Hexane (50:50)
 20 comps.

Aldrin Dieldrin
 α-BHC Endosulfan I
 β-BHC Endosulfan II
 γ-BHC Endosulfan sulfate
 δ-BHC Endrin
 α-Chlordane Endrin aldehyde
 γ-Chlordane Endrin ketone
 4,4'-DDD Heptachlor
 4,4'-DDE Heptachlor epoxide (Isomer B)
 4,4'-DDT Methoxychlor

Pesticides - Mix #3

Z-014C-R2 1 x 1 mL
 Z-014C-R2-PAK **SAVE** 5 x 1 mL
 2.0 mg/mL each in Toluene:Hexane (50:50)
 18 comps.

Aldrin Endosulfan I
 α-BHC Endosulfan II
 β-BHC Endosulfan sulfate
 γ-BHC Endrin
 δ-BHC Endrin aldehyde
 4,4'-DDD Endrin ketone
 4,4'-DDE Heptachlor
 4,4'-DDT Heptachlor epoxide (Isomer B)
 Dieldrin Methoxychlor

Priority Pollutants Standard Sets

Z-014R-SET	9 x 1 mL	Z-014R-2-SET	7 x 1 mL
Z-014A	Base/Neutrals - Mix #1	Z-014A	Base/Neutrals - Mix #1
Z-014B	Base/Neutrals - Mix #2	Z-014B	Base/Neutrals - Mix #2
Z-014C	Pesticides - Mix #1	Z-014D	Toxic Substances - Mix #1
Z-014D	Toxic Substances - Mix #1	Z-014E	Toxic Substances - Mix #2
Z-014E	Toxic Substances - Mix #2	Z-014F	Benzidine Mix
Z-014F	Benzidine Mix	Z-014G	PAH Mix
Z-014G-R	PAH Mix	Z-014H	Phenols Mix
Z-014H	Phenols Mix		
Z-014J	Internal Standard Mix		

Z-014R-1-SET	9 x 1 mL	Z-014R-3-SET	7 x 1 mL
Z-014A	Base/Neutrals - Mix #1	Z-014A	Base/Neutrals - Mix #1
Z-014B	Base/Neutrals - Mix #2	Z-014B	Base/Neutrals - Mix #2
Z-014C-R	Pesticides - Mix #2	Z-014D	Toxic Substances - Mix #1
Z-014D	Toxic Substances - Mix #1	Z-014E	Toxic Substances - Mix #2
Z-014E	Toxic Substances - Mix #2	Z-014F	Benzidine Mix
Z-014F	Benzidine Mix	Z-014G-R	PAH Mix
Z-014G-R	PAH Mix	Z-014H	Phenols Mix
Z-014H	Phenols Mix		
Z-014J	Internal Standard Mix		

Order a complete Set and Save

Tuning Standards for EPA Methods

M-625-TS	1 x 1 mL	CLP-TS	1 x 1 mL
M-625-TS-PAK SAVE	5 x 1 mL	CLP-TS-PAK SAVE	5 x 1 mL
50 µg/mL each in CH ₂ Cl ₂	4 comps.	50 µg/mL in CH ₂ Cl ₂	
Benzidine †	DFTPP	Perfluorokerosene	
p,p'-DDT	Pentachlorophenol		

† Subject to oxidation

EPA Method 625 GC/MS Calibration Standards

Benzidine †	50	M-625C-1	1 mL
Pentachlorophenol	25	M-625C-2	1 mL
Decafluorotriphenylphosphine	25	M-625C-3	1 mL
Benzidine †	50	M-625C-4	1 mL
+ DFTPP	25		
Pentachlorophenol	25	M-625C-5	1 mL
+ DFTPP	25		

M-625C-SET 5 x 1 mL
 At stated conc. (µg/mL) in CH₂Cl₂

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Save 20-40% 5 x 1 mL



Base/Neutral & Acid Composite Mixtures

For CLP Semi-Volatiles Analysis

CLP Target List

These composite mixes were formulated to allow flexibility of preparing a final semi-volatile mix to meet your laboratory's specific needs. CLP-HC-BN-SET contains 46 of the Base-Neutral analytes on the CLP semi-volatile Target List. These base-neutral analytes are available in a two ampule set to extend the useful life of your stock calibration standards. CLP-HC-A contains the acidic compounds found in the CLP Target List. An additional composite mix can then be selected to complement your exact requirements for semi-volatile analysis.

Base-Neutral

CLP-HC-BN-R
CLP-HC-BN-R-PAK

2.0 mg/mL each in Benzene : CH₂Cl₂ : AcCN (40:40:20)

SAVE

1 x 1 mL
5 x 1 mL
44 comps.

Benzidine

Z-014F
Z-014F-PAK

2.0 mg/mL each in MeOH

1 x 1 mL
5 x 1 mL
2 comps.

Benzidine † 3,3'-Dichlorobenzidine †

CLP Target List Set

CLP-HC-BN-SET 2 x 1 mL
CLP-HC-BN-SET-PAK SAVE 5 x (2 x 1 mL)
Z-014F, CLP-HC-BN-R

Acid Composite Mix

CLP-HC-A-R
CLP-HC-A-R-PAK

2.0 mg/mL each in CH₂Cl₂

SAVE

1 x 1 mL
5 x 1 mL
19 comps.

Benzoic acid Ethyl methanesulfonate
4-Chloro-3-methylphenol Methyl methanesulfonate
2-Chlorophenol 2-Nitrophenol
o-Cresol 4-Nitrophenol
p-Cresol Pentachlorophenol
2,4-Dichlorophenol Phenol
2,6-Dichlorophenol 2,3,4,6-Tetrachlorophenol
2,4-Dimethylphenol 2,4,5-Trichlorophenol
4,6-Dinitro-2-methylphenol 2,4,6-Trichlorophenol
2,4-Dinitrophenol

† Subject to oxidation

Technical Note

Azobenzene was substituted for 1,2-Diphenylhydrazine because the 1,2-Diphenylhydrazine loses hydrogen to form azobenzene under GC operating conditions.

Additional Composite Mixtures

Composite #1

Z-014E

2.0 mg/mL each in CH₂Cl₂

1 x 1 mL
8 comps.

Aniline 2-Methylnaphthalene
Benzyl alcohol 2-Nitroaniline
4-Chloroaniline 3-Nitroaniline
Dibenzofuran 4-Nitroaniline

Composite #2

Z-014E-R

2.0 mg/mL each in CH₂Cl₂

1 x 1 mL
9 comps.

Aniline 2-Nitroaniline
Benzyl alcohol 3-Nitroaniline
4-Chloroaniline 4-Nitroaniline
Dibenzofuran Pyridine
2-Methylnaphthalene

Composite #3

Z-014E-R3

2.0 mg/mL each in CH₂Cl₂

1 x 1 mL
10 comps.

Aniline 2-Methylnaphthalene
Benzyl alcohol 2-Nitroaniline
Carbazole 3-Nitroaniline
4-Chloroaniline 4-Nitroaniline
Dibenzofuran Pyridine



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Contract Laboratory Program (CLP)

Semi-Volatiles

CLP

GC/MS Analysis of Semi-Volatiles

Method Analytes Mixture

CLP-TCLSV	1 x 1 mL
2.0 mg/mL each in CH ₂ Cl ₂	3 comps.
Benzoic acid	N-Nitrosodimethylamine
Benzyl alcohol	

Calibration Check Compounds (CCC) Set

CLP-011-SET	2 x 1 mL
	CLP-011A, CLP-011B

Base/Neutrals

CLP-011A	1 x 1 mL
2.0 mg/mL each in CH ₂ Cl ₂	7 comps.
Acenaphthene	Hexachlorobutadiene
Benz[a]pyrene	Fluoranthene
1,4-Dichlorobenzene	N-Nitroso-diphenylamine
Di- <i>n</i> -octylphthalate	

Acids

CLP-011B	1 x 1 mL
2.0 mg/mL each in CH ₂ Cl ₂	6 comps.
4-Chloro-3-methylphenol	Pentachlorophenol
2,4-Dichlorophenol	Phenol
2-Nitrophenol	2,4,6-Trichlorophenol

Base/Neutrals & Acids Matrix Standard Spiking Sets

CLP-007-R-SET	2 x 1 mL
CLP-007-R-SET-PAK	5 x (2 x 1 mL)
	CLP-007A, CLP-007-2
CLP-007-SET	2 x 1 mL
	CLP-007A, CLP-007B

Base/Neutrals

CLP-007A	1 x 1 mL
1.0 mg/mL each in MeOH	6 comps.
Acenaphthene	N-Nitroso-di- <i>n</i> -propylamine
1,4-Dichlorobenzene	Pyrene
2,4-Dinitrotoluene	1,2,4-Trichlorobenzene

Acids

CLP-007-2	1 x 1 mL
1.5 mg/mL each in MeOH	5 comps.
CLP-007B	1 x 1 mL
2.0 mg/mL each in MeOH	5 comps.
2-Chlorophenol	Pentachlorophenol
4-Chloro-3-methylphenol	Phenol
4-Nitrophenol	

Surrogate Standard

CLP-BNS-3-2X	1 x 1 mL
2.0 mg/mL each in CH ₂ Cl ₂	
4-Terphenyl-d ₁₄	

Matrix Spike (SW 846 / Method 8270C/D)

CLP-007-WL-50ML	1 x 50 mL		
At stated conc. (µg/mL) in MeOH	11 comps.		
4-Chloro-3-methyl phenol	200	1,4-Dichlorobenzene	100
2-Chlorophenol	200	2,4-Dinitrotoluene	100
4-Nitrophenol	200	N-Nitrosodi- <i>n</i> -propylamine	100
Pentachlorophenol	200	Pyrene	100
Phenol	200	1,2,4-Trichlorobenzene	100
Acenaphthene	100		

Internal Standards Mixture

Z-014J	1 x 1 mL
Z-014J-PAK	5 x 1 mL
4.0 mg/mL each in CH ₂ Cl ₂	6 comps.
Acenaphthene-d ₁₀	Naphthalene-d ₈
Chrysene-d ₁₂	Perylene-d ₁₂
1,4-Dichlorobenzene-d ₄	Phenanthrene-d ₁₀

SAVE

System Performance Check Compounds (SPCC)

CLP-010	1 x 1 mL
0.2 mg/mL each in CH ₂ Cl ₂	
CLP-010-10X	1 x 1 mL
2.0 mg/mL each in CH ₂ Cl ₂	4 comps.
2,4-Dinitrophenol	4-Nitrophenol
Hexachlorocyclopentadiene	N-nitroso-di- <i>n</i> -propylamine

Semi-Volatile Organic Extract Calibration (Screening Mix)

CLP-009	1 x 1 mL
0.1 mg/mL each in CH ₂ Cl ₂	
CLP-009-10X	1 x 1 mL
1.0 mg/mL each in CH ₂ Cl ₂	3 comps.
Di- <i>n</i> -octylphthalate	Phenol
Phenanthrene	

Initial Calibration Target Compounds List

CLP-012	1 x 1 mL
2.0 mg/mL each in CH ₂ Cl ₂	9 comps.
Benzoic acid	4-Nitroaniline
2,4-Dinitrophenol	4-Nitrophenol
4,6-Dinitro-2-methylphenol	Pentachlorophenol
2-Nitroaniline	2,4,5-Trichlorophenol
3-Nitroaniline	

Acid Surrogate Standard

CLP-AS	1 x 1 mL
CLP-AS-PAK	5 x 1 mL
2.0 mg/mL each in MeOH	3 comps.
CLP-AS-10X	1 x 1 mL
CLP-AS-10X-PAK	5 x 1 mL
20 mg/mL each in MeOH	3 comps.
2-Fluorophenol	2,4,6-Tribromophenol
Phenol-d ₅	

SAVE

SAVE

Base/Neutrals Surrogate Standard

CLP-BNS	1 x 1 mL
CLP-BNS-PAK	5 x 1 mL
1.0 mg/mL each in CH ₂ Cl ₂	
CLP-BNS-10X	1 x 1 mL
CLP-BNS-10X-PAK	5 x 1 mL
2.0 mg/mL each in CH ₂ Cl ₂	3 comps.
2-Fluorobiphenyl	<i>p</i> -Terphenyl-d ₁₄
Nitrobenzene-d ₅	

SAVE

SAVE

Matrix Spike (3/90 SOW / Method 8270C/D)

CLP-007R-WL-50ML	1 x 50 mL		
At stated conc. (µg/mL) in MeOH	11 comps.		
4-Chloro-3-methyl phenol	150	1,4-Dichlorobenzene	100
2-Chlorophenol	150	2,4-Dinitrotoluene	100
4-Nitrophenol	150	N-Nitrosodi- <i>n</i> -propylamine	100
Pentachlorophenol	150	Pyrene	100
Phenol	150	1,2,4-Trichlorobenzene	100
Acenaphthene	100		

Base/Neutral & Acid Composite Mixtures

For CLP Semi-Volatiles Analysis

August 1994 Statement of Work

Acid Surrogate Standards

CLP-029 1 x 1 mL
CLP-029-PAK 5 x 1 mL
 2.0 mg/mL each in MeOH **SAVE** 4 comps.

CLP-029-0.75X 1 x 1 mL
CLP-029-0.75X-PAK 5 x 1 mL
 1.5 mg/mL each in MeOH **SAVE** 4 comps.

2-Chlorophenol-d₄ Phenol-d₅
 2-Fluorophenol 2,4,6-Tribromophenol

Semi-Volatile Surrogate Mixes

CLP-031-R 1 x 1 mL
CLP-031-R-PAK 5 x 1 mL
 At stated conc. (mg/mL) in MeOH:CH₂Cl₂ (50:50) **SAVE** 8 comps.

2-Chlorophenol-d ₄	1.5	Nitrobenzene-d ₅	1.0
1,2-Dichlorobenzene-d ₄	1.0	Phenol-d ₅	1.5
2-Fluorobiphenyl	1.0	<i>p</i> -Terphenyl-d ₁₄	1.0
2-Fluorophenol	1.5	2,4,6-Tribromophenol	1.5

CLP-031-R2 1 x 1 mL
CLP-031-R2-PAK 5 x 1 mL
 2000 µg/mL each in CH₂Cl₂ **SAVE** 8 comps.

2-Chlorophenol-d ₄		Nitrobenzene-d ₅	
1,2-Dichlorobenzene-d ₄		Phenol-d ₅	
2-Fluorobiphenyl		<i>p</i> -Terphenyl-d ₁₄	
2-Fluorophenol		2,4,6-Tribromophenol	

Base/Neutral Surrogate Standard

CLP-030 1 x 1 mL
CLP-030-PAK 5 x 1 mL
 1.0 mg/mL each in CH₂Cl₂ **SAVE** 4 comps.

1,2-Dichlorobenzene-d ₄	Nitrobenzene-d ₅
2-Fluorobiphenyl	<i>p</i> -Terphenyl-d ₁₄

Instrument Performance Check Solution

CLP-033 1 x 1 mL
CLP-033-PAK 5 x 1 mL
 0.25 mg/mL in CH₂Cl₂ **SAVE**

Decafluorotriphenylphosphine (DFTPP)

GC/MS Tuning Solution

CLP-TS 1 x 1 mL
CLP-TS-PAK 5 x 1 mL
 50 µg/mL in CH₂Cl₂ **SAVE**

Perfluorokerosene

GPC Solutions for Sample Clean-up

Semi-Volatiles (Gel Permeation)

GPC Calibration Standard Solution

CLP-027 1 x 1 mL
CLP-027-PAK 5 x 1 mL
 At stated conc. (mg/mL) in CH₂Cl₂ **SAVE** 5 comps.

Corn Oil	250	Perylene	0.2
bis(2-Ethylhexyl)phthalate	10	Sulfur	0.8
Methoxychlor	2		

8/94 SOW OLM03.1

CLP-027-R2 1 x 1 mL
CLP-027-R2-PAK 5 x 1 mL
 At stated conc. (mg/mL) in CH₂Cl₂ **SAVE** 5 comps.

Corn Oil	250	Perylene	0.2
bis(2-Ethylhexyl)phthalate	5	Sulfur	0.8
Methoxychlor	1		

Method 3640 - GPC Calibration Solutions and Set

Method 3640
GPC Calibration Set
CLP-008-R-SET 2 x 1 mL
 CLP-008A, CLP-008B-R

Solution A

CLP-008A 1 x 1 mL
 200 mg/mL in CH₂Cl₂
 Corn Oil

Solution B

CLP-008B-R 1 x 1 mL
 4.0 mg/mL each in CH₂Cl₂ 2 comps.
 bis(2-Ethylhexyl)phthalate Pentachlorophenol



Low Concentration SOW Semi-Volatiles

Base/Neutrals - Mix #1

Z-014A-LC 1 x 1 mL
2.0 mg/mL each in CH₂Cl₂ 13 comps.

- 4-Bromophenyl phenyl ether
- Butyl benzyl phthalate
- bis(2-Chloroethoxy)methane
- bis(2-Chloroethyl) ether
- bis(2-Chloro-1-methylethyl) ether
- 4-Chlorophenyl phenyl ether
- Diethyl phthalate
- Dimethyl phthalate
- Di-*n*-butyl phthalate
- Di-*n*-octyl phthalate
- bis(2-Ethylhexyl)phthalate
- N-Nitrosodiphenylamine
- N-Nitrosodi-*n*-propylamine

Base/Neutrals - Mix #2

Z-014B-LC 1 x 1 mL
2.0 mg/mL each in CH₂Cl₂ 14 comps.

- 4-Chloroaniline
- 2-Chloronaphthalene
- Dibenzofuran
- 3,3'-Dichlorobenzidine †
- 2,4-Dinitrotoluene
- 2,6-Dinitrotoluene
- Hexachlorobenzene
- Hexachlorobutadiene
- Hexachlorocyclopentadiene
- Hexachloroethane
- Isophorone
- 2-Methylnaphthalene
- Nitrobenzene
- 1,2,4-Trichlorobenzene

Base/Neutrals - Mix #3

Z-014K-LC 1 x 1 mL
2.0 mg/mL each in CH₂Cl₂ 8 comps.

- 2,4-Dinitrophenol
- 2-Methyl-4,6-dinitrophenol
- 2-Nitroaniline
- 3-Nitroaniline
- 4-Nitroaniline
- 4-Nitrophenol
- Pentachlorophenol
- 2,4,5-Trichlorophenol

† Subject to oxidation

Polynuclear Aromatic Hydrocarbon Mix

Z-014G 1 x 1 mL
Z-014G-PAK 5 x 1 mL **SAVE**
2.0 mg/mL each in CH₂Cl₂:Benzene (50:50) 16 comps.

- | | |
|----------------------|------------------------|
| Acenaphthene | Chrysene |
| Acenaphthylene | Dibenz[a,h]anthracene |
| Anthracene | Fluoranthene |
| Benz[a]anthracene | Fluorene |
| Benz[a]pyrene | Indeno[1,2,3-cd]pyrene |
| Benzo[b]fluoranthene | Naphthalene |
| Benzo[g,h,i]perylene | Phenanthrene |
| Benzo[k]fluoranthene | Pyrene |

Phenols Mixture

Z-014H-LC 1 x 1 mL
Z-014H-LC-PAK 5 x 1 mL **SAVE**
2.0 mg/mL each in CH₂Cl₂ 9 comps.

- | | |
|-------------------------|-----------------------|
| 4-Chloro-3-methylphenol | 4-Methylphenol |
| 2-Chlorophenol | 2-Nitrophenol |
| 2,4-Dichlorophenol | Phenol |
| 2,4-Dimethylphenol | 2,4,6-Trichlorophenol |
| 2-Methylphenol | |

Laboratory Control Sample Spiking Solution

CLP-LCS-SV-SET 2 x 1 mL
CLP-LCS-SV-R1 1 x 1 mL
At stated conc.(µg/mL) in Acetone:MeOH (90:10) 14 comps.

- | | |
|--------------------------------------|----|
| Benz[a]pyrene | 20 |
| 2-Chlorophenol | 40 |
| bis(2-Chloroethyl) ether | 20 |
| Diethylphthalate | 20 |
| 2,4-Dinitrotoluene | 20 |
| Hexachlorobenzene | 20 |
| Hexachloroethane | 20 |
| Isophorone | 20 |
| Naphthalene | 20 |
| N-Nitrosos-di- <i>n</i> -propylamine | 20 |
| N-Nitrosodiphenylamine | 20 |
| Phenol | 40 |
| 1,2,4-Trichlorobenzene | 20 |
| 2,4,6-Trichlorophenol | 40 |

CLP-LCS-SV-ADD 1 x 1 mL
40 µg/mL in Acetone:MeOH (90:10)

- 4-Chloroaniline

Tuning Solution

M-625C-3-2X 1 x 1 mL
50 µg/mL in CH₂Cl₂
Decafluorotriphenylphosphine (DFTPP)

Internal Standard

Z-014J-0.5X 1 x 1 mL
Z-014J-0.5X-PAK 5 x 1 mL **SAVE**
2.0 mg/mL each in CH₂Cl₂ 6 comps.

- Acenaphthene-d₁₀
- Chrysene-d₁₂
- 1,4-Dichlorobenzene-d₄
- Naphthalene-d₈
- Perylene-d₁₂
- Phenanthrene-d₁₀

Surrogate Standards

CLP-LC-SS-1 1 x 1 mL
CLP-LC-SS-1-PAK 5 x 1 mL **SAVE**
2.0 mg/mL each in MeOH:CH₂Cl₂ (20:80) 5 comps.

- 2-Fluorobiphenyl
- 2-Fluorophenol
- Nitrobenzene-d₅
- Phenol-d₅
- p*-Terphenyl-d₁₄

CLP-LC-SS-2 1 x 1 mL
CLP-LC-SS-2-PAK 5 x 1 mL **SAVE**
6.0 mg/mL in MeOH

- 2,4,6-Tribromophenol



CLP OLM 04.1 and 04.2 - Semi-Volatiles

CLP OLM 04.1 and 04.2 Base Neutrals

CLP-HC-SVR-SET 3 x 1 mL
CLP-HC-SV-MIX1, CLP-HC-SV-MIX2, CLP-HC-SV-MIX4

Base Neutrals Mix #1

CLP-HC-SV-MIX1 1 x 1 mL
2000 µg/mL each in CH₂Cl₂ 13 comps.

Benzyl butyl phthalate	Diethyl phthalate
4-Bromophenyl phenyl ether	Dimethyl phthalate
bis(2-Chloroethoxy) methane	Di- <i>n</i> -octyl phthalate
bis(2-Chloroethyl) ether	bis(2-Ethylhexyl)phthalate
bis(2-Chloroisopropyl) ether	N-Nitrosodiphenylamine
4-Chlorophenyl phenyl ether	N-Nitrosodi- <i>n</i> -propylamine
Dibutyl phthalate	

CLP Base Neutral & PAH Mix #2

CLP-HC-SV-MIX2 1 x 1 mL
2000 µg/mL each in CH₂Cl₂: Benzene (75:25) 31 comps.

Acenaphthene	Dibenz[a,h]anthracene
Acenaphthylene	2,4-Dinitrotoluene
Acetophenone	2,6-Dinitrotoluene
Anthracene	Fluoranthene
Atrazine	Fluorene
Benzaldehyde	Hexachlorobenzene
Benz[a]anthracene	Hexachlorobutadiene
Benzo[b]fluoranthene	Hexachlorocyclopentadiene
Benzo[k]fluoranthene	Hexachloroethane
Benzo[g,h,i]perylene	Indeno[1,2,3-cd]pyrene
Benz[a]pyrene	Isophorone
Biphenyl	Naphthalene
ε-Caprolactam	Nitrobenzene
Carbazole	Phenanthrene
2-Chloronaphthalene	Pyrene
Chrysene	

CLP Toxic Substance Mix #4

CLP-HC-SV-MIX4 1 x 1 mL
2000 µg/mL each in CH₂Cl₂ 7 comps.

4-Chloroaniline	2-Nitroaniline
Dibenzofuran	3-Nitroaniline
3,3'-Dichlorobenzidine †	4-Nitroaniline
2-Methylnaphthalene	

† Subject to oxidation

Phenols

CLP-HC-A-R5 1 x 1 mL
CLP-HC-A-R5-PAK SAVE 5 x 1 mL
2000 µg/mL each in CH₂Cl₂ 14 comps.

4-Chloro-3-methylphenol	<i>p</i> -Cresol
2,4-Dichlorophenol	2-Nitrophenol
2,4-Dimethylphenol	4-Nitrophenol
2,4-Dinitrophenol	Pentachlorophenol
2-Chlorophenol	Phenol
2-Methyl-4,6-dinitrophenol	2,4,5-Trichlorophenol
<i>o</i> -Cresol	2,4,6-Trichlorophenol

Base/Neutral Matrix Spike Solution

CLP-BN-MS 1 x 1 mL
CLP-BN-MS-PAK SAVE 5 x 1 mL
1000 µg/mL each in MeOH 4 comps.

Acenaphthene	N-Nitrosodi- <i>n</i> -propylamine
2,4-Dinitrotoluene	Pyrene

Semi-Volatile Organic Extract Calibration (Screening Mix)

CLP-009-10X 1 x 1 mL
1.0 mg/mL each in CH₂Cl₂ 3 comps.

Di- <i>n</i> -octylphthalate	Phenol
Phenanthrene	

Instrument Performance Check Solution

CLP-033 1 x 1 mL
CLP-033-PAK SAVE 5 x 1 mL
0.25 mg/mL in CH₂Cl₂

Decafluorotriphenylphosphine (DFTPP)

Acids

CLP-007-2 1 x 1 mL
1.5 mg/mL each in MeOH 5 comps.

2-Chlorophenol	Pentachlorophenol
4-Chloro-3-methylphenol	Phenol
4-Nitrophenol	

Internal Standards Mixture

Z-014J 1 x 1 mL
Z-014J-PAK SAVE 5 x 1 mL
4.0 mg/mL each in CH₂Cl₂ 6 comps.

Acenaphthene-d ₁₀	Naphthalene-d ₈
Chrysene-d ₁₂	Perylene-d ₁₂
1,4-Dichlorobenzene-d ₄	Phenanthrene-d ₁₀

Semi-Volatile Surrogate Mixture

CLP-031-R 1 x 1 mL
CLP-031-R-PAK SAVE 5 x 1 mL
At stated conc. (mg/mL) in MeOH:CH₂Cl₂ (50:50) 8 comps.

2-Chlorophenol-d ₄	1.5	Nitrobenzene-d ₅	1.0
1,2-Dichlorobenzene-d ₄	1.0	Phenol-d ₅	1.5
2-Fluorobiphenyl	1.0	<i>p</i> -Terphenyl-d ₁₄	1.0
2-Fluorophenol	1.5	2,4,6-Tribromophenol	1.5

Pesticides Mixture

Z-014C-R 1 x 1 mL
Z-014C-R-PAK SAVE 5 x 1 mL
2.0 mg/mL each in Toluene:Hexane (50:50) 20 comps.

Aldrin	4,4'-DDD	Endrin
α-BHC	4,4'-DDE	Endrin aldehyde
β-BHC	4,4'-DDT	Endrin ketone
γ-BHC	Dieldrin	Heptachlor
δ-BHC	Endosulfan I	Heptachlor epoxide
α-Chlordane	Endosulfan II	(Isomer B)
γ-Chlordane	Endosulfan sulfate	Methoxychlor

Technical Note

Poor recoveries for endrin and DDT can result from injector port liner degradation. Try replacing the liner and seal. Most times this will correct the problem. Removing the first few inches of a capillary column can also help. Since elevated temperatures contribute to the breakdown problem, using a lower injection port temperature may improve this issue.

CLP Surrogate Spiking Solution

CLP-031-R-WL-25ML 1 x 25 mL
CLP-031-R-WL-50ML 1 x 50 mL
At stated conc. (µg/mL) in MeOH 8 comps.

2-Chlorophenol-d ₄	150	Nitrobenzene-d ₅	100
1,2-Dichlorobenzene-d ₄	100	Phenol-d ₆	150
2-Fluorobiphenyl	100	<i>p</i> -Terphenyl-d ₁₄	100
2-Fluorophenol	150	2,4,6-Tribromophenol	150

Contract Laboratory Program (CLP)

Pesticide Mixtures

CLP

CLP - Pesticide Mixtures

Pesticide Set

CLP-018/019-10X-SET 2 x 1 mL
CLP-018-10X, CLP-019-10X

CLP-018-10X 1 x 1 mL
CLP-018-10X-PAK 5 x 1 mL
At stated conc. (µg/mL) in Isooctane 11 comps.

Aldrin	1.0	Endosulfan II	2.0
γ-BHC	0.5	Endrin aldehyde	2.5
p,p'-DDT	2.0	Heptachlor	1.0
Dibutylchloredate	5.0	Heptachlor epoxide (Isomer B)	1.0
Dieldrin	1.0	Methoxychlor	10
Endosulfan I	1.0		

CLP-019-10X 1 x 1 mL
CLP-019-10X-PAK 5 x 1 mL
At stated conc. (µg/mL) in Isooctane 12 comps.

Aldrin	1.0	p,p'-DDD	2.0
α-BHC	0.5	p,p'-DDE	1.0
β-BHC	1.0	Dibutylchloredate	5.0
δ-BHC	1.0	Endosulfan sulfate	2.0
α-Chlordane	1.0	Endrin	1.0
γ-Chlordane	1.0	Endrin ketone	2.0

CLP - Pesticide Surrogates

CLP-032-R 1 x 1 mL
CLP-032-R-PAK 5 x 1 mL
200 µg/mL each in Acetone 2 comps.
Decachlorobiphenyl Tetrachloro-*m*-xylene

CLP-034 1 x 1 mL
CLP-034-PAK 5 x 1 mL
200 µg/mL each in Acetone 2 comps.
Dibutylchloredate Tetrachloro-*m*-xylene

CLP-PES-A 1 x 1 mL
CLP-PES-A-PAK 5 x 1 mL
200 µg/mL in Acetone
CLP-PES-A-20X 1 x 1 mL
4000 µg/mL in Acetone
Dibutylchloredate

Pesticide Calibration Mixtures - Statement of Work 2/88 to 8/94

Working Level Pesticide Standard

At stated conc. (ng/mL) in Isooctane 11 comps.

Compound	Level 1	2	3	4	5
α-BHC	50	200	500	1,500	8,000
γ-BHC	50	200	500	1,500	8,000
p,p'-DDD	100	400	1,000	3,000	16,000
p,p'-DDT	100	400	1,000	3,000	16,000
Decachlorobiphenyl	100	400	1,000	3,000	16,000
Dieldrin	100	400	1,000	3,000	16,000
Endosulfan I	50	200	500	1,500	8,000
Endrin	100	400	1,000	3,000	16,000
Heptachlor	50	200	500	1,500	8,000
Methoxychlor	500	2,000	5,000	15,000	80,000
Tetrachloro- <i>m</i> -xylene	50	200	500	1,500	8,000

Level 1	CLP-023R	1 mL
Level 2	CLP-023R-4X	1 mL
Level 3	CLP-023R-10X	1 mL
Level 4	CLP-023R-30X	1 mL
Level 5	CLP-023R-160X	1 mL

Level 2 Daily QC (for mid level curves)

CLP-023R-WL-4X-10ML 1 x 10 mL
CLP-023R-WL-4X-25ML 1 x 25 mL
CLP-023R-WL-4X-100ML 1 x 100 mL
At stated conc. (ng/mL) in Isooctane 11 comps.

α-BHC	20	Endosulfan I	20
γ-BHC	20	Endrin	40
p,p'-DDD	40	Heptachlor	20
p,p'-DDT	40	Methoxychlor	200
Decachlorobiphenyl	40	Tetrachloro- <i>m</i> -xylene	20
Dieldrin	40		

Working Level Pesticide Standard

At stated conc. (ng/mL) in Isooctane 13 comps.

Compound	Level 1	2	3	4	5
Aldrin	50	200	500	1,500	8,000
β-BHC	50	200	500	1,500	8,000
δ-BHC	50	200	500	1,500	8,000
α-Chlordane	50	200	500	1,500	8,000
γ-Chlordane	50	200	500	1,500	8,000
p,p'-DDE	100	400	1,000	3,000	16,000
Decachlorobiphenyl	100	400	1,000	3,000	16,000
Endosulfan II	100	400	1,000	3,000	16,000
Endosulfan sulfate	100	400	1,000	3,000	16,000
Endrin aldehyde	100	400	1,000	3,000	16,000
Endrin ketone	100	400	1,000	3,000	16,000
Heptachlor epoxide (Isomer B)	50	200	500	1,500	8,000
Tetrachloro- <i>m</i> -xylene	50	200	500	1,500	8,000

Level 1	CLP-024R	1 mL
Level 2	CLP-024R-4X	1 mL
Level 3	CLP-024R-10X	1 mL
Level 4	CLP-024R-30X	1 mL
Level 5	CLP-024R-160X	1 mL

Level 2 Daily QC (for mid level curves)

CLP-024R-WL-4X-10ML 1 x 10 mL
CLP-024R-WL-4X-25ML 1 x 25 mL
CLP-024R-WL-4X-100ML 1 x 100 mL
At stated conc. (ng/mL) in Isooctane 13 comps.

Aldrin	20	Endosulfan II	40
β-BHC	20	Endosulfan sulfate	40
δ-BHC	20	Endrin aldehyde	40
α-Chlordane	20	Endrin ketone	40
γ-Chlordane	20	Heptachlor epoxide (Isomer B)	20
p,p'-DDE	40	Tetrachloro- <i>m</i> -xylene	20
Decachlorobiphenyl	40		

Ready-to-Inject

Pesticide Calibration Sets

CLP-023R/024R-SET 2 x 1 mL
CLP-023R, CLP-024R

CLP-023R/024R-40X-SET 2 x 1 mL
CLP-023R-40X, CLP-024R-40X

CLP-023R/024R-4X-SET 2 x 1 mL
CLP-023R-4X, CLP-024R-4X

CLP-023R/024R-160X-SET 2 x 1 mL
CLP-023R-160X, CLP-024R-160X

CLP - Pesticides

Evaluation Standard Mixture

CLP-017			1 x 1 mL
CLP-017-PAK	SAVE		5 x 1 mL
At stated conc. (µg/mL) in Isooctane			
Aldrin	1	Dibutylchlorendate	1
4,4'-DDT	2	Endrin	2
4 comps.			

Florisil Cartridge Check Solution

CLP-FC			1 x 1 mL
CLP-FC-PAK	SAVE		5 x 1 mL
100 µg/mL in Acetone			
2,4,5-Trichlorophenol			

Pesticide Matrix Spiking Solutions

CLP-026-R2			1 x 1 mL
CLP-026-R2-PAK	SAVE		5 x 1 mL
At stated conc. (µg/mL) in Acetone			
Aldrin	5	Dieldrin	10
γ-BHC	5	Endrin	10
4,4'-DDT	10	Heptachlor	5
6 comps.			

CLP-026-R2-10X

CLP-026-R2-10X-PAK	SAVE		1 x 1 mL
At stated conc. (µg/mL) in Acetone			
Aldrin	50	Dieldrin	100
γ-BHC	50	Endrin	100
4,4'-DDT	100	Heptachlor	50
6 comps.			

Pesticide Matrix Spiking Solution

CLP-026-R2-WL			1 x 1 mL
CLP-026-R2-WL-25ML			1 x 25 mL
CLP-026-R2-WL-50ML			1 x 50 mL
At stated conc. (µg/mL) in Acetone			
Aldrin	0.5	Dieldrin	1.0
γ-BHC	0.5	Endrin	1.0
4,4'-DDT	1.0	Heptachlor	0.5
6 comps.			

Resolution Check Solution

CLP-028-WL			1 x 1 mL
CLP-028-WL-10ML			1 x 10 mL
At stated conc. (ng/mL) in Isooctane			
γ-Chlordane	10	Endosulfan sulfate	20
Endosulfan I	10	Endrin ketone	20
p,p'-DDE	20	Methoxychlor	100
Decachlorobiphenyl	20	Tetrachloro- <i>m</i> -xylene	20
Dieldrin	20		
9 comps.			

Performance Evaluation Solution

CLP-025			1 x 1 mL
CLP-025-PAK	SAVE		5 x 1 mL
At stated conc. (ng/mL) in Isooctane			
α-BHC	100	Decachlorobiphenyl	200
β-BHC	100	Endrin	500
γ-BHC	100	Methoxychlor	2500
4,4'-DDT	1000	Tetrachloro- <i>m</i> -xylene	200
8 comps.			

Resolution Mixture

CLP-028			1 x 1 mL
CLP-028-PAK	SAVE		5 x 1 mL
At stated conc. (ng/mL) in Isooctane			
γ-Chlordane	100	Endosulfan sulfate	200
Endosulfan I	100	Endrin ketone	200
p,p'-DDE	200	Methoxychlor	1000
Decachlorobiphenyl	200	Tetrachloro- <i>m</i> -xylene	200
Dieldrin	200		
9 comps.			

High Conc. Pesticide Matrix Spiking Solutions

For Water			
CLP-014-1000X			1 x 1 mL
CLP-014-1000X-PAK	SAVE		5 x 1 mL
At stated conc. (µg/mL) in MeOH			
Aldrin	200	Endrin	500
4,4'-DDT	500	Heptachlor	200
Dieldrin	500	Lindane	200
6 comps.			

For Soil/Sediment

CLP-016-1000X			1 x 1 mL
CLP-016-1000X-PAK	SAVE		5 x 1 mL
At stated conc. (µg/mL) in MeOH			
Aldrin	2,000	Endrin	5,000
4,4'-DDT	5,000	Heptachlor	2,000
Dieldrin	5,000	Lindane	2,000
6 comps.			

Laboratory Control Sample Spiking Solution

CLP-LCS-P-1000X			1 x 1 mL
CLP-LCS-P-1000X-PAK	SAVE		5 x 1 mL
At stated conc. (µg/mL) in Acetone			
γ-BHC	100	Endosulfan sulfate	200
γ-Chlordane	100	Endrin	200
Dieldrin	200	Heptachlor epoxide	100
4,4'-DDE	200		
7 comps.			

Performance Evaluation Solution

CLP-025-WL			1 x 1 mL
CLP-025-WL-10ML			1 x 10 mL
At stated conc. (ng/mL) in Isooctane			
α-BHC	10	Decachlorobiphenyl	20
β-BHC	10	Endrin	50
γ-BHC	10	Methoxychlor	250
4,4'-DDT	100	Tetrachloro- <i>m</i> -xylene	20
8 comps.			

PREP NOTES

The addition of 1 mL of surrogate spiking mixture to each sample is sufficient to check the extraction efficiency.

Pesticide Surrogate Mixtures

CLP-032R-WL-0.2X-10ML			1 x 10 mL
CLP-032R-WL-0.2X-50ML			1 x 50 mL
CLP-032R-WL-0.2X-100ML			1 x 100 mL
0.2 µg/mL each in Acetone			
Decachlorobiphenyl		Tetrachloro- <i>m</i> -xylene	2 comps.

Pesticide and PCBs

Performance Evaluation Solution

CLP-025			1 x 1 mL
CLP-025-PAK	SAVE		5 x 1 mL
At stated conc. (ng/mL) in Isooctane			
α-BHC	100	Decachlorobiphenyl	200
β-BHC	100	Endrin	500
γ-BHC	100	Methoxychlor	2500
4,4'-DDT	1000	Tetrachloro- <i>m</i> -xylene	200
8 comps.			

Resolution Mixture

CLP-028			1 x 1 mL
CLP-028-PAK	SAVE		5 x 1 mL
At stated conc. (ng/mL) in Isooctane			
γ-Chlordane	100	Endosulfan sulfate	200
Endosulfan I	100	Endrin ketone	200
p,p'-DDE	200	Methoxychlor	1000
Decachlorobiphenyl	200	Tetrachloro- <i>m</i> -xylene	200
Dieldrin	200		
9 comps.			

Polychlorinated Biphenyls, Chlordane & Toxaphene

Each at 1,000 µg/mL in Hexane			
SAVE			
Aroclors#	Cat. No.	1 mL	Cat. No. (5 x 1 mL) PAK
Aroclor 1016	C-216S-H-10X		C-216S-H-10X-PAK
Aroclor 1221	C-221S-H-10X		C-221S-H-10X-PAK
Aroclor 1232	C-232S-H-10X		C-232S-H-10X-PAK
Aroclor 1242	C-242S-H-10X		C-242S-H-10X-PAK
Aroclor 1248	C-248S-H-10X		C-248S-H-10X-PAK
Aroclor 1254	C-254S-H-10X		C-254S-H-10X-PAK
Aroclor 1260	C-260S-H-10X		C-260S-H-10X-PAK
Aroclor 1262	C-262S-H-10X		C-262S-H-10X-PAK
Aroclor 1268	C-268S-H-10X		C-268S-H-10X-PAK
Pesticides			
Chlordane	P-017S-H-10X		P-017S-H-10X-PAK
Toxaphene	P-093S-H-10X		P-093S-H-10X-PAK

Aroclors at Working Levels

Aroclors 1016/1260 with Surrogates

CLP-216/260-WL			1 x 1 mL
CLP-216/260-WL-5ML			1 x 5 mL
CLP-216/260-WL-10ML			1 x 10 mL
At stated conc. (ng/mL) in Isooctane			4 comps.
Aroclor 1016	100	Decachlorobiphenyl	20
Aroclor 1260	100	Tetrachloro- <i>m</i> -xylene	20

Aroclor 1248 with Surrogates

CLP-248-WL			1 x 1 mL
CLP-248-WL-5ML			1 x 5 mL
CLP-248-WL-10ML			1 x 10 mL
At stated conc. (ng/mL) in Isooctane			3 comps.
Aroclor 1248	100	Tetrachloro- <i>m</i> -xylene	20
Decachlorobiphenyl	20		

Aroclor 1221 with Surrogates

CLP-221-WL			1 x 1 mL
CLP-221-WL-5ML			1 x 5 mL
CLP-221-WL-10ML			1 x 10 mL
At stated conc. (ng/mL) in Isooctane			3 comps.
Aroclor 1221	200	Tetrachloro- <i>m</i> -xylene	20
Decachlorobiphenyl	20		

Aroclor 1254 with Surrogates

CLP-254-WL			1 x 1 mL
CLP-254-WL-5ML			1 x 5 mL
CLP-254-WL-10ML			1 x 10 mL
At stated conc. (ng/mL) in Isooctane			3 comps.
Aroclor 1254	100	Tetrachloro- <i>m</i> -xylene	20
Decachlorobiphenyl	20		

Aroclor 1232 with Surrogates

CLP-232-WL			1 x 1 mL
CLP-232-WL-5ML			1 x 5 mL
CLP-232-WL-10ML			1 x 10 mL
At stated conc. (ng/mL) in Isooctane			3 comps.
Aroclor 1232	100	Tetrachloro- <i>m</i> -xylene	20
Decachlorobiphenyl	20		

Toxaphene with Surrogates

P-093-WL-10X-5ML			1 x 5 mL
P-093-WL-10X-10ML			1 x 10 mL
At stated conc. (ng/mL) in Isooctane			3 comps.
Toxaphene	500	Tetrachloro- <i>m</i> -xylene	20
Decachlorobiphenyl	20		

Aroclor 1242 with Surrogates

CLP-242-WL			1 x 1 mL
CLP-242-WL-5ML			1 x 5 mL
CLP-242-WL-10ML			1 x 10 mL
At stated conc. in (ng/mL) Isooctane			3 comps.
Aroclor 1242	100	Tetrachloro- <i>m</i> -xylene	20
Decachlorobiphenyl	20		



Technical Note

The profiles of some Aroclor products may not always look the same, but the percent total chlorine by weight will be identical.

Sample Clean-up Solutions at Working Levels

GPC Calibration Solution

CLP-027-WL-10ML			1 x 10 mL
At stated conc. (mg/mL) in CH ₂ Cl ₂			5 comps.
Corn Oil	25	Perylene	0.02
bis(2-Ethylhexyl)phthalate	1.0	Sulfur	0.08
Methoxychlor	0.2		

Florisil Cartridge Check Solution

CLP-FC-WL-10ML			1 x 10 mL
0.1 µg/mL in Acetone			
2,4,5-Trichlorophenol			

GPC Calibration Solution for 8/94 SOW OLM03.1

CLP-027-R2-WL-10ML			1 x 10 mL
At stated conc. (mg/mL) in CH ₂ Cl ₂			5 comps.
Corn Oil	25	Perylene	0.02
bis(2-Ethylhexyl)phthalate	0.5	Sulfur	0.08
Methoxychlor	0.1		

GPC Calibration Check Solutions

GPC-CC-A-WL-10ML			1 x 10 mL
At stated conc. (µg/mL) in CH ₂ Cl ₂			6 comps.
Aldrin	0.1	Dieldrin	0.2
γ-BHC (Lindane)	0.1	Endrin	0.2
4,4'-DDT	0.2	Heptachlor	0.1

AccuStandard provides the solutions to meet sample clean-up parameters!

GPC-CC-B-WL-10ML			1 x 10 mL
0.2 µg/mL each in CH ₂ Cl ₂			2 comps.
Aroclor 1016		Aroclor 1260	

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- ✓ Fast Turnaround
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- ✓ Custom Standards are a cost and time saving alternative

Custom QC options

1. Gravimetric/Volumetric Certification:

Each compound is measured gravimetrically and QC verified instrumentally (where applicable). Every component in the Standard will be within +/- 0.5% of the requested value unless otherwise stated on the Certificate of Analysis. The solutions are diluted to volume using Class A glassware. A Certificate of Analysis accompanies each Standard and documents the gravimetric values used.

2. Full Quantitative Certification:

This QA/QC method includes extended GC, GC/MS or LC analysis using both internal calibration standards plus statistical analysis.



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See back of the catalog for detailed information

For additional information, contact our Technical Department
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Standard Mixtures for Drinking Water

EPA 500 Series, ASTM Methods and Miscellaneous Methods



Table of Contents

501	Trihalomethanes (ECD or PID/ELCD)	144
502.2	Volatiles (PID/ELCD) & Volatile Surrogates & Internal Standards	144-147
503.1	VOC - Aromatics & Alkenes (PID/ELCD)	148
504	EDB & DBCP (ECD)	148
504.1	EDB, DBCP, TCP (ECD)	148
505	Organohalide Pesticides & Aroclors (ECD)	148
506	Phthalate Esters	148
507	Nitrogen/Phosphorous Pesticides (NPD)	149
508 & 508.A	Chlorinated Pesticides & Aroclors (ECD)	150
508.1	Chlorinated Pesticides, Herbicides & Organo-halides (ECD)	151
509	Ethylene thiourea (ECD)	151
515.1 & 515.2	Chlorinated Pesticides (ECD)	152
515.3 & 515.4	Chlorinated Acids (ECD)	153
521	Nitrosamines (SPE & Capillary Column GC)	154
524.2	Volatiles (GC/MS)	154
524.3	Purgeable Organic Compounds (GC/MS)	154
525.1	Semi-Volatiles, PCB Congeners, Chlorinated Pesticides (GC/MS)	155
525.2	Semi-Volatiles, PCB Congeners, Pesticides (GC/MS)	156-158
526	Semi-Volatiles (GC/MS)	159
527	Pesticides & Flame Retardants (SPE & Capillary GC/MS)	159
528	Phenols (GC/MS)	160
529	Explosives & Related Compounds (SPE & Capillary GC/MS)	160
531 & 531.1	Carbamates (HPLC)	161
532	Phenylureas (HPLC)	161
535	Acetamide-Herbicide Degradates (LCMS)	161
537	Perfluorinated Compounds (PFCs)	162
547	Glyphosate (HPLC)	162
548	Endothall (ECD)	162
548.1	Endothall (GC/MS)	162
549.1/549.2	Diquat & Paraquat (HPLC)	162
550 & 550.1	Polynuclear Aromatic Hydrocarbons (HPLC)	162
551	Chlorinated Solvents, also Trihalomethanes (ECD)	162
551.1A	Disinfection By-products (ECD)	163
552 & 552.1	Haloacetic Acids (ECD)	164
552.2	Haloacetic Acids & Dalapon (ECD)	165
553	Benzidines & Nitrogen Pesticides (HPLC/MS)	166
554	Derivatized Carbonyl Compounds (HPLC)	166
555	Chlorinated Pesticides (HPLC)	166
556 & 556.1	Carbonyl Compounds (GC/ECD)	166
National Primary Drinking Water Standards		167-169
EPA Consent Decree Water Protocol		170
Hazardous Substances List		145
D7598	Thiodiglycol (LC/MS/MS)	167
D7599	Ethanolamines (LC/MS/MS)	167
D7600	Carbamates (LC/MS/MS)	167
D7645	Carbamates (LC/MS/MS)	167

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Match frequently
requested products.

Alternate Source

ASL products can be used as
an independent second source.

Methods 502, 505, 508.1, 525.2

Background Information

In 1974 the Safe Drinking Water Act was passed by the US Congress. Under the Act the US EPA established national standards for drinking water from both surface and ground water sources. The EPA 500 Series Methods have evolved from the passage of the Clean Water Act, and from several amendments to the original Act.

The 500 Series product line contains standards used in proposed and promulgated methods for the identification and quantification of organic compounds in drinking water. The organic compounds listed in the various methods include volatile organic compounds (VOCs), pesticides, synthetic organic compounds (SOCs), and trihalomethane disinfection by-products.

Analytical techniques used in the identification and quantification include gas chromatography with selective detectors (PID, ELCD, ECD, FID, NPD, FPD), gas chromatography/mass spectrometry (GC/MS) and high performance liquid chromatography (HPLC).

Complete analysis of the target compounds with these 500 Series Methods can be accomplished by using the series of standards formulated by AccuStandard for each method along with the required internal and surrogate standards.

For your convenience we offer either large mixes containing all the target analytes, or smaller sub-mixes at higher concentrations to allow for flexibility in your analysis.



EPA Method 500 Series

Method 502

Method 501 Trihalomethane Analysis by P&T-GC/ECD or PID

Trihalomethanes

M-501		1 x 1 mL
M-501-PAK	SAVE	5 x 1 mL
0.2 mg/mL each in MeOH		4 comps.
M-501-10X		1 x 1 mL
M-501-10X-PAK	SAVE	5 x 1 mL
2.0 mg/mL each in MeOH		4 comps.
Bromoform	Dibromochloromethane	
Chloroform	Dichlorobromomethane	

Trihalomethanes Set

M-501-SET	5 x 1 mL
Each at 0.2 mg/mL in MeOH	Set contains
Bromoform	+ M-501 Mix (4 comps.)
Chloroform	
Dibromochloromethane	
Dichlorobromomethane	

Method 502.2 Volatile Organic Compounds by PID/ELCD

54 Liquid Components

Benzene (01)	1,2-Dibromo-3-chloropropane (18)	1,1-Dichloropropene (33)	Toluene (46)
Bromobenzene (02)	1,2-Dibromoethane (19)	<i>cis</i> -1,3-Dichloropropene (34A)	1,2,3-Trichlorobenzene (47)
Bromochloromethane (03)	Dibromomethane (20)	<i>trans</i> -1,3-Dichloropropene (34B)	1,2,4-Trichlorobenzene (48)
Bromodichloromethane (04)	1,2-Dichlorobenzene (21)	Ethylbenzene (35)	1,1,1-Trichloroethane (49)
Bromoform (05)	1,3-Dichlorobenzene (22)	Hexachlorobutadiene (36)	1,1,2-Trichloroethane (50)
<i>n</i> -Butylbenzene (07)	1,4-Dichlorobenzene (23)	Isopropylbenzene (<i>Cumene</i>) (37)	Trichloroethene (51)
<i>sec</i> -Butylbenzene (08)	1,1-Dichloroethane (25)	<i>p</i> -Isopropyltoluene (<i>p-Cymene</i>) (38)	1,2,3-Trichloropropane (53)
<i>tert</i> -Butylbenzene (09)	1,2-Dichloroethane (26)	Methylene chloride (39)	1,2,4-Trimethylbenzene (54)
Carbon tetrachloride (10)	1,1-Dichloroethene (27)	Naphthalene (40)	1,3,5-Trimethylbenzene (55)
Chlorobenzene (11)	<i>cis</i> -1,2-Dichloroethene (28)	<i>n</i> -Propylbenzene (41)	<i>o</i> -Xylene (57)
Chloroform (13)	<i>trans</i> -1,2-Dichloroethene (29)	Styrene (42)	<i>m</i> -Xylene (58)
2-Chlorotoluene (15)	1,2-Dichloropropane (30)	1,1,1,2-Tetrachloroethane (43)	<i>p</i> -Xylene (59)
4-Chlorotoluene (16)	1,3-Dichloropropane (31)	1,1,2,2-Tetrachloroethane (44)	
Dibromochloromethane (17)	2,2-Dichloropropane (32)	Tetrachloroethene (45)	

Certificate will reflect actual cis/trans ratio

6 Gas Components

Bromomethane (06)	Dichlorodifluoromethane (24)
Chloroethane (12)	Trichlorofluoromethane (52)
Chloromethane (14)	Vinyl chloride (56)

These solutions represent a breakdown of Method 502 comps. into groups containing liquid and gaseous components.

All 60 liquid and gas components in One Solution

Liquids and Gases components

M-502	1 x 1 mL
M-502-PAK	SAVE 5 x 1 mL
0.2 mg/mL each in MeOH	60 comps.
M-502-10X	1 x 1 mL
M-502-10X-PAK	SAVE 5 x 1 mL
2.0 mg/mL each in MeOH	60 comps.

Liquids and Gases components plus MtBE

M-502-R1	1 x 1 mL
M-502-R1-PAK	SAVE 5 x 1 mL
0.2 mg/mL each in MeOH	61 comps.

Liquids components plus MtBE

M-502A-R3	1 x 1 mL
0.2 mg/mL each in MeOH	55 comps.
M-502A-R3-10X	1 x 1 mL
2.0 mg/mL each in MeOH	55 comps.

Liquid Components

M-502A-R	1 x 1 mL
M-502A-R-PAK	SAVE 5 x 1 mL
0.2 mg/mL each in MeOH	54 comps.
M-502A-R-10X	1 x 1 mL
M-502A-R-10X-PAK	SAVE 5 x 1 mL
2.0 mg/mL each in MeOH	54 comps.

Gas Components

M-502B	1 x 1 mL
M-502B-PAK	SAVE 5 x 1 mL
0.2 mg/mL each in MeOH	6 comps.
M-502B-10X	1 x 1 mL
M-502B-10X-PAK	SAVE 5 x 1 mL
2.0 mg/mL each in MeOH	6 comps.

54 Liquid and 6 Gas Component Sets

M-502A-R/B-SET	2 x 1 mL
0.2 mg/mL each in MeOH	M-502A-R, M-502B
M-502A-R/B-10X-SET	2 x 1 mL
2.0 mg/mL each in MeOH	M-502A-R-10X, M-502B-10X

59 Component Set

M-502-SET	59 x 1 mL
Each at 0.2 mg/mL in MeOH	
M-502-10X-SET	59 x 1 mL
Each at 2.0 mg/mL in MeOH	

Individual Component Neats

To order, specify identity		Except		
M-502-##N	1 x 1 gram	M-502-##N	1 x 1 gram	
		M-502-04N	M-502-28N	M-502-34N
		M-502-08N	M-502-29N	M-502-43N
		M-502-17N	M-502-31N	M-502-44N
		M-502-18N	M-502-32N	

Individual Component Solutions

To order, specify identity (#) and conc. (0.2 or 2.0 mg/mL)		
M-502-#	Each at 0.2 mg/mL in MeOH	1 x 1 mL
M-502-#-10X	Each at 2.0 mg/mL in MeOH	1 x 1 mL
M-502-34A & M-502-34B only available as mix: M-502-34R		
M-502-34-R		1 x 1 mL
0.4 mg/mL each in MeOH		2 comps.
M-502-34-R-10X		1 x 1 mL
4.0 mg/mL each in MeOH		2 comps.

cis-1,3-Dichloropropene *trans*-1,3-Dichloropropene

Certificate will reflect actual cis/trans ratio

Technical Note

Solutions containing volatile components (such as gases) should be chilled before opening to ensure gases are in the solution. In order to maintain high quality standards, any transferred volume should have minimal headspace and PTFE septa caps should be replaced often if pierced.



Method 502.2 VOCs by PID/ELCD (continued)

Internal & Surrogate Standard

M-502-IS/SS 1 x 1 mL
M-502-IS/SS-PAK 5 x 1 mL
 2.0 mg/mL each in MeOH 4 comps.

SAVE

1-Chloro-3-fluorobenzene	Fluorobenzene
2-Chloropropane	α,α,α -Trifluorotoluene

Technical Note

M-502-IS/SS is useful for DB-624/VRX analysis by GC/ELCD/PID. 2-Chloropropane has been included in the standard to be used as an early eluting Internal Standard. The use of this Internal Standard aids in quantitating the gaseous components in purgeable volatiles.

Internal/Surrogate Standard

M-502-IS-ASL 1 x 1 mL
M-502-IS-ASL-PAK 5 x 1 mL
 2.0 mg/mL each in MeOH 2 comps.

Alternate Source

SAVE

2-Bromo-1-chloropropane	1-Chloro-2-fluorobenzene
-------------------------	--------------------------

o,m,p-Xylenes Mix

M-502-60 1 x 1 mL
 0.2 mg/mL in MeOH 3 comps.

M-502-60-10X 1 x 1 mL
 2.0 mg/mL in MeOH 3 comps.

o-Xylene	p-Xylene
m-Xylene	

Match frequently requested products.

Alternate Source

ASL products can be used as an independent second source.

Hazardous Substance List (HSL) Volatiles Mix

M-HSL * 1 x 1 mL
 2.0 mg/mL each in MeOH 8 comps.

Acetone	4-Methyl-2-pentanone
2-Butanone	Styrene
Carbon disulfide	Vinyl acetate
2-Hexanone	o-Xylene

* ColdPAK required to maintain integrity of product.

Method 502 Unregulated VOC Mix

M-502C-09 1 x 1 mL
 2.0 mg/mL each in MeOH 39 comps.

Bromobenzene	1,1-Dichloropropene
Bromochloromethane	cis-1,3-Dichloropropene
Bromodichloromethane	trans-1,3-Dichloropropene
Bromoform	Hexachlorobutadiene
Bromomethane	Isopropylbenzene (<i>Cumene</i>)
n-Butylbenzene	p-Isopropyltoluene (<i>p-Cymene</i>)
sec-Butylbenzene	Dichloromethane (<i>Methylene chloride</i>)
tert-Butylbenzene	Naphthalene
Chloroethane	n-Propylbenzene
Chloroform	1,1,1,2-Tetrachloroethane
Chloromethane	1,1,2,2-Tetrachloroethane
2-Chlorotoluene	1,2,3-Trichlorobenzene
4-Chlorotoluene	1,2,4-Trichlorobenzene
Dibromochloromethane	1,1,2-Trichloroethane
Dibromomethane	Trichlorofluoromethane
1,3-Dichlorobenzene	1,2,3-Trichloropropene
Dichlorodifluoromethane	1,2,4-Trimethylbenzene
1,1-Dichloroethane	1,3,5-Trimethylbenzene (<i>Mesitylene</i>)
1,2-Dichloropropane	
1,3-Dichloropropane	
2,2-Dichloropropane	

Certificate will reflect actual cis/trans ratio

The following solutions represent an alternate source formulation of Method 502/524 components based on similar volatility groups.

Method 502 VOC ASL Set

M-502-K1-SET 6 x 1 mL
 M-502B-10X, M-502C-02, M-502C-03
 M-502C-04, M-502C-05, M-502C-06

M-502B-10X 1 x 1 mL
M-502B-10X-PAK 5 x 1 mL
 2.0 mg/mL each in MeOH 6 comps.

Alternate Source

SAVE

Bromomethane	Dichlorodifluoromethane
Chloroethane	Trichlorofluoromethane
Chloromethane	Vinyl chloride

M-502C-02 1 x 1 mL
M-502C-02-PAK 5 x 1 mL
 2.0 mg/mL each in MeOH 6 comps.

Alternate Source

SAVE

Bromodichloromethane	cis-1,2-Dichloroethylene
Dibromochloromethane	trans-1,2-Dichloroethylene
1,1,-Dichloroethylene	Methylene chloride

Certificate will reflect actual cis/trans ratio

M-502C-03 1 x 1 mL
M-502C-03-PAK 5 x 1 mL
 2.0 mg/mL each in MeOH 9 comps.

Alternate Source

SAVE

Bromochloromethane	1,1-Dichloroethane
Bromoform	2,2-Dichloropropane
Carbon tetrachloride	Tetrachloroethylene
Chloroform	1,1,1-Trichloroethane
Dibromomethane	

M-502C-04 1 x 1 mL
M-502C-04-PAK 5 x 1 mL
 2.0 mg/mL each in MeOH 14 comps.

Alternate Source

SAVE

1,2-Dibromo-3-chloropropane	Hexachlorobutadiene
1,2-Dibromoethane	1,1,1,2-Tetrachloroethane
1,2-Dichloroethane	1,1,2,2-Tetrachloroethane
1,2-Dichloropropane	1,1,2-Trichloroethane
1,3-Dichloropropane	Trichloroethylene
1,1-Dichloropropylene	1,2,3-Trichloropropane
cis-1,3-Dichloropropene	
trans-1,3-Dichloropropene	

Certificate will reflect actual cis/trans ratio

M-502C-05 1 x 1 mL
M-502C-05-PAK 5 x 1 mL
 2.0 mg/mL each in MeOH 13 comps.

Alternate Source

SAVE

Benzene	Toluene
Bromobenzene	1,2,3-Trichlorobenzene
n-Butylbenzene	1,2,4-Trichlorobenzene
Ethylbenzene	1,2,4-Trimethylbenzene
p-Isopropyltoluene	1,3,5-Trimethylbenzene
Naphthalene	m-Xylene
Styrene	

M-502C-06 1 x 1 mL
M-502C-06-PAK 5 x 1 mL
 2.0 mg/mL each in MeOH 12 comps.

Alternate Source

SAVE

sec-Butylbenzene	1,3-Dichlorobenzene
tert-Butylbenzene	1,4-Dichlorobenzene
Chlorobenzene	Isopropylbenzene
2-Chlorotoluene	n-Propylbenzene
4-Chlorotoluene	o-Xylene
1,2-Dichlorobenzene	p-Xylene



EPA Method 500 Series

Method 502

Method 502.2 (continued) Volatile Organic Compounds

The solutions below have been designed in cooperation with laboratories in the Contract Laboratory Program and have proven useful in this particular configuration for the separation and quantitation of all of the 60 components on a single column.

Method 502.2 VOC Set

M-502D/E/F-SET

3 x 1 mL

M-502D, M-502E, M-502F

Mix D

M-502D

1 x 1 mL

0.2 mg/mL each in MeOH

26 comps.

Benzene	Dichlorodifluoromethane
Bromobenzene	2,2-Dichloropropane
Bromochloromethane	Ethyl benzene
Bromoform	1,2-Dibromoethane
sec-Butyl benzene	Isopropylbenzene
Carbon tetrachloride	Tetrachloroethene
Chloroethane	1,1,1,2-Tetrachloroethane
4-Chlorotoluene	Toluene
Dibromomethane	1,2,3-Trichlorobenzene
1,2-Dichlorobenzene	1,2,4-Trichlorobenzene
1,4-Dichlorobenzene	Trichloroethene
1,1-Dichloroethene	Vinyl chloride
trans-1,2-Dichloroethene	o-Xylene

Mix E

M-502E

1 x 1 mL

0.2 mg/mL each in MeOH

21 comps.

Bromomethane	Hexachlorobutadiene
Chlorobenzene	Methylene chloride
Chloromethane	1,1,1-Trichloroethane
2-Chlorotoluene	1,1,2-Trichloroethane
Dibromochloromethane	Trichlorofluoromethane
1,3-Dichlorobenzene	Styrene
1,1-Dichloroethane	1,2,3-Trichloropropane
1,2-Dichloroethane	1,2,4-Trimethylbenzene
cis-1,2-Dichloroethene	m-Xylene
1,2-Dichloropropane	
cis-1,3-Dichloropropene	
trans-1,3-Dichloropropene	

Certificate will reflect actual cis/trans ratio

Mix F

M-502F

1 x 1 mL

0.2 mg/mL each in MeOH

13 comps.

Bromodichloromethane	p-Isopropyltoluene
n-Butylbenzene	Naphthalene
t-Butylbenzene	n-Propylbenzene
Chloroform	1,1,2,2-Tetrachloroethane
1,2-Dibromo-3-chloropropane	1,3,5-Trimethyl benzene
1,3-Dichloropropane	p-Xylene
1,1-Dichloropropene	

Wisconsin DNR VOC Mix

S-989

1 x 1 mL

2.0 mg/mL each in MeOH

52 comps.

Benzene	1,4-Dichlorobenzene	n-Propylbenzene
Bromobenzene	Dichlorodifluoromethane	1,1,2,2-Tetrachloroethane
Bromodichloromethane	1,1-Dichloroethane	Tetrachloroethene
n-Butylbenzene	1,2-Dichloroethane	Toluene
sec-Butylbenzene	1,1-Dichloroethene	1,2,3-Trichlorobenzene
t-Butylbenzene	cis-1,2-Dichloroethene	1,2,4-Trichlorobenzene
Carbon tetrachloride	trans-1,2-Dichloroethene	1,1,1-Trichloroethane
Chlorobenzene	1,2-Dichloropropane	1,1,2-Trichloroethane
Dibromochloromethane	1,3-Dichloropropane	Trichloroethene
Chloroethane	2,2-Dichloropropane	Trichlorofluoromethane
Chloroform	Diisopropyl ether	1,2,4-Trimethylbenzene
Chloromethane	Ethylbenzene	1,3,5-Trimethylbenzene
2-Chlorotoluene	Hexachlorobutadiene	Vinyl chloride
4-Chlorotoluene	Isopropylbenzene	o-Xylene
1,2-Dibromo-3-chloropropane	p-Isopropyltoluene	m-Xylene
1,2-Dibromoethane	Methylene chloride	p-Xylene
1,2-Dichlorobenzene	MtBE	
1,3-Dichlorobenzene	Naphthalene	

Certificate will reflect actual cis/trans ratio

Mixtures of Internal, Surrogate Standards and Fortification Solutions

Internal Standard

M-502-IS

M-502-IS-PAK

2.0 mg/mL each in MeOH

SAVE

1 x 1 mL

5 x 1 mL

2 comps.

1-Chloro-2-bromopropane

Fluorobenzene

Internal Standard 2

M-502-IS-2

M-502-IS-2-PAK

2.0 mg/mL each in MeOH

SAVE

1 x 1 mL

5 x 1 mL

3 comps.

1-Chloro-2-bromopropane

Methylene chloride-d₂

Fluorobenzene

Internal Standard 3

M-502-IS-2-3

2.0 mg/mL in MeOH

1 x 1 mL

Methylene chloride-d₂

Internal Standard

M-524-IS

M-524-IS-PAK

2.0 mg/mL each in MeOH

SAVE

1 x 1 mL

5 x 1 mL

2 comps.

1,2-Dichlorobenzene-d₄

Fluorobenzene

Internal Standard 2

M-524-IS-2

M-524-IS-2-PAK

2.0 mg/mL in MeOH

SAVE

1 x 1 mL

5 x 1 mL

Fluorobenzene

Fortification Solution

M-524-FS

M-524-FS-PAK

2.0 mg/mL each in MeOH

SAVE

1 x 1 mL

5 x 1 mL

3 comps.

4-Bromofluorobenzene

Fluorobenzene

1,2-Dichlorobenzene-d₄

Surrogate Standard

M-524-SS

M-524-SS-PAK

2.0 mg/mL each in MeOH

SAVE

1 x 1 mL

5 x 1 mL

2 comps.

4-Bromofluorobenzene

1,2-Dichlorobenzene-d₄

Technical Note

Special Considerations for Volatile Analytes

Volatile Analytes, especially gases, can be troublesome to analyze. To provide the best possible standard we suggest the following procedures:

1. Keep the ampules cool (follow the storage conditions on the label).
2. Prior to use, invert the ampule several times to ensure the gases are in the solution, not in the headspace. Mixing too vigorously can cause the gases to be lost as well.
3. Use freshly opened ampules whenever possible.
4. When transferring, take care to avoid losses of the very volatile components. For example, holding the barrel of a syringe in your hand can warm it enough to lose some of the most volatile components.
5. If using the purge and trap (PT) system is giving questionable results, try a direct liquid injection. If the results are not as expected, there may be a problem with the PT apparatus.



Method 502.2 Internal and Surrogate Standards

With more proposed and promulgated methods available, analytical chemists are trying to combine analyte lists and shorten run-time while still demonstrating method equivalence. AccuStandard has formulated a core evaluation deuterated solution, and a second conventional internal/surrogate evaluation solution. Use of these formulations allows the analyst to quickly evaluate new ISTD/SS combinations for PID, Hall, FID or GC/MS applications.

Popular Internal Standards

M-502-IS 1 x 1 mL
2.0 mg/mL each in MeOH 2 comps.
1-Chloro-2-bromopropane
Fluorobenzene

M-524-IS-2 1 x 1 mL
2.0 mg/mL in MeOH
Fluorobenzene

M-524-IS 1 x 1 mL
2.0 mg/mL each in MeOH 2 comps.
1,2-Dichlorobenzene-d₄
Fluorobenzene

M-502-IS-2 1 x 1 mL
2.0 mg/mL each in MeOH 3 comps.
1-Chloro-2-bromopropane
Fluorobenzene
Methylene chloride-d₂

M-001R 1 x 1 mL
20 mg/mL each in MeOH 3 comps.
Bromochloromethane
1,4-Dichlorobutane
2-Bromo-1-chloropropane

M-8020-IS 1 x 1 mL
0.2 mg/mL each in MeOH 2 comps.
4-Bromofluorobenzene
 α,α,α -Trifluorotoluene

M-8240/60-IS 1 x 1 mL
0.2 mg/mL each in MeOH 5 comps.
Bromochloromethane
Chlorobenzene-d₅
1,4-Dichlorobenzene-d₄
1,4-Difluorobenzene
Pentafluorobenzene

M-8260-IS-R 1 x 1 mL
0.2 mg/mL each in MeOH 4 comps.
2-Bromo-1-chloropropane
1,4-Difluorobenzene
1,4-Dichlorobenzene-d₄
Pentafluorobenzene

M-8260-IS 1 x 1 mL
0.2 mg/mL each in MeOH 4 comps.
Chlorobenzene-d₅
1,4-Difluorobenzene
1,4-Dichlorobenzene-d₄
Pentafluorobenzene

M-8260A/B-IS 1 x 1 mL
0.2 mg/mL each in MeOH 3 comps.
Chlorobenzene-d₅
1,4-Dichlorobenzene-d₄
Fluorobenzene

ISTD/SS Evaluation Mixtures

Conventional ISTD/SS Evaluation Mixture

M-CONV-IS/SS 1 x 1 mL
200 μ g/mL each in MeOH 15 comps.
2-Bromochlorobenzene 2-Chloropropane
4-Bromochlorobenzene Dibromofluoromethane
Bromochloromethane 1,4-Dichlorobutane
p-Bromofluorobenzene 1,4-Difluorobenzene
2-Bromo-1-chloropropane Fluorobenzene
1-Chloro-2-fluorobenzene Pentafluorobenzene
1-Chloro-3-fluorobenzene α,α,α -Trifluorotoluene
1-Chloro-4-fluorobenzene

Deuterated ISTD/SS Evaluation Mixture

M-DEUT-IS/SS 1 x 1 mL
200 μ g/mL each in MeOH 8 comps.
Benzene-d₆
Chlorobenzene-d₅
1,2-Dichlorobenzene-d₄
1,4-Dichlorobenzene-d₄
1,2-Dichloroethane-d₄
Ethylbenzene-d₁₀
Methylene chloride-d₂
Toluene-d₈

Popular Surrogate Standards

M-502-IS-ASL 1 x 1 mL
2.0 mg/mL each in MeOH 2 comps.
2-Bromo-1-chloropropane **Alternate Source**
1-Chloro-2-fluorobenzene

M-524-SS 1 x 1 mL
2.0 mg/mL each in MeOH 2 comps.
4-Bromofluorobenzene
1,2-Dichlorobenzene-d₄

M-624-SS-M 1 x 1 mL
20 mg/mL each in MeOH 3 comps.
4-Bromofluorobenzene
Fluorobenzene
Pentafluorobenzene

M-8020-SS 1 x 1 mL
2.0 mg/mL each in MeOH 3 comps.
4-Bromochlorobenzene
1,4-Difluorobenzene
Fluorobenzene

M-8021-SS 1 x 1 mL
2.0 mg/mL each in MeOH 2 comps.
4-Bromochlorobenzene
1,4-Dichlorobutane

M-8021-SS-M 1 x 1 mL
2.0 mg/mL each in MeOH 2 comps.
Bromochloromethane
1,4-Dichlorobutane

M-8021A-SS 1 x 1 mL
20 mg/mL each in MeOH 4 comps.
4-Bromochlorobenzene 1,4-Dichlorobutane
Bromochloromethane 2-Bromo-1-chloropropane

M-8240/60-SS 1 x 1 mL
0.2 mg/mL each in MeOH 4 comps.
p-Bromofluorobenzene 1,2-Dichloroethane-d₄
Dibromofluoromethane Toluene-d₈

Popular ISTD/SS Standards

M-502-IS/SS 1 x 1 mL
2.0 mg/mL each in MeOH 4 comps.
1-Chloro-3-fluorobenzene
2-Chloropropane
Fluorobenzene
 α,α,α -Trifluorotoluene

M-502-IS-QC 1 x 1 mL
1.0 mg/mL each in MeOH 3 comps.
1-Chloro-2-bromopropane
1-Chloro-2-fluorobenzene
Fluorobenzene

M-524-FS 1 x 1 mL
2.0 mg/mL each in MeOH 3 comps.
4-Bromofluorobenzene
1,2-Dichlorobenzene-d₄
Fluorobenzene

M-8010-IS/SS 1 x 1 mL
150 μ g/mL each in MeOH 3 comps.
4-Bromochlorobenzene
Bromochloromethane
4-Bromofluorobenzene

M-8020-IS/SS-ASL 1 x 1 mL
1.5 mg/mL each in MeOH 5 comps.
4-Bromochlorobenzene
p-Bromofluorobenzene
1,4-Difluorobenzene
Fluorobenzene
 α,α,α -Trifluorotoluene

M-8240/60-IS/SS 1 x 1 mL
0.2 mg/mL each in MeOH 9 comps.
Bromochloromethane 1,2-Dichloroethane-d₄
p-Bromofluorobenzene 1,4-Difluorobenzene
Chlorobenzene-d₅ Pentafluorobenzene
Dibromofluoromethane Toluene-d₈
1,4-Dichlorobenzene-d₄

M-8260A/B-IS/SS 1 x 1 mL
200 μ g/mL each in MeOH 7 comps.
p-Bromofluorobenzene 1,2-Dichloroethane-d₄
Chlorobenzene-d₅ Fluorobenzene
Dibromofluoromethane Toluene-d₈
1,4-Dichlorobenzene-d₄



EPA Method 500 Series

Method 503-506

Method 503.1 Purgeable Aromatics & Alkenes

Purgeable Aromatics & Alkenes

M-503 1 x 1 mL
 M-503-PAK 5 x 1 mL
 0.2 mg/mL each in MeOH SAVE 28 comps.

Benzene	4-Isopropyltoluene
Bromobenzene	Naphthalene
n-Butylbenzene	n-Propylbenzene
sec-Butylbenzene	Styrene
t-Butylbenzene	Tetrachloroethene
Chlorobenzene	Toluene
2-Chlorotoluene	1,2,3-Trichlorobenzene
4-Chlorotoluene	1,2,4-Trichlorobenzene
1,2-Dichlorobenzene	Trichloroethene
1,3-Dichlorobenzene	1,2,4-Trimethylbenzene
1,4-Dichlorobenzene	1,3,5-Trimethylbenzene
Ethylbenzene	o-Xylene
Hexachlorobutadiene	m-Xylene
Isopropylbenzene	p-Xylene

Internal Standard

M-602-SS 1 x 1 mL
 M-602-SS-PAK 5 x 1 mL
 0.2 mg/mL in MeOH SAVE

α,α,α -Trifluorotoluene

Method 504 EDB & DBCP by ECD

EDB & DBCP

M-504 1 x 1 mL
 M-504-PAK 5 x 1 mL
 0.2 mg/mL each in MeOH SAVE 2 comps.

M-504-10X 1 x 1 mL
 M-504-10X-PAK 5 x 1 mL
 2.0 mg/mL each in MeOH SAVE 2 comps.

1,2-Dibromoethane (EDB) 1,2-Dibromo-3-chloropropane (DBCP)

Method 504.1 EDB, DBCP & TCP by ECD

Method 504 Set

M-504.1-SET 3 x 1 mL
 (M-504.1-CSS, M-504.1-LFB, M-504.1-MDL)

Calibration Stock Solution

M-504.1-CSS 1 x 1 mL
 M-504.1-CSS-PAK 5 x 1 mL
 0.2 mg/mL each in MeOH SAVE 3 comps.

1,2-Dibromoethane (EDB) 1,2,3-Trichloropropane
 1,2-Dibromo-3-chloropropane (DBCP)

Laboratory Fortified Blank Sample Concentrate

M-504.1-LFB 1 x 1 mL
 M-504.1-LFB-PAK 5 x 1 mL
 0.25 μ g/mL each in MeOH SAVE 3 comps.

1,2-Dibromoethane (EDB) 1,2,3-Trichloropropane
 1,2-Dibromo-3-chloropropane (DBCP)

MDL Check Sample Concentrate

M-504.1-MDL 1 x 1 mL
 M-504.1-MDL-PAK 5 x 1 mL
 0.02 μ g/mL each in MeOH SAVE 3 comps.

1,2-Dibromoethane (EDB) 1,2,3-Trichloropropane
 1,2-Dibromo-3-chloropropane (DBCP)

Method 505 Organohalide Pesticides by Microextraction & GC/ECD

M-505R-2 1 x 1 mL
 M-505R-2-PAK 5 x 1 mL
 At stated conc. (μ g/mL) in MeOH SAVE 16 comps.

Alachlor	10	Heptachlor epoxide (Isomer B)	1
Aldrin	1	Hexachlorobenzene	1
Atrazine	250	Hexachlorocyclopentadiene	1
α -Chlordane	1	Lindane	1
γ -Chlordane	1	Methoxychlor	5
Dieldrin	1	cis-Nonachlor	1
Endrin	1	trans-Nonachlor	1
Heptachlor	1	Simazine	250

M-505-ASL 1 x 1 mL
 M-505-ASL-PAK 5 x 1 mL
 At stated conc. (μ g/mL) in Acetone SAVE 12 comps.

Alternate Source

Alachlor	50	Heptachlor	20
Aldrin	20	Heptachlor epoxide (Isomer B)	20
Atrazine	500	Hexachlorobenzene	10
γ -BHC	20	Hexachlorocyclopentadiene	20
Dieldrin	20	Methoxychlor	200
Endrin	20	Simazine	100

Multi-Component Analytes

Polychlorinated Biphenyls, Chlordane and Toxaphene

Each at 1,000 μ g/mL in Hexane SAVE -PAK (5 x 1 mL)

Aroclors

Aroclors	Cat. No.	1 mL	Cat. No.	PAK
Aroclor 1016	C-216S-H-10X		C-216S-H-10X-PAK	
Aroclor 1221	C-221S-H-10X		C-221S-H-10X-PAK	
Aroclor 1232	C-232S-H-10X		C-232S-H-10X-PAK	
Aroclor 1242	C-242S-H-10X		C-242S-H-10X-PAK	
Aroclor 1248	C-248S-H-10X		C-248S-H-10X-PAK	
Aroclor 1254	C-254S-H-10X		C-254S-H-10X-PAK	
Aroclor 1260	C-260S-H-10X		C-260S-H-10X-PAK	
Aroclor 1262	C-262S-H-10X		C-262S-H-10X-PAK	
Aroclor 1268	C-268S-H-10X		C-268S-H-10X-PAK	

Pesticides

Chlordane	P-017S-H-10X	P-017S-H-10X-PAK
Toxaphene	P-093S-H-10X	P-093S-H-10X-PAK

Degradation Standard

P-045S 1 x 1 mL
 100 μ g/mL in MeOH
 Endrin

Method 506 Phthalate Esters by PID

Phthalate Esters

M-506 1 x 1 mL
 M-506-PAK 5 x 1 mL
 1.0 mg/mL each in Isooctane SAVE 7 comps.

Benzyl butyl phthalate	bis(2-Ethylhexyl)adipate
Dimethyl phthalate	bis(2-Ethylhexyl)phthalate
Diethyl phthalate	Di-n-octyl phthalate
Di-n-butyl phthalate	

M-506-QC 1 x 1 mL
 M-506-QC-PAK 5 x 1 mL
 At stated conc. (mg/mL) in MeOH SAVE 7 comps.

Benzyl butyl phthalate	0.25	bis(2-Ethylhexyl)adipate	1.2
Dimethyl phthalate	0.1	bis(2-Ethylhexyl)phthalate	0.25
Diethyl phthalate	0.1	Di-n-octyl phthalate	0.65
Di-n-butyl phthalate	0.1		



Method 507 Nitrogen & Phosphorus Containing Pesticides by GC/NPD

Method 507 Set

M-507-R-SET 8 x 1 mL
 M-507A, M-507B, M-507C, M-507D
 M-507E, M-507F-R2, M-507G, M-507H

Mix A

M-507A			1 x 1 mL
M-507A-PAK	SAVE		5 x 1 mL
1.0 mg/mL each in MtBE			6 comps.
Ametryn	Disulfoton	Merphos	
Cycloate	Fenamiphos	Prometon	

Mix E

M-507E			1 x 1 mL
M-507E-PAK	SAVE		5 x 1 mL
1.0 mg/mL each in MtBE			8 comps.
Dichlorvos	Napropamide	Tebuthiuron	
Fenarimol	Pebulate (<i>Tillam</i>)	Terbacil	
Fluridone	Simetryn		

Mix B

M-507B			1 x 1 mL
M-507B-PAK	SAVE		5 x 1 mL
1.0 mg/mL each in MtBE			9 comps.
Atrazine	Ethoprop	Propazine	
Diphenamid	Mevinphos	Terbutryn	
EPTC	Prometryne	Triadimefon	

Mix F

M-507F-R2			1 x 1 mL
M-507F-R2-PAK	SAVE		5 x 1 mL
1.0 mg/mL each in Acetone			2 comps.
Methyl paraoxon	Simazine		

Mix C

M-507C			1 x 1 mL
M-507C-PAK	SAVE		5 x 1 mL
1.0 mg/mL each in MtBE			9 comps.
Butachlor	Metolachlor	Norflurazon	
Carboxin	Metribuzin	Terbufos	
Diazinon	MGK-264	Vernolate	

Mix G

M-507G			1 x 1 mL
M-507G-PAK	SAVE		5 x 1 mL
1.0 mg/mL each in MtBE			8 comps.
Benefin	Oxadiazon	Profluralin	
Isopropalin	Oxyfluorfen	Trifluralin	
Pendimethalin	Propachlor		

Mix D

M-507D			1 x 1 mL
M-507D-PAK	SAVE		5 x 1 mL
1.0 mg/mL each in MtBE			10 comps.
Alachlor	Chlorpropham	Pronamide	
Atraton	Hexazinone	Stirofos	
Bromacil	Molinate	Tricyclazole	
Butylate			

Mix H

M-507H			1 x 1 mL
M-507H-PAK	SAVE		5 x 1 mL
1.0 mg/mL each in MtBE			
DEF 6 (for Merphos quantitation)			

Performance Check Solution

M-507-QC			1 x 1 mL
M-507-QC-PAK	SAVE		5 x 1 mL
At stated conc. (ng/mL) in MtBE			6 comps.
Atrazine 150	Bromacil 5,000	TPP 2,500	
DNB 2,500	Prometon 300	Vernolate 50	

Surrogate Standard

M-507-SS			1 x 1 mL
M-507-SS-PAK	SAVE		5 x 1 mL
0.25 mg/mL in MtBE			
M-507-SS-4X			1 x 1 mL
1.0 mg/mL in MtBE			
1,3-Dimethyl-2-nitrobenzene			

Internal Standard

M-507-IS			1 x 1 mL
M-507-IS-PAK	SAVE		5 x 1 mL
0.5 mg/mL in MtBE			
M-507-IS-10X			1 x 1 mL
5.0 mg/mL in MtBE			
Triphenyl phosphate			



EPA Method 500 Series

Method 508

Method 508 Chlorinated Pesticides by GC/ECD

Chlorinated Pesticides Mix A

M-508P-A 1 x 1 mL
 M-508P-A-PAK 5 x 1 mL
 1.0 mg/mL each in MtBE 17 comps. **SAVE**

Aldrin	4,4'-DDE	Endrin
α-BHC	4,4'-DDT	Endrin aldehyde
β-BHC	Dieldrin	Heptachlor
δ-BHC	Endosulfan I	Heptachlor epoxide (Isomer B)
γ-BHC	Endosulfan II	Methoxychlor
4,4'-DDD	Endosulfan sulfate	

Chlorinated Pesticides Mix B

M-508P-B-R 1 x 1 mL
 M-508P-B-R-PAK 5 x 1 mL
 1.0 mg/mL each in MtBE 13 comps. **SAVE**

α-Chlordane	Chlorpyrifos	cis-Permethrin
γ-Chlordane	DCPA	trans-Permethrin
Chlorobenzilate	Etridiazole	Propachlor
Chloroneb	Hexachlorobenzene	Trifluralin
Chlorothalonil		

Certificate will reflect actual cis/trans ratio

Technical Note

Endrin & DDT can break down in the injection port at elevated temperatures. Breakdown can be monitored by running the Pesticide Degradation Standard (M-8081-DS). The problem can be alleviated by replacing the dirty injection port liner, or by using a lower injection port temperature.

Internal Standard

M-508-IS 1 x 1 mL
 M-508-IS-PAK 5 x 1 mL
 0.1 mg/mL in MtBE **SAVE**
 M-508-IS-10X 1 x 1 mL
 1.0 mg/mL in MtBE

Pentachloronitrobenzene

Surrogate Standards

M-508-SS 1 x 1 mL
 M-508-SS-PAK 5 x 1 mL
 0.5 mg/mL in MtBE **SAVE**
 4,4'-Dichlorobiphenyl

M-508-SS-2 1 x 1 mL
 M-508-SS-2-PAK 5 x 1 mL
 0.5 mg/mL in MtBE **SAVE**
 Decachlorobiphenyl

Decomposition Solution

M-508-DS-100X 1 x 1 mL
 M-508-DS-100X-PAK 5 x 1 mL
 At stated conc. (µg/mL) in MtBE 2 comps. **SAVE**

p,p'-DDT	200	Endrin	100
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Performance Check Solution

M-508-QC 1 x 1 mL
 M-508-QC-PAK 5 x 1 mL
 At stated conc. (ng/mL) in MtBE 4 comps. **SAVE**

δ-BHC	40	Chlorpyrifos	2
Chlorothalonil	50	Dacthal	50

M-508P-B-R2 1 x 1 mL
 M-508P-B-R2-PAK 5 x 1 mL
 1.0 mg/mL each in MtBE 15 comps. **SAVE**

α-Chlordane	Chlorpyrifos	cis-Permethrin
γ-Chlordane	DCPA	trans-Permethrin
Chlorobenzilate	Etridiazole	Propachlor
Chloroneb	Hexachlorobenzene	Trifluralin
Chlorothalonil	Cyanazine	trans-Nonachlor

Certificate will reflect actual cis/trans ratio

Method 508A PCBs by Perchlorination / GC

Aroclor® Stock Solution

M-508A-1 1 x 1 mL
 M-508A-1-PAK 5 x 1 mL
 5.0 mg/mL in MeOH **SAVE**
 Aroclor 1260

DCB Stock Solution

M-508A-2 1 x 1 mL
 M-508A-2-PAK 5 x 1 mL
 1.0 mg/mL in Toluene **SAVE**
 Decachlorobiphenyl

Perchlorinated Aromatics

Neats	Cat. No.	Unit
Decachlorobiphenyl	C-209N	10 mg
Hexachlorobenzene	A-012	100 mg
Octachlorodibenzofuran	F-801N	50 mg
Octachlorodibenzo-p-dioxin	D-801N	50 mg

Solutions	35 µg/mL in Toluene	1 mL
Octachlorostyrene	PC-001S	
Perchlorinated p,p'-DDE	PC-002S	
Tetradecachloro-o-terphenyl	T-004S	
Tetradecachloro-m-terphenyl	T-005S	
Tetradecachloro-p-terphenyl	T-006S	
Aroclor 5442	T-442S	



Thousands of Standards, just a click away

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Method 508.1 Chlorinated Pesticides, Herbicides & Organo-Halides by Liquid - Solid Extraction & ECD

Chlorinated Pesticide Mix #1

M-508.1-X1 1 x 1 mL
M-508.1-X1-PAK 5 x 1 mL
 500 µg/mL each in Ethyl acetate 19 comps. **SAVE**

Aldrin	Dieldrin
α-BHC	Endosulfan I
β-BHC	Endosulfan II
δ-BHC	Endosulfan sulfate
γ-BHC	Endrin
α-Chlordane	Endrin aldehyde
γ-Chlordane	Heptachlor
4,4'-DDD	Heptachlor epoxide (Isomer B)
4,4'-DDE	Methoxychlor
4,4'-DDT	

Chlorinated Pesticide Mix #2

M-508.1-X2 1 x 1 mL
M-508.1-X2-PAK 5 x 1 mL
 500 µg/mL each in Ethyl acetate 17 comps. **SAVE**

Alachlor	Hexachlorocyclopentadiene
Atrazine	Metolachlor
Chlorobenzilate	Metribuzin
Chloroneb	cis-Permethrin
Chlorothalonil	trans-Permethrin
Cyanazine	Propachlor
DCPA	Simazine
Etridiazole	Trifluralin
Hexachlorobenzene	

Certificate will reflect actual cis/trans ratio

Regulated Pesticide Mix (SDWA)

M-508.1-ASL 1 x 1 mL
M-508.1-ASL-PAK 5 x 1 mL
 100 µg/mL each in MtBE 17 comps. **SAVE**

Alachlor	Dieldrin	Methoxychlor
Aldrin	Endrin	Metolachlor
Atrazine	Heptachlor	Metribuzin
γ-BHC	Heptachlor epoxide (Isomer B)	Propachlor
α-Chlordane	Hexachlorobenzene	Simazine
γ-Chlordane	Hexachlorocyclopentadiene	

Decomposition Solution

M-508.1-DS-100X 1 x 1 mL
M-508.1-DS-100X-PAK 5 x 1 mL
 100 µg/mL each in Ethyl acetate 2 comps. **SAVE**

4,4'-DDT	Endrin
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Internal Standard Solution

M-508.1-IS 1 x 1 mL
M-508.1-IS-PAK 5 x 1 mL
 100 µg/mL each in Ethyl acetate **SAVE**

Pentachloronitrobenzene

Surrogate Standard Solution

M-508.1-SS 1 x 1 mL
M-508.1-SS-PAK 5 x 1 mL
 100 µg/mL each in Ethyl acetate **SAVE**

4,4'-Dibromobiphenyl

Performance Check Solution

M-508.1-QC 1 x 1 mL
M-508.1-QC-PAK 5 x 1 mL
 At stated conc. (ng/mL) in MtBE 4 comps. **SAVE**

δ-BHC	400	Chlorpyrifos	20
Chlorothalonil	500	DCPA	500

Method 509 Ethylene Thiourea by GC/NPD

Performance Check Solution

M-509-PC 1 x 1 mL
 At stated conc. (ng/mL) in Ethyl acetate containing 0.1% w/v DTT (scavenger) 3 comps.

Ethylene thiourea	10
4-Methylimidazolidine-2-thione	100
3,4,5,6-Tetrahydro-2-pyrimidinethiol	1000

Ethylene Thiourea Standard

M-509 1 x 1 mL

0.1 mg/mL in Ethyl acetate containing 0.1% w/v DTT (scavenger)

Ethylene thiourea

Internal Standard

M-509-IS 1 x 1 mL

0.1 mg/mL in Ethyl acetate containing 0.1% w/v DTT (scavenger)

3,4,5,6-Tetrahydro-2-pyrimidinethiol (THP)

Surrogate Standard

M-509-SS 1 x 1 mL

0.1 mg/mL in Ethyl acetate containing 0.1% w/v DTT (scavenger)

4-Methylimidazolidine-2-thione

Radical Scavenger Solution

M-509-RS-10ML 1 x 10 mL

1.0 mg/mL in Ethyl acetate

Dithiothreitol (DTT)

Buy AccuPAKs
Save 20-40% 5 x 1 mL





EPA Method 500 Series

Method 515

Method 515.1 Chlorinated Acids in Water by GC/ECD

Methyl Derivatives

M-515-R 1 x 1 mL
 M-515-R-PAK 5 x 1 mL
 1.0 mg/mL each in MtBE as methyl derivatives 16 comps.

Acifluorfen methyl ester	Methyl 3,5-dichlorobenzoate
Bentazon methyl ester	Dichlorprop methyl ester
Chloramben methyl ester	Dinoseb methyl ester
2,4-D methyl ester	4-Nitroanisole
Dalapon methyl ester	Pentachloroanisole
2,4-DB methyl ester	Picloram methyl ester
DCPA Di methyl ester	2,4,5-T methyl ester
Dicamba methyl ester	2,4,5-TP methyl ester

Underivatized Analytes

M-515A-R2 1 x 1 mL
 M-515A-R2-PAK 5 x 1 mL
 At stated conc. (µg/mL) in MeOH 16 comps.

Acifluorfen	100	3,5-Dichlorobenzoic acid	100
Bentazon	200	Dichlorprop	300
Chloramben	100	Dinoseb	200
2,4-D	200	4-Nitrophenol	100
Dalapon	1300	Pentachlorophenol	100
2,4-DB	800	Picloram	100
DCPA acid	100	2,4,5-T	100
Dicamba	100	2,4,5-TP	100

Technical Note

If you require the complete absence of partial esterification, we recommend M-515.4A and M-515.3A products.

Performance Check Solution

M-515-QC 1 x 1 mL
 M-515-QC-PAK 5 x 1 mL
 At stated conc. (ng/mL) in MtBE 3 comps.

Methyl 3,5-dichlorobenzoate	600
Dinoseb methyl ether	4
4-Nitroanisole	1600

Performance Check Solution with ISTD & SS

M-515-QC-R 1 x 1 mL
 M-515-QC-R-PAK 5 x 1 mL
 At stated conc. (ng/mL) in MtBE 5 comps.

4,4'-Dibromooctafluorobiphenyl (Internal Standard)	250
Methyl 3,5-dichlorobenzoate	600
Methyl 2,4-dichlorophenylacetate (Surrogate Standard)	500
Dinoseb methyl ether	4
4-Nitroanisole	1600

Internal Standard

M-515-IS 1 x 1 mL
 M-515-IS-PAK 1 x 1 mL
 0.1 mg/mL in MtBE

4,4'-Dibromooctafluorobiphenyl

Surrogate Standards

M-515-SS 1 x 1 mL
 M-515-SS-PAK 5 x 1 mL
 0.1 mg/mL in MtBE

M-515-SS-50X 5 x 1 mL
 5.0 mg/mL in MtBE

Methyl 2,4-dichlorophenylacetate

P-244S 1 x 1 mL

0.1 mg/mL in MeOH

2,4-Dichlorophenylacetic acid

Method 515.2 Chlorinated Acids in Water by GC/ECD

Methyl Derivatives

M-515.2-1 1 x 1 mL
 M-515.2-1-PAK 5 x 1 mL
 At stated conc. (µg/mL) in MeOH 6 comps.

DCPA methyl ester	100	Dinoseb methyl ester	200
Methyl 3,5-dichlorobenzoate	500	Pentachloroanisole	100
Dichlorprop methyl ester	100	2,4,5-T methyl ester	100

M-515.2-2

M-515.2-2-PAK 5 x 1 mL
 At stated conc. (µg/mL) in MeOH 7 comps.

Acifluorfen methyl ester	200	Dicamba methyl ester	300
Bentazon methyl ester	1000	Picloram methyl ester	300
2,4-D methyl ester	100	2,4,5-TP methyl ester	100
2,4-DB methyl ester	1000		

Underivatized Analytes

M-515.2A-1 1 x 1 mL
 M-515.2A-1-PAK 5 x 1 mL
 At stated conc. (µg/mL) in MeOH 6 comps.

DCPA acid	100	Dinoseb	200
3,5-Dichlorobenzoic acid	500	Pentachlorophenol	100
Dichlorprop	100	2,4,5-T	100

M-515.2A-2

M-515.2A-2-PAK 5 x 1 mL
 At stated conc. (µg/mL) in MeOH 7 comps.

Acifluorfen	200	Dicamba	300
Bentazon	1000	Picloram	300
2,4-D	100	2,4,5-TP	100
2,4-DB	1000		

Method 515.1 & 515.2 Chlorinated Acids in Water by GC/ECD

Laboratory Performance Check Solution

M-8150/51-LPC-5ML 1 x 5 mL
 At stated conc. (ng/mL) in Isooctane 5 comps.

3,5-Dichlorobenzoic acid	618	DCAA	500
Dinoseb	4	DBOB	250
4-Nitrophenol	1600		





Method 515.3 Chlorinated Acids in Drinking Water by ECD

Underivatized Acids

M-515.3A 1 x 1 mL
M-515.3A-PAK 5 x 1 mL
At stated conc. (µg/mL) in Acetone 17 comps.

SAVE

Acifluorfen	50	3,5-Dichlorobenzoic acid	50
Bentazon	100	Dichlorprop	100
Chloramben	50	Dinoseb	100
2,4-D	100	4-Nitrophenol	100
Dalapon	100	Pentachlorophenol	10
2,4-DB	100	Picloram	100
DCPA Diacid	50	2,4,5-T	25
DCPA monoacid	50	Silvex	25
Dicamba	50		

Laboratory Performance Check

Methyl Derivatives

M-515.3-LPC 1 x 1 mL
M-515.3-LPC-PAK 5 x 1 mL
At stated conc. (µg/mL) in MtBE 4 comps.

SAVE

2,4-DB methyl ester	25	Chloramben methyl ester	12.5
Dinoseb methyl ether	25	4-Nitroanisole	25

Independent Check Standard Methyl Derivatives

M-515.3-ICS 1 x 1 mL
M-515.3-ICS-PAK 5 x 1 mL
At stated conc. (µg/mL) in MtBE 16 comps.

SAVE

Acifluorfen methyl ester	50	Methyl-3,5-Dichlorobenzoate	50
Bentazon methyl ester	100	Dichlorprop methyl ester	100
Chloramben methyl ester	50	Dinoseb methyl ether	100
2,4-D methyl ester	100	4-Nitroanisole	100
Dalapon methyl ester	100	Pentachloroanisole	10
2,4-DB methyl ester	100	Picloram methyl ester	100
Dacthal	100	2,4,5-T methyl ester	25
Dicamba methyl ester	50	Silvex methyl ester	25

Internal Standard

M-515-IS 1 x 1 mL
M-515-IS-PAK 5 x 1 mL
0.1 mg/mL in MtBE

SAVE

4,4'-Dibromooctafluorobiphenyl

Method 515.4 Chlorinated Acids in Drinking Water by ECD

Underivatized Acids

M-515.4A 1 x 1 mL
M-515.4A-PAK 5 x 1 mL
At stated conc. (µg/mL) in Acetone 17 comps.

SAVE

Acifluorfen	50	3,5-Dichlorobenzoic acid	50
Bentazon	100	Dichlorprop	100
Chloramben	50	Dinoseb	100
2,4-D	100	Pentachlorophenol	10
Dalapon	100	Picloram	50
2,4-DB	100	2,4,5-T	25
DCPA Diacid	50	Silvex	25
DCPA monoacid	50	Quinclorac	50
Dicamba	50		

Underivatized Surrogate

M-8150B-SS 1 x 1 mL
M-8150B-SS-PAK 5 x 1 mL
0.1 mg/mL in Acetone
 2,4-Dichlorophenylacetic acid

SAVE

Quality Control Sample Methyl Derivatives

M-515.4-QCS 1 x 1 mL
M-515.4-QCS-PAK 5 x 1 mL
At stated conc. (µg/mL) in MtBE 16 comps.

SAVE

Acifluorfen methyl ester	50	Methyl-3,5-Dichlorobenzoate	50
Bentazon methyl	100	Dichlorprop methyl ester	100
Chloramben methyl ester	50	Dinoseb methyl ether	100
2,4-D methyl ester	100	Pentachloroanisole	10
Dalapon methyl ester	100	Picloram methyl ester	50
2,4-DB methyl ester	100	2,4,5-T methyl ester	25
Dacthal	100	Silvex methyl ester	25
Dicamba methyl ester	50	Quinclorac methyl ester	50

Technical Note

M-515.3A and M-515.4A are to be used as procedural standards for the calibration of the method. These standards should be carried through the entire extraction and derivatization procedure associated with the samples.





EPA Method 500 Series

Method 521-524

Method 521 Nitrosamines by SPE & Capillary Column GC

Analyte Stock Solution

M-521 1 x 1 mL
200 µg/mL each in CH₂Cl₂ 7 comps.

N-Nitrosodimethylamine	N-Nitrosodi- <i>n</i> -butylamine
N-Nitrosomethylethylamine	N-Nitrosopyrrolidine
N-Nitrosodiethylamine	N-Nitrosopiperidine
N-Nitrosodi- <i>n</i> -propylamine	

Internal Standard Stock Solution

M-521-IS 1 x 1 mL
M-521-IS-PAK **SAVE** 5 x 1 mL
1.0 mg/mL in CH₂Cl₂

N-Nitrosodi-*n*-propylamine-d₁₄

Surrogate Standard Stock Solution

M-521-SS 1 x 1 mL
M-521-SS-PAK **SAVE** 5 x 1 mL
1.0 mg/mL in CH₂Cl₂

N-Nitrosodimethylamine-d₆

Method 524.2 Volatile Organic Compounds by GC/MS

See M-502.2 VOCs by PID/ELCD
54 Liquid & 6 Gaseous Compounds

Addition to Method 524.2 (Revision 4.0 August 1992)

M-524R-B * 1 x 1 mL
M-524R-B-PAK * **SAVE** 5 x 1 mL
2.0 mg/mL each in MeOH 24 comps.

Acetone	2-Hexanone
Acrylonitrile	Methacrylonitrile
Allyl chloride	Methyl acrylate
2-Butanone	Methyl iodide
Carbon disulfide	Methyl methacrylate
Chloroacetonitrile	4-Methyl-2-pentanone
1-Chlorobutane	MtBE
<i>trans</i> -1,4-Dichloro-2-butene	Nitrobenzene
1,1-Dichloropropane	2-Nitropropane
Diethyl ether	Pentachloroethane
Ethyl methacrylate	Propionitrile
Hexachloroethane	Tetrahydrofuran

Technical Note

Standards containing aldehydes and ketones in methanol are given short expiration periods because of their tendency to form acetals and ketals. Stabilizers are added to inhibit this reaction.

Mixtures of Internal, Surrogate Standards & Fortification Solutions

Internal Standards

M-502-IS 1 x 1 mL
M-502-IS-PAK **SAVE** 5 x 1 mL
2.0 mg/mL each in MeOH 2 comps.

1-Chloro-2-bromopropane Fluorobenzene

M-502-IS-2 1 x 1 mL
M-502-IS-2-PAK **SAVE** 5 x 1 mL
2.0 mg/mL each in MeOH 3 comps.

1-Chloro-2-bromopropane Methylene chloride-d₂
Fluorobenzene

M-524-IS 1 x 1 mL
M-524-IS-PAK **SAVE** 5 x 1 mL
2.0 mg/mL each in MeOH 2 comps.

1,2-Dichlorobenzene-d₄ Fluorobenzene

Method 524.2 VOCs by GC/MS (Continued)

M-524-IS-2 1 x 1 mL
M-524-IS-2-PAK **SAVE** 5 x 1 mL
2.0 mg/mL in MeOH
M-524-IS-2-10X 5 x 1 mL
20 mg/mL in MeOH

Fluorobenzene

Fortification Standard

M-524-FS 1 x 1 mL
M-524-FS-PAK **SAVE** 5 x 1 mL
2.0 mg/mL each in MeOH 3 comps.

4-Bromofluorobenzene Fluorobenzene
1,2-Dichlorobenzene-d₄

Surrogate Standard

M-524-SS 1 x 1 mL
M-524-SS-PAK **SAVE** 5 x 1 mL
2.0 mg/mL each in MeOH 2 comps.

4-Bromofluorobenzene 1,2-Dichlorobenzene-d₄

GC/MS Tuning Solution

M-624-SS-03-10X 1 x 1 mL
2.0 mg/mL each in MeOH

p-Bromofluorobenzene

Method 524.3 Purgeable Organic Compounds by GC/MS

See M-502.2 VOCs by PID/ELCD
54 Liquid & 6 Gaseous Compounds

M-524R-C 1 x 1 mL
M-524R-C-PAK **SAVE** 5 x 1 mL
2.0 mg/mL each in MeOH 18 comps.

1,3-Butadiene	Methyl acetate
1-Chlorobutane	Methyl iodide
Allyl chloride	MtBE
Carbon disulfide	Pentachloroethane
Chlorodifluoromethane	<i>t</i> -Amyl ethyl ether
Diethyl ether	TAME
Diisopropyl ether	<i>t</i> -Butanol
Ethyl methacrylate	EtBE
Hexachloroethane	Tetrahydrofuran

Internal Standard

M-524R-C-IS 1 x 1 mL
M-524R-C-IS-PAK **SAVE** 5 x 1 mL
2.0 mg/mL each in MeOH 3 comps.

1,4-Difluorobenzene 1,4-Dichlorobenzene-d₄
Chlorobenzene-d₅

Internal and Surrogate Standard

M-524R-C-IS/SS 1 x 1 mL
M-524R-C-IS/SS-PAK **SAVE** 5 x 1 mL
2.0 mg/mL each in MeOH 6 comps.

1,4-Difluorobenzene *tert*-Butyl methyl ether-d₃
Chlorobenzene-d₅ *p*-Bromofluorobenzene
1,4-Dichlorobenzene-d₄ 1,2-Dichlorobenzene-d₄

Surrogate Standard

M-524R-C-SS 1 x 1 mL
M-524R-C-SS-PAK **SAVE** 5 x 1 mL
2.0 mg/mL each in MeOH 3 comps.

tert-Butyl methyl ether-d₃ *p*-Bromofluorobenzene
1,2-Dichlorobenzene-d₄

* ColdPAK required to maintain integrity of product.



Method 525.1 Organic Compounds in Drinking Water by Liquid-Solid Extraction and Capillary GC/MS

PAH Mixtures

M-525-1 1 x 1 mL
M-525-1-PAK **SAVE** 5 x 1 mL
 0.1 mg/mL each in Acetone
 13 comps.

M-525-1-5X 1 x 1 mL
M-525-1-5X-PAK **SAVE** 5 x 1 mL
 0.5 mg/mL each in Acetone
 13 comps.

Acenaphthylene	Chrysene
Anthracene	Dibenz[a,h]anthracene
Benz[a]anthracene	Fluorene
Benzo[b]fluoranthene	Indeno[1,2,3-cd]pyrene
Benzo[k]fluoranthene	Phenanthrene
Benz[a]pyrene	Pyrene
Benzo[g,h,i]perylene	

Pesticide Mixtures

M-525-3 1 x 1 mL
M-525-3-PAK **SAVE** 5 x 1 mL
 0.1 mg/mL each in Acetone
 12 comps.

M-525-3-5X 1 x 1 mL
M-525-3-5X-PAK **SAVE** 5 x 1 mL
 0.5 mg/mL each in Acetone
 12 comps.

Alachlor	Heptachlor
Aldrin	Heptachlor epoxide (Isomer B)
Atrazine	Lindane
α-Chlordane	Methoxychlor
γ-Chlordane	Simazine
Endrin	trans-Nonachlor

PCB Congener Mixtures

M-525-2 1 x 1 mL
M-525-2-PAK **SAVE** 5 x 1 mL
 0.1 mg/mL each in Acetone
 8 comps.

M-525-2-5X 1 x 1 mL
M-525-2-5X-PAK **SAVE** 5 x 1 mL
 0.5 mg/mL each in Acetone
 8 comps.

1 2-Chlorobiphenyl
 5 2,3-Dichlorobiphenyl
 171 2,2',3,3',4,4',6-Heptachlorobiphenyl
 154 2,2',4,4',5,6'-Hexachlorobiphenyl
 200 2,2',3,3',4,5',6,6'-Octachlorobiphenyl
 98 2,2',3',4,6-Pentachlorobiphenyl
 47 2,2',4,4'-Tetrachlorobiphenyl
 29 2,4,5-Trichlorobiphenyl

Semi-Volatile Mixtures

M-525-4 1 x 1 mL
M-525-4-PAK **SAVE** 5 x 1 mL
 0.1 mg/mL in Acetone (PCP 0.4 mg/mL)

M-525-4-5X 1 x 1 mL
M-525-4-5X-PAK **SAVE** 5 x 1 mL
 0.5 mg/mL in Acetone (PCP 2.0 mg/mL)

Butylbenzylphthalate	Hexachlorobenzene
Di-n-butyl phthalate	Hexachlorocyclopentadiene
Diethylphthalate	bis(2-Ethylhexyl)phthalate
bis(2-Ethylhexyl)adipate	Pentachlorophenol (PCP)
Dimethyl phthalate	

Multi-Component / Analyte

M-525-5 1 x 1 mL
M-525-5-PAK **SAVE** 5 x 1 mL
 2.5 mg/mL in Acetone

Toxaphene

Internal Standard

M-525-IS 1 x 1 mL
M-525-IS-PAK **SAVE** 5 x 1 mL
 2.0 mg/mL each in CH₂Cl₂
 4 comps.

Acenaphthene-d ₁₀	Perylene-d ₁₂
Chrysene-d ₁₂	Phenanthrene-d ₁₀

Tuning Standards

CLP-TS 1 x 1 mL
CLP-TS-PAK **SAVE** 5 x 1 mL
 50 µg/mL in CH₂Cl₂

Perfluorokerosene

Fortification Standards

M-525-FS-1 1 x 1 mL
M-525-FS-1-PAK **SAVE** 5 x 1 mL
 0.5 mg/mL each in Acetone
 4 comps.

Acenaphthene-d ₁₀	Perylene-d ₁₂
Chrysene-d ₁₂	Phenanthrene-d ₁₀

M-525-TS 1 x 1 mL
M-525-TS-PAK **SAVE** 5 x 1 mL
 0.1 mg/mL in CH₂Cl₂

DFTPP

Surrogate Standard

M-525-SS 1 x 1 mL
M-525-SS-PAK **SAVE** 5 x 1 mL
 0.5 mg/mL in Acetone

Pyrene-d₁₀

M-525-FS-2 1 x 1 mL
M-525-FS-2-PAK **SAVE** 5 x 1 mL
 0.5 mg/mL in CH₂Cl₂

p-Terphenyl-d₁₄

Buy the Complete Set and Save

Method 525 Organic Compounds in Drinking Water Sets

M-525-SET 7 x 1 mL
 M-525-1, M-525-2, M-525-3, M-525-4
 M-525-5, M-525-IS, M-525-TS



EPA Method 500 Series

Method 525.2 (Revision 1.0) Organic Compounds in Drinking Water by Liquid-Solid Extraction and Capillary GC/MS

All 112 analytes (excluding Disulfoton sulfoxide and Disulfoton sulfone which can be found in the Pesticide section) listed in this revision can be found in the mixes below. We realize that many labs will not be analyzing for all of these analytes at one time since it is not practical or necessary in many instances. If all the analytes must be determined, the following multiple calibration mixes are offered to accomplish this task. Several of these mixes are from our current product line and are grouped as nitrogen/phosphorus pesticides, organochlorine pesticides, semi-volatiles, polyaromatics, PCB congeners, and individual multi-component solutions for the Aroclors and Toxaphene. These solutions can be purchased individually or as a complete set for your laboratory's particular needs. Additionally, the required surrogate, internal, and tuning standards are offered below.

Nitrogen/Phosphorus Pesticides

M-507A
M-507A-PAK **SAVE** **1 x 1 mL**
1.0 mg/mL each in MtBE **5 x 1 mL**
6 comps.

Ametryn	Disulfoton	Mephos
Cycloate	Fenamiphos	Prometon

M-507B
M-507B-PAK **SAVE** **1 x 1 mL**
1.0 mg/mL each in MtBE **5 x 1 mL**
9 comps.

Atrazine	Ethoprop	Propazine
Diphenamid	Mevinphos	Terbutryn
EPTC	Prometryne	Triadimefon

M-507C
M-507C-PAK **SAVE** **1 x 1 mL**
1.0 mg/mL each in MtBE **5 x 1 mL**
9 comps.

Butachlor	Metolachlor	Norflurazon
Carboxin	Metribuzin	Terbufos
Diazinon	MGK-264	Vernolate

M-507D
M-507D-PAK **SAVE** **1 x 1 mL**
1.0 mg/mL each in MtBE **5 x 1 mL**
10 comps.

Alachlor	Chlorpropham	Pronamide
Atraton	Hexazinone	Stirofos
Bromacil	Molinate	Tricyclazole
Butylate		

M-507E
M-507E-PAK **SAVE** **1 x 1 mL**
1.0 mg/mL each in MtBE **1 x 1 mL**
8 comps.

Dichlorvos	Napropamide	Terbutiuron
Fenarimol	Pebulate (<i>Tillam</i>)	Terbacil
Fluridone	Simetryn	

M-507F-R2
M-507F-R2-PAK **1 x 1 mL**
1.0 mg/mL each in Acetone **5 x 1 mL**
2 comps.

Methyl paraoxon	Simazine
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Auxiliary Standards

Internal Standard

M-525.2-IS **1 x 1 mL**
M-525.2-IS-PAK **SAVE** **5 x 1 mL**
0.5 mg/mL each in Acetone **3 comps.**

Acenaphthene-d ₁₀	Chrysene-d ₁₂	Phenanthrene-d ₁₀
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Surrogate Standard

M-525.2-SS **1 x 1 mL**
M-525.2-SS-PAK **SAVE** **5 x 1 mL**
0.5 mg/mL each in Acetone **3 comps.**

1,3-Dimethyl-2-nitrobenzene	Triphenylphosphate
Perylene-d ₁₂	

Internal/Surrogate Standard

M-525.2-IS/SS **1 x 1 mL**
M-525.2-IS/SS-PAK **SAVE** **5 x 1 mL**
0.5 mg/mL each in Acetone **6 comps.**

Acenaphthene-d ₁₀	Perylene-d ₁₂
Chrysene-d ₁₂	Phenanthrene-d ₁₀
1,3-Dimethyl-2-nitrobenzene	Triphenylphosphate

Tuning Standard

M-525.2-TS **1 x 1 mL**
0.5 mg/mL each in CH₂Cl₂ **3 comps.**

4,4'-DDT	DFTPP	Endrin
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Technical Note

Endrin & DDT can break down in the injection port at elevated temperatures. Breakdown can be monitored by running the Pesticide Degradation Standard (M-8081-DS). The problem can be alleviated by replacing the dirty injection port liner, or by using a lower injection port temperature.

Multi-Component Technical Solutions

Toxaphene

M-525-5 **1 x 1 mL**
2.5 mg/mL in Acetone

Aroclor 1254

C-254S-M-28.5X **1 x 1 mL**
1.0 mg/mL in MeOH

Aroclor® 1016

C-216S-M-28.5X **1 x 1 mL**
1.0 mg/mL in MeOH

Aroclor 1260

C-260S-M-28.5X **1 x 1 mL**
1.0 mg/mL in MeOH

Complete Method 525.2 Set

M-525.2-SET *

M-507A	M-507D	M-508P-A	M-525-2-5X	M-525.2-IS	C-216S-M-28.5X
M-507B	M-507E	M-508P-B-R2	M-525-4R-5X	M-525.2-SS	C-254S-M-28.5X
M-507C	M-507F-R2	M-525-1-5X	M-525-5	M-525.2-TS	C-260S-M-28.5X

* ColdPAK required to maintain integrity of product.



Method 525.2 (Continued) Organic Compounds in Drinking Water by Liquid-Solid Extraction and Capillary GC/MS

Chlorinated Pesticides

Mix A

M-508P-A

M-508P-A-PAK

1.0 mg/mL each in MtBE

SAVE

1 x 1 mL

5 x 1 mL

17 comps.

Aldrin	Endosulfan I
α-BHC	Endosulfan II
β-BHC	Endosulfan sulfate
δ-BHC	Endrin
γ-BHC	Endrin aldehyde
4,4'-DDD	Heptachlor
4,4'-DDE	Heptachlor epoxide (Isomer B)
4,4'-DDT	Methoxychlor
Dieldrin	

Mix B

M-508P-B-R2

M-508P-B-R2-PAK

1.0 mg/mL each in MtBE

SAVE

1 x 1 mL

5 x 1 mL

15 comps.

α-Chlordane	Etridiazole
γ-Chlordane	Hexachlorobenzene
Chlorobenzilate	trans-Nonachlor
Chloroneb	cis-Permethrin
Chlorothalonil	trans-Permethrin
Chlorpyrifos	Propachlor
Cyanazine	Trifluralin
DCPA	

Certificate will reflect actual cis/trans permethrin ratio

Semi-Volatile Analytes

PAH Mixtures

M-525-1-5X

M-525-1-5X-PAK

0.5 mg/mL each in Acetone

SAVE

1 x 1 mL

5 x 1 mL

13 comps.

Acenaphthylene	Chrysene
Anthracene	Dibenz[a,h]anthracene
Benz[a]anthracene	Fluorene
Benzo[b]fluoranthene	Indeno[1,2,3-cd]pyrene
Benzo[k]fluoranthene	Phenanthrene
Benzo[a]pyrene	Pyrene
Benzo[g,h,i]perylene	

PCB Congener Mixtures

M-525-2-5X

M-525-2-5X-PAK

0.5 mg/mL each in Acetone

SAVE

1 x 1 mL

5 x 1 mL

8 comps.

2-Chlorobiphenyl	2,2',3,3',4,5',6,6'-Octachlorobiphenyl
2,3-Dichlorobiphenyl	2,2',3',4,6-Pentachlorobiphenyl
2,2',3,3',4,4',6-Heptachlorobiphenyl	2,2',4,4'-Tetrachlorobiphenyl
2,2',4,4',5,6'-Hexachlorobiphenyl	2,4,5-Trichlorobiphenyl

Semi-Volatile Mixtures

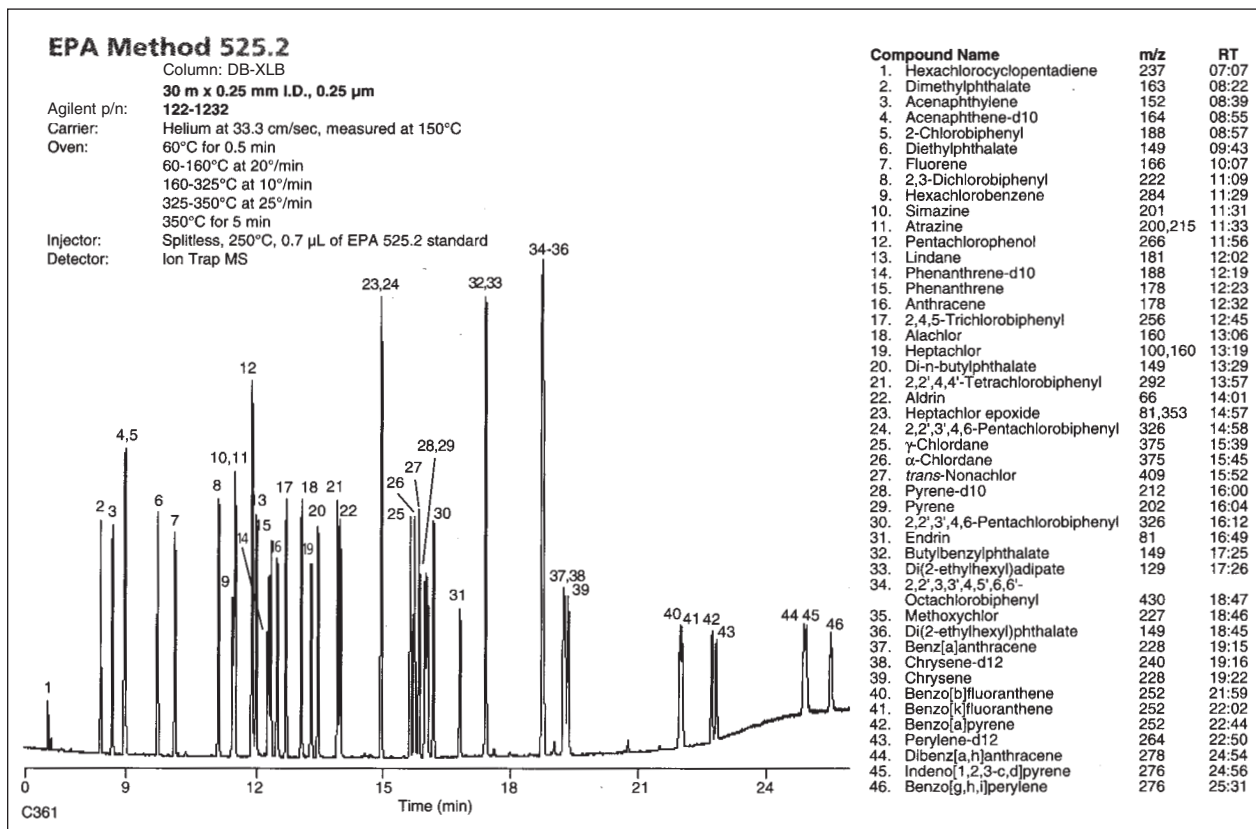
M-525-4-R-5X

0.5 mg/mL each in Acetone

1 x 1 mL

11 comps.

Butyl benzyl phthalate	2,6-Dinitrotoluene
Di-n-butyl phthalate	Hexachlorocyclopentadiene
Diethyl phthalate	bis(2-Ethylhexyl)phthalate
bis(2-Ethylhexyl)adipate	Isophorone
Dimethyl phthalate	Pentachlorophenol (2.0 mg/mL)
2,4-Dinitrotoluene	





EPA Method 500 Series

Method 525

Method 525.2 (Continued) Organic Compounds in Drinking Water by Liquid-Solid Extraction and Capillary GC/MS

These solutions are to be used individually or combined for calibration curve development. The Nitrogen Phosphorous Pesticides typically analyzed by NPD were combined into convenient solutions for possible use in other EPA methods such as 507. The Chlorinated Pesticides typically analyzed by ECD were combined into a convenient solution for use in this method or additional methods such as 505 or 508.1.

Nitrogen / Phosphorus Pesticide Mixture

M-525.2-NP1-ASL 1 x 1 mL
M-525.2-NP1-ASL-PAK **Alternate Source** 5 x 1 mL **SAVE**
100 µg/mL each in Acetone 41 comps.

Alachlor	Ethoprop	Prometryne
Ametryn	Fenarimol	Pronamide
Atraton	Fluridone	Propachlor
Atrazine	Hexazinone	Propazine
Bromacil	Methyl paraoxon	Simetryn
Butachlor	Metolachlor	Tetrachlorvinphos
Butylate	Metribuzin	Tebuthiuron
Chlorpropham	Mevinphos	Terbacil
Dursban	MGK-264	Prebane
Cycloate	Molinate	Triadimefon
Cyanazine	Napropamide	Tricyclazole
Dichlorvos	Norflurazon	Trifluralin
Diphenamid	Pebulate	Vernolate
EPTC	Prometon	

Semi-Volatiles Mixture

M-525.2-SV-ASL 1 x 1 mL
M-525.2-SV-ASL-PAK **Alternate Source** 5 x 1 mL **SAVE**
100 µg/mL each in Acetone 33 comps.

Acenaphthylene	2,4-Dinitrotoluene
Anthracene	2,6-Dinitrotoluene
Benz[a]anthracene	Fluorene
Benzo[b]fluoranthene	Hexachlorobenzene
Benzo[k]fluoranthene	2,2',4,4',5,6'-Hexachlorobiphenyl
Benzo[g,h,i]perylene	2,2',3,3',4,4',6-Heptachlorobiphenyl
Benz[a]pyrene	Hexachlorocyclopentadiene
Benzyl butyl phthalate	Indeno[1,2,3-cd]pyrene
2-Chlorobiphenyl	Isophorone
Chrysene	2,2',3,3',4,5',6,6'-Octachlorobiphenyl
Dibenz[a,h]anthracene	2,2',3',4,6-Pentachlorobiphenyl
2,3-Dichlorobiphenyl	Pentachlorophenol (400 µg/mL)
bis(2-Ethylhexyl)adipate	Phenanthrene
bis(2-Ethylhexyl)phthalate	Pyrene
Diethyl phthalate	2,2',4,4'-Tetrachlorobiphenyl
Dimethyl phthalate	2,4,5-Trichlorobiphenyl
Dibutyl phthalate	

Nitrogen / Phosphorus Pesticide Mix Revision

M-525.2-NP1-ASL-R1 1 x 1 mL
100 µg/mL each in Acetone **Alternate Source** 40 comps.

Alachlor	Ethoprop	Prometryne
Ametryn	Fenarimol	Pronamide
Atraton	Fluridone	Propachlor
Atrazine	Hexazinone	Propazine
Bromacil	Methyl paraoxon	Simetryn
Butachlor	Metolachlor	Tetrachlorvinphos
Butylate	Mevinphos	Tebuthiuron
Chlorpropham	MGK-264	Terbacil
Dursban	Molinate	Prebane
Cycloate	Napropamide	Triadimefon
Cyanazine	Norflurazon	Tricyclazole
Dichlorvos	Pebulate	Trifluralin
Diphenamid	Prometon	Vernolate
EPTC		

Regulated Semi-Volatiles Mixture

M-525-REG-ASL 1 x 1 mL
M-525-REG-ASL-PAK **Alternate Source** 5 x 1 mL **SAVE**
0.5 mg/mL each in Acetone 6 comps.

Benz[a]pyrene	Hexachlorobenzene
bis(2-Ethylhexyl)adipate	Hexachlorocyclopentadiene
bis(2-Ethylhexyl)phthalate	Pentachlorophenol (2.0 mg/mL)

ISTD/SS Fortification Solution

M-525.2-FS-ASL 1 x 1 mL
M-525.2-FS-ASL-PAK **Alternate Source** 5 x 1 mL **SAVE**
500 µg/mL each in Acetone 7 comps.

Acenaphthene-d ₁₀	Phenanthrene-d ₁₀
Chrysene-d ₁₂	Pyrene-d ₁₀
1,3-Dimethyl-2-nitrobenzene	Triphenylphosphate
Perylene-d ₁₂	

Nitrogen / Phosphorus Pesticide Mixture

M-525.2-NP2-ASL 1 x 1 mL
M-525.2-NP2-ASL-PAK **Alternate Source** 5 x 1 mL **SAVE**
100 µg/mL each in Acetone 6 comps.

Carboxin	Fenamiphos
Diazinon	Merphos
Disulfoton	Terbufos

Surrogate Standard

M-525.2-SS2-ASL 1 x 1 mL
M-525.2-SS2-ASL-PAK **Alternate Source** 5 x 1 mL **SAVE**
500 µg/mL each in Acetone 4 comps.

1,3-Dimethyl-2-nitrobenzene	Pyrene-d ₁₀
Perylene-d ₁₂	Triphenylphosphate

Organochlorine Pesticides

M-525.2-CP-ASL 1 x 1 mL
M-525.2-CP-ASL-PAK **Alternate Source** 5 x 1 mL **SAVE**
100 µg/mL each in Acetone 30 comps.

Alachlor	Dacthal	Etridiazole
Aldrin	p,p'-DDD	α-Chlordane
Atrazine	p,p'-DDE	γ-Chlordane
α-BHC	p,p'-DDT	Heptachlor
β-BHC	Dieldrin	Heptachlor epoxide (Isomer B)
δ-BHC	Endosulfan I	Methoxychlor
γ-BHC	Endosulfan II	cis-Permethrin
Chlorobenzilate	Endosulfan sulfate	trans-Permethrin
Chlorothalonil	Endrin	Simazine
Chloroneb	Endrin aldehyde	trans-Nonachlor

Regulated Semi-Volatiles Mixture

M-525-REG-EA 1 x 1 mL
100 µg/mL each in Ethyl acetate 25 comps.

M-525-REG-EA-5X 1 x 1 mL
500 µg/mL each in Ethyl acetate 25 comps.

Alachlor	Endrin
Aldrin	Heptachlor
Atrazine	Heptachlor epoxide (Isomer B)
Benz(a)pyrene	Hexachlorobenzene
Butachlor	Hexachlorocyclopentadiene
α-Chlordane	Lindane
γ-Chlordane	Methoxychlor
Cyanazine	Metolachlor
Dieldrin	Metribuzin
2,4-Dinitrotoluene	trans-Nonachlor
2,6-Dinitrotoluene	Propachlor
bis(2-Ethylhexyl)adipate	Simazine
bis(2-Ethylhexyl)phthalate	

Match frequently requested products.

Alternate Source ASL products can be used as an independent second source.



Method 526 Semi-Volatiles by GC/MS

Primary Dilution Standard

M-526-0.2X-EA 1 x 1 mL
M-526-0.2X-EA-PAK 5 x 1 mL
 200 µg/mL each in Ethyl acetate **SAVE** 11 comps.

M-526 1 x 1 mL
M-526-PAK 5 x 1 mL
 1000 µg/mL each in Acetone **SAVE** 11 comps.

Acetochlor	Dyfonate
Cyanazine	Nitrobenzene
Diazinon	Prometon
2,4-Dichlorophenol	Terbufos
1,2-Diphenylhydrazine	2,4,6-Trichlorophenol
Disulfoton	

Internal/Surrogate Standards

M-526-IS/SS 1 x 1 mL
M-526-IS/SS-PAK 5 x 1 mL
 500 µg/mL each in Acetone **SAVE** 5 comps.

Acenaphthene-d ₁₀	Phenanthrene-d ₁₀
Chrysene-d ₁₂	Triphenylphosphate
1,3-Dimethyl-2-nitrobenzene	

M-525-TS 1 x 1 mL
M-525-TS-PAK 5 x 1 mL
 100 µg/mL in CH₂C₂ **SAVE**

DFTPP

Internal Standard

M-525.2-IS 1 x 1 mL
M-525.2-IS-PAK 5 x 1 mL
 500 µg/mL each in Acetone **SAVE** 3 comps.

Acenaphthene-d ₁₀	Phenanthrene-d ₁₀
Chrysene-d ₁₂	

Surrogate Standard

M-526-SS 1 x 1 mL
M-526-SS-PAK 5 x 1 mL
 500 µg/mL each in Acetone **SAVE** 2 comps.

1,3-Dimethyl-2-nitrobenzene	Triphenylphosphate
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Method 527 Pesticides & Flame Retardants in Drinking Water by SPE & Capillary GC/MS

PBDE Standard

M-527-BDE 1 x 1 mL
 50 µg/mL each in Isooctane:Ethyl Acetate (80:20) 5 comps.

2,2',4,4'-Tetrabromodiphenyl ether
 2,2',4,4',6-Pentabromodiphenyl ether
 2,2',4,4',5-Pentabromodiphenyl ether
 2,2',4,4',5,5'-Hexabromodiphenyl ether
 2,2',4,4',5,5'-Hexabromobiphenyl

Pesticide Mix A

M-527-PEST-A 1 x 1 mL
 500 µg/mL each in MeOH 11 comps.

Atrazine	Kepone
Bioallethrin, S-cyclopentyl isomer	Norflurazon
Bromacil	Oxychlorane isomer
Esfenvalerate	Prometryne
Fenvalerate	Propazine
Hexazinone	

Pesticide Mix B

M-527-PEST-B 1 x 1 mL
 500 µg/mL each in MeOH 12 comps.

Bifenthrin	Nitrofen
Dimethoate	Parathion
Dursban	Terbufos sulfone
Fenamiphos	Thiazopyr
Malathion	Thiobencarb
Mirex	Vinclozolin

Internal Standard

M-525.2-IS 1 x 1 mL
M-525.2-IS-PAK 5 x 1 mL
 0.5 mg/mL each in Acetone **SAVE** 3 comps.

Acenaphthene-d ₁₀	Phenanthrene-d ₁₀
Chrysene-d ₁₂	

Surrogate Standard

M-525.2-SS 1 x 1 mL
M-525.2-SS-PAK 5 x 1 mL
 0.5 mg/mL each in Acetone **SAVE** 3 comps.

1,3-Dimethyl-2-nitrobenzene	Triphenylphosphate
Perylene-d ₁₂	





EPA Method 500 Series

Method 528-529

Method 528 Phenols by GC/MS

Stock Calibration Standard

M-528-CONC		1 x 1 mL
M-528-CONC-PAK	SAVE	5 x 1 mL
2000 µg/mL each in CH ₂ Cl ₂		
4-Chloro-3-methylphenol	2-Methyl-4,6-Dinitrophenol	
2-Chlorophenol	2-Nitrophenol	
o-Cresol	4-Nitrophenol	
2,4-Dichlorophenol	Pentachlorophenol	
2,4-Dimethylphenol	Phenol	
2,4-Dinitrophenol	2,4,6-Trichlorophenol	

Analyte Fortification Solution

M-528-AFS		1 x 1 mL
M-528-AFS-PAK	SAVE	5 x 1 mL
At stated conc. (µg/mL) in MeOH		
4-Chloro-3-methylphenol	100	2-Methyl-4,6-Dinitrophenol
2-Chlorophenol	100	2-Nitrophenol
o-Cresol	100	4-Nitrophenol
2,4-Dichlorophenol	100	Pentachlorophenol
2,4-Dimethylphenol	100	Phenol
2,4-Dinitrophenol	500	2,4,6-Trichlorophenol

Internal Standard

M-528-IS		1 x 1 mL
M-528-IS-PAK	SAVE	5 x 1 mL
At stated conc. (µg/mL) in CH ₂ Cl ₂		
1,2-Dimethyl-3-nitrobenzene	1000	
2,3,4,5-Tetrachlorophenol	2000	

Surrogate Standards

M-528-SS		1 x 1 mL
M-528-SS-PAK	SAVE	5 x 1 mL
At stated conc. (µg/mL) in MeOH		
2-Chlorophenol-d ₄	1000	
2,4-Dimethylphenol-3,5,6-d ₃	1000	
2,4,6-Tribromophenol	2500	

Peak Tailing Factor Standard

M-528-PTF		1 x 1 mL
M-528-PTF-PAK	SAVE	5 x 1 mL
10 µg/mL each in CH ₂ Cl ₂		
2,4-Dimethylphenol	4-Nitrophenol	
2-Methyl-4,6-dinitrophenol	Pentachlorophenol	

M-528-SS2		1 x 1 mL
M-528-SS2-PAK	SAVE	5 x 1 mL
At stated conc. (µg/mL) in MeOH		
2-Chlorophenol-d ₄	1000	
2,4-Dimethylphenol-3,5,6-d ₃	1000	
2,4,6-Tribromophenol	2000	

Method 529 Explosive & Related Compounds by SPE & Capillary Column GC/MS

Method 529 Calibration Curve

At stated conc. (µg/mL) in Ethyl acetate

M-529-	01	02	03	04	05	06	07	08	09
2-Amino-4,6-dinitrotoluene	0.025	0.05	0.10	0.25	0.50	1.0	2.0	5.0	10
4-Amino-2,6-dinitrotoluene	0.025	0.05	0.10	0.25	0.50	1.0	2.0	5.0	10
3,5-Dinitroaniline	0.025	0.05	0.10	0.25	0.50	1.0	2.0	5.0	10
1,3-Dinitrobenzene	0.025	0.05	0.10	0.25	0.50	1.0	2.0	5.0	10
2,4-Dinitrotoluene	0.025	0.05	0.10	0.25	0.50	1.0	2.0	5.0	10
2,6-Dinitrotoluene	0.025	0.05	0.10	0.25	0.50	1.0	2.0	5.0	10
RDX	0.025	0.05	0.10	0.25	0.50	1.0	2.0	5.0	10
Nitrobenzene	0.025	0.05	0.10	0.25	0.50	1.0	2.0	5.0	10
2-Nitrotoluene	0.025	0.05	0.10	0.25	0.50	1.0	2.0	5.0	10
3-Nitrotoluene	0.025	0.05	0.10	0.25	0.50	1.0	2.0	5.0	10
4-Nitrotoluene	0.025	0.05	0.10	0.25	0.50	1.0	2.0	5.0	10
1,3,5-Trinitrobenzene	0.025	0.05	0.10	0.25	0.50	1.0	2.0	5.0	10
Tetryl	0.025	0.05	0.10	0.25	0.50	1.0	2.0	5.0	10
TNT	0.025	0.05	0.10	0.25	0.50	1.0	2.0	5.0	10

Full Scan MS Calibration Set

M-529-MS-SET **6 x 1 mL**
 M-529-03, M-529-05, M-529-06,
 M-529-07, M-529-08, M-529-09

SIM Calibration Set

M-529-SIM-SET **7 x 1 mL**
 M-529-01, M-529-02, M-529-03,
 M-529-04, M-529-05, M-529-06,
 M-529-07

Internal Standard Stock Solution

M-529-IS		1 x 1 mL
2.0 mg/mL Ethyl acetate		
3,4-Dinitrotoluene		

Surrogate Analyte Stock Solutions

M-529-SS1		1 x 1 mL
M-529-SS1-PAK	SAVE	5 x 1 mL
1000 µg/mL each in MeOH		
1,3,5-Trimethyl-2-nitrobenzene		1,2,4-Trimethyl-5-nitrobenzene

Internal Standard Fortification Solution

M-529-ISFS		1 x 1 mL
200 µg/mL Ethyl acetate:AcCN (96:4)		
2-Amino-4,6-dinitrotoluene	Nitrobenzene	
4-Amino-2,6-dinitrotoluene	2-Nitrotoluene	
3,5-Dinitroaniline	3-Nitrotoluene	
1,3-Dinitrobenzene	4-Nitrotoluene	
2,4-Dinitrotoluene	1,3,5-Trinitrobenzene	
2,6-Dinitrotoluene	Tetryl	
RDX	TNT	

M-529-SS2		1 x 1 mL
M-529-SS2-PAK	SAVE	5 x 1 mL
1000 µg/mL each in CH ₂ Cl ₂		
Nitrobenzene-d ₅		

Surrogate Analyte Fortification Solution

M-529-SAFS		1 x 1 mL
100 µg/mL each in MeOH		
1,3,5-Trimethyl-2-nitrobenzene		Nitrobenzene-d ₅
1,2,4-Trimethyl-5-nitrobenzene		



Method 531 + 531.1 N-Methyl carbamoyl oximes & N-Methyl carbamates by HPLC

Method 531 Compounds (HPLC)

1 mL		1 mL	
Compound	Cat. No.	Compound	Cat. No.
Aldicarb sulfoxide	M-531-01	Propoxur	M-531-07
Aldicarb sulfone	M-531-02	Carbofuran	M-531-08
Oxamyl	M-531-03	Carbaryl	M-531-09
Methomyl	M-531-04	1-Naphthol	M-531-10
3-Hydroxycarbofuran	M-531-05	Methiocarb	M-531-11
Aldicarb	M-531-06		

M-531-SET 11 x 1 mL
Each at 0.1 mg/mL in AcCN

M-531M 1 x 1 mL
M-531M-PAK **SAVE** 5 x 1 mL
0.1 mg/mL each in AcCN 11 comps. listed above

Performance Check Solution

M-531-QC-R 1 x 1 mL
At stated conc. (µg/mL) in AcCN 4 comps.

Aldicarb sulfoxide	100	3-Hydroxycarbofuran	2
BDMC	10	Methiocarb	20

Internal Standard

M-531-IS 1 x 1 mL
0.1 mg/mL in AcCN
4-Bromo-3,5-dimethylphenyl-N-methylcarbamate (BDMC)

Carbamate Pesticide Mix

M-531-REG-ASL 1 x 1 mL
M-531-REG-ASL-PAK **SAVE** 5 x 1 mL
100 µg/mL in MeOH 2 comps.
Carbofuran Oxamyl

Method 535 Acetanilide/Acetamide Herbicide Degradates

Ethanesulfonic acid (ESA) and oxanilic acid (OA) degradation products of acetanilide/acetamide herbicides have been found in U.S. ground waters and surface waters. The substitution of the sulfonic acid or the carbonic acid for the chlorine atom greatly increases the water solubility of degradates relative to the parent compound and contributes to the increased potential for leaching into groundwater. As a result, alachlor ESA and other acetanilide degradation products were listed on the 1998 Safe Drinking Water Act Contaminant Candidate List (CCL). One acetamide and five acetanilide herbicides are currently registered for agricultural use in the U.S. The next step in the CCL-process is to collect data on the concentrations and occurrence of these compounds in the nation's drinking water supplies. However, the existing analytical methods for measuring chloroacetanilide degradates do not address issues specific to analyzing these compounds in drinking water. Because many of the methods were developed for ground water, dechlorination was not addressed nor was the method tested in all types of drinking water matrices. In addition, existing methods do not address all twelve ESA and OA degradates of the six U.S. registered acetanilide/acetamide herbicides. The focus of this research was to develop a sensitive and specific analytical method for the analysis of alachlor ESA and other chloroacetanilide degradates in drinking water.

Method 535 Set

M-535-SET 14 x 1 mL
At stated conc. (µg/mL) in MeOH

Acetochlor ESA	50	Propachlor ESA	20
Acetochlor OA	50	Propachlor OA	20
Alachlor ESA	50	Dimethenamid ESA	10
Alachlor OA	50	Dimethenamid OA	10
Flufenacet ESA	20	Butachlor ESA sodium salt	20
Flufenacet OA	20	(internal standard)	
Metolachlor ESA	50	Dimethachlor ESA sodium salt	20
Metolachlor OA	50	(surrogate standard)	

Method 532 Phenylureas by HPLC

Phenylurea Concentrate Standard

M-532-CONC1 1 x 1 mL
M-532-CONC1-PAK **SAVE** 5 x 1 mL
5.0 mg/mL each in MeOH 6 comps.
Karmex Linuron Siduron
Fluometuron Propanil Tebuthiuron

Phenylurea Concentrate Standard

M-532-CONC2 1 x 1 mL
M-532-CONC2-PAK **SAVE** 5 x 1 mL
5.0 mg/mL each in Acetone 2 comps.
Diflubenzuron Thidiazuron

Phenylurea Primary Dilution Standard

M-532 1 x 1 mL
M-532-PAK **SAVE** 5 x 1 mL
100 µg/mL each in MeOH, except Siduron 8 comps.
Diflubenzuron Linuron Tebuthiuron
Karmex Propanil Thidiazuron
Fluometuron Siduron (200 µg/mL)

Phenylurea Surrogate Standard

M-532-SS 1 x 1 mL
M-532-SS-PAK **SAVE** 5 x 1 mL
500 µg/mL each in MeOH 2 comps.
Carbazole Monuron



EPA Method 500 Series

Method 537-551

Method 537 Perfluorinated Compounds (PFCs)

Compound	CAS No.	Conc.	Matrix	Cat. No.	1 mL
Perfluorooctanoic acid	335-67-1	100 mg	NEAT	PFOA-001N	
		100 µg/mL	MeOH	PFOA-001S	
Perfluorobutanoic acid	375-22-4	100 µg/mL	MeOH	PFOA-002S	
Perfluorodecanoic acid	335-76-2	100 µg/mL	MeOH	PFOA-003S	
Perfluorododecanoic acid	307-55-1	100 µg/mL	MeOH	PFOA-004S	
Perfluoroheptanoic acid	375-85-9	100 µg/mL	MeOH	PFOA-005S	
Perfluorohexanoic acid	307-24-4	100 µg/mL	MeOH	PFOA-006S	
Perfluorononanoic acid	375-95-1	100 µg/mL	MeOH	PFOA-007S	
Perfluoropentanoic acid	2706-90-3	100 µg/mL	MeOH	PFOA-008S	
Perfluoroundecanoic acid	2058-94-8	100 µg/mL	MeOH	PFOA-009S	
2H,2H,3H,3H-Perfluoroundecanoic acid	34598-33-9	100 µg/mL	MeOH	PFOA-010S	
Perfluorooctane sulfonic acid	1763-23-1	100 µg/mL	MeOH	PFOS-001S	
Potassium perfluorooctanesulfonate	2795-39-3	100 mg	NEAT	PFOS-002N	
		100 µg/mL	MeOH	PFOS-002S	
Scotchgard™ Pre-2002 Formulation (Tech mix)		100 µg/mL	MeOH	PFOS-SCG-001S	
Scotchgard™ Post-2002 Formulation (Tech mix)		100 µg/mL	MeOH	PFOS-SCG-002S	

Registered Trademarks
Scotchgard 3M

Method 547 Glyphosate by HPLC

M-547 0.1 mg/mL in Deionized water	1 x 1 mL
M-547-10X 1.0 mg/mL in Deionized water Glyphosate	1 x 1 mL

Glyphosate Metabolite

M-547-02 0.1 mg/mL in Deionized water Aminomethyl phosphonic acid (AMPA)	1 x 1 mL
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Method 548 Endothall by GC/ECD

M-548A 10 µg/mL in Deionized water	1 x 1 mL
M-548B 50 µg/mL in Deionized water Endothall	1 x 1 mL

Internal Standard

M-548-IS 10 µg/mL in MtBE Endosulfan I	1 x 1 mL
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Calibration Standard

M-548-CAL 100 µg/mL in MtBE Endothall pentafluorophenyl hydrazine derivative	1 x 1 mL
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Method 548.1 Endothall by GC/MS

P-183S 100 µg/mL in MeOH Endothall	1 x 1 mL
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Internal Standard

M-548.1-IS 500 µg/mL in MeOH Acenaphthene-d ₁₀	1 x 1 mL
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Methyl Derivative

M-548.1-ME 100 µg/mL in MeOH Endothall dimethyl ester	1 x 1 mL
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Method 549.1/549.2 Diquat & Paraquat Liquid - Solid Extraction & HPLC

M-549.1 1.0 mg/mL each in Deionized water as non-hydrated species	1 x 1 mL 2 comps.
Diquat dibromide - H ₂ O (1.97 mg/mL) Paraquat dichloride - 4 H ₂ O (1.77 mg/mL)	

Method 550 + 550.1 PAHs by HPLC & Internal Standard

M-550-QC At stated conc. (µg/mL) in AcCN	1 x 1 mL 16 comps.
Acenaphthene 1000	Chrysene 50
Acenaphthylene 1000	Dibenz[a,h]anthracene 10
Anthracene 50	Fluoranthene 2.5
Benz[a]anthracene 1	Fluorene 100
Benz[a]pyrene 5	Indeno[1,2,3-cd]pyrene 10
Benzo[b]fluoranthene 1	Naphthalene 1000
Benzo[g,h,i]perylene 5	Phenanthrene 50
Benzo[k]fluoranthene 1	Pyrene 50

Internal Standard

M-550-IS 0.1 mg/mL in AcCN 4,4'-Difluorobiphenyl	1 x 1 mL
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Method 551 Chlorinated Organic Solvents + Trihalomethanes by GC/ECD

M-551A M-551A-PAK 5.0 mg/mL each in MeOH	SAVE	1 x 1 mL 5 x 1 mL 10 comps.
Bromodichloromethane	1,2-Dibromoethane	
Bromoform	1,2-Dibromo-3-chloropropane	
Carbon tetrachloride	Tetrachloroethene	
Chlorodibromomethane	1,1,1-Trichloroethane	
Chloroform	Trichloroethene	

Disinfection By-products

M-551B 5.0 mg/mL each in Acetone	1 x 1 mL 8 comps.
M-551B-SET Each at 5.0 mg/mL in Acetone	8 x 1 mL

	Cat. No.	1 mL
Bromochloroacetonitrile	M-551B-1	
Chloral hydrate	M-551B-2	
Chloropicrin	M-551B-3	
Dibromoacetonitrile	M-551B-4	
Dichloroacetonitrile	M-551B-5	
1,1-Dichloro-2-propanone	M-551B-6	
Trichloroacetonitrile	M-551B-7	
1,1,1-Trichloro-2-propanone	M-551B-8	



Method 551.1A Chlorinated Solvents, Trihalomethanes Disinfection By-products & Halogenated Pesticides/Herbicides in Drinking Water by GC/ECD

Chlorinated Organic Solvents + Trihalomethanes

M-551.1A		1 x 1 mL
M-551.1A-PAK	SAVE	5 x 1 mL
At stated conc. ($\mu\text{g/mL}$) in Acetone		
Bromodichloromethane	1000	12 comps.
Bromoform	1000	
Carbon tetrachloride	500	
Chloroform	1000	
Dibromochloromethane	1000	
1,2-Dibromo-3-chloropropane	1000	
1,2-Dibromoethane	1000	
Tetrachloroethene	500	
1,1,1-Trichloroethane	1000	
1,1,2-Trichloroethane	10,000	
Trichloroethene	1000	
1,2,3-Trichloropropane	10,000	

Disinfection By-products

M-551.1B		1 x 1 mL
M-551.1B-PAK	SAVE	5 x 1 mL
1000 $\mu\text{g/mL}$ each in Acetone		
Bromochloroacetonitrile	Dichloroacetonitrile	
Chloral hydrate	1,1-Dichloro-2-propanone	
Chloropicrin	Trichloroacetonitrile	
Dibromoacetonitrile	1,1,1-Trichloro-2-propanone	

Pesticide/Herbicide Mixture

M-551.1C		1 x 1 mL
M-551.1C-PAK	SAVE	5 x 1 mL
At stated conc. ($\mu\text{g/mL}$) in Acetone		
Alachlor	10	17 comps.
Atrazine	200	
Bromacil	10	
Cyanazine	30	
Endrin	2	
Endrin aldehyde	2	
Endrin ketone	2	
Heptachlor	1	
Heptachlor epoxide (Isomer B)	1	
Hexachlorobenzene	1	
Hexachlorocyclopentadiene	1	
Lindane	1	
Methoxychlor	5	
Metolachlor	10	
Metribuzin	5	
Simazine	200	
Trifluralin	1	

Technical Note

- Method 551.1A analytes are formulated into **3 separate solutions** to meet various analytical laboratory testing requirements. Each solution is intended for use as a stand-alone formulation or in combination with the other two solutions.
- Chloral hydrate** is a DEA schedule IV drug. AccuStandard has the necessary license and exemption approval to offer this analyte in a multi-component formulation. This multi-component formulation containing chloral hydrate is tested for stability. In addition, the solution is manufactured in small batches to insure the freshest product.

Using the 3 mixture version not only provides versatility but also eliminates running two separate 5 point calibration curves (one for the core analytes and a separate Chloral hydrate curve).

Method 551.1A Auxiliary Standards by ECD

Laboratory Performance Check Solutions

Pentane Extracts

M-551.1-LPC-P		1 x 1 mL
M-551.1-LPC-P-PAK	SAVE	5 x 1 mL
At stated conc. ($\mu\text{g/mL}$) in Pentane		
Alachlor	83	7 comps.
Bromacil	83	
Bromodichloromethane	30	
Endrin	30	
Hexachlorocyclopentadiene	20	
Lindane	0.2	
Trichloroethene	30	

MtBE Extracts

M-551.1-LPC		1 x 1 mL
M-551.1-LPC-PAK	SAVE	5 x 1 mL
At stated conc. ($\mu\text{g/mL}$) in MtBE		
Alachlor	83	7 comps.
Bromacil	83	
Bromodichloromethane	30	
Endrin	30	
Hexachlorocyclopentadiene	20	
Lindane	0.2	
Trichloroethene	30	

Internal Standard Solutions

M-551.1-IS		1 x 1 mL
M-551.1-IS-PAK	SAVE	5 x 1 mL
100 $\mu\text{g/mL}$ in Acetone		
M-551.1-IS-100X		1 x 1 mL
M-551.1-IS-100X-PAK	SAVE	5 x 1 mL
10,000 $\mu\text{g/mL}$ in Acetone		
<i>p</i> -Bromofluorobenzene		

Modified Laboratory Performance Check Solutions

Pentane Extracts

M-551.1-MLPC-P		1 x 1 mL
M-551.1-MLPC-P-PAK	SAVE	5 x 1 mL
At stated conc. ($\mu\text{g/mL}$) in Pentane		
γ -BHC	0.2	4 comps.
Bromodichloromethane	30	
Hexachlorocyclopentadiene	20	
Trichloroethene	30	

MtBE Extracts

M-551.1-MLPC		1 x 1 mL
M-551.1-MLPC-PAK	SAVE	5 x 1 mL
At stated conc. ($\mu\text{g/mL}$) in MtBE		
γ -BHC	0.2	4 comps.
Bromodichloromethane	30	
Hexachlorocyclopentadiene	20	
Trichloroethene	30	

Surrogate Standard Solutions

M-551.1-SS		1 x 1 mL
M-551.1-SS-PAK	SAVE	5 x 1 mL
10 $\mu\text{g/mL}$ in Acetone		
M-551.1-SS-100X		1 x 1 mL
M-551.1-SS-100X-PAK	SAVE	5 x 1 mL
1,000 $\mu\text{g/mL}$ in Acetone		
Decafluorobiphenyl		



EPA Method 500 Series

Method 552

Method 552 Haloacetic Acids by ECD

Methyl Derivatives

M-552-R 1 x 1 mL
1.0 mg/mL each in MtBE 8 comps.

M-552-R-SET 8 x 1 mL
Each at 1.0 mg/mL in MtBE

	Cat. No.	1 mL
2,4-Dichloroanisole	M-552-R-01	
Methyl bromoacetate	M-552-R-02	
Methyl bromochloroacetate	M-552-R-03	
Methyl chloroacetate	M-552-R-04	
Methyl dibromoacetate	M-552-R-05	
Methyl dichloroacetate	M-552-R-06	
Methyl trichloroacetate	M-552-R-07	
2,4,6-Trichloroanisole	M-552-R-08	

Underivatized Analytes

M-552A-R 1 x 1 mL
1.0 mg/mL each in MtBE 8 comps.

M-552A-R-SET 8 x 1 mL
Each at 1.0 mg/mL in MtBE

	Cat. No.	1 mL
Bromoacetic acid	M-552A-R-01	
Bromochloroacetic acid	M-552A-R-02	
Chloroacetic acid	M-552A-R-03	
Dibromoacetic acid	M-552A-R-04	
Dichloroacetic acid	M-552A-R-05	
2,4-Dichlorophenol	M-552A-R-06	
Trichloroacetic acid	M-552A-R-07	
2,4,6-Trichlorophenol	M-552A-R-08	

Internal Standards

APP-9-208-10X 1 x 1 mL
APP-9-208-10X-PAK **SAVE** 5 x 1 mL
1.0 mg/mL in MeOH

1,2,3-Trichloropropane

M-552-IS 1 x 1 mL
M-552-IS-PAK **SAVE** 5 x 1 mL
5.0 mg/mL in MeOH

1,2-Dibromopropane

Surrogate Standards as Acids & Methyl esters

P-242S-10X 1 x 1 mL
P-242S-10X-PAK **SAVE** 5 x 1 mL
1.0 mg/mL in MeOH

3,5-Dichlorobenzoic acid

P-247S-10X 1 x 1 mL
P-247S-10X-PAK **SAVE** 5 x 1 mL
1.0 mg/mL in MeOH

Methyl 3,5-dichlorobenzoate

M-552-SS 1 x 1 mL
M-552-SS-PAK **SAVE** 5 x 1 mL
20 mg/mL in MtBE

2,3-Dibromopropionic acid

M-552-SS-ME 1 x 1 mL
M-552-SS-ME-PAK **SAVE** 5 x 1 mL
20 mg/mL in MtBE

Methyl 2,3-dibromopropionate

Method 552.1 Haloacetic Acids by ECD

Methyl Derivatives

M-552.1 1 x 1 mL
At stated conc. (µg/mL) in MeOH 7 comps.

M-552.1-SET 7 x 1 mL
Each at stated conc. (µg/mL) in MeOH

	Conc.	Cat. No.	1 mL
Dalapon methyl ester	200	M-552.1-01	
Methyl bromoacetate	200	M-552.1-02	
Methyl bromochloroacetate	200	M-552.1-03	
Methyl chloroacetate	300	M-552.1-04	
Methyl dibromoacetate	100	M-552.1-05	
Methyl dichloroacetate	300	M-552.1-06	
Methyl trichloroacetate	100	M-552.1-07	

Underivatized Analytes

M-552.1A 1 x 1 mL
At stated conc. (µg/mL) in MeOH 7 comps.

M-552.1A-SET 7 x 1 mL
Each at stated conc. (µg/mL) in MeOH

Dalapon	200	Dibromoacetic acid	100
Bromoacetic acid	200	Dichloroacetic acid	300
Bromochloroacetic acid	200	Trichloroacetic acid	100
Chloroacetic acid	300		

Internal Standard

M-552.1-IS 1 x 1 mL
M-552.1-IS-PAK **SAVE** 5 x 1 mL
1.0 mg/mL in MtBE

1,2,3-Trichloropropane

Surrogate Standards

M-552.1-SS 1 x 1 mL
M-552.1-SS-PAK **SAVE** 5 x 1 mL
1.0 mg/mL in MtBE

2-Bromopropionic acid

M-552.1-SS-ME 1 x 1 mL
M-552.1-SS-ME-PAK **SAVE** 5 x 1 mL
1.0 mg/mL in MtBE

Methyl 2-bromopropionate

Buy AccuPAKs
Save 20-40% 5 x 1 mL





Method 552.2 Haloacetic Acids & Dalapon in Drinking Water by L-L extraction, Derivatization & GC by ECD

These convenient sets of 10 individual ampules for Method 552.2, each containing a single analyte or its methyl derivative, were formulated with both the acids and their methyl derivatives and with and without the surrogate.

Methyl Derivatives

Haloacetic Acid Methyl Derivatives without Surrogates

M-552.2-R1	1 x 1 mL
At stated conc. ($\mu\text{g/mL}$) in MtBE	10 comps.
M-552.3-R1	1 x 1 mL
100 $\mu\text{g/mL}$ each in MtBE	10 comps.
M-552.2-SET *	10 x 1 mL
Each at stated conc. ($\mu\text{g/mL}$) in MtBE	

	Conc.	Cat. No.	1 mL
Dalapon methyl ester	40	M-552.2-01	
Methyl bromoacetate	40	M-552.2-02	
Methyl bromochloroacetate	40	M-552.2-03	
Methyl bromodichloroacetate	40	M-552.2-04	
Methyl chloroacetate	60	M-552.2-05	
Methyl chlorodibromoacetate	100	M-552.2-06	
Methyl dibromoacetate	20	M-552.2-07	
Methyl dichloroacetate	60	M-552.2-08	
Methyl tribromoacetate	200	M-552.2-09 *	
Methyl trichloroacetate	20	M-552.2-10	

Haloacetic Acid Methyl Derivatives with Surrogate (Methyl-2,3-dibromopropionate)

M-552.2	1 x 1 mL		
At stated conc. ($\mu\text{g/mL}$) in MtBE	11 comps.		
M-552.3	1 x 1 mL		
100 $\mu\text{g/mL}$ each in MtBE	11 comps.		
Dalapon methyl ester	40	Methyl dibromoacetate	20
Methyl bromoacetate	40	Methyl dichloroacetate	60
Methyl bromochloroacetate	40	Methyl tribromoacetate	200
Methyl bromodichloroacetate	40	Methyl trichloroacetate	20
Methyl chloroacetate	60	Methyl 2,3-dibromopropionate	100
Methyl chlorodibromoacetate	100	(Surrogate)	

Surrogate Standard - Haloacetic Acid Methyl Derivative

M-552.2-SS-ME	1 x 1 mL
1000 $\mu\text{g/mL}$ in MtBE	
Methyl 2,3-dibromopropionate	

Laboratory Performance Check Solution

M-552.2-LPC	1 x 1 mL
M-552.2-LPC-PAK	SAVE
At stated conc. ($\mu\text{g/mL}$) in MtBE	5 x 1 mL
	4 comps.
Methyl bromochloroacetate	4
Methyl chloroacetate	6
Methyl chlorodibromoacetate	10
Methyl 2,3-dibromopropionate	10

Working Level

M-552.2-LPC-WL-25ML	1 x 25 mL
M-552.2-LPC-WL-50ML	1 x 50 mL
At stated conc. (ng/mL) in MtBE	4 comps.
Methyl bromochloroacetate	4
Methyl chloroacetate	6
Methyl chlorodibromoacetate	10
Methyl 2,3-dibromopropionate	10

Haloacetic Acids

Haloacetic Acid without Surrogate

M-552.2A-R1	1 x 1 mL
At stated conc. ($\mu\text{g/mL}$) in MtBE	10 comps.
M-552.3A-R1	1 x 1 mL
100 $\mu\text{g/mL}$ each in MtBE	10 comps.
M-552.2A-SET	10 x 1 mL
Each at stated conc. ($\mu\text{g/mL}$) in MtBE	

	Conc.	Cat. No.	1 mL
Dalapon acid	40	M-552.2A-04	
Monobromoacetic acid	40	M-552.2A-07	
Bromochloroacetic acid	40	M-552.2A-01	
Bromodichloroacetic acid	40	M-552.2A-02	
Monochloroacetic acid	60	M-552.2A-08	
Chlorodibromoacetic acid	100	M-552.2A-03	
Dibromoacetic acid	20	M-552.2A-05	
Dichloroacetic acid	60	M-552.2A-06	
Tribromoacetic acid	200	M-552.2A-09	
Trichloroacetic acid	20	M-552.2A-10	

Haloacetic Acid Mix with Surrogate (2,3-Dibromopropionic acid)

M-552.2A	1 x 1 mL		
At stated conc. ($\mu\text{g/mL}$) in MtBE	11 comps.		
Dalapon acid	40	Dibromoacetic acid	20
Bromoacetic acid	40	Dichloroacetic acid	60
Bromochloroacetic acid	40	Tribromoacetic acid	200
Bromodichloroacetic acid	40	Trichloroacetic acid	20
Chloroacetic acid	60	2,3-Dibromopropionic acid	100
Chlorodibromoacetic acid	100	(Surrogate)	

Surrogate Standards - Haloacetic Acid

M-552.2-SS	1 x 1 mL
1000 $\mu\text{g/mL}$ in MtBE	
2,3-Dibromopropionic acid	
M-552.2-SS2	1 x 1 mL
10 mg/mL in MtBE	
2-Bromobutanoic acid	

Internal Standard

M-552.2-IS	1 x 1 mL
1000 $\mu\text{g/mL}$ in MtBE	
1,2,3-Trichloropropane	

* ColdPAK required to maintain integrity of product.



EPA Method 500 Series

Method 553-556

Method 553 Benzidines & Nitrogen containing Pesticides by L-L or L-S Extraction & RP HPLC/Particle Beam/MS

Analytes

M-553 *			1 x 1 mL
At stated conc. (µg/mL) in AcCN:MeOH (50:50)			13 comps.
Benzidine †	250	3,3'-Dimethylbenzidine †	350
Benzoylprop ethyl	350	Diuron	450
Caffeine	300	Linuron	1,300
Carbaryl	1,000	Monuron	400
o-Chlorophenyl thiourea	750	Rotenone	3,200
3,3'-Dichlorobenzidine †	250	Siduron	450
3,3'-Dimethoxybenzidine †	750		

Performance Check Solution

M-553-PC	1 x 1 mL
0.1 mg/mL in AcCN	
DFTPPO (Decafluorotriphenylphosphine oxide)	

Method 554 Carbonyl Compounds as DNPH Derivatives by HPLC

Carbonyl Compounds

M-554-R1	1 x 1 mL
1.0 mg/mL each in AcCN	

M-554-DNPH-SET	12 x 1 mL
Each at 1.0 mg/mL in MeOH:AcCN (95:5)	

	Cat. No.	1 mL
Acetaldehyde	M-554-01 *	
Butanal	M-554-02 *	
Crotonaldehyde	M-554-03 *	
Cyclohexanone	M-554-04 *	
Decanal	M-554-05	
Formaldehyde	M-554-06 *	
Heptanal	M-554-07	
Hexanal	M-554-08	
Nonanal	M-554-09	
Octanal	M-554-10	
Pentanal	M-554-11	
Propanal	M-554-12 *	

DNPH Derivatives

M-554-DNPH	1 x 1 mL
1.0 mg/mL each in MeOH:AcCN (95:5)	

M-554-DNPH-R1	1 x 1 mL
1.0 mg/mL each in AcCN	

M-554-DNPH-SET	12 x 1 mL
Each at 1.0 mg/mL in MeOH:AcCN (95:5)	

	Cat. No.	1 mL
Acetaldehyde-DNPH	M-554-DNPH-01 *	
Butanal-DNPH	M-554-DNPH-02	
Crotonaldehyde-DNPH	M-554-DNPH-03	
Cyclohexanone-DNPH	M-554-DNPH-04	
Decanal-DNPH	M-554-DNPH-05	
Formaldehyde-DNPH	M-554-DNPH-06	
Heptanal-DNPH	M-554-DNPH-07	
Hexanal-DNPH	M-554-DNPH-08	
Nonanal-DNPH	M-554-DNPH-09	
Octanal-DNPH	M-554-DNPH-10	
Pentanal-DNPH	M-554-DNPH-11	
Propanal-DNPH	M-554-DNPH-12	

† Subject to oxidation
* ColdPAK required to maintain integrity of product.

Method 555 Chlorinated Acids by HPLC

Mix A

M-555A		1 x 1 mL
1.0 mg/mL each in AcCN		
Acifluorfen	2,4-D	Picloram
Bentazon	Dicamba	2,4,5-TP
Chloramben	Dichlorprop	

Mix B

M-555B		1 x 1 mL
1.0 mg/mL each in AcCN		
2,4-DB	MCPA	Pentachlorophenol
3,5-Dichlorobenzoic acid	MCPP	2,4,5-T
Dinoseb	4-Nitrophenol	

Method 556/556.1 Carbonyl Compounds by PFBHA Derivative with analysis by GC/ECD

Mix A

M-556-MIXA		1 x 1 mL
1.0 mg/mL each in AcCN		
Acetaldehyde	Decanal	Nonanal
Benzaldehyde	Formaldehyde	Octanal
Butanal	Heptanal	Pentanal
Crotonaldehyde	Hexanal	Propanal
Cyclohexanone		

Mix B

M-556-MIXB		1 x 1 mL
1.0 mg/mL each in AcCN		
Glyoxal	Methyl glyoxal	2 comps.

Technical Note

M-556 was designed to meet both versions of the carbonyl method. The difference between method 556 and 556.1 is that crotonaldehyde has been removed from the 556.1 method.

M-556 is to be used as a procedural standard for calibration of the method. As a procedural calibration standard it should be carried through the entire extraction and derivatization procedure associated with the samples. The oxime derivatives are analyzed by GC/ECD.

We have the capability to manufacture the actual oxime derivatives, contact us for details.

Internal Standard

M-556-IS		1 x 1 mL
M-556-IS-PAK	SAVE	5 x 1 mL
10 mg/mL in Hexane		
1,2-Dibromopropane		

Surrogate Standards

M-556-SS		1 x 1 mL
M-556-SS-PAK	SAVE	5 x 1 mL
20 µg/mL in AcCN		
M-556-SS-100X		1 x 1 mL
M-556-SS-100X-PAK	SAVE	5 x 1 mL
2.0 mg/mL in AcCN		
2',4',5'-Trifluoroacetophenone		

PFBHA Reagent

M-556-DER-10ML		1 x 10 mL
M-556-DER-10ML-PAK	SAVE	5 x 10 mL
15 mg/mL in Water		
O-(2,3,4,5,6-Pentafluorobenzyl)hydroxylamine hydrochloride		

Working Level (Internal Standard)

M-556-IS-WL-5ML-VAP		10 x 5 mL
400 µg/L in Hexane		
1,2-Dibromopropane		

Standard Mixtures for Drinking Water

ASTM Methods



ASTM has developed several LC/tandem mass spectrometry drinking water methods in partnership with the EPA. Each method is described below with the appropriate AccuStandard product listing.

- D7598 Analysis for Thiodiglycol (LC/MS/MS)
- D7599 Analysis for Ethanolamines (LC/MS/MS)
- D7600 and D7645 Analysis for Carbamates (LC/MS/MS)

ASTM D7598, D7599, D7600, D7645

D7598 Analysis for Thiodiglycol in Drinking Water (LC/MS/MS)

Method D7598 applies to Thiodiglycol, a compound used in the manufacture of chemical weapons, insecticides, inks, lubricants and pharmaceutical products. The Method has been designed for drinking and surface water analysis, and includes the target compound and surrogate standard.

ASTM Thiodiglycol Standard

D-7598 1 x 1 mL
4.0 mg/mL in MeOH
Thiodiglycol

ASTM Thiodiglycol Surrogate Standard

D-7598-SS 1 x 1 mL
4.0 mg/mL in MeOH
3,3'-Thiodipropanol

D7599 Analysis for Ethanolamines in Drinking Water (LC/MS/MS)

ASTM Method D7599 describes the qualitative and quantitative analysis of ethanolamine compounds - Diethanolamine, Triethanolamine, N-Methyldiethanolamine and N-Ethyldiethanolamine in drinking and surface waters. These compounds are listed as Schedule 3 chemicals under the Chemical Weapons Convention due to their toxicity and other properties that could potentially render them components of chemical weapons. In industry, these chemicals have a broad range of applications including the production of adhesives, detergents, inks, pesticides and pharmaceuticals.

ASTM Ethanolamine Standard

D-7599 1 x 1 mL
50 µg/mL each in MeOH 5 comps.
Diethanolamine
Triethanolamine
N-Methyldiethanolamine
N-Ethyldiethanolamine
Diethanolamine-d₈

ASTM Ethanolamine Surrogate Standard

D-7599-SS 1 x 1 mL
200 µg/mL in MeOH
Diethanolamine-d₈

ASTM Methods D7600 and D7645 apply to the analysis of carbamate pesticides in drinking and surface waters. The biological affect and residual risk of these compounds is on the nervous system through enzyme inhibition. However, residual levels of these compounds in drinking water are unlikely to cause a cumulative effect in most aquifers.

D7600 Analysis for Carbamates in Drinking Water (LC/MS/MS)

ASTM Carbamate Standard

D-7600 1 x 1 mL
At stated conc. (µg/mL) in MeOH 5 comps.
Ardicarb 200
Carbofuran 200
Oxamyl 200
Methomyl 200
BDMC 400

ASTM Carbamate Surrogate Standard

D-7600-SS 1 x 1 mL
400 µg/mL in MeOH
BDMC (4-Bromo-3,5-dimethylphenyl-N-methyl carbamate)

Carbamate standard solutions in concentrations designed for rapid sample analysis.

D7645 Analysis for Carbamates in Drinking Water (LC/MS/MS)

ASTM Carbamate Standard

D-7645 1 x 1 mL
100 µg/mL each in MeOH 8 comps.
Ardicarb
Aldicarb sulfone
Aldicarb sulfoxide
Carbofuran
Oxamyl
Methomyl
Thiofanox
Carbofuran-d₃

ASTM Carbamate Matrix Spike Standard

D-7645-MS 1 x 1 mL
50 µg/mL each in MeOH 7 comps.
Ardicarb
Aldicarb sulfone
Aldicarb sulfoxide
Carbofuran
Oxamyl
Methomyl
Thiofanox

ASTM Carbamate Surrogate Standard

D-7645-SS 1 x 1 mL
D-7645-SS-PAK SAVE 5 x 1 mL
100 µg/mL in MeOH
Carbofuran-d₃



National Primary Drinking Water Standards

EPA Safe Drinking Water Act (SDWA) Amendment National Primary Drinking Water Standards

The Safe Drinking Water Act (SDWA) amendment of 1996 established a new charter for the Nation's public water systems. The Environmental Protection Agency sets standards for protecting the safety of drinking water. The regulatory section of this act eliminates the requirement for the EPA to regulate 25 additional contaminants every three years. Instead, every 5 years from enactment of the amendment the EPA will determine whether or not to regulate at least 5 new contaminants from a list being published within 18 months of the enactment of the amendment. The following two pages of National Primary Drinking Water Standards are formulated to provide convenience and flexibility when analyzing regulated contaminants from the Drinking Water Priority list.

Volatiles

Phase I

VOCs

M-502C-07

2.0 mg/mL each in MeOH

1 x 1 mL
12 comps.

Benzene	1,4-Dichlorobenzene
Bromodichloromethane	1,2-Dichloroethane
Bromoform	1,1-Dichloroethylene
Carbon tetrachloride	1,1,1-Trichloroethane
Chloroform	Trichloroethylene
Dibromochloromethane	Vinyl chloride

Phase II

VOCs

M-502C-08

2.0 mg/mL each in MeOH

1 x 1 mL
12 comps.

Chlorobenzene	Styrene
1,2-Dichlorobenzene	Tetrachloroethylene
cis-1,2-Dichloroethylene	Toluene
trans-1,2-Dichloroethylene	o-Xylene
1,2-Dichloropropane	m-Xylene
Ethylbenzene	p-Xylene

Phase V

Additions

M-502C-10

2.0 mg/mL in MeOH

1 x 1 mL
3 comps.

Dichloromethane	1,1,2-Trichloroethane
1,2,4-Trichlorobenzene	

Phase VIB

Additions

M-502C-11

2.0 mg/mL each in MeOH

1 x 1 mL
7 comps.

Acrylonitrile	1,1,1,2-Tetrachloroethane
Bromomethane	1,2,3-Trichloropropane
cis-1,3-Dichloropropene *	
trans-1,3-Dichloropropene **	* cis (1.06 x conc.)
Hexachlorobutadiene	** trans (0.94 x conc.)

Combined Phase I, Phase II, Phase V VOCs

M-502-REG

M-502-REG-PAK

0.2 mg/mL each in MeOH

SAVE

1 x 1 mL
5 x 1 mL
27 comps.

M-502-REG-10X

M-502-REG-10X-PAK

2.0 mg/mL each in MeOH

SAVE

5 x 1 mL
5 x 1 mL
27 comps.

Benzene	Dibromochloromethane	trans-1,2-Dichloroethylene	Tetrachloroethylene	Trichloroethylene
Bromodichloromethane	1,2-Dichlorobenzene	Dichloromethane	Toluene	Vinyl chloride
Bromoform	1,4-Dichlorobenzene	1,2-Dichloropropane	1,2,4-Trichlorobenzene	m-Xylene
Carbon tetrachloride	1,2-Dichloroethane	Ethylbenzene	1,1,1-Trichloroethane	o-Xylene
Chlorobenzene	1,1-Dichloroethylene	Styrene	1,1,2-Trichloroethane	p-Xylene
Chloroform	cis-1,2-Dichloroethylene			

Method 504 EDB & DBCP

M-504

M-504-PAK

0.2 mg/mL each in MeOH

SAVE

1 x 1 mL
5 x 1 mL
2 comps.

1,2-Dibromoethane (EDB)	1,2-Dibromo-3-chloropropane (DBCP)
-------------------------	------------------------------------

Method Specific Individual Standards

Compound	Method	Concentration	Cat. No.
Diquat	549.1	100 µg/mL in MeOH	P-231S
Endothall	548.1	100 µg/mL in MeOH	P-183S
Ethylene thiourea †	509	0.1 mg/mL in 0.1 w/v DTT in Ethyl acetate	M-509
Glyphosate	547	100 µg/mL in Water	M-547
2,3,7,8-TCDD	525	50 µg/mL in Toluene	D-404S
Toxaphene	525	2.5 mg/mL in Acetone	M-525-5
Water Treatment Chemicals			
Acrylamide	8032	1.0 mg/mL in MeOH	M-8032
Epichlorohydrin	8260B	2000 µg/mL in MeOH	M-8240E-R-13-10X

† Proposed Phase VIB Additions, 0.1% w/v DDT as a scavenger

National Primary Drinking Water Standards



Safe Drinking Water Act

EPA Safe Drinking Water Act (SDWA) Amendment National Primary Drinking Water Standards (continued)

Regulated Herbicide Mixture (Non-derivatized)

M-515-REG			1 x 1 mL
At stated conc. (µg/mL) in Acetone			8 comps.
Acifluorfen ◇◇	100	Dinoseb	200
2,4-D	300	Pentachlorophenol	100
Dalapon	1000	Picloram	100
Dicamba ◇◇	100	2,4,5-TP	100

Regulated Herbicide Mixtures (Methyl Derivatives)

M-515-REG-ME			1 x 1 mL
At stated conc. (ng/mL) in MtBE			8 comps.
Acifluorfen methyl ester ◇◇	250	Dinoseb methyl ether	500
2,4-D methyl ester	500	Pentachloroanisole	100
Dalapon methyl ester	2000	Picloram methyl ester	250
Dicamba methyl ester ◇◇	500	2,4,5-TP methyl ester	500

M-515-REG-ME-1000X			1 x 1 mL
At stated conc. (µg/mL) in MtBE			8 comps.
Acifluorfen methyl ester ◇◇	250	Dinoseb methyl ether	500
2,4-D methyl ester	500	Pentachloroanisole	100
Dalapon methyl ester	2000	Picloram methyl ester	250
Dicamba methyl ester ◇◇	500	2,4,5-TP methyl ester	500

Regulated Semi-Volatiles Mixture

M-525-REG-EA		1 x 1 mL
0.1 mg/mL each in Ethyl Acetate		25 comps.
M-525-REG-EA-5X		1 x 1 mL
0.5 mg/mL each in Ethyl Acetate		25 comps.

Alachlor	Endrin
Aldrin ◇	Heptachlor
Atrazine	Heptachlor epoxide (Isomer B)
Benz[a]pyrene	Hexachlorobenzene
Butachlor ◇	Hexachlorocyclopentadiene
α-Chlordane	Lindane
γ-Chlordane	Methoxychlor
Cyanazine ◇◇	Metolachlor ◇◇
Dieldrin ◇	Metribuzin ◇◇
2,4-Dinitrotoluene ◇◇	trans-Nonachlor
2,6-Dinitrotoluene ◇◇	Propachlor ◇
bis(2-Ethylhexyl)adipate	Simazine
bis(2-Ethylhexyl)phthalate	

◇◇ Unregulated Additions
 ◇◇ Proposed Phase VIB Additions

Regulated Pesticide Mixture

M-531-REG		1 x 1 mL
0.1 mg/mL each in Acetonitrile		8 comps.
Aldicarb	Carbofuran	
Aldicarb sulfone	3-Hydrocarbofuran ◇	
Aldicarb sulfoxide	Methomyl ◇◇	
Carbaryl ◇	Oxamyl	

Proposed Phase VIA Additions

Disinfectant By-products

Bromoform ◇◇	}	see Method 501 Total Trihalomethanes
Chloroform ◇◇		
Dibromochloromethane ◇◇		
Dichlorobromomethane ◇◇		
		Method 551, Chlorinated Solvents + Disinfectant By-products

Bromoacetic acid ◇◇	}	Haloacetic acids see Method 552.2
Chloroacetic acid ◇◇		
Dibromoacetic acid ◇◇		
Dichloroacetic acid ◇◇		
Trichloroacetic acid ◇◇		

Regulated Pesticide Mixture

M-508.1-ASL		1 x 1 mL
M-508.1-ASL-PAK	Alternate Source	SAVE
100 µg/mL each in MtBE		5 x 1 mL 17 comps.

Alachlor	Heptachlor epoxide (Isomer B)
Aldrin	Hexachlorobenzene
Atrazine	Hexachlorocyclopentadiene
γ-BHC	Methoxychlor
α-Chlordane	Metolachlor
γ-Chlordane	Metribuzin
Dieldrin	Propachlor
Endrin	Simazine
Heptachlor	

Regulated Semi-Volatiles Mixture

M-525-REG-ASL		1 x 1 mL
M-525-REG-ASL-PAK	Alternate Source	SAVE
0.5 mg/mL each in Acetone		5 x 1 mL 6 comps.

Benz[a]pyrene	Hexachlorobenzene
bis(2-Ethylhexyl)adipate	Hexachlorocyclopentadiene
bis(2-Ethylhexyl)phthalate	Pentachlorophenol (2.0 mg/mL)

Carbamate Pesticide Mixture

M-531-REG-ASL		1 x 1 mL
M-531-REG-ASL-PAK	Alternate Source	SAVE
100 µg/mL each in MeOH		5 x 1 mL 2 comps.
Carbofuran	Oxamyl	

Match frequently requested products.

Alternate Source

ASL products can be used as an independent second source.



EPA Consent Decree Water Protocol

EPA Consent Decree

Water Protocol EPA Consent Decree

Purgeable A

M-001A 1 x 1 mL
0.2 mg/mL each in MeOH 11 comps.

Carbon tetrachloride
Chlorobenzene
Chloroform
Dibromochloromethane
1,1-Dichloroethane
1,1-Dichloroethylene
1,2-Dichloropropane
Methylene chloride
Tetrachloroethylene
1,1,2-Trichloroethane
Trichloroethylene

Purgeable B

M-001B-R 1 x 1 mL
0.2 mg/mL each in MeOH 13 comps.

Benzene
Bromodichloromethane
Bromoform
2-Chloroethyl vinyl ether
1,2-Dichloroethane
trans-1,2-Dichloroethylene
cis-1,3-Dichloropropene *
trans-1,3-Dichloropropene **
Ethylbenzene
1,1,2,2-Tetrachloroethane
Toluene
1,1,1-Trichloroethane
Trichlorofluoromethane

* *cis* (1.06 x conc.)
** *trans* (0.94 x conc.)

Purgeable C (Gases)

M-001C 1 x 1 mL
0.2 mg/mL each in MeOH 5 comps.

Bromomethane
Chloroethane
Chloromethane
Dichlorodifluoromethane
Vinyl chloride

Base/Neutral 1

M-001D 1 x 1 mL
At stated conc. (mg/mL) in MeOH

M-001D-D 1 x 1 mL
At stated conc. (mg/mL) in CH₂Cl₂

Acenaphthylene 0.2
Benzo[b]fluoranthene 0.1
4-Bromophenyl phenyl ether 0.2
bis(2-Chloroethyl) ether 0.2
bis(2-Chloro-1-methylethyl) ether 0.2
1,4-Dichlorobenzene 0.2
3,3-Dichlorobenzidine † 0.2
Dimethyl phthalate 0.2
Di-*n*-butyl phthalate 0.2
2,6-Dinitrotoluene 0.2
bis(2-Ethylhexyl)phthalate 0.2
Nitrobenzene 0.2

Base/Neutral 2

M-001E 1 x 1 mL
At stated conc. (mg/mL) in MeOH

M-001E-D 1 x 1 mL
At stated conc. (mg/mL) in CH₂Cl₂

Acenaphthene 0.2
Anthracene 0.2
Benz[a]anthracene 0.1
Chrysene 0.1
Dibenz[a,h]anthracene 0.1
1,2-Dichlorobenzene 0.2
1,3-Dichlorobenzene 0.2
Diethyl phthalate 0.2
2,4-Dinitrotoluene 0.2
Fluorene 0.2
Hexachlorobenzene 0.2
Hexachlorobutadiene 0.2
Naphthalene 0.2
bis(2-Chloroethoxy)methane 0.2
Pyrene 0.1

Base/Neutral 3

M-001F-D 1 x 1 mL
At stated conc. (mg/mL) in CH₂Cl₂

11 comps.

Butyl benzyl phthalate 0.2
2-Chloronaphthalene 0.2
1,2-Diphenylhydrazine 0.2
Fluoranthene 0.1
Hexachlorocyclopentadiene 0.2
Hexachloroethane 0.2
Isophorone 0.2
N-Nitroso-*di-n*-propylamine 0.2
N-Nitrosodiphenylamine 0.2
Phenanthrene 0.2
1,2,4-Trichlorobenzene 0.2

Base/Neutral 4

M-001G 1 x 1 mL
At stated conc. (mg/mL) in

MeOH:CH₂Cl₂ (50:50)

M-001G-D 1 x 1 mL
At stated conc. (mg/mL) in CH₂Cl₂

9 comps.

Benzidine † 0.2
Benzo[k]fluoranthene 0.1
Benzo[g,h,i]perylene 0.1
Benz[a]pyrene 0.1
2-Chloroethyl vinyl ether 0.2
4-Chlorophenyl phenyl ether 0.2
Di-*n*-octyl phthalate 0.2
Indeno[1,2,3-*cd*]pyrene 0.1
N-Nitrosodimethylamine 0.2

Pesticide Mixture

M-001H 1 x 1 mL
At stated conc. (mg/mL) in MeOH

16 comps.

Aldrin 0.1
α-BHC 0.1
β-BHC 0.1
γ-BHC 0.1
δ-BHC 0.1
p,p'-DDT 0.6
p,p'-DDE 0.2
p,p'-DDD 0.6
Dieldrin 0.2
Endosulfan I 0.2
Endosulfan II 0.2
Endosulfan sulfate 0.6
Endrin 0.2
Endrin aldehyde 0.6
Heptachlor 0.1
Heptachlor epoxide (Isomer B) 0.1

Phenol Mixture

M-001P 1 x 1 mL
At stated conc. (mg/mL) in MeOH

M-001P-D 1 x 1 mL
1.0 mg/mL each in CH₂Cl₂ 11 comps.

4-Chloro-3-methylphenol 2.5
2-Chlorophenol 0.5
2,4-Dichlorophenol 0.5
2,4-Dimethylphenol 0.5
2,4-Dinitrophenol 1.5
2-Nitrophenol 0.5
4-Nitrophenol 2.5
2-Methyl-4,6-dinitrophenol 2.5
Pentachlorophenol 2.5
Phenol 0.5
2,4,6-Trichlorophenol 1.5

Polychlorinated Biphenyls

Each Aroclor® is a mixture of numerous comps., and considerable overlap in composition occurs between Aroclors.

Both at 0.2 mg/mL each in MeOH

Aroclor Mix 1

M-001K 1 x 1 mL

Aroclor 1016 Aroclor 1248
Aroclor 1232 Aroclor 1260

Aroclor Mix 2

M-001L 1 x 1 mL

Aroclor 1221 Aroclor 1254
Aroclor 1242

Chlordane & Toxaphene

M-001J 1 x 1 mL
At stated conc. (mg/mL) in MeOH

2 comps.

Chlordane 0.02
Toxaphene 0.20

Acrolein & Acrylonitrile

M-603 * 1 x 1 mL
1.0 mg/mL each in Water 2 comps.

* ColdPAK required to maintain integrity of product.

† Subject to oxidation

Internal Standard - Anthracene-d₁₀

M-001N 1 x 1 mL
2.0 mg/mL in CH₂Cl₂

Used as a GC/MS internal standard in the analysis of the base/neutral extractables.

M-001R 1 x 1 mL
20 mg/mL each in MeOH 3 comps.

Bromochloromethane
1,4-Dichlorobutane
2-Bromo-1-chloropropane

Recommended for use as internal standards for purgeables.

Complete Water Standard Kit

Z-009-R-SET

15 x 1 mL

M-001A, M-001B-R, M-001C, M-001D, M-001E, M-001F-D, M-001G, M-001H, M-001P, M-001K, M-001L, M-001J, M-603A, M-001N, M-001R

Purgeable A
Purgeable B
Purgeable C (Gases)

Base/Neutral 1
Base/Neutral 2
Base/Neutral 3
Base/Neutral 4

Pesticide Mixture
Phenol Mixture
Chlordane & Toxaphene
Aroclor Mix 1
Aroclor Mix 2

Acrolein-Acrylonitrile
Anthracene-d₁₀
Internal Standard

Standard Mixtures for EPA 600 Series For Waste Water



Background Information

The EPA Methods for evaluating municipal and industrial wastewater pollutants are designated in the EPA 600 Series. This series of methods evolved from the 1976 agreement by the EPA to study and, if necessary, to regulate 65 "priority pollutants." Several laboratories within the EPA collaborated on research projects that led to the 600 Series Methods.

Methods 601-612 were first published in 1979, along with a GC/MS method for the measurement of TCDD. AccuStandard followed the expansion of the 600 series methods by formulating analytical standards for additional 600 series methods listed in the EPA book "Methods for the Determination of Nonconventional Pesticides in Municipal and Industrial Wastewater."

The 600 Series product line contains standards used in the proposed and promulgated methods for the identification and quantification of organic compounds in municipal and industrial waste water. The organic compounds listed in the various methods include volatile organic compounds (VOCs), pesticides and synthetic organic compounds (SOCs).

Instrumentation

Analytical techniques used in the identification and quantification of the above compounds include gas chromatography with selective detectors (ECD and FID), gas chromatography/mass spectrometry (GC/MS) and ultra high performance liquid chromatography (UHPLC). The 600 series methods typically utilize packed columns, but chromatographic conditions can be modified (i.e. incorporation of advances in technology like capillary columns) if the modifications do not decrease the accuracy or lessen the precision of the method.

Comprehensive

Complete analysis of the target compounds by these 600 Series Methods can be accomplished using the series of standards formulated by AccuStandard for each method along with the suggested internal and surrogate standards. Formulations have been developed as easy to use large core mixes containing the target compounds and as high concentration sub-mixes for combination with other formulations to meet laboratory specific analyte detection requirements.

**Match frequently
requested products.**

Alternate Source

**ASL products can be used as
an independent second source.**

Methods 601, 608, 615



Thousands of Standards, just a click away

AccuStandard.com

Table of Contents

601	Purgeable Halocarbons (ELCD)	172
601/602	Purgeable Aromatics (ELCD)	173
603	Acrolein & Acrylonitrile (FID)	174
604	Phenols (FID), Phenols as PFB Derivatives (ECD)	174
604.1	Hexachlorophene & Dichloroprene (HPLC)	174, 182
605	Benzidines (HPLC)	174
606	Phthalate Esters (ECD)	174
607	Nitrosamines (NPD)	174
608	Pesticides & PCBs (ECD)	174
608.1,608.2	Pesticides (ECD)	175
609	Nitroaromatics & Isophorone (ECD/FID)	175
610	Polynuclear Aromatic Hydrocarbons (FID/HPLC)	175
611	Haloethers (ECD/ELCD)	175
612	Chlorinated Hydrocarbons (ECD)	175
613	Dioxin (2,3,7,8-TCDD) (GC/MS)	175
614,614.1	Organophosphorus Pesticides (NPD)	175
615	Chlorinated Herbicides (ECD)	176
617	Chlorinated Pesticides & PCBs (ECD)	176
618	Volatile Pesticides (ECD)	176
619	Triazine Herbicides (NPD)	176
620	Diphenylamine (NPD)	176
622	Organophosphorus Pesticides (NPD)	177
622.1	Thiophosphate Pesticides (NPD)	177
624	Purgeable Volatiles (GC/MS)	177
625	BN/A Semivolatiles, Pesticides, Aroclors (GC/MS)	178-181
627	Dinitroaniline Pesticides (ECD)	181
629	Cyanazine (HPLC)	182
631	Carbendazim (HPLC)	182
632	Carbamates & Urea Pesticides (HPLC)	181
632.1	Carbamates & Amides (HPLC)	181
633	Organonitrogen Pesticides (NPD)	181
634	Thiocarbamate Pesticides (NPD)	181
635	Rotenone (HPLC)	182
636	Bensulide (HPLC)	182
638	Oryzalin (HPLC)	182
639	Bendiocarb (HPLC)	182
640	Mercaptobenzothiazole (HPLC)	182
641	Thiabendazole (HPLC)	182
642	Biphenyl & Phenylphenol (HPLC)	182
643	Bentazon (HPLC)	182
644	Picloram (HPLC)	182
645	Amine Pesticides & Lethane (NPD)	182
680	Pesticides & PCB Congeners (GC/MS)	182



EPA Method 600 Series

Method 601

Method 601 Purgeable Halocarbons by Purge & Trap - GC/MS

Purgeable Halocarbon Sets

M-601-SET *	4 x 1 mL
0.2 mg/mL each in MeOH	M-601A, M-502B, M-601C, M-501
M-601-10X-SET *	4 x 1 mL
2.0 mg/mL each in MeOH	M-601A-10X, M-502B-10X M-601C-10X, M-501-10X

Liquids

M-601A	1 x 1 mL
M-601A-PAK	5 x 1 mL
0.2 mg/mL each in MeOH	18 comps.
M-601A-10X	1 x 1 mL
M-601A-10X-PAK	5 x 1 mL
20 mg/mL each in MeOH	18 comps.
Carbon tetrachloride	<i>cis</i> -1,3-Dichloropropylene
Chlorobenzene	<i>trans</i> -1,3-Dichloropropylene
1,2-Dichlorobenzene	Methylene chloride
1,3-Dichlorobenzene	1,1,2,2-Tetrachloroethane
1,4-Dichlorobenzene	Tetrachloroethylene
1,1-Dichloroethane	1,1,1-Trichloroethane
1,2-Dichloroethane	1,1,2-Trichloroethane
1,1-Dichloroethylene	Trichloroethylene
<i>trans</i> -1,2-Dichloroethylene	
1,2-Dichloropropane	

Certificate will reflect actual cis/trans ratio

Gases

M-502B	1 x 1 mL
M-502B-PAK	5 x 1 mL
0.2 mg/mL each in MeOH	6 comps.
M-502B-10X	1 x 1 mL
M-502B-10X-PAK	5 x 1 mL
2.0 mg/mL each in MeOH	6 comps.
Bromomethane	Dichlorodifluoromethane
Chloromethane	Trichlorofluoromethane
Chloroethane	Vinyl chloride

Liquid Component

M-601C *	1 x 1 mL
M-601C-PAK *	5 x 1 mL
0.2 mg/mL each in MeOH	
M-601C-10X *	1 x 1 mL
M-601C-10X-PAK *	5 x 1 mL
2.0 mg/mL each in MeOH	
2-Chloroethylvinyl ether	

Trihalomethanes

M-501	1 x 1 mL
M-501-PAK	5 x 1 mL
0.2 mg/mL each in MeOH	4 comps.
M-501-10X	1 x 1 mL
2.0 mg/mL each in MeOH	4 comps.
Bromoform	Dichlorobromomethane
Chloroform	Dibromochloromethane

Technical Note

Bromoform, Chloroform and other light volatiles may exhibit reduced response from a contaminated trap, un-optimized purge & trap conditions, i.e. purge flow too high / low, or contamination / cold spot in the transfer line.

* ColdPAK required to maintain integrity of product.

Purgeable Internal Standards

M-001R	1 x 1 mL
M-001R-PAK	5 x 1 mL
20 mg/ml each in MeOH	3 comps.
Bromochloromethane	2-Bromo-1-chloropropane
1,4-Dichlorobutane	

Purgeable Halocarbon Mix

M-601-ASL	1 x 1 mL
M-601-ASL-PAK	5 x 1 mL
20 mg/mL each in MeOH	28 comps.
Bromodichloromethane	1,2-Dichloroethane
Bromoform	1,1-Dichloroethane
Bromomethane	<i>trans</i> -1,2-Dichloroethane
Carbon tetrachloride	1,2-Dichloropropane
Chlorobenzene	<i>cis</i> -1,3-Dichloropropene *
Chloroethane	<i>trans</i> -1,3-Dichloropropene **
Chloroform	Dichloromethane
Chloromethane	1,1,2,2-Tetrachloroethane
Dibromochloromethane	Tetrachloroethene
1,2-Dichlorobenzene	1,1,1-Trichloroethane
1,3-Dichlorobenzene	1,1,2-Trichloroethane
1,4-Dichlorobenzene	Trichloroethene
Dichlorodifluoromethane	Trichlorofluoromethane
1,1-Dichloroethane	Vinyl chloride

Alternate Source

SAVE

Alternate Source

SAVE

Performance Check Solution

S-532-ASL	1 x 1 mL
S-532-ASL-PAK	5 x 1 mL
0.2 mg/mL each in MeOH	8 comps.
Benzene	1,1-Dichloroethane
Carbon tetrachloride	1,1,1-Trichloroethane
1,4-Dichlorobenzene	Trichloroethene
1,2-Dichloroethane	Vinyl chloride

Technical Note

Two alternate approaches to perform Method 601 analysis:

Option 1 Use of the 4 ampule set (M-601) allows you to differentiate the more volatile analytes (M-502B) or less stable analytes (M-601C) and the THMs from the stable Method 601 liquids, which can then be ordered less frequently to optimize economy.

Option 2 The M-601-ASL formulation will serve as a convenient single injection standard for all analytes other than 2-chloroethylvinyl ether. It can also be used as a second source or QC standard.





Method 601/602 Purgeable Halocarbons by GC/MS

Purgeable Halocarbons & Aromatics

M-601/602		1 x 1 mL
M-601/602-PAK	SAVE	5 x 1 mL
0.2 mg/mL each in MeOH		
Benzene	1,2-Dichloropropane	
Bromoform	<i>cis</i> -1,3-Dichloropropylene	
Carbon tetrachloride	<i>trans</i> -1,3-Dichloropropylene	
Chlorobenzene	Ethylbenzene	
Chloroform	Methylene chloride	
Dibromochloromethane	1,1,2,2-Tetrachloroethane	
1,2-Dichlorobenzene	Tetrachloroethylene	
1,3-Dichlorobenzene	Toluene	
1,4-Dichlorobenzene	1,1,1-Trichloroethane	
Dichlorobromomethane	1,1,2-Trichloroethane	
1,1-Dichloroethane	Trichloroethylene	
1,2-Dichloroethane		
1,1-Dichloroethylene		
<i>trans</i> -1,2-Dichloroethylene		

Certificate will reflect actual *cis/trans* ratio

Gases

M-601B		1 x 1 mL
M-601B-PAK	SAVE	5 x 1 mL
0.2 mg/mL each in MeOH		
Bromomethane	Dichlorodifluoromethane	
Chloromethane	Trichlorofluoromethane	
Chloroethane	Vinyl chloride	

Liquids

M-601C		1 x 1 mL
M-601C-PAK *	SAVE	5 x 1 mL
0.2 mg/mL in MeOH		
M-601C-10X *		1 x 1 mL
M-601C-10X-PAK *	SAVE	5 x 1 mL
2.0 mg/mL in MeOH		
2-Chloroethylvinyl ether		

Purgeable Aromatics

M-602		1 x 1 mL
M-602-PAK	SAVE	5 x 1 mL
0.2 mg/mL each in MeOH		
Benzene	1,4-Dichlorobenzene	
Chlorobenzene	Ethylbenzene	
1,2-Dichlorobenzene	Toluene	
1,3-Dichlorobenzene		

Purgeable Aromatics - Gasoline ID

M-602-GAS		1 x 1 mL
M-602-GAS-PAK	SAVE	5 x 1 mL
0.2 mg/mL each in MeOH		
M-602-GAS-10X		1 x 1 mL
M-602-GAS-10X-PAK	SAVE	5 x 1 mL
2.0 mg/mL each in MeOH		
Benzene	Toluene	
Chlorobenzene	<i>o</i> -Xylene	
1,2-Dichlorobenzene	<i>p</i> -Xylene	
1,3-Dichlorobenzene	<i>m</i> -Xylene	
1,4-Dichlorobenzene	MtBE	
Ethylbenzene		

Surrogate Standard

M-602-SS		1 x 1 mL
M-602-SS-PAK	SAVE	5 x 1 mL
0.2 mg/mL in MeOH		
M-602-SS-100X		1 x 1 mL
20 mg/mL in MeOH		
α,α,α -Trifluorotoluene		

Combined 601/602 Purgeable Halocarbon & Aromatic Gasoline ID Mixture with MtBE

M-601-CHG		1 x 1 mL
M-601-CHG-PAK	SAVE	5 x 1 mL
100 µg/mL each in MeOH		
Benzene	<i>cis</i> -1,3-Dichloropropene *	
Bromodichloromethane	<i>trans</i> -1,3-Dichloropropene **	
Bromoform	Dichloromethane	
Bromomethane	Ethylbenzene	
Carbon tetrachloride	MtBE	
Chlorobenzene	1,1,2,2-Tetrachloroethane	
Chloroethane	Tetrachloroethene	
Chloroform	Toluene	
Chloromethane	1,1,1-Trichloroethane	
Dibromochloromethane	1,1,2-Trichloroethane	
1,2-Dichlorobenzene	Trichloroethene	
1,3-Dichlorobenzene	Trichlorofluoromethane	
1,4-Dichlorobenzene	<i>m</i> -Xylene	
Dichlorodifluoromethane	<i>o</i> -Xylene	
1,1-Dichloroethane	<i>p</i> -Xylene	
1,2-Dichloroethane	Vinyl chloride	
1,1-Dichloroethene		
<i>trans</i> -1,2-Dichloroethene		
1,2-Dichloropropane		

* *cis* (1.06 x conc.)
** *trans* (0.94 x conc.)

Technical Note

AccuStandard designed two sets of formulations for those laboratories analyzing Method 601/602 analytes by PID/HALL in series allowing for simultaneous screening for gasoline contamination:

M-601/602 The first set of formulations provide the analytical chemist with the method analytes in a core mix of liquids and a separate mix of the more volatile gases. By providing the six gases in a separate solution the chemist can replace the volatile gases on a more frequent basis.

M-601-CHG The second formulation has the Method 601/602 analytes plus the oxygenate MtBE in one convenient solution. Since the oxygenate MtBE is added to gasoline, its presence on a chromatogram can provide early detection of gasoline contamination at the monitoring well.

Target Analytes

M-601/602/BTEX		1 x 1 mL
0.2 mg/mL each in MeOH		
M-601/602/BTEX-10X		1 x 1 mL
2.0 mg/mL each in MeOH		
Benzene	1,1,1-Trichloroethane	
Carbon tetrachloride	1,1,2,2-Tetrachloroethane	
Chlorobenzene	1,1,2-Trichloroethane	
Ethylbenzene	1,1-Dichloroethane	
MtBE	1,1-Dichloroethene	
Methylene chloride	1,2-Dichlorobenzene	
Tetrachloroethene	1,2-Dichloroethane	
Toluene	1,2-Dichloropropane	
Trichloroethene	<i>o</i> -Xylene	
<i>cis</i> -1,3-Dichloropropene	<i>m</i> -Xylene	
<i>cis</i> -1,2-Dichloroethene	<i>p</i> -Xylene	
<i>trans</i> -1,2-Dichloroethene	1,3-Dichlorobenzene	
<i>trans</i> -1,3-Dichloropropene	1,4-Dichlorobenzene	

Technical Note

Tetrachloroethane and 1,1-Dichloroethane can degrade on contaminated purge & trap transfer lines or old traps.

Gasoline Oxygenate - MtBE

S-078		1 x 1 mL
200 µg/mL in MeOH		
S-078-10X		1 x 1 mL
2.0 mg/mL in MeOH		
Methyl <i>t</i> -butyl ether (MtBE)		

* ColdPAK required to maintain integrity of product.



EPA Method 600 Series

Method 603-608

Method 603 Acrolein & Acrylonitrile by GC/FID

M-603 *		1 x 1 mL
M-603-PAK *	SAVE	5 x 1 mL
1.0 mg/mL each in Water		
M-603-10X *		1 x 1 mL
10 mg/mL each in Water		
M-603-M-0.1X *		1 x 1 mL
0.1 mg/mL each in MeOH:Water (90:10)		
M-603-M-5X *		1 x 1 mL
5.0 mg/mL each in MeOH:Water (90:10)		
Acrolein	Acrylonitrile	2 comps.

Method 604 Phenols by GC/FID

M-604		1 x 1 mL
M-604-PAK	SAVE	5 x 1 mL
0.5 mg/mL each in MeOH		
4-Chloro-3-methylphenol	2-Nitrophenol	11 comps.
2-Chlorophenol	4-Nitrophenol	
2,4-Dichlorophenol	Pentachlorophenol	
2,4-Dimethylphenol	Phenol	
2,4-Dinitrophenol	2,4,6-Trichlorophenol	
2-Methyl-4,6-dinitrophenol		

Surrogate Standard

M-604-SS		1 x 1 mL
0.2 mg/mL each in MeOH		
2,4,6-Tribromophenol		

Phenol as Pentafluorobenzyl Derivatives by GC/ECD

M-604-PFB		1 x 1 mL
M-604-PFB-PAK	SAVE	5 x 1 mL
0.2 mg/mL each in MeOH		
4-Chloro-3-methylphenol-PFB	2-Nitrophenol-PFB	11 comps.
2-Chlorophenol-PFB	4-Nitrophenol-PFB	
2,4-Dichlorophenol-PFB	Pentachlorophenol-PFB	
2,4-Dimethylphenol-PFB	Phenol-PFB	
2,4-Dinitrophenol-PFB	2,4,6-Trichlorophenol-PFB	
2-Methyl-4,6-dinitrophenol-PFB		

Surrogate Standard

M-604-SS-PFB		1 x 1 mL
M-604-SS-PFB-PAK	SAVE	5 x 1 mL
0.2 mg/mL each in MeOH		
2,4,6-Tribromophenol-PFB		

Method 604.1 Hexachlorophene & Dichlorophene by HPLC

M-604.1		1 x 1 mL
1.0 mg/mL each in AcCN		
Hexachlorophene	Dichlorophene	2 comps.

Method 605 Benzidines by HPLC

M-605-10X		1 x 1 mL
M-605-10X-PAK	SAVE	5 x 1 mL
1.0 mg/mL each in MeOH		
Benzidine †	3,3'-Dichlorobenzidine †	2 comps.

Method 606 Phthalate Esters by GC/ECD

M-606		1 x 1 mL
M-606-PAK	SAVE	5 x 1 mL
0.2 mg/mL each in MeOH		
Benzyl butyl phthalate	Di-n-butyl phthalate	6 comps.
Dimethyl phthalate	Di-n-octyl phthalate	
Diethyl phthalate	bis(2-Ethylhexyl)phthalate	

* ColdPAK required to maintain integrity of product.
† Subject to oxidation

Method 607 Nitrosamines by GC/NPD

M-607		1 x 1 mL
M-607-PAK	SAVE	5 x 1 mL
At stated conc. (mg/mL) in MeOH		
N-Nitrosodimethylamine	0.2	N-Nitrosodi-n-propylamine 0.2
N-Nitrosodiphenylamine	0.4	

Method 608 Pesticides and PCBs by GC/ECD

Pesticides and PCBs Set	
M-608-SET	4 x 1 mL
M-001H, M-001J, M-001K, M-001L	

M-001H		1 x 1 mL
At stated conc. (mg/mL) in MeOH		
Aldrin	0.1	4,4'-DDE 0.2
α-BHC	0.1	4,4'-DDT 0.6
β-BHC	0.1	Dieldrin 0.2
δ-BHC	0.1	Endosulfan I 0.2
γ-BHC	0.1	Endosulfan II 0.2
4,4'-DDD	0.6	Endosulfan sulfate 0.6
Endrin	0.2	Endrin aldehyde 0.6
Heptachlor	0.1	Heptachlor epoxide 0.1
		(Isomer B)

M-001J		1 x 1 mL
At stated conc. (mg/mL) in MeOH		
Chlordane (tech)	0.02	Toxaphene 0.20

M-001K		1 x 1 mL
0.2 mg/mL each in MeOH		
Aroclor 1016		Aroclor 1248
Aroclor 1232		Aroclor 1260

M-001L		1 x 1 mL
0.2 mg/mL each in MeOH		
Aroclor 1221		Aroclor 1254
Aroclor 1242		

Performance Check Solution

M-608-QC *		1 x 1 mL
M-608-QC-PAK *	SAVE	5 x 1 mL
At stated conc. (mg/mL) in MeOH		
Aldrin	0.02	4,4'-DDE 0.02
α-BHC	0.02	4,4'-DDT 0.10
β-BHC	0.02	Dieldrin 0.02
δ-BHC	0.02	Endosulfan I 0.02
γ-BHC	0.02	Endosulfan II 0.10
4,4'-DDD	0.10	Endosulfan sulfate 0.10
Endrin	0.10	Endrin aldehyde 0.02
Heptachlor	0.02	Heptachlor epoxide 0.02
		(Isomer B)
Methoxychlor	0.02	

Pesticides

M-608-ASL		1 x 1 mL
M-608-ASL-PAK	SAVE	5 x 1 mL
20 µg/mL each in MeOH		
Aldrin	γ-BHC	Dieldrin
α-BHC	p,p'-DDD	Endosulfan I
β-BHC	p,p'-DDE	Endosulfan II
δ-BHC	p,p'-DDT	Endosulfan sulfate
Endrin		Endrin aldehyde
Heptachlor		Heptachlor epoxide (Isomer B)

Technical Mix - Aroclors (Polychlorinated Biphenyls)

Each at 1,000 µg/mL in Hexane				
AccuPAK (5 x 1 mL)				
SAVE				
Aroclors #	Cat. No.	1 mL	Cat. No.	PAK
Aroclor 1016	C-216S-H-10X		C-216S-H-10X-PAK	
Aroclor 1221	C-221S-H-10X		C-221S-H-10X-PAK	
Aroclor 1232	C-232S-H-10X		C-232S-H-10X-PAK	
Aroclor 1242	C-242S-H-10X		C-242S-H-10X-PAK	
Aroclor 1248	C-248S-H-10X		C-248S-H-10X-PAK	
Aroclor 1254	C-254S-H-10X		C-254S-H-10X-PAK	
Aroclor 1260	C-260S-H-10X		C-260S-H-10X-PAK	
Aroclor 1262	C-262S-H-10X		C-262S-H-10X-PAK	
Aroclor 1268	C-268S-H-10X		C-268S-H-10X-PAK	



Method 608.1 & 608.2 Organochlorine Pesticides in Municipal & Industrial Wastewater by GC/ECD

M-608.1		1 x 1 mL
M-608.1-PAK	SAVE	5 x 1 mL
100 µg/mL each in Isooctane		7 comps.
Chlorobenzilate	Etridiazole	
Chloroneb	Pentachloronitrobenzene	
Chloropropylate	Propachlor	
1,2-Dibromo-3-chloropropane		

M-608.2		1 x 1 mL
M-608.2-PAK	SAVE	5 x 1 mL
100 µg/mL each in Isooctane		6 comps.
Chlorothalonil	Methoxychlor	
DCPA	cis-Permethrin *	
Dichloran	trans-Permethrin *	

* Actual concentrations stated on Certificate of Product Data

Method 609 Nitroaromatics & Isophorone by GC/ECD/FID

Method 609 Nitroaromatic and Isophorone Set

M-609-R-SET **2 x 1 mL**
M-609A-R, M-609B-R

M-609A-R		1 x 1 mL
1.0 mg/mL each in Hexane		2 comps.
Isophorone	Nitrobenzene	

M-609B-R		1 x 1 mL
1.0 mg/mL each in Hexane		2 comps.
2,4-Dinitrotoluene	2,6-Dinitrotoluene	

Performance Check Solution

M-609-QC		1 x 1 mL
At stated conc. (µg/mL) in Acetone		4 comps.
Isophorone 100	2,4-Dinitrotoluene 20	
Nitrobenzene 100	2,6-Dinitrotoluene 20	

Method 610 PAHs by GC/FID or HPLC

M-610		1 x 1 mL
At stated conc. (mg/mL) in MeOH:CH ₂ Cl ₂ (50:50)		16 comps.
M-610A		1 x 1 mL
At stated conc. (mg/mL) in MeOH:CH ₂ Cl ₂ (50:50)		16 comps.
M-610-QC		1 x 1 mL
At stated conc. (mg/mL) in AcCN		16 comps.

Compound	M-610	M-610A	M-610-QC
Acenaphthene	0.1	1.0	0.1
Acenaphthylene	0.1	2.0	0.1
Anthracene	0.1	0.1	0.1
Benz[a]anthracene	0.1	0.1	0.01
Benz[a]pyrene	0.1	0.1	0.01
Benzo[b]fluoranthene	0.1	0.2	0.01
Benzo[g,h,i]perylene	0.1	0.2	0.01
Benzo[k]fluoranthene	0.1	0.1	0.005
Chrysene	0.1	0.1	0.01
Dibenz[a,h]anthracene	0.1	0.2	0.01
Fluoranthene	0.1	0.2	0.01
Fluorene	0.1	0.2	0.1
Indeno[1,2,3-cd]pyrene	0.1	0.1	0.01
Naphthalene	0.1	1.0	0.1
Phenanthrene	0.1	0.1	0.1
Pyrene	0.1	0.1	0.01

Method 611 Haloethers by GC/ECD or ECLD

M-611		1 x 1 mL
0.2 mg/mL each in MeOH		5 comps.
bis(2-Chloroethyl) ether	4-Bromophenyl phenyl ether	
bis(2-Chloroethoxy)methane	4-Chlorophenyl phenyl ether	
bis(2-Chloroisopropyl)ether		

Method 612 Chlorinated Hydrocarbons by GC/ECD

M-612		1 x 1 mL
At stated conc. (µg/mL) in Isooctane		9 comps.
2-Chloronaphthalene 1	Hexachlorobutadiene 1	
1,2-Dichlorobenzene 400	Hexachloroethane 1	
1,3-Dichlorobenzene 200	Hexachlorocyclopentadiene 200	
1,4-Dichlorobenzene 1	1,2,4-Trichlorobenzene 400	
Hexachlorobenzene 40		

Method 613 2,3,7,8-TCDD by GC/MS

M-613		1 x 1 mL
M-613-PAK	SAVE	5 x 1 mL
10 µg/mL in Toluene		
2,3,7,8-Tetrachlorodibenzo-p-dioxin		

Method 614 & 614.1 Organophosphorus Pesticides by GC/NPD

M-614		1 x 1 mL
1,000 µg/mL each in Acetone:Hexane (50:50)		8 comps.
Azinphos methyl	Ethion	
Demeton (mix of O & S isomers)	Malathion	
Diazinon	Parathion	
Disulfoton	Parathion methyl	

M-614.1		1 x 1 mL
1,000 µg/mL each in Acetone:Hexane (50:50)		4 comps.
Dioxathion	Ethion	
EPN	Terbufos	

M-614.1-ASL		1 x 1 mL
At stated conc. (µg/mL) in Hexane	Alternate Source	4 comps.
Dioxathion 10	Ethion 100	
EPN 200	Terbufos 4	

Matrix Spiking Solution

M-610-MS		1 x 1 mL
M-610-MS-PAK	SAVE	5 x 1 mL
At stated conc. (mg/mL) in AcCN		6 comps.
Benz[a]pyrene 0.5	2-Methylnaphthalene 5.0	
Chrysene 0.5	Phenanthrene 0.5	
1-Methylnaphthalene 5.0	Pyrene 0.5	

For additional formulations see Method 8310



EPA Method 600 Series

Method 615-620

Method 615 Chlorinated Herbicides

Chlorinated Herbicides

Compound	Herbicide Acids	Methyl Derivatives	1 mL
	In MeOH Cat. No.	In Hexane Cat. No.	
2,4-D	M-8150S-A-01	M-8150-01	
2,4-DB	M-8150S-A-02	M-8150-02	
2,4,5-T	M-8150S-A-03	M-8150-03	
2,4,5-TP	M-8150S-A-04	M-8150-04	
Dalapon	M-8150S-A-05	M-8150-05	
Dicamba	M-8150S-A-06	M-8150-06	
Dichlorprop	M-8150S-A-07	M-8150-07	
Dinoseb	M-8150S-A-08	M-8150-08	
MCPA (2.0 mg/mL)	M-8150S-A-09	M-8150-09	
MCPP (2.0 mg/mL)	M-8150S-A-10	M-8150-10	
10 x 1 mL	M-8150A-SET	M-8150-SET	

Underivatized

M-8150A 1 x 1 mL
0.1 mg/mL in MeOH, except MCPA and MCPP 10 comps.

2,4-D	Dichlorprop	MCPP (10 mg/mL)
Dalapon	Dinoseb	2,4,5-TP
2,4-DB	MCPA (10 mg/mL)	2,4,5-T
Dicamba		

Methyl Derivatives

M-8150 1 x 1 mL
0.1 mg/mL in MeOH, except MCPA and MCPP 10 comps.

2,4-D methyl ester	Dinoseb methyl ester
Dalapon methyl ester	MCPA methyl ester (10 mg/mL)
2,4-DB methyl ester	MCPP methyl ester (10 mg/mL)
Dicamba methyl ester	2,4,5-TP methyl ester
Dichlorprop methyl ester	2,4,5-T methyl ester

Method 615 Underivatized Chlorinated Herbicides

M-615A-ASL 1 x 1 mL
M-615A-ASL-PAK **SAVE** 5 x 1 mL
At stated conc. in MeOH 10 comps.

2,4-D	100	Dalapon	250	Dinoseb	50
2,4-DB	100	Dicamba	10	MCPA	10,000
2,4,5-T	10	Dichlorprop	100	MCPP	10,000
2,4,5-TP	10				

Method 615 Methyl Derivatives of Chlorinated Herbicides

M-615-ASL 1 x 1 mL
M-615-ASL-PAK **SAVE** 5 x 1 mL
At stated conc. (µg/mL) in MeOH 10 comps.

2,4-D methyl ester	100	Dicamba methyl ester	10
2,4-DB methyl ester	100	Dichlorprop methyl ester	100
2,4,5-T methyl ester	10	Dinoseb methyl ester	50
2,4,5-TP methyl ester	10	MCPA methyl ester	10,000
Dalapon methyl ester	250	MCPP methyl ester	10,000

Method 617 Chlorinated Pesticides & PCBs by GC/ECD

Mix #1 - Analytes

Z-014C-R2 1 x 1 mL
Z-014C-R2-PAK **SAVE** 5 x 1 mL
2.0 mg/mL each in Hexane:Toluene (50:50) 18 comps.

Aldrin	4,4'-DDE	Endrin
α-BHC	4,4'-DDT	Endrin ketone
β-BHC	Dieldrin	Endrin aldehyde
γ-BHC	Endosulfan I	Heptachlor
δ-BHC	Endosulfan II	Heptachlor epoxide (Isomer B)
4,4'-DDD	Endosulfan sulfate	Methoxychlor

Mix #2 - Analytes

M-617-2 1 x 1 mL
2.0 mg/mL each in Hexane:Toluene (50:50) 9 comps.

Captan	Dicofol	Pentachloronitrobenzene
Carbophenothion	Isodrin	Perthane
Dichloran	Mirex	Trifluralin

Method 617 Chlorinated Pesticides & PCBs (Cont.)

Chlordane (tech)

P-017S-20X 1 x 1 mL
2.0 mg/mL in MeOH

Toxaphene

P-093S-40X 1 x 1 mL
4.0 mg/mL in MeOH

Method 618 Volatile Pesticides by GC/ECD

Volatile Pesticides

M-618 1 x 1 mL
20 mg/mL each in Isooctane 2 comps.

Chloropicrin	Ethylene dibromide
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Internal Standard

M-618-IS 1 x 1 mL
20 mg/mL in Isooctane

Bromoform

Method 619 Triazine Herbicides by GC/NPD

Triazine Herbicides

M-619-SET 11 x 1 mL
Each at 0.1 mg/mL in MeOH

M-619M 1 x 1 mL
0.1 mg/mL each in MeOH 11 comps.

Compound	Cat. No.	1 mL	Compound	Cat. No.	1 mL
Ametryn	M-619-01		Secbumeton	M-619-07	
Atraton	M-619-02		Simetryn	M-619-08	
Atrazine	M-619-03		Simazine	M-619-09	
Prometon	M-619-04		Terbutylazine	M-619-10	
Prometryne	M-619-05		Terbutryn	M-619-11	
Propazine	M-619-06				

Method 620 Diphenylamine by GC/NPD

Diphenylamine

M-620 * 1 x 1 mL
1.0 mg/mL each in MeOH

Diphenylamine

* ColdPAK required to maintain integrity of product.



Method 622 Organophosphorus Pesticides by GC/NPD

Organophosphorus Pesticides

M-622-SET 27 x 1 mL
Each at 1000 µg/mL in Hexane

Azinphos methyl	Merphos
Bolstar (Sulprofos)	Mevinphos
Chlorpyrifos	Monocrotophos
Coumaphos	Naled
Demeton, O & S	Parathion ethyl
Diazinon	Parathion methyl
Dichlorvos	Phorate
Dimethoate	Ronnel
Disulfoton	Stirophos
EPN	Sulfotep
Ethoprop	TEPP
Fensulfotion *	Tokuthion
Fenthion	Trichloronate
Malathion	

* Hexane:Acetone (95:5)

Method 624 Purgeables by GC/MS

Purgeables

M-624 1 x 1 mL
0.2 mg/mL each in MeOH 31 comps.

Benzene	<i>trans</i> -1,2-Dichloroethene
Bromodichloromethane	1,2-Dichloropropane
Bromoform	<i>cis</i> -1,3-Dichloropropene
Bromomethane	<i>trans</i> -1,3-Dichloropropene
Carbon tetrachloride	Ethylbenzene
Chlorobenzene	Methylene chloride
Chloroethane	1,1,2,2-Tetrachloroethane
2-Chloroethyl vinyl ether	Tetrachloroethene
Chloroform	Toluene
Chloromethane	1,1,1-Trichloroethane
Dibromochloromethane	1,1,2-Trichloroethane
1,2-Dichlorobenzene	Trichloroethene
1,3-Dichlorobenzene	Trichlorofluoromethane
1,4-Dichlorobenzene	Vinyl chloride
1,1-Dichloroethane	
1,2-Dichloroethane	
1,1-Dichloroethene	

Certificate will reflect actual *cis/trans* ratio

Method 622.1 Thiophosphate Pesticides by GC/NPD

Thiophosphate Pesticides

M-622.1 1 x 1 mL
1.0 mg/mL each in MtBE 7 comps.

Aspon	Fonophos
Dichlofenthion	Phosmet
Famphur	Thionazin
Fenitrothion	

Technical Note

Tetrachloroethane and 1,1-Dichloroethane can degrade on contaminated purge & trap transfer lines or old traps.

Surrogates

Each at 0.2 mg/mL in MeOH

Component	Cat. No.	1 mL
Benzene-d ₆	M-624-SS-01	
Bromochloromethane	M-624-SS-02	
4-Bromofluorobenzene	M-624-SS-03	
2-Bromo-1-chloropropane	M-624-SS-04	
1,4-Dichlorobutane	M-624-SS-05	
1,2-Dichloroethane-d ₄	M-624-SS-06	
1,4-Difluorobenzene	M-624-SS-07	
Ethylbenzene-d ₁₀	M-624-SS-08	
Fluorobenzene	M-624-SS-09	
Pentafluorobenzene	M-624-SS-10	
1,2-Dichlorobenzene-d ₄	M-624-SS-11	
2-Bromochlorobenzene	M-624-SS-12	
4-Chlorofluorobenzene	M-624-SS-13	
a,a,a-Trichlorotoluene	M-624-SS-14	

Surrogate Standards

M-624-SS-M		1 x 1 mL
M-624-SS-M-PAK	SAVE	5 x 1 mL
20 mg/mL each in MeOH		3 comps.
4-Bromofluorobenzene	Pentafluorobenzene	
Fluorobenzene		

Internal Standard

M-001R		1 x 1 mL
M-001R-PAK	SAVE	5 x 1 mL
20 mg/mL each in MeOH		3 comps.
Bromochloromethane	2-Bromo-1-chloropropane	
1,4-Dichlorobutane		

**Tens of thousands of Standards
Ready-to-Ship**





EPA Method 600 Series

Method 625

Method 625 Semi-Volatiles Analysis by GC/MS

The following composite mixtures were formulated to allow the flexibility of preparing a complete semi-volatile mix to meet your laboratory's specific needs. These Base/Neutral analytes are also available in a two-ampule set to extend the useful life of your stock calibration standards.

Base-Neutral Analytes

Acenaphthene	Diethyl phthalate
Acenaphthylene	Dimethyl phthalate
Anthracene	2,4-Dinitrotoluene
Azobenzene	2,6-Dinitrotoluene
Benz[a]anthracene	Di- <i>n</i> -octyl phthalate
Benzo[b]fluoranthene	bis(2-Ethylhexyl)phthalate
Benzo[k]fluoranthene	Fluoranthene
Benzo[g,h,i]perylene	Fluorene
Benz[a]pyrene	Hexachlorobenzene
4-Bromophenyl phenyl ether	Hexachlorobutadiene
Butyl benzyl phthalate	Hexachlorocyclopentadiene
bis(2-Chloroethoxy)methane	Hexachloroethane
bis(2-Chloroethyl) ether	Indeno[1,2,3- <i>cd</i>]pyrene
bis(2-Chloroisopropyl) ether	Isophorone
2-Chloronaphthalene	Naphthalene
4-Chlorophenyl phenyl ether	Nitrobenzene
Chrysene	N-Nitrosodimethylamine
Dibenz[a,h]anthracene	N-Nitrosodiphenylamine
Di- <i>n</i> -butyl phthalate	N-Nitroso-di- <i>n</i> -propylamine
1,2-Dichlorobenzene	Phenanthrene
1,3-Dichlorobenzene	Pyrene
1,4-Dichlorobenzene	1,2,4-Trichlorobenzene

Benzidine Analytes

Benzidine †	3,3'-Dichlorobenzidine †
M-625-BN	1 x 1 mL
M-625-BN-PAK	SAVE 5 x 1 mL
0.1 mg/mL each in CH ₂ Cl ₂	44 Base-Neutrals and 2 Benzidines
M-625-BN-5X	1 x 1 mL
M-625-BN-5X-PAK	SAVE 5 x 1 mL
0.5 mg/mL each in CH ₂ Cl ₂	44 Base-Neutrals and 2 Benzidines
CLP-HC-BN	1 x 1 mL
CLP-HC-BN-PAK	SAVE 5 x 1 mL
2.0 mg/mL each in Benzene : CH ₂ Cl ₂ : AcCN (40:40:20)	44 Base-Neutrals and 2 Benzidines
CLP-HC-BN-SET	2 x 1 mL
CLP-HC-BN-SET-PAK	SAVE 5 x (2 x 1 mL)
	CLP-HC-BN-R, Z-014F

Base-Neutral Mix

CLP-HC-BN-R	1 x 1 mL
CLP-HC-BN-R-PAK	SAVE 5 x 1 mL
2.0 mg/mL each in Benzene : CH ₂ Cl ₂ : AcCN (40:40:20)	44 comps.

Benzidine Analytes

Z-014F	1 x 1 mL
2.0 mg/mL each in MeOH	2 comps.

Method 625 Modification Standard

M-625-MOD	1 x 1 mL
M-625-MOD-PAK	SAVE 5 x 1 mL
2.0 mg/mL each in CH ₂ Cl ₂	17 comps.

Acetophenone	<i>n</i> -Dodecane
Aniline	<i>n</i> -Eicosane
Benzoic acid	<i>n</i> -Hexadecane
Carbazole	1-Methylphenanthrene
<i>p</i> -Cresol	<i>n</i> -Octadecane
<i>o</i> -Cresol	Pyridine
2,3-Dichloroaniline	α -Terpineol
<i>n</i> -Decane	<i>n</i> -Tetradecane
<i>n</i> -Docosane	

Daily QA/QC Standards

M-625-BN-1	1 x 1 mL
M-625-BN-1-PAK	SAVE 5 x 1 mL
0.5 mg/mL each in CH ₂ Cl ₂	12 comps.

Acenaphthylene	3,3'-Dichlorobenzidine †
Benzo[b]fluoranthene	Dimethyl phthalate
4-Bromophenylphenyl ether	Di- <i>n</i> -butyl phthalate
bis(2-Chloroethyl)ether	2,6-Dinitrotoluene
bis(2-Chloroisopropyl)ether	bis(2-Ethylhexyl)phthalate
1,4-Dichlorobenzene	Nitrobenzene

M-625-BN-2	1 x 1 mL
M-625-BN-2-PAK	SAVE 5 x 1 mL
0.5 mg/mL each in CH ₂ Cl ₂	15 comps.

Acenaphthene	Diethyl phthalate
Anthracene	2,4-Dinitrotoluene
Benz[a]anthracene	Fluorene
bis(2-Chloroethoxy)methane	Hexachlorobenzene
Chrysene	Hexachlorobutadiene
Dibenz[a,h]anthracene	Naphthalene
1,2-Dichlorobenzene	Pyrene
1,3-Dichlorobenzene	

M-625-BN-3	1 x 1 mL
M-625-BN-3-PAK	SAVE 5 x 1 mL
0.5 mg/mL each in CH ₂ Cl ₂	11 comps.

Azobenzene	Isophorone
Benzyl butyl phthalate	N-Nitrosodi- <i>n</i> -propylamine
2-Chloronaphthalene	N-Nitrosodiphenylamine
Fluoranthene	Phenanthrene
Hexachlorocyclopentadiene	1,2,4-Trichlorobenzene
Hexachloroethane	

Technical Note

N-Nitrosodiphenylamine will decompose to form diphenylamine in a heated injection port.

M-625-BN-4	1 x 1 mL
M-625-BN-4-PAK	SAVE 5 x 1 mL
0.5 mg/mL each in CH ₂ Cl ₂	8 comps.

Benzidine †	4-Chlorophenyl phenyl ether
Benz[a]pyrene	Di- <i>n</i> -octyl phthalate
Benzo[g,h,i]perylene	Indeno[1,2,3- <i>cd</i>]pyrene
Benzo[k]fluoranthene	N-Nitrosodimethylamine

Technical Note

The above 4 standards can be combined for use in daily QA/QC, as a second source lot, or as spike and spike duplicate.

High Concentration Acid Extractables Phenol Mix

Z-014H	1 x 1 mL
Z-014H-PAK	SAVE 5 x 1 mL
2.0 mg/mL each in CH ₂ Cl ₂	11 comps.

4-Chloro-3-methylphenol	2-Nitrophenol
2-Chlorophenol	4-Nitrophenol
2,4-Dichlorophenol	Pentachlorophenol
2,4-Dimethylphenol	Phenol
2,4-Dinitrophenol	2,4,6-Trichlorophenol
2-Methyl-4,6-dinitrophenol	

† Subject to oxidation



Method 625 Semi-Volatiles Analysis by GC/MS (Continued)

Acid Extractables Mixture

M-625A		1 x 1 mL
M-625A-PAK	SAVE	5 x 1 mL
20 µg/mL each in MeOH		
4-Chloro-3-methylphenol	2-Nitrophenol	
2-Chlorophenol	4-Nitrophenol	
2,4-Dichlorophenol	Pentachlorophenol	
2,4-Dimethylphenol	Phenol	
2,4-Dinitrophenol	2,4,6-Trichlorophenol	
4,6-Dinitro-2-methylphenol		11 comps.

Single Component Surrogates & Internal Standards

Base/Neutrals

Each at 0.2 mg/mL in CH₂Cl₂

Component	Cat. No.	1 mL
Aniline-d ₅	M-625-01	
Anthracene-d ₁₀	M-625-02	
Benz[a]anthracene-d ₁₂	M-625-03	
Decafluorobiphenyl	M-625-04	
4,4'-Dibromobiphenyl	M-625-05	
4,4'-Dibromooctafluorobiphenyl	M-625-06	
2,2'-Difluorobiphenyl	M-625-07	
4-Fluoroaniline	M-625-08	
2-Fluorobiphenyl	M-625-09	
1-Fluoronaphthalene	M-625-10	
2-Fluoronaphthalene	M-625-11	
Naphthalene-d ₈	M-625-12	
Nitrobenzene-d ₅	M-625-13	
Phenanthrene-d ₁₀	M-625-14	
Pyridine-d ₅	M-625-15	

Acids

Each at 0.2 mg/mL in CH₂Cl₂

Component	Cat. No.	1 mL
2-Fluorophenol	M-625-16	
Pentafluorophenol	M-625-17	
Phenol-d ₅	M-625-18	
2,4,6-Tribromophenol	M-625-19	
2-Chlorophenol-d ₄	M-625-20	

Pesticide Extractables Mixture

M-625P		1 x 1 mL
M-625P-PAK	SAVE	5 x 1 mL
20 µg/mL each in MeOH		
Aldrin	Dieldrin	
β-BHC	Endosulfan sulfate	
δ-BHC	Endrin aldehyde	
4,4'-DDD	Heptachlor	
4,4'-DDE	Heptachlor epoxide (Isomer B)	
4,4'-DDT		11 comps.

GC/MS Calibration Standards

M-625C-SET		5 x 1 mL
At stated conc. (µg/mL) in CH ₂ Cl ₂		
Component	Cat. No.	1 mL
Benzidine † (50)	M-625C-1	
Pentachlorophenol (25)	M-625C-2	
Decafluorotriphenylphosphine (DFTPP) (25)	M-625C-3	
Benzidine † (50) + DFTPP (25)	M-625C-4	
Pentachlorophenol (25) + DFTPP (25)	M-625C-5	

GC/MS Tuning Standards

M-625-TS		1 x 1 mL
M-625-TS-PAK	SAVE	5 x 1 mL
50 µg/mL each in CH ₂ Cl ₂		
M-625-TS-20X		1 x 1 mL
M-625-TS-20X-PAK	SAVE	5 x 1 mL
1.0 mg/mL each in CH ₂ Cl ₂		
Benzidine †	DFTPP	
p,p'-DDT	Pentachlorophenol	

CLP-TS		1 x 1 mL
CLP-TS-PAK	SAVE	5 x 1 mL
50 µg/mL in CH ₂ Cl ₂		
Perfluorokerosene		

Multi-Component Analytes (Polychlorinated Biphenyls, Chlordane & Toxaphene)

Each at 1.0 mg/mL in Hexane **AccuPAK (5 x 1 mL)**
SAVE

Aroclors #	Cat. No.	1 mL	Cat. No.	PAK
Aroclor 1016	C-216S-H-10X		C-216S-H-10X-PAK	
Aroclor 1221	C-221S-H-10X		C-221S-H-10X-PAK	
Aroclor 1232	C-232S-H-10X		C-232S-H-10X-PAK	
Aroclor 1242	C-242S-H-10X		C-242S-H-10X-PAK	
Aroclor 1248	C-248S-H-10X		C-248S-H-10X-PAK	
Aroclor 1254	C-254S-H-10X		C-254S-H-10X-PAK	
Aroclor 1260	C-260S-H-10X		C-260S-H-10X-PAK	
Aroclor 1262	C-262S-H-10X		C-262S-H-10X-PAK	
Aroclor 1268	C-268S-H-10X		C-268S-H-10X-PAK	
Pesticides				
Chlordane	P-017S-H-10X		P-017S-H-10X-PAK	
Toxaphene	P-093S-H-10X		P-093S-H-10X-PAK	

Chlordane and Toxaphene

M-001J		1 x 1 mL
M-001J-PAK	SAVE	5 x 1 mL
At stated conc. (mg/mL) in MeOH		
Chlordane	0.02	Toxaphene 0.20
		2 comps.

Polychlorinated Biphenyls

Aroclor Mix #1

M-001K		1 x 1 mL
0.2 mg/mL each in MeOH		
Aroclor 1016	Aroclor 1248	
Aroclor 1232	Aroclor 1260	
		4 comps.

Aroclor Mix #2

M-001L		1 x 1 mL
0.2 mg/mL each in MeOH		
Aroclor 1221	Aroclor 1254	
Aroclor 1242		3 comps.

Internal Standard Mix

Z-014J		1 x 1 mL
Z-014J-PAK	SAVE	5 x 1 mL
4.0 mg/mL each in CH ₂ Cl ₂		
Acenaphthene-d ₁₀	Naphthalene-d ₈	
Chrysene-d ₁₂	Perylene-d ₁₂	
1,4-Dichlorobenzene-d ₄	Phenanthrene-d ₁₀	
		6 comps.



EPA Method 600 Series

Method 625

Method 625 Priority Pollutant Standards

The EPA procedures call for fused silica capillary column analysis of priority pollutants. The following mixtures are to be used in calibrating this analytical system. These mixtures are highly concentrated to aid in the establishment of response factors.

Base/Neutrals - Mix #1

Z-014A		1 x 1 mL
Z-014A-PAK	SAVE	5 x 1 mL
2.0 mg/mL each in CH ₂ Cl ₂		
4-Bromophenyl phenyl ether	Dimethyl phthalate	
Butyl benzyl phthalate	Di- <i>n</i> -butyl phthalate	
bis(2-Chloroethoxy)methane	Di- <i>n</i> -octyl phthalate	
bis(2-Chloroethyl) ether	bis(2-Ethylhexyl)phthalate	
bis(2-Chloroisopropyl) ether	N-Nitrosodimethylamine	
4-Chlorophenyl phenyl ether	N-Nitrosodi- <i>n</i> -propylamine	
Diethyl phthalate	N-Nitrosodiphenylamine	

Base/Neutrals - Mix #2

Z-014B		1 x 1 mL
Z-014B-PAK	SAVE	5 x 1 mL
2.0 mg/mL each in CH ₂ Cl ₂		
Azobenzene	Hexachlorobenzene	
2-Chloronaphthalene	Hexachlorobutadiene	
1,2-Dichlorobenzene	Hexachlorocyclopentadiene	
1,3-Dichlorobenzene	Hexachloroethane	
1,4-Dichlorobenzene	Isophorone	
2,4-Dinitrotoluene	Nitrobenzene	
2,6-Dinitrotoluene	1,2,4-Trichlorobenzene	

Toxic Substances - Mix #1

Z-014D		1 x 1 mL
Z-014D-PAK	SAVE	5 x 1 mL
2.0 mg/mL each in CH ₂ Cl ₂		
Benzoic acid	4-Methylphenol	
2-Methylphenol	2,4,5-Trichlorophenol	

Toxic Substances - Mix #2

Z-014E		1 x 1 mL
Z-014E-PAK	SAVE	5 x 1 mL
2.0 mg/mL each in CH ₂ Cl ₂		
Aniline	2-Methylnaphthalene	
Benzyl alcohol	2-Nitroaniline	
4-Chloroaniline	3-Nitroaniline	
Dibenzofuran	4-Nitroaniline	

Benzidine Mix

Z-014F		1 x 1 mL
Z-014F-PAK	SAVE	5 x 1 mL
2.0 mg/mL each in MeOH		
Benzidine †	3,3'-Dichlorobenzidine †	

PAH Mix

Z-014G		1 x 1 mL
Z-014G-PAK	SAVE	5 x 1 mL
2.0 mg/mL each in CH ₂ Cl ₂ :Benzene (50:50)		
Acenaphthene	Chrysene	
Acenaphthylene	Dibenz[a,h]anthracene	
Anthracene	Fluoranthene	
Benz[a]anthracene	Fluorene	
Benz[a]pyrene	Indeno[1,2,3-cd]pyrene	
Benzo[b]fluoranthene	Naphthalene	
Benzo[g,h,i]perylene	Phenanthrene	
Benzo[k]fluoranthene	Pyrene	

PAH Mix

Z-014G-R		1 x 1 mL
Z-014G-R-PAK	SAVE	5 x 1 mL
2.0 mg/mL each in CH ₂ Cl ₂ :Benzene (50:50)		
Acenaphthene	Chrysene	
Acenaphthylene	Dibenz[a,h]anthracene	
Anthracene	Fluoranthene	
Benz[a]anthracene	Fluorene	
Benz[a]pyrene	Indeno[1,2,3-cd]pyrene	
Benzo[b]fluoranthene	Naphthalene	
Benzo[g,h,i]perylene	Phenanthrene	
Benzo[k]fluoranthene	Pyrene	
Carbazole		

Phenols Mix

Z-014H		1 x 1 mL
Z-014H-PAK	SAVE	5 x 1 mL
2.0 mg/mL each in CH ₂ Cl ₂		
4-Chloro-3-methylphenol	2-Nitrophenol	
2-Chlorophenol	4-Nitrophenol	
2,4-Dichlorophenol	Pentachlorophenol	
2,4-Dimethylphenol	Phenol	
2,4-Dinitrophenol	2,4,6-Trichlorophenol	
2-Methyl-4,6-dinitrophenol		

Internal Standard Mix

Z-014J		1 x 1 mL
Z-014J-PAK	SAVE	5 x 1 mL
4.0 mg/mL each in CH ₂ Cl ₂		
Acenaphthene-d ₁₀	Naphthalene-d ₈	
Chrysene-d ₁₂	Perylene-d ₁₂	
1,4-Dichlorobenzene-d ₄	Phenanthrene-d ₁₀	

Method 625 Priority Pollutant Set

Order a complete Set **SAVE 25%**

Z-014R-SET	9 x 1 mL	Z-014R-1-SET	9 x 1 mL	Z-014R-2-SET	7 x 1 mL	Z-014R-3-SET	7 x 1 mL
Z-014A	Base/Neutrals - Mix 1	Z-014A	Base/Neutrals - Mix 1	Z-014A	Base/Neutrals - Mix 1	Z-014A	Base/Neutrals - Mix 1
Z-014B	Base/Neutrals - Mix 2	Z-014B	Base/Neutrals - Mix 2	Z-014B	Base/Neutrals - Mix 2	Z-014B	Base/Neutrals - Mix 2
Z-014C	Pesticides - Mix #1	Z-014C-R	Pesticides - Mix #2	Z-014D	Toxic Substances - Mix 1	Z-014D	Toxic Substances - Mix 1
Z-014D	Toxic Substances - Mix 1	Z-014D	Toxic Substances - Mix 1	Z-014E	Toxic Substances - Mix 2	Z-014E	Toxic Substances - Mix 2
Z-014E	Toxic Substances -Mix 2	Z-014E	Toxic Substances - Mix 2	Z-014F	Benzidine Mix	Z-014F	Benzidine Mix
Z-014F	Benzidine Mix	Z-014F	Benzidine Mix	Z-014G	PAH Mix	Z-014G-R	PAH Mix
Z-014G-R	PAH Mix	Z-014G-R	PAH Mix	Z-014H	Phenols Mix	Z-014H	Phenols Mix
Z-014H	Phenols Mix	Z-014H	Phenols Mix				
Z-014J	Internal Standard Mix	Z-014J	Internal Standard Mix				

† Subject to oxidation



Method 625 (continued) Priority Pollutant Standards

Pesticides - Mix #1

Z-014C			1 x 1 mL
Z-014C-PAK	SAVE		5 x 1 mL
2.0 mg/mL each in Toluene:Hexane (50:50)			
Aldrin	4,4'-DDE	Endrin	
α-BHC	4,4'-DDT	Endrin aldehyde	
β-BHC	Dieldrin	Heptachlor	
γ-BHC	Endosulfan I	Heptachlor epoxide	
δ-BHC	Endosulfan II	(Isomer B)	
4,4'-DDD	Endosulfan sulfate		

Pesticides - Mix #2

Z-014C-R			1 x 1 mL
Z-014C-R-PAK	SAVE		5 x 1 mL
2.0 mg/mL each in Toluene:Hexane (50:50)			
Aldrin	4,4'-DDD	Endrin	
α-BHC	4,4'-DDE	Endrin aldehyde	
β-BHC	4,4'-DDT	Endrin ketone	
γ-BHC	Dieldrin	Heptachlor	
δ-BHC	Endosulfan I	Heptachlor epoxide	
α-Chlordane	Endosulfan II	(Isomer B)	
γ-Chlordane	Endosulfan sulfate	Methoxychlor	

Pesticides - Mix #3

Z-014C-R2			1 x 1 mL
Z-014C-R2-PAK	SAVE		5 x 1 mL
2.0 mg/mL each in Toluene:Hexane (50:50)			
Aldrin	4,4'-DDT	Endrin aldehyde	
α-BHC	Dieldrin	Endrin ketone	
β-BHC	Endosulfan I	Heptachlor	
γ-BHC	Endosulfan II	Heptachlor epoxide	
δ-BHC	Endosulfan sulfate	(Isomer B)	
4,4'-DDD	Endrin	Methoxychlor	
4,4'-DDE			

Tuning Standards

M-625-TS			1 x 1 mL
M-625-TS-PAK	SAVE		5 x 1 mL
50 µg/mL each in CH ₂ Cl ₂			
Benzidine †	DFTPP		
p,p'-DDT	Pentachlorophenol		

CLP-TS			1 x 1 mL
CLP-TS-PAK	SAVE		5 x 1 mL
50 µg/mL in CH ₂ Cl ₂			
Perfluorokerosene			

EPA Method 625 GC/MS Calibration Standards

M-625C-SET	5 x 1 mL
At stated conc. (µg/mL) in CH ₂ Cl ₂	

Compound	Cat. No.
Benzidine † (50)	M-625C-1
Pentachlorophenol (25)	M-625C-2
Decafluorotriphenylphosphine (DFTPP) (25)	M-625C-3
Benzidine † (50 µg/mL) + DFTPP (25)	M-625C-4
Pentachlorophenol (25) + DFTPP (25)	M-625C-5

Method 627 Dinitroaniline Pesticides by GC/ECD

Dinitroaniline Pesticide Mixes

M-627			1 x 1 mL
1.0 mg/mL each in MeOH			
Ethalfuralin		Tolban (Profluralin)	
Isopropalin		Trifluralin	

M-627-R			1 x 1 mL
1.0 mg/mL each in MeOH			
Benfluralin		Tolban (Profluralin)	
Ethalfuralin		Trifluralin	
Isopropalin			

Method 632 Carbamates & Urea Pesticides in Waste Water by HPLC

Carbamates & Urea Pesticides in Waste Water

M-632-SET	21 x 1 mL
Each at 0.1 mg/mL in AcCN	
M-632M	1 x 1 mL
0.1 mg/mL each in AcCN	
M-632M-10X	1 x 1 mL
1.0 mg/mL each in AcCN	

	Cat. No.		Cat. No.
Aminocarb	M-632-01	Methomyl	M-632-12
Barban	M-632-02	Mexacarbate	M-632-13
Carbaryl	M-632-03	Monuron	M-632-14
Carbofuran	M-632-04	Monuron TCA	M-632-15
Chlorpropham	M-632-05	Neburon	M-632-16
Diuron	M-632-06	Oxamyl	M-632-17
Fenuron	M-632-07	Propham	M-632-18
Fenuron TCA	M-632-08	Propoxur	M-632-19
Fluometuron	M-632-09	Siduron	M-632-20
Linuron	M-632-10	Swep	M-632-21
Methiocarb	M-632-11		

Method 632.1 Carbamates & Amides in Waste Water by HPLC

Carbamates & Amides in Waste Water

M-632.1-SET	4 x 1 mL
Each at 0.1 mg/mL in AcCN	

	Cat. No.		Cat. No.
Vacor	M-632.1-1	Napropamide	M-632.1-3
Propanil	M-632.1-2	Carbaryl	M-632.1-4

Method 633 Organonitrogen Pesticides by GC/NPD

Organonitrogen Pesticides Mix

M-633			1 x 1 mL
0.1 mg/mL each in MeOH			
Bromacil	Hexazinone	Terbacil	
Deet	Metribuzin	Triadimefon	

Method 634 Thiocarbamate Pesticides by GC/NPD

Thiocarbamate Pesticides Mix

M-634			1 x 1 mL
1.0 mg/mL each in MeOH			
Butylate	EPTC	Pebulate	
Cycloate	Molinate	Vernolate	

Internal Standard

M-634-IS	1 x 1 mL
1.0 mg/mL in MeOH	
Carbazole	



EPA Method 600 Series

Method 645-680

Method 645 Amino Pesticides & Lethane by GC/NPD

Amino Pesticides Mix

M-645 1.0 mg/mL each in Hexane:Acetone (80:20) 1 x 1 mL
6 comps.

Alachlor	Diphenamid	Lethane
Butachlor	Fluridone	Norflurazon

HPLC 600's Additional Methods for Pesticides in Waste Water by HPLC

Method	Each at 0.1 mg/mL in AcCN	Cat. No.	Method	Each at 0.1 mg/mL in AcCN	Cat. No.
604.1	Hexachlorophene & Dichlorophene	M-604.1	639	Bendiocarb	M-639
629	Cyanazine	M-629	640	Mercaptobenzothiazole	M-640
631	Carbendazim	M-631	641	Thiabendazole	M-641
635	Rotenone	M-635	642	Biphenyl & o-Phenylphenol	M-642
636	Bensulide	M-636	643	Bentazon (<i>Basagran</i>)	M-643
638	Oryzalin	M-638	644	Picloram	M-644

Method 680 Determination of Pesticides & PCBs in Water & Soil/Sediment by GC/MS

PCB Isomer Calibration Mix

M-680A At stated conc. (µg/mL) in Hexane 1 x 1 mL
9 comps.

2-Chlorobiphenyl	50
2,3-Dichlorobiphenyl	50
2,4,5-Trichlorobiphenyl	50
2,2',4,6-Tetrachlorobiphenyl	100
2,2',3,4,5'-Pentachlorobiphenyl	100
2,2',4,4',5,6'-Hexachlorobiphenyl	100
2,2',3,4',5,6,6'-Heptachlorobiphenyl	150
2,2',3,3',4,5',6,6'-Octachlorobiphenyl	150
Decachlorobiphenyl	250

Internal Standard

M-680B 250 µg/mL in Toluene 1 x 1 mL

Chrysene-d₁₂

Method 680 PCB Isomer Calibration Set

M-680-SET 2 x 1 mL
M-680A, M-680B

Technical Note

The EPA has designated 3,3',4,4'-tetrachlorobiphenyl (#77), 2,2',4,6,6'-pentachlorobiphenyl (#104), & 2,2',3,3',4,5,5',6,6'-nonachlorobiphenyl (# 208) for use in quantifying PCBs by GC/MS. All response factors are calculated using Chrysene-d₁₂, which is also included in the set.

The EPA has designated the following isomers for use in quantifying PCB's by GC/MS. The PCBs are identified and measured as isomer groups (i.e., by level of chlorination). A concentration is measured for each PCB isomer group; total PCB concentration in each sample extract is obtained by summing isomer group.

Level of Chlorination	Isomer Selected	Congener Number	RF Value vs. Chrysene-d ₁₂	Mean RF Value vs.* Chrysene-d ₁₂
1	2-mono	1	0.899	0.925
2	2,3-di	5	0.651	0.642
3	2,4,5-tri	29	0.411	0.411
4	2,2',4,6-tetra	50	0.305	0.431
5	2,2',3,4,5'-penta	87	0.299	0.287
6	2,2',4,4',5,6'-hexa	154	0.254	0.254
7	2,2',3,4',5,6,6'-hepta	188	0.164	0.160
8	2,2',3,3',4,5',6,6'-octa	201	0.207	0.191
9,10	deca	209	0.144	0.150

Pesticide Mix

M-680P 1 x 1 mL
M-680P-PAK 5 x 1 mL **SAVE**
At stated conc. (µg/mL) in Toluene:Hexane (50:50) 22 comps.

Aldrin	1,000	Endosulfan I	2,000
α-BHC	1,000	Endosulfan II	2,000
β-BHC	1,000	Endosulfan sulfate	1,000
γ-BHC	1,000	Endrin	1,000
δ-BHC	1,000	Endrin aldehyde	1,000
α-Chlordane	1,000	Endrin ketone	1,000
γ-Chlordane	1,000	Heptachlor	1,000
4,4'-DDD	1,000	Heptachlor epoxide (Isomer B)	1,000
4,4'-DDE	1,000	Methoxychlor	1,000
4,4'-DDT	1,000	cis-Nonachlor	1,000
Dieldrin	1,000	trans-Nonachlor	1,000

Pesticide Mid-Level Check

M-680P-MLC 1 x 1 mL
M-680P-MLC-PAK 5 x 1 mL **SAVE**
At stated conc. (µg/mL) Toluene:Hexane (50:50) 21 comps.

Aldrin	1,000	Endosulfan I	2,000
α-BHC	1,000	Endosulfan II	2,000
β-BHC	1,000	Endosulfan sulfate	1,000
γ-BHC	1,000	Endrin	1,000
δ-BHC	1,000	Endrin ketone	1,000
α-Chlordane	1,000	Heptachlor	1,000
γ-Chlordane	1,000	Heptachlor epoxide (Isomer B)	1,000
4,4'-DDD	1,000	Methoxychlor	1,000
4,4'-DDE	1,000	cis-Nonachlor	1,000
4,4'-DDT	1,000	trans-Nonachlor	1,000
Dieldrin	1,000		

Internal Standard

M-680-IS 1 x 1 mL
M-680-IS-PAK 5 x 1 mL **SAVE**
75 µg/mL each in Toluene:Hexane (50:50) 2 comps.

M-680-IS-10X 1 x 1 mL
M-680-IS-10X-PAK 5 x 1 mL **SAVE**
750 µg/mL each in Hexane:CH₂Cl₂ (50:50) 2 comps.
Chrysene-d₁₂ Phenanthrene-d₁₀

Tuning Standard

M-680-TS 1 x 1 mL
M-680-TS-PAK 5 x 1 mL **SAVE**
10 µg/mL in CH₂Cl₂
Decafluorotriphenylphosphine (DFTPP)

Retention Time Calibration Standard

M-680-RT 1 x 1 mL
M-680-RT-PAK 5 x 1 mL **SAVE**
At stated conc. (µg/mL) in Hexane 3 comps.
3,3',4,4'-Tetrachlorobiphenyl 100
2,2',4,6,6'-Pentachlorobiphenyl 100
2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl 200

Method 1311 Toxicity Characteristic Leaching Procedure (TCLP)

Volatile Spiking Mixture

TCLP-VOC 5.0 mg/mL each in MeOH, except 2-Butanone		1 x 1 mL 11 comps.
Benzene	1,2-Dichloroethane	
2-Butanone (10 mg/mL)	1,1-Dichloroethene	
Carbon tetrachloride	Tetrachloroethene	
Chlorobenzene	Trichloroethene	
Chloroform	Vinyl chloride	
1,4-Dichlorobenzene		

Semi-Volatile Spiking Mix

TCLP-BNA TCLP-BNA-PAK 2.0 mg/mL each in CH ₂ Cl ₂	SAVE	1 x 1 mL 5 x 1 mL 13 comps.
<i>o</i> -Cresol	Hexachloroethane	
<i>m</i> -Cresol	Nitrobenzene	
<i>p</i> -Cresol	Pentachlorophenol	
1,4-Dichlorobenzene	Pyridine	
2,4-Dinitrotoluene	2,4,5-Trichlorophenol	
Hexachlorobenzene	2,4,6-Trichlorophenol	
Hexachlorobutadiene		

Semi-Volatile Spiking Set
TCLP-BNA-SET 2 x 1 mL
TCLP-A, TCLP-BN

TCLP-A TCLP-A-PAK 2.0 mg/mL each in MeOH	SAVE	1 x 1 mL 5 x 1 mL 6 comps.
<i>o</i> -Cresol	Pentachlorophenol	
<i>m</i> -Cresol	2,4,5-Trichlorophenol	
<i>p</i> -Cresol	2,4,6-Trichlorophenol	

TCLP-BN TCLP-BN-PAK 2.0 mg/mL each in Acetone	SAVE	1 x 1 mL 5 x 1 mL 7 comps.
1,4-Dichlorobenzene	Hexachloroethane	
2,4-Dinitrotoluene	Nitrobenzene	
Hexachlorobenzene	Pyridine	
Hexachlorobutadiene		



Organic 2-Part Labels (ampules or vials)

Part One can be placed into a laboratory journal to document the standard used for the analysis. This label section includes the catalog number, description, lot number, expiration date, safety information, proper storage conditions and documents AccuStandard as the manufacturer.

Part Two duplicates required information for labeling transfer vial(s) with correct information.

Pesticide Spiking Mix

TCLP-PES TCLP-PES-PAK 2.0 mg/mL each in MeOH, except Toxaphene	SAVE	1 x 1 mL 5 x 1 mL 7 comps.
Chlordane (tech)	Lindane	
Endrin	Methoxychlor	
Heptachlor	Toxaphene (4.0 mg/mL)	
Heptachlor epoxide (Isomer B)		

Pesticide Spiking Set
TCLP-PES-1/2-SET 2 x 1 mL
CLP-PES-1, TCLP-PES-2

TCLP-PES-1 TCLP-PES-1-PAK 2.0 mg/mL each in MeOH	SAVE	1 x 1 mL 5 x 1 mL 5 comps.
Endrin	Lindane	
Heptachlor	Methoxychlor	
Heptachlor epoxide (Isomer B)		

TCLP-PES-2 TCLP-PES-2-PAK At stated conc. (mg/mL) in MeOH	SAVE	1 x 1 mL 5 x 1 mL 2 comps.
Chlordane 2.0	Toxaphene 4.0	

Herbicide, PFB Derivative Mix

TCLP-HERB-PFB 0.1 mg/mL each in MtBE		1 x 1 mL 2 comps.
2,4-D-PFB	2,4,5-TP-PFB	

Herbicide, PFB Derivatives

M-8150-02-PFB 0.1 mg/mL in MtBE		1 x 1 mL
2,4-D-PFB		

M-8150-04-PFB 0.1 mg/mL in MtBE		1 x 1 mL
2,4,5-TP-PFB		

Herbicide Spiking Mixes

TCLP-HERB TCLP-HERB-PAK 2.0 mg/mL each in MeOH	SAVE	1 x 1 mL 5 x 1 mL 2 comps.
2,4-D	2,4,5-TP	

TCLP-HERB-ME TCLP-HERB-ME-PAK 2.0 mg/mL each in MeOH	SAVE	1 x 1 mL 5 x 1 mL 2 comps.
2,4-D methyl ester	2,4,5-TP methyl ester	

Method 1311 TCLP continued
on next page

Method 1311 TCLP Regulatory Level Mixtures

Volatiles

TCLP-QC *			1 x 1 mL
TCLP-QC-PAK *		SAVE	5 x 1 mL
<i>At stated conc. (µg/mL) in MeOH</i>			
Benzene	5	1,2-Dichloroethane	5
2-Butanone	2000	1,1-Dichloroethene	7
Carbon tetrachloride	5	Tetrachloroethene	7
Chlorobenzene	1000	Trichloroethene	5
Chloroform	60	Vinyl chloride	2

Pesticide Set

TCLP-PES-1/2-QC-SET **2 x 1 mL**
TCLP-PEST-1-QC, TCLP-PEST-2-QC

Pesticides

TCLP-PES-1-QC			1 x 1 mL
TCLP-PES-1-QC-PAK		SAVE	5 x 1 mL
<i>At stated conc. (µg/mL) in MeOH</i>			
Endrin	0.2	Lindane	4.0
Heptachlor	0.4	Methoxychlor	100
Heptachlor epoxide (Isomer B)	0.04		

TCLP-PES-2-QC			1 x 1 mL
TCLP-PES-2-QC-PAK		SAVE	5 x 1 mL
<i>At stated conc. (µg/mL) in MeOH</i>			
Chlordane	0.3	Toxaphene	5.0

Semi-Volatiles

TCLP-BNA-QC			1 x 1 mL
<i>At stated conc. (µg/mL) in CH₂Cl₂</i>			13 comps.
<i>o</i> -Cresol	2000	Hexachloroethane	30
<i>m</i> -Cresol	2000	Nitrobenzene	20
<i>p</i> -Cresol	2000	Pentachlorophenol	1000
1,4-Dichlorobenzene	75	Pyridine	50
2,4-Dinitrotoluene	1.3	2,4,5-Trichlorophenol	4000
Hexachlorobenzene	1.3	2,4,6-Trichlorophenol	20
Hexachlorobutadiene	5		

Herbicides

TCLP-HERB-ME-QC			1 x 1 mL
TCLP-HERB-ME-QC-PAK		SAVE	5 x 1 mL
<i>At stated conc. (µg/mL) in MeOH</i>			
2,4-D methyl ester	106.3		
2,4,5-TP methyl ester	10.5		

* ColdPAK required to maintain integrity of product.

Method 1312 Synthetic Leaching Procedure

Semi-Volatiles

TCLP-BNA-1312			1 x 1 mL
TCLP-BNA-1312-PAK		SAVE	5 x 1 mL
<i>2.0 mg/mL each in CH₂Cl₂</i>			
Acenaphthene		2,4-Dinitrophenol	
β-BHC		2,4-Dinitrotoluene	
γ-BHC		<i>o</i> -Cresol	
bis(2-Chloroethyl)ether		2,4-Dimethylphenol	
2-Chlorophenol		Hexachlorobenzene	
1,2-Dichlorobenzene		Hexachlorobutadiene	
1,4-Dichlorobenzene		Nitrobenzene	



Table of Contents

1613	Dioxins and Furans (HRGC/HRMS)	185
1614	Polybrominated Diphenyl Ethers	186
1618	Organochloride & Phosphorus Pesticides	187
1653	Chlorinated Phenolics in Pulp and Paper	188
1656	Organo Halide Pesticides	188-189
1657	Organo Phosphorus Pesticides	190
1658	Phenoxy acid Herbicides	191
1659	Dazomet	191
1664	Oil and Grease	191
1665	PMI Semi-Volatiles (GC/MS)	191
1666A	PMI Volatiles (GC/MS)	192
1667A	PMI Pollutants (HPLC)	193
1668	209 PCB Congeners (GC)	194-195
1671	PMI Semi-Volatiles (GC/FID)	196
1673	PEG-600 (HPLC)	196

Method 1613 Dioxins & Furans by HRGC/HRMS

Precision and Recovery Standard

M-1613-PAR Bold (-04)

M-1613-PAR-PAK

At stated conc. (ng/mL) in Nonane

1 x 1 mL
5 x 1 mL
17 comps.

M-1613-CAL	-01	-02	-03	-04	-05
2,3,7,8-Tetrachlorodibenzo- <i>p</i> -dioxin	0.5	2	10	40	200
2,3,7,8-Tetrachlorodibenzofuran	0.5	2	10	40	200
1,2,3,7,8-Pentachlorodibenzo- <i>p</i> -dioxin	2.5	10	50	200	1000
1,2,3,7,8-Pentachlorodibenzofuran	2.5	10	50	200	1000
2,3,4,7,8-Pentachlorodibenzofuran	2.5	10	50	200	1000
1,2,3,4,7,8-Hexachlorodibenzo- <i>p</i> -dioxin	2.5	10	50	200	1000
1,2,3,6,7,8-Hexachlorodibenzo- <i>p</i> -dioxin	2.5	10	50	200	1000
1,2,3,7,8,9-Hexachlorodibenzo- <i>p</i> -dioxin	2.5	10	50	200	1000
1,2,3,4,7,8-Hexachlorodibenzofuran	2.5	10	50	200	1000
1,2,3,6,7,8-Hexachlorodibenzofuran	2.5	10	50	200	1000
1,2,3,7,8,9-Hexachlorodibenzofuran	2.5	10	50	200	1000
2,3,4,6,7,8-Hexachlorodibenzofuran	2.5	10	50	200	1000
1,2,3,4,6,7,8-Heptachlorodibenzo- <i>p</i> -dioxin	2.5	10	50	200	1000
1,2,3,4,6,7,8-Heptachlorodibenzofuran	2.5	10	50	200	1000
1,2,3,4,7,8,9-Heptachlorodibenzofuran	2.5	10	50	200	1000
Octachlorodibenzo- <i>p</i> -dioxin	5	20	100	400	2000
Octachlorodibenzofuran	5	20	100	400	2000

Calibration Set

M-1613-CAL-SET

5 x 1 mL
M-1613-CAL-01, M-1613-CAL-02, M-1613-CAL-03
M-1613-CAL-04, M-1613-CAL-05

Technical Note

Native Solutions of the US EPA Method 1613 analytes can also be used for USEPA Method 23, 8280, 8290, EU Method EN-1948 and Japanese Methods JIS-K0311 and JIS-K0312.

2,3,7,8 Isomers Only Mix

This solution is for those labs only determining the concentration of the two most toxic isomers.

M-1613-DF

40 ng/mL each in Nonane

1 x 1 mL
2 comps.

2,3,7,8-Tetrachlorodibenzo-*p*-dioxin
2,3,7,8-Tetrachlorodibenzofuran



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Method 1614 Bromodiphenyl Ether Mixtures

PBDEs Standard Solution for Accuracy and Precision

At stated conc. in Isooctane	39 comps.	BDE-AAP-A	BDE-AAP-A-15X
		1 mL (ng/mL)	1 mL (µg/mL)
1 2-Bromodiphenyl ether		100	1.5
2 3-Bromodiphenyl ether		100	1.5
3 4-Bromodiphenyl ether		100	1.5
7 2,4-Dibromodiphenyl ether		100	1.5
8 2,4'-Dibromodiphenyl ether		100	1.5
10 2,6-Dibromodiphenyl ether		100	1.5
11 3,3'-Dibromodiphenyl ether		100	1.5
12 3,4-Dibromodiphenyl ether		100	1.5
13 3,4'-Dibromodiphenyl ether		100	1.5
15 4,4'-Dibromodiphenyl ether		100	1.5
17 2,2',4,-Tribromodiphenyl ether		100	1.5
25 2,3',4-Tribromodiphenyl ether		100	1.5
28 2,4,4'-Tribromodiphenyl ether		100	1.5
30 2,4,6-Tribromodiphenyl ether		100	1.5
32 2,4',6-Tribromodiphenyl ether		100	1.5
33 2',3,4-Tribromodiphenyl ether		100	1.5
35 3,3',4-Tribromodiphenyl ether		100	1.5
37 3,4,4'-Tribromodiphenyl ether		100	1.5
47 2,2',4,4'-Tetrabromodiphenyl ether		100	1.5
49 2,2',4,5'-Tetrabromodiphenyl ether		100	1.5
66 2,3',4,4'-Tetrabromodiphenyl ether		100	1.5
71 2,3',4',6-Tetrabromodiphenyl ether		100	1.5
75 2,4,4',6-Tetrabromodiphenyl ether		100	1.5
77 3,3',4,4'-Tetrabromodiphenyl ether		100	1.5
85 2,2',3,4,4'-Pentabromodiphenyl ether		150	2.25
99 2,2',4,4',5-Pentabromodiphenyl ether		150	2.25
100 2,2',4,4',6-Pentabromodiphenyl ether		150	2.25
116 2,3,4,5,6-Pentabromodiphenyl ether		150	2.25
118 2,3',4,4',5-Pentabromodiphenyl ether		150	2.25
119 2,3',4,4',6-Pentabromodiphenyl ether		150	2.25
126 3,3',4,4',5-Pentabromodiphenyl ether		150	2.25
138 2,2',3,4,4',5'-Hexabromodiphenyl ether		200	3.0
153 2,2',4,4',5,5'-Hexabromodiphenyl ether		200	3.0
154 2,2',4,4',5,6'-Hexabromodiphenyl ether		200	3.0
155 2,2',4,4',6,6'-Hexabromodiphenyl ether		200	3.0
166 2,3,4,4',5,6-Hexabromodiphenyl ether		200	3.0
181 2,2',3,4,4',5,6-Heptabromodiphenyl ether		250	3.75
183 2,2',3,4,4',5',6-Heptabromodiphenyl ether		250	3.75
190 2,3,3',4,4',5,6-Heptabromodiphenyl ether		250	3.75

Commonly Occurring PBDE Congeners for Precision and Recovery

BDE-COC	1 x 1 mL
At stated conc. (µg/mL) in Isooctane	14 comps.
17 2,2',4,-Tribromodiphenyl ether	5
28 2,4,4'-Tribromodiphenyl ether	5
47 2,2',4,4'-Tetrabromodiphenyl ether	5
66 2,3',4,4'-Tetrabromodiphenyl ether	5
71 2,3',4',6-Tetrabromodiphenyl ether	5
85 2,2',3,4,4'-Pentabromodiphenyl ether	5
99 2,2',4,4',5-Pentabromodiphenyl ether	5
100 2,2',4,4',6-Pentabromodiphenyl ether	5
138 2,2',3,4,4',5'-Hexabromodiphenyl ether	5
153 2,2',4,4',5,5'-Hexabromodiphenyl ether	5
154 2,2',4,4',5,6'-Hexabromodiphenyl ether	5
183 2,2',3,4,4',5',6-Heptabromodiphenyl ether	5
190 2,3,3',4,4',5,6-Heptabromodiphenyl ether	5
209 Decabromodiphenyl ether	25

PBDE Congeners of Primary Interest

BDE-CSM	1 x 1 mL
At stated conc. (µg/mL) in Isooctane	8 comps.
28 2,4,4'-Tribromodiphenyl ether	20
47 2,2',4,4'-Tetrabromodiphenyl ether	20
99 2,2',4,4',5-Pentabromodiphenyl ether	20
100 2,2',4,4',6-Pentabromodiphenyl ether	20
153 2,2',4,4',5,5'-Hexabromodiphenyl ether	20
154 2,2',4,4',5,6'-Hexabromodiphenyl ether	20
183 2,2',3,4,4',5',6-Heptabromodiphenyl ether	20
209 Decabromodiphenyl ether	200

Technical Note

Responding to the need for an analytical method for polybrominated diphenyl ether (PBDE) congeners, the EPA has developed Method 1614. Method 1614 is recommended for analysis of aqueous, solid, tissue, and multi-phase environmental samples.

Calibration Mix

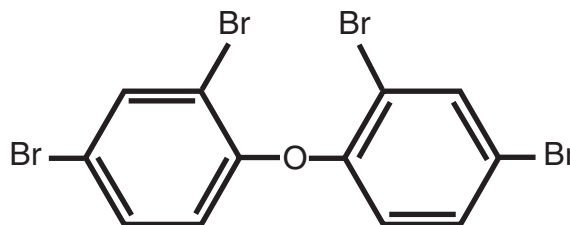
BDE-CM	1 x 1 mL
At stated conc. (µg/mL) in Isooctane	8 comps.
28 2,4,4'-Tribromodiphenyl ether	2.5
47 2,2',4,4'-Tetrabromodiphenyl ether	2.5
99 2,2',4,4',5-Pentabromodiphenyl ether	2.5
100 2,2',4,4',6-Pentabromodiphenyl ether	2.5
153 2,2',4,4',5,5'-Hexabromodiphenyl ether	2.5
154 2,2',4,4',5,6'-Hexabromodiphenyl ether	2.5
183 2,2',3,4,4',5',6-Heptabromodiphenyl ether	2.5
209 Decabromodiphenyl ether	25

Matrix Spiking Solution

BDE-MS	1 x 1 mL
At stated conc. (ng/mL) in Isooctane	8 comps.
28 2,4,4'-Tribromodiphenyl ether	1
47 2,2',4,4'-Tetrabromodiphenyl ether	1
99 2,2',4,4',5-Pentabromodiphenyl ether	1
100 2,2',4,4',6-Pentabromodiphenyl ether	1
153 2,2',4,4',5,5'-Hexabromodiphenyl ether	1
154 2,2',4,4',5,6'-Hexabromodiphenyl ether	1
183 2,2',3,4,4',5',6-Heptabromodiphenyl ether	1
209 Decabromodiphenyl ether	10

PBDEs in Method 1614

BDE-EPA-SET	8 x 1 mL
50 µg/mL each in Isooctane	8 comps.
28 2,4,4'-Tribromodiphenyl ether	1
47 2,2',4,4'-Tetrabromodiphenyl ether	1
99 2,2',4,4',5-Pentabromodiphenyl ether	1
100 2,2',4,4',6-Pentabromodiphenyl ether	1
153 2,2',4,4',5,5'-Hexabromodiphenyl ether	1
154 2,2',4,4',5,6'-Hexabromodiphenyl ether	1
183 2,2',3,4,4',5',6-Heptabromodiphenyl ether	1
209 Decabromodiphenyl ether	10



Method 1618 Organo-halide, Organo-phosphorus Pesticides and Phenoxyacid Herbicides by Wide Bore Capillary Column GC

Method 1618 was developed by the Industrial Technology Division (ITD) within the United States Environmental Protection Agency's (US EPA) Office of Water Regulations and Standards (OWRS) to provide improved precision and accuracy of analysis of pollutants in aqueous and solid matrices in order to determine the level of these pollutants in industrial discharges. Method 1618 is used with wide bore GC columns to analyze for organo-halide and organo-phosphorus pesticides, phenoxy-acid herbicides and herbicide esters, polychlorinated biphenyls (PCBs) and other compounds amenable to extraction and analysis by wide bore capillary column gas chromatography with halogen-specific and organo-phosphorus detectors.

The chemical compounds in the AccuStandard mixtures that follow may be determined in waters, soils, sediments and sludges by this method. The method is a consolidation of EPA Methods 608, 608.1, 614, 615, 617, 622 and 701.

Organochlorine Pesticides

M-1618-1 1 x 1 mL
M-1618-1-PAK SAVE 5 x 1 mL
 At stated conc. (ng/mL) in Isooctane 14 comps.

Aldrin	100	Endosulfan II	200
Captan	200	Endrin aldehyde	100
Chlorobenzilate	500	Heptachlor	100
Diallate	250	Heptachlor epoxide (Isomer B)	100
p,p'-DDE	200	Lindane	100
p,p'-DDT	20	Methoxychlor	200
Endosulfan I	200	Isodrin	100

M-1618-2 1 x 1 mL
 At stated conc. (ng/mL) in Isooctane 16 comps.

α-BHC	100	Dichlone	100
β-BHC	100	Dieldrin	100
δ-BHC	100	Endrin	100
α-Chlordane	100	Endosulfan sulfate	100
γ-Chlordane	100	Endrin ketone	100
Carbophenothion	1000	Mirex	100
Captafol	200	PCNB	100
p,p'-DDD	100	Trifluralin	200

Organophosphate Pesticides

M-1618-3 1 x 1 mL
 At stated conc. (ng/mL) in Isooctane 19 comps.

Azinphos methyl	100	Merphos	200
Coumaphos	5	Methyl parathion	100
Diazinon	100	Malathion	100
Dichlorvos	50	Phorate	100
Dimethoate	100	Ronnel	100
EPN	100	Sulprofos	50
Ethyl parathion	100	Terbufos	100
Ethoprop	100	Tetrachlorvinphos	100
Ethyl azinphos	100	Trichlorofon	100
Fensulfothion	200		

M-1618-4 1 x 1 mL
 At stated conc. (ng/mL) in Isooctane 16 comps.

Chlorfenvinphos	50	Ethion	100
Chlorpyrifos	50	Famphur	200
Chlorpyrifos methyl	100	Fenthion	100
Crotoxyphos	200	Leptophos	100
Dichlorofenthion	100	Mevinphos	100
Demeton (mixed isomers)	400	Naled	100
Dioxathion	600	Phosmet	200
Disulfoton	100	Sulfotep	50

Phenoxyacid Herbicides

M-8150M 1 x 1 mL
M-8150M-PAK SAVE 5 x 1 mL
 20 µg/mL each in Hexane 8 comps.

2,4-D methyl ester	Dalapon methyl ester
2,4-DB methyl ester	Dicamba methyl ester
2,4,5-T methyl ester	Dichlorprop methyl ester
2,4,5-TP methyl ester	Dinoseb methyl ester

M-8150M-2 1 x 1 mL
M-8150M-2-PAK SAVE 5 x 1 mL
 2.0 mg/mL in Hexane 2 comps.

MCPA methyl ester	MCPP methyl ester
-------------------	-------------------

Surrogate Standards

Organochlorine Pesticide

M-1618-SS 1 x 1 mL
M-1618-SS-PAK SAVE 5 x 1 mL
 2 µg/mL in Acetone

2,4-Dichlorophenylacetic acid

Organophosphate Pesticide

M-1618-SP 1 x 1 mL
 2 µg/mL each in Acetone 2 comps.

Tributyl phosphate	Triphenyl phosphate
--------------------	---------------------

Phenoxyacid Herbicide

M-1618-SA 1 x 1 mL
 2 µg/mL in Acetone

2,4-Dichlorophenylacetic acid

Decomposition Solution

M-1618D * 1 x 1 mL
M-1618D-PAK * SAVE 5 x 1 mL
 At stated conc. (µg/mL) in Acetone 2 comps.

p,p'-DDT 2.0	Endrin 1.0
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GPC Calibration Solution

M-1618-GP-5ML 1 x 5 mL
 At stated conc. (mg/mL) in Acetone 5 comps.

Corn oil	300.0	Perylene	0.1
bis(2-Ethylhexyl)phthalate	15.0	Sulfur	0.5
Pentachlorophenol	1.4		

SPE Cartridge Calibration Solution

M-1618-SE 1 x 1 mL
M-1618-SE-PAK SAVE 5 x 1 mL
 0.1 µg/mL in Acetone

2,4,6-Trichlorophenol

* ColdPAK required to maintain integrity of product.

EPA Method 1600 Series

Chlorinated Phenolics and Pesticides

Method 1653 Chlorinated Phenolics in Pulp and Paper Effluents

Method 1653 is designed to determine Chlorinated Phenolics (chlorinated phenols, guaiacols, catechols, vanillins, syringaldehydes), and other compounds in wastewater amenable to in-situ acetylation and analysis by GC/MS.

M-1653A-D-R-SET 4 x 1 mL
M-1653A, M-1653B, M-1653C, M-1653D-AC

M-1653A		1 x 1 mL
M-1653A-PAK	SAVE	5 x 1 mL
0.1 mg/mL each in MeOH		
4-Chlorophenol	2,4,6-Trichlorophenol	
2,4-Dichlorophenol	2,3,4,6-Tetrachlorophenol	
2,6-Dichlorophenol	Pentachlorophenol	
2,4,5-Trichlorophenol		

M-1653B		1 x 1 mL
0.1 mg/mL each in MeOH		
4-Chloroguaiacol	3,4,5-Trichloroguaiacol	
3,4-Dichloroguaiacol	3,4,6-Trichloroguaiacol	
4,5-Dichloroguaiacol	4,5,6-Trichloroguaiacol	
4,6-Dichloroguaiacol	Tetrachloroguaiacol	

M-1653C		1 x 1 mL
0.1 mg/mL each in MeOH		
4-Chlorocatechol	3,4,5-Trichlorocatechol	
3,4-Dichlorocatechol	3,4,6-Trichlorocatechol	
3,6-Dichlorocatechol	Tetrachlorocatechol	
4,5-Dichlorocatechol		

M-1653D-AC		1 x 1 mL
0.1 mg/mL each in Acetone		
5-Chlorovanillin	2-Chlorosyringaldehyde	
6-Chlorovanillin	2,6-Dichlorosyringaldehyde	
5,6-Dichlorovanillin	Trichlorosyringol	

Internal Standard

M-1653-IS		1 x 1 mL
1.0 mg/mL in MeOH		
M-1653-IS-R		1 x 1 mL
1.0 mg/mL in Acetone		
3,4,5-Trichlorophenol		

Instrument Internal Standard

M-1653-IIS		1 x 1 mL
1.0 mg/mL in MeOH		
M-1653-IIS-R		1 x 1 mL
5.0 mg/mL in Acetone		
2,2'-Difluorobiphenyl		

Method 1656 Organo-Halide Pesticides in Municipal & Industrial Wastewater by HSD

Method 1656 is a consolidation of several EPA wastewater methods used to determine the organo-halide pesticides and polychlorinated biphenyls (PCBs) associated with the Clean Water Act, the Resource Conservation and Recovery Act, and the Comprehensive Environmental Response, Compensation and Liability Act, as well as other compounds amenable to extraction and analysis by wide-bore capillary column GC with a HSD.

GPC Calibration Solution

M-1600-GPC-5ML		1 x 5 mL
At stated conc. (mg/mL) in CH ₂ Cl ₂		
Corn oil	300	Perylene 0.1
bis(2-Ethylhexyl)phthalate	15	Sulfur 0.5
Pentachlorophenol	1.4	

Solid-phase Extraction Cartridge Calibration Solution

M-1600-SPE		1 x 1 mL
0.1 mg/mL in Acetone		
2,4,6-Trichlorophenol		

Decomposition Test Solution

M-1656-DS		1 x 1 mL
At stated conc. (µg/mL) in Isooctane		
4,4'-DDT	2	Endrin 1

M-1653A-D-R2-SET 4 x 1 mL
M-1653A-R, M-1653B-R, M-1653C-R, M-1653D-R

M-1653A-R		1 x 1 mL
At stated conc. (µg/mL) in Acetone		
4-Chlorophenol	25	2,4,6-Trichlorophenol 50
2,4-Dichlorophenol	50	2,3,4,6-Tetrachlorophenol 50
2,6-Dichlorophenol	50	Pentachlorophenol 100
2,4,5-Trichlorophenol	50	

M-1653B-R		1 x 1 mL
At stated conc. (µg/mL) in Acetone		
4-Chloroguaiacol	25	3,4,5-Trichloroguaiacol 50
3,4-Dichloroguaiacol	50	3,4,6-Trichloroguaiacol 50
4,5-Dichloroguaiacol	50	4,5,6-Trichloroguaiacol 50
4,6-Dichloroguaiacol	50	Tetrachloroguaiacol 100

M-1653C-R		1 x 1 mL
At stated conc. (µg/mL) in Acetone		
4-Chlorocatechol	25	3,4,5-Trichlorocatechol 100
3,4-Dichlorocatechol	50	3,4,6-Trichlorocatechol 100
3,6-Dichlorocatechol	50	Tetrachlorocatechol 100
4,5-Dichlorocatechol	50	

M-1653D-R		1 x 1 mL
At stated conc. (µg/mL) in Acetone		
5-Chlorovanillin	50	2-Chlorosyringaldehyde 50
6-Chlorovanillin	50	2,6-Dichlorosyringaldehyde 100
5,6-Dichlorovanillin	100	Trichlorosyringol 50

US EPA Pulp, Paper & Paperboard Cluster Rule

M-PAPCLUS		1 x 1 mL
M-PAPCLUS-PAK	SAVE	5 x 1 mL
0.1 mg/mL each in Water		
Methanol		Propionaldehyde
Acetaldehyde		Methyl ethyl ketone

Instrument Performance Check Solution

M-1653-TS		1 x 1 mL
50 µg/mL in Acetone		
DFTPP		

Surrogate Spiking Solutions

CLP-PES-A		1 x 1 mL
0.2 mg/mL in Acetone		
Dibutylchlorendate		

CLP-032-R		1 x 1 mL
0.2 mg/mL each in Acetone		
Decachlorobiphenyl		Tetrachloro- <i>m</i> -xylene

CLP-034		1 x 1 mL
0.2 mg/mL each in Acetone		
Dibutylchlorendate		Tetrachloro- <i>m</i> -xylene

Method 1656 (continued) Calibration Solutions & Suggested Calibration Groups

M-1656-CAL-SET

7 x (3 x 1 mL)

M-1656-01-CAL-SET, M-1656-02-CAL-SET, M-1656-03-CAL-SET
M-1656-04-CAL-SET, M-1656-05-CAL-SET, M-1656-06-CAL-SET
M-1656-07-CAL-SET

Calibration Group 1

M-1656-01-CAL-SET 3 x 1 mL
At stated conc. (ng/mL) in Isooctane 14 comps.

Components	Low (1X)	Medium (5X)	High (20X)
Acephate	2,000	10,000	40,000
Alachlor	20	100	400
Atrazine	1,000	5,000	20,000
β-BHC	10	50	200
Bromoxynil octanoate	50	250	1,000
Captafol	200	1,000	4,000
Diallate	200	1,000	4,000
Decachlorobiphenyl	10	50	200
Endosulfan sulfate	10	50	200
Endrin	20	100	400
Isodrin	10	50	200
Pendimethalin	50	250	1,000
Permethrin (cis & trans) *200	1,000	4,000	
Tetrachloro- <i>m</i> -xylene	5	25	100

* Actual isomer concentration is stated on certificate of product data

Calibration Group 2

M-1656-02-CAL-SET 3 x 1 mL
At stated conc. (ng/mL) in Isooctane 11 comps.

Components	Low (1X)	Medium (5X)	High (20X)
α-BHC	5	25	100
DCPA	5	25	100
4,4'-DDE	10	50	200
4,4'-DDT	10	50	200
Decachlorobiphenyl	10	50	200
Dichlone	20	100	400
Ethalfuralin	10	50	200
Fenarimol	20	100	400
Methoxychlor	20	100	400
Metribuzin	10	50	200
Tetrachloro- <i>m</i> -xylene	5	25	100

Calibration Group 3

M-1656-03-CAL-SET 3 x 1 mL
At stated conc. (ng/mL) in Isooctane 10 comps.

Components	Low (1X)	Medium (5X)	High (20X)
γ-BHC	5	25	100
γ-Chlordane	5	25	100
Decachlorobiphenyl	10	50	200
Endrin ketone	10	50	200
Heptachlor epoxide (Isomer B)	5	25	100
Isopropalin	20	100	400
Nitrofen	20	100	400
PCNB	5	25	100
Tetrachloro- <i>m</i> -xylene	5	25	100
Trifluralin	10	50	200



Calibration Group 4

M-1656-04-CAL-SET 3 x 1 mL
At stated conc. (ng/mL) in Isooctane 10 comps.

Components	Low (1X)	Medium (5X)	High (20X)
Benfluralin	20	100	400
Chlorobenzilate	50	250	1,000
Decachlorobiphenyl	10	50	200
Dieldrin	5	25	100
Endosulfan I	10	50	200
Mirex	20	100	400
Terbacil	200	1,000	4,000
Terbuthylazine	500	2,500	10,000
Tetrachloro- <i>m</i> -xylene	5	25	100
Triadimefon	100	500	2,000

Calibration Group 5

M-1656-05-CAL-SET 3 x 1 mL
At stated conc. (ng/mL) in Isooctane 8 comps.

Components	Low (1X)	Medium (5X)	High (20X)
α-Chlordane	10	50	200
Captan	100	500	2,000
Chlorothalonil	20	100	400
4,4'-DDD	20	100	400
Decachlorobiphenyl	10	50	200
Norflurazon	100	500	2,000
Simazine	800	4,000	16,000
Tetrachloro- <i>m</i> -xylene	5	25	100

Calibration Group 6

M-1656-06-CAL-SET 3 x 1 mL
At stated conc. (ng/mL) in Isooctane 9 comps.

Components	Low (1X)	Medium (5X)	High (20X)
Aldrin	20	100	400
δ-BHC	5	25	100
Bromacil	100	500	2,000
Butachlor	50	250	1,000
Decachlorobiphenyl	10	50	200
Endosulfan II	10	50	200
Heptachlor	10	50	200
Kepone	100	500	2,000
Tetrachloro- <i>m</i> -xylene	5	25	100

Calibration Group 7

M-1656-07-CAL-SET 3 x 1 mL
At stated conc. (ng/mL) in Isooctane 13 comps.

Components	Low (1X)	Medium (5X)	High (20X)
Carbophenothion	80	400	1,600
Chloroneb	300	1,500	6,000
Chloropropylate	200	1,000	4,000
1,2-Dibromo-3-chloropropane	25	125	500
Decachlorobiphenyl	10	50	200
Dicofol	300	1,500	6,000
Endrin aldehyde	80	400	1,600
Etridiazole	80	400	1,600
Perthane	1,000	5,000	20,000
Propachlor	500	2,500	10,000
Propanil	200	1,000	4,000
Propazine	1,000	5,000	20,000
Tetrachloro- <i>m</i> -xylene	5	25	100

Method 1657 Organo-Phosphorus Pesticides in Municipal & Industrial Wastewater by FPD

Method 1657 is a consolidation of several EPA wastewater methods used to determine the organo-phosphorus pesticides associated with the Clean Water Act, the Resource and Conservation and Recovery Act, and the Comprehensive Environmental Response, Compensation and Liability Act, as well as other compounds amenable to extraction and analysis by wide-bore capillary column gas chromatography with a flame photometric detector (FPD).

GPC Calibration Solution

M-1600-GPC-5ML	1 x 5 mL
At stated conc. (mg/mL) in CH ₂ Cl ₂	5 comps.
Corn oil	300
bis(2-Ethylhexyl)phthalate	15
Pentachlorophenol	1.4
Perylene	0.1
Sulfur	0.5

Solid-phase Extraction Cartridge Calibration Solution

M-1600-SPE	1 x 1 mL
0.1 mg/mL in Acetone	
2,4,6-Trichlorophenol	

Surrogate Spiking Solution

M-1657-SS	1 x 1 mL
0.2 mg/mL each in Acetone	2 comps.
Tributyl phosphate	
Triphenyl phosphate	

Method 1657 Calibration Solutions & Suggested Calibration Groups

M-1657-CAL-SET	4 x (3 x 1 mL)
M-1657-01-R1-CAL-SET, M-1657-02-CAL-SET	
M-1657-03-CAL-SET, M-1657-04-CAL-SET	

Calibration Group 1

M-1657-01-R1-CAL-SET	3 x 1 mL
At stated conc. (ng/mL) in Isooctane	9 comps.

Components	Low (1X)	Medium (5X)	High (20X)
Azinphos methyl	100	500	2,000
Dichlorvos	500	2,500	10,000
Disulfoton	200	1,000	4,000
Fenthion	200	1,000	4,000
Merphos	400	2,000	8,000
Ronnel	200	1,000	4,000
Sulprofos	200	1,000	4,000
Tributyl phosphate	200	1,000	4,000
Triphenyl phosphate	200	1,000	4,000
Low	M-1657-01-R1-1X		1 mL
Medium	M-1657-01-R1-5X		1 mL
High	M-1657-01-R1-20X		1 mL

Calibration Group 3

M-1657-03-CAL-SET	3 x 1 mL
At stated conc. (ng/mL) in Isooctane	14 comps.

Components	Low (1X)	Medium (5X)	High (20X)
Azinphos ethyl	200	1,000	4,000
Crotoxyphos	500	2,500	10,000
DEF	200	1,000	4,000
Fensulfothion	500	2,500	10,000
Chlorpyrifos-methyl	200	1,000	4,000
Mevinphos	500	2,500	10,000
Naled	500	2,500	10,000
Parathion	200	1,000	4,000
Phosmet	500	2,500	10,000
Phosphamidon	100	500	2,000
Sulfotep	200	1,000	4,000
Terbufos	200	1,000	4,000
Tributyl phosphate	200	1,000	4,000
Triphenyl phosphate	200	1,000	4,000
Low	M-1657-03-1X		1 mL
Medium	M-1657-03-5X		1 mL
High	M-1657-03-20X		1 mL

Calibration Group 4

M-1657-04-CAL-SET	3 x 1 mL
At stated conc. (ng/mL) in Isooctane	11 comps.

Components	Low (1X)	Medium (5X)	High (20X)
Coumaphos	500	2,500	10,000
Diazinon	200	1,000	4,000
EPN	200	1,000	4,000
Ethion	200	1,000	4,000
Ethoprop	200	1,000	4,000
Malathion	200	1,000	4,000
Phorate	200	1,000	4,000
Tetrachlorvinphos	200	1,000	4,000
Tributyl phosphate	200	1,000	4,000
Trichloronate	200	1,000	4,000
Triphenyl phosphate	200	1,000	4,000
Low	M-1657-04-1X		1 mL
Medium	M-1657-04-5X		1 mL
High	M-1657-04-20X		1 mL

Calibration Group 2

M-1657-02-CAL-SET	3 x 1 mL
At stated conc. (ng/mL) in Isooctane	12 comps.

Components	Low (1X)	Medium (5X)	High (20X)
Chlorfevinphos	200	1,000	4,000
Chlorpyrifos	200	1,000	4,000
Demeton (O + S)	400	2,000	8,000
Dichlofenthion	200	1,000	4,000
Dimethoate	100	500	2,000
Famphur	500	2,500	10,000
Leptophos	200	1,000	4,000
Methyl parathion	200	1,000	4,000
Tributyl phosphate	200	1,000	4,000
Trichlorofon	500	2,500	10,000
Tricresylphosphate	100	500	2,000
Triphenyl phosphate	200	1,000	4,000
Low	M-1657-02-1X		1 mL
Medium	M-1657-02-5X		1 mL
High	M-1657-02-20X		1 mL



Method 1658 Phenoxy-Acid Herbicides

Method 1658 consolidates several EPA wastewater methods used to determine Phenoxy-Acid Herbicides and Herbicide esters associated with the CWA, RCRA and CERCLA, as well as other compounds amenable to extraction and analysis by wide-bore capillary column GC/ECD.

M-1658-CAL-SET **3 x 1 mL**
At stated conc. (ng/mL) in Isooctane 12 comps.

Components	Low (1X)	Medium (10X)	High (100X)
2,4-D	100	1,000	10,000
Dalapon	50	500	5,000
2,4-DB	200	2,000	20,000
2,4-Dichlorophenylacetic acid (Surrogate)	10	100	1,000
Dicamba	20	200	2,000
Dichlorprop	100	1,000	10,000
Dinoseb	50	500	5,000
MCPA	5,000	50,000	500,000
MCPP	5,000	50,000	500,000
Picloram	50	500	5,000
2,4,5-T	20	200	2,000
2,4,5-TP	20	200	2,000

Method 1659 Dazomet in Municipal & Industrial Wastewater by NPD

Method 1659 is used to determine Dazomet by base hydrolysis to Methyl Isothiocyanate (MITC) and subsequent determination of MITC by wide-bore fused-silica capillary column gas chromatography with a Nitrogen Phosphorus Detector (NPD).

Recovery & Precision Solution

M-1659-RPS **1 x 1 mL**
25 µg/mL in Acetone
Methyl isothiocyanate (MITC)

Matrix Spiking Solution

M-1659-MS **1 x 1 mL**
25 µg/mL in Acetone
Dazomet

Calibration Solutions

M-1659-CAL-SET **3 x 1 mL**
M-1659-CAL-1X 0.2 mg/mL in Acetone **1 mL**
M-1659-CAL-5X 1.0 mg/mL in Acetone **1 mL**
M-1659-CAL-25X 5.0 mg/mL in Acetone **1 mL**
Methyl isothiocyanate (MITC)

Method 1664 See Petrochemical (page 327) or Inorganic (page 344) Sections

Method 1665 Semi-Volatile Organic Compounds Specific to the PMI by Isotope Dilution GC/MS

The following method series is designed to meet PMI (Pharmaceutical Manufacturing Industry) methods promulgated in 40 CFR part 136. It is used to monitor the discharge of pollutants into surface waters. It can also be used to identify and measure purgeable and non-purgeable volatiles, semi-volatiles, and certain organic pollutants specific to PMI discharge in water, soils, and municipal sludges.

PMI Semi-Volatile Set

M-1665-SET **5 x 1 mL**
M-1618-GP-5ML, M-1653-TS, M-625-07-10X
M-1665, M-1665-LAB

GPC Calibration Solution

M-1618-GP-5ML **1 x 5 mL**
At stated conc. (mg/mL) in Acetone 5 comps.

Corn oil	300.0	Perylene	0.1
bis(2-Ethylhexyl)phthalate	15.0	Sulfur	0.5
Pentachlorophenol	1.4		

PMI Stock Standard

M-1665 **1 x 1 mL**
2000 µg/mL each in CH₂Cl₂ 6 comps.

Aniline	Dimethylformamide
N,N-Dimethylacetamide	2-Picoline
N,N-Dimethylaniline	Pyridine

Instrument Performance Check Solution

M-1653-TS **1 x 1 mL**
50 µg/mL in Acetone

DFTPP

PMI Labeled Stock Standard (Not for individual sale)

M-1665-LAB **1 x 1 mL**
500 µg/mL each in CH₂Cl₂ 5 comps.

Aniline-d ₇	2-Picoline-d ₇
N,N-Dimethylaniline-d ₁₁	Pyridine-d ₅
Dimethylformamide-d ₇	

PMI Internal Standard

M-625-07-10X **1 x 1 mL**
2.0 mg/mL in CH₂Cl₂

2,2'-Difluorobiphenyl

EPA Method 1600 Series

Pharmaceutical Waste Discharge Standards

Method 1666A (Rev. July 1998) Volatile Organic Compounds Specific to the PMI by Isotope Dilution GC/MS

PMI Purgeable Analytes

M-1666A-R2-SET 5 x 1 mL
M-1666A-SSA-ADD, M-1666A-SSA-R2, M-1666A-SSB
M-1666A-SSC, M-1666A-LAB

M-1666A-SSA-ADD 1 x 1 mL
1000 µg/mL in MeOH
Isopropyl ether

PMI Stock Standard A

M-1666A-SSA-R2 1 x 1 mL
At stated conc. (µg/mL) in Water 7 comps.

<i>n</i> -Butanol	2500	Isopropanol	1000
<i>t</i> -Butanol	2500	4-Methyl-2-pentanone	1000
2-Furaldehyde	2500	<i>n</i> -Pentanol	2500
Isobutyraldehyde	2500		

PMI Stock Standard B

M-1666A-SSB 1 x 1 mL
At stated conc. (µg/mL) in MeOH 9 comps.

Cyclohexane	1000	Trifluoromethane	1000
<i>n</i> -Heptane	1000	<i>m</i> -Xylene	1000
<i>n</i> -Hexane	1000	<i>o</i> -Xylene	1000
Methyl formate	2500	<i>p</i> -Xylene	1000
Tetrahydrofuran	1000		

PMI Stock Standard C

M-1666A-SSC 1 x 1 mL
1000 µg/mL each in MeOH 4 comps.

Butyl acetate	Isopropyl acetate
Ethyl acetate	Pentyl acetate

PMI Labeled Stock Standard

M-1666A-LAB 1 x 1 mL
At stated conc. (µg/mL) in MeOH 8 comps.

<i>t</i> -Butanol- <i>d</i> ₁₀	500	<i>n</i> -Hexane- <i>d</i> ₁₄	50
Cyclohexane- <i>d</i> ₁₂	50	Tetrahydrofuran- <i>d</i> ₈	50
Ethyl Acetate-2- ¹³ C	50	<i>o</i> -Xylene- <i>d</i> ₁₀	50
<i>n</i> -Heptane- <i>d</i> ₁₆	50	<i>m</i> -Xylene- <i>d</i> ₁₀	50

PMI Direct Injection Set

M-1666A-DI-R1-SET 4 x 1 mL
M-1666A-DI-R1, M-1666A-DI-R-ADD1
M-1666A-DI-R-ADD2, M-1666A-DI-LAB

PMI Standard Direct Injection

M-1666A-DI-R1 1 x 1 mL
At stated conc. (µg/mL) in Water 10 comps.

Acetonitrile	1000	Ethylene glycol	2500
Diethylamine	2500	Methanol	1000
Dimethylamine	1000	2-Methoxyethanol	1000
Dimethyl sulfoxide	1000	<i>n</i> -Propanol	1000
Ethanol	1000	Triethylamine	2500

M-1666A-DI-R-ADD1 1 x 1 mL
2500 µg/mL in Water

Methylamine

M-1666A-DI-R-ADD2 1 x 1 mL
5000 µg/mL in Water

Formamide

PMI Labeled Standard Direct Injection

M-1666A-DI-LAB 1 x 1 mL
1000 µg/mL each in Water 6 comps.

Acetonitrile- <i>d</i> ₃	Methanol- <i>d</i> ₃
Dimethyl sulfoxide- <i>d</i> ₆	<i>n</i> -Propanol-1- <i>d</i> ₁
Ethanol- <i>d</i> ₆	Tetrahydrofuran- <i>d</i> ₈

PMI Instrument Performance

Purgeable Internal Standard

CLP-PI 1 x 1 mL
CLP-PI-PAK **SAVE** 5 x 1 mL
1.0 mg/mL each in MeOH 3 comps.

Bromochloromethane	1,4-Difluorobenzene
Chlorobenzene- <i>d</i> ₅	

PMI Resolution Standard

M-1666A-RES 1 x 1 mL
M-1666A-RES-PAK **SAVE** 5 x 1 mL
100 µg/mL each in MeOH 2 comps.

<i>o</i> -Xylene	<i>o</i> -Xylene- <i>d</i> ₁₀
------------------	--

Instrument Performance Check Solution

CLP-004-10X 1 x 1 mL
CLP-004-10X-PAK **SAVE** 5 x 1 mL
250 µg/mL in MeOH

p-Bromofluorobenzene

Buy AccuPAKS
Save 20-40% 5 x 1 mL



EPA Method 1600 Series

Pharmaceutical Waste Discharge Standards

1600

Method 1667

Method 1667A Formaldehyde, Isobutylaldehyde & Furfural by Derivatization followed by HPLC for PMI pollutants

PMI Carbonyl Set

M-1667A-SET

Each at 1.0 mg/mL in AcCN

3 x 1 mL

	Cat. No.	1 mL
Formaldehyde	M-1667A-01	
2-Furaldehyde	M-1667A-02	
Isobutylaldehyde	M-1667A-03	

PMI Carbonyl DNPH Set

M-1667A-DNPH-SET

Each at 1.0 mg/mL in AcCN

3 x 1 mL

	Cat. No.	1 mL
Formaldehyde-DNPH	M-1667A-DNPH-01	
2-Furaldehyde-DNPH	M-1667A-DNPH-02	
Isobutylaldehyde-DNPH	M-1667A-DNPH-03	

PMI QA/QC Carbonyl Mixture

M-1667A-M

1 x 1 mL

M-1667A-M-PAK

SAVE

5 x 1 mL

250 µg/mL each in AcCN

3 comps.

Formaldehyde
2-Furaldehyde

Isobutylaldehyde

PMI QA/QC Carbonyl Derivative DNPH Mixture

M-1667A-DNPH

1 x 1 mL

M-1667A-DNPH-PAK

SAVE

5 x 1 mL

250 µg/mL each in AcCN

3 comps.

Formaldehyde-DNPH
2-Furaldehyde-DNPH

Isobutylaldehyde-DNPH

PMI Derivatization Reagent

M-1667A-DERV-10ML

10 mL

M-1667A-DERV-10ML-PAK

SAVE

5 x 10 mL

1.0 mg/mL in AcCN

2,4-Dinitrophenylhydrazine (DNPH)



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Method 1668 Congener Set - 209 Chlorinated Biphenyl Congeners by HRGC/HRMS

Congener specific determination of all 209 PCB congeners for calibration on a SPB-Octyl capillary column.

M-1668A-0.01X-SET

5 x 1 mL

M-1668A-1-0.01X, M-1668A-2-0.01X, M-1668A-3-0.01X
M-1668A-4-0.01X, M-1668A-5-0.01X

PCB Congener Mix #1

M-1668A-1-0.01X

1 x 1 mL

At stated conc. ($\mu\text{g/mL}$) in Isooctane

83 comps.

3-Chlorobiphenyl	2.5	2,3',4,5,5'-Pentachlorobiphenyl	5.0
2,6-Dichlorobiphenyl	2.5	2',3,4,5,5'-Pentachlorobiphenyl	5.0
2,5-Dichlorobiphenyl	2.5	2,3,3',4,5-Pentachlorobiphenyl	5.0
2,3-Dichlorobiphenyl	2.5	2',3,3',4,5-Pentachlorobiphenyl	5.0
2,4-Dichlorobiphenyl	2.5	2,3,3',4,4'-Pentachlorobiphenyl	5.0
3,5-Dichlorobiphenyl	2.5	3,3',4,5,5'-Pentachlorobiphenyl	5.0
3,3-Dichlorobiphenyl	2.5	2,2',3,5,6,6'-Hexachlorobiphenyl	5.0
2,4,6-Trichlorobiphenyl	2.5	2,2',3,3',6,6'-Hexachlorobiphenyl	5.0
2,3',6-Trichlorobiphenyl	2.5	2,2',3,4',5,6'-Hexachlorobiphenyl	5.0
2,4',6-Trichlorobiphenyl	2.5	2,2',3,5',6'-Hexachlorobiphenyl	5.0
2',3,5-Trichlorobiphenyl	2.5	2,2',3,4,5',6'-Hexachlorobiphenyl	5.0
2,3',5-Trichlorobiphenyl	2.5	2,2',3,4,5,6'-Hexachlorobiphenyl	5.0
2,4',5-Trichlorobiphenyl	2.5	2,2',3,4,5,6'-Hexachlorobiphenyl	5.0
2',3,4-Trichlorobiphenyl	2.5	2,2',3,3',5,5'-Hexachlorobiphenyl	5.0
3,3',5-Trichlorobiphenyl	2.5	2,3,3',4,5',6'-Hexachlorobiphenyl	5.0
3,4,5-Trichlorobiphenyl	2.5	2,2',4,4',5,5'-Hexachlorobiphenyl	5.0
3,3',4-Trichlorobiphenyl	2.5	2,2',3,3',4,5'-Hexachlorobiphenyl	5.0
2,2',4,6-Tetrachlorobiphenyl	5.0	2,2',3,3',4,5-Hexachlorobiphenyl	5.0
2,2',3,6-Tetrachlorobiphenyl	5.0	2,3,4,4',5,6-Hexachlorobiphenyl	5.0
2,2',5,5'-Tetrachlorobiphenyl	5.0	2,3,3',4,5,5'-Hexachlorobiphenyl	5.0
2,2',4,5'-Tetrachlorobiphenyl	5.0	2,3',4,4',5,5'-Hexachlorobiphenyl	5.0
2,4,4',6-Tetrachlorobiphenyl	5.0	2,2',3,3',4,4',5-Hexachlorobiphenyl	5.0
2,2',3,4-Tetrachlorobiphenyl	5.0	2,2',3,3',5,6,6'-Heptachlorobiphenyl	5.0
2,3',5,5'-Tetrachlorobiphenyl	5.0	2,2',3,3',4,6,6'-Heptachlorobiphenyl	5.0
2,3,3',5-Tetrachlorobiphenyl	5.0	2,2',3,3',5,5',6-Heptachlorobiphenyl	5.0
2,3,4',5-Tetrachlorobiphenyl	5.0	2,2',3,3',4,5',6-Heptachlorobiphenyl	5.0
2,3',4,4'-Tetrachlorobiphenyl	5.0	2,2',3,4,4',5',6-Heptachlorobiphenyl	5.0
3,3',4,5'-Tetrachlorobiphenyl	5.0	2,2',3,3',4',5,6-Heptachlorobiphenyl	5.0
3,3',4,5-Tetrachlorobiphenyl	5.0	2,2',3,3',4,4',6-Heptachlorobiphenyl	5.0
3,4,4',5-Tetrachlorobiphenyl	5.0	2,2',3,3',4,5,5'-Heptachlorobiphenyl	5.0
2,2',3,6,6'-Pentachlorobiphenyl	5.0	2,3,3',4,4',5',6-Heptachlorobiphenyl	5.0
2,2',4,5',6-Pentachlorobiphenyl	5.0	2,2',3,3',4,4',5-Heptachlorobiphenyl	5.0
2,2',3,5',6-Pentachlorobiphenyl	5.0	2,3,3',4,4',5,6-Heptachlorobiphenyl	5.0
2,2',3,4,6-Pentachlorobiphenyl	5.0	2,2',3,3',4,5',6'-Octachlorobiphenyl	7.5
2,2',3,4,6-Pentachlorobiphenyl	5.0	2,2',3,4,4',5,6,6'-Octachlorobiphenyl	7.5
2,2',3,5,5'-Pentachlorobiphenyl	5.0	2,2',3,3',4,5,6,6'-Octachlorobiphenyl	7.5
2,3,3',5',6-Pentachlorobiphenyl	5.0	2,2',3,3',4,5,5',6-Octachlorobiphenyl	7.5
2,2',3,3',5-Pentachlorobiphenyl	5.0	2,2',3,3',4,4',5',6-Octachlorobiphenyl	7.5
2,3',4,4',6-Pentachlorobiphenyl	5.0	2,2',3,3',4,4',5,6-Octachlorobiphenyl	7.5
2,2',3,4,5-Pentachlorobiphenyl	5.0	2,2',3,3',4,4',5,5'-Octachlorobiphenyl	7.5
2,2',3,4,4'-Pentachlorobiphenyl	5.0	2,2',3,3',4,4',5,6,6'-Nonachlorobiphenyl	7.5
2,2',3,3',4-Pentachlorobiphenyl	5.0		

PCB Congener Mix #2

M-1668A-2-0.01X

1 x 1 mL

At stated conc. ($\mu\text{g/mL}$) in Isooctane

54 comps.

2,4-Dichlorobiphenyl	2.5	2,3,4',5,6-Pentachlorobiphenyl	5.0
2,3-Dichlorobiphenyl	2.5	2,3,3',5,5'-Pentachlorobiphenyl	5.0
3,4-Dichlorobiphenyl	2.5	2,3,3',4,5'-Pentachlorobiphenyl	5.0
2,2',5-Trichlorobiphenyl	2.5	2,3',4,4',5-Pentachlorobiphenyl	5.0
2,3,6-Trichlorobiphenyl	2.5	2,3,4,4',5-Pentachlorobiphenyl	5.0
2,3,5-Trichlorobiphenyl	2.5	2,2',3,4',6,6'-Hexachlorobiphenyl	5.0
2,4,4'-Trichlorobiphenyl	2.5	2,2',3,4,6,6'-Hexachlorobiphenyl	5.0
2,3,4'-Trichlorobiphenyl	2.5	2,2',3,3',5,6'-Hexachlorobiphenyl	5.0
3,4',5-Trichlorobiphenyl	2.5	2,2',3,4',5,6-Hexachlorobiphenyl	5.0
2,2',5,6'-Tetrachlorobiphenyl	5.0	2,2',3,4,4',6-Hexachlorobiphenyl	5.0
2,2',4,6'-Tetrachlorobiphenyl	5.0	2,2',3,3',4,6'-Hexachlorobiphenyl	5.0
2,3',5,6'-Tetrachlorobiphenyl	5.0	2,3,3',5,5',6-Hexachlorobiphenyl	5.0
2,2',4,5-Tetrachlorobiphenyl	5.0	2,3',4,4',5,6-Hexachlorobiphenyl	5.0
2,3,4,6-Tetrachlorobiphenyl	5.0	2,2',3,4,4',5-Hexachlorobiphenyl	5.0
2,3',4',6-Tetrachlorobiphenyl	5.0	2,3,3',4,5,6-Hexachlorobiphenyl	5.0
2,3,4,5-Tetrachlorobiphenyl	5.0	2,2',3,3',4,4'-Hexachlorobiphenyl	5.0
2,3,3',5-Tetrachlorobiphenyl	5.0	2,3,3',4,5,5'-Hexachlorobiphenyl	5.0
2,3,4,5-Tetrachlorobiphenyl	5.0	2,3,3',4,4',5'-Hexachlorobiphenyl	5.0
2,3,3',4-Tetrachlorobiphenyl	5.0	2,2',3,4,4',6,6'-Heptachlorobiphenyl	5.0
2,3,4,4'-Tetrachlorobiphenyl	5.0	2,2',3,4,5,6,6'-Heptachlorobiphenyl	5.0
2,2',3,5,6'-Pentachlorobiphenyl	5.0	2,2',3,4',5,5',6-Heptachlorobiphenyl	5.0
2,2',4,4',6-Pentachlorobiphenyl	5.0	2,2',3,4,5,5',6-Heptachlorobiphenyl	5.0
2,2',3,4',6-Pentachlorobiphenyl	5.0	2,2',3,4,4',5,6-Heptachlorobiphenyl	5.0
2,3',4,5,6-Pentachlorobiphenyl	5.0	2,2',3,3',4,4',6,6'-Heptachlorobiphenyl	7.5
2,2',4,4',5-Pentachlorobiphenyl	5.0	2,2',3,3',4,4',5,6-Heptachlorobiphenyl	7.5
2,2',3,3',4,6-Pentachlorobiphenyl	5.0	2,2',3,3',4,4',5,5'-Octachlorobiphenyl	7.5
2,2',3,3',4,6-Pentachlorobiphenyl	5.0	2,2',3,3',4,4',5,6-Heptachlorobiphenyl	7.5

PCB Congener Mix #3

M-1668A-3-0.01X

1 x 1 mL

At stated conc. ($\mu\text{g/mL}$) in Isooctane 29 comps.

3,4'-Dichlorobiphenyl	2.5
2,2',4-Trichlorobiphenyl	2.5
2,4,5-Trichlorobiphenyl	2.5
2,3,3'-Trichlorobiphenyl	2.5
2,2',3,6'-Tetrachlorobiphenyl	5.0
2,3,5,6-Tetrachlorobiphenyl	5.0
2,3,3',6-Tetrachlorobiphenyl	5.0
2,2',3,3'-Tetrachlorobiphenyl	5.0
2,3',4,5-Tetrachlorobiphenyl	5.0
2',3,4,5-Tetrachlorobiphenyl	5.0
3,3',5,5'-Tetrachlorobiphenyl	5.0
2,2',3,5,6-Pentachlorobiphenyl	5.0
2,2',3,3',6-Pentachlorobiphenyl	5.0
2,2',4,5,5'-Pentachlorobiphenyl	5.0
2,3,3',5,6-Pentachlorobiphenyl	5.0
2,2',3,4,5-Pentachlorobiphenyl	5.0
2,3,4,5,6-Pentachlorobiphenyl	5.0
2,3,3',4',5-Pentachlorobiphenyl	5.0
2,2',4,4',5,6'-Hexachlorobiphenyl	5.0
2,2',3,4',5,6'-Hexachlorobiphenyl	5.0
2,2',3,4,4',6'-Hexachlorobiphenyl	5.0
2,2',3,4,5,5'-Hexachlorobiphenyl	5.0
2,2',3,4,5,5'-Hexachlorobiphenyl	5.0
2,2',3,4,5,5'-Hexachlorobiphenyl	5.0
2,3,3',4',5',6-Hexachlorobiphenyl	5.0
2,3,3',4,4',6-Hexachlorobiphenyl	5.0
2,2',3,4,4',5,6'-Heptachlorobiphenyl	5.0
2,2',3,3',4,5,6'-Heptachlorobiphenyl	5.0
2,2',3,3',4,4',5,6'-Heptachlorobiphenyl	5.0

PCB Congener Mix #4

M-1668A-4-0.01X

1 x 1 mL

At stated conc. ($\mu\text{g/mL}$) in Isooctane 15 comps.

2,3',4-Trichlorobiphenyl	2.5
2,3,4-Trichlorobiphenyl	2.5
2,3',4,6-Tetrachlorobiphenyl	5.0
2,2',4,4'-Tetrachlorobiphenyl	5.0
2,2',3,4'-Tetrachlorobiphenyl	5.0
2,3,4',6-Tetrachlorobiphenyl	5.0
2,3',4',5-Tetrachlorobiphenyl	5.0
2,2',4,5,6-Pentachlorobiphenyl	5.0
2,2',3,4,5-Pentachlorobiphenyl	5.0
2,3,4,4',6-Pentachlorobiphenyl	5.0
2',3,4,4',5-Pentachlorobiphenyl	5.0
2,2',3,3',5,6-Hexachlorobiphenyl	5.0
2,2',3,3',4,6-Hexachlorobiphenyl	5.0
2,3,3',4,5,6-Hexachlorobiphenyl	5.0
2,2',3,4,4',5,6-Heptachlorobiphenyl	5.0

PCB Congener Mix #5

M-1668A-5-0.01X

1 x 1 mL

At stated conc. ($\mu\text{g/mL}$) in Isooctane 28 comps.

2-Chlorobiphenyl	2.5
4-Chlorobiphenyl	2.5
2,2'-Dichlorobiphenyl	2.5
4,4'-Dichlorobiphenyl	2.5
2,2',6-Trichlorobiphenyl	2.5
2,2',3-Trichlorobiphenyl	2.5
3,4,4'-Trichlorobiphenyl	2.5
2,2',6,6'-Tetrachlorobiphenyl	5.0
2,2',3,5-Tetrachlorobiphenyl	5.0
2,2',3,5'-Tetrachlorobiphenyl	5.0
2,4,4',5-Tetrachlorobiphenyl	5.0
2,3,3',4'-Tetrachlorobiphenyl	5.0
3,3',4,4'-Tetrachlorobiphenyl	5.0
2,2',4,6,6'-Pentachlorobiphenyl	5.0
2,2',3',4,6-Pentachlorobiphenyl	5.0
2',3,4,5,6'-Pentachlorobiphenyl	5.0
2,3,3',4,6-Pentachlorobiphenyl	5.0
3,3',4,4',5-Pentachlorobiphenyl	5.0
2,2',4,4',6,6'-Hexachlorobiphenyl	5.0
2,2',3,4,4',5'-Hexachlorobiphenyl	5.0
3,3',4,4',5,5'-Hexachlorobiphenyl	5.0
2,2',3,4',5,6,6'-Heptachlorobiphenyl	5.0
2,3,3',4,4',5,5'-Heptachlorobiphenyl	7.5
2,3,3',4,4',5,5',6-Octachlorobiphenyl	7.5
2,2',3,3',4,4',5,6-Nonachlorobiphenyl	7.5
2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	7.5
Decachlorobiphenyl	7.5

Method 1668 Level of Chlorination Calibration / Spike

Level of Chlorination Calibration / Spike Set

M-1668A-LOC-SET 2 x 1 mL
M-1668A-NAT, M-1668A-PAR

Native PCB Calibration Mix

M-1668A-NAT 1 x 1 mL
At stated conc. (µg/mL) in Isooctane 19 comps.

4-Chlorobiphenyl	5
4,4'-Dichlorobiphenyl	5
2,4,4'-Trichlorobiphenyl	5
3,3',4,4'-Tetrachlorobiphenyl	1
2,3,3',4,4'-Pentachlorobiphenyl	5
2,3,4,4',5-Pentachlorobiphenyl	5
2,3',4,4',5-Pentachlorobiphenyl	5
2',3,4,4',5-Pentachlorobiphenyl	5
3,3',4,4',5-Pentachlorobiphenyl	5
2,3,3',4,4',5-Hexachlorobiphenyl	10
2,3,3',4,4',5'-Hexachlorobiphenyl	10
2,3',4,4',5,5'-Hexachlorobiphenyl	10
3,3',4,4',5,5'-Hexachlorobiphenyl	10
2,2',3,3',4,4',5-Heptachlorobiphenyl	10
2,2',3,4,4',5,5'-Heptachlorobiphenyl	10
2,3,3',4,4',5,5'-Heptachlorobiphenyl	10
2,2',3,3',4,4',5,5'-Octachlorobiphenyl	10
2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	10
Decachlorobiphenyl	20

PAR PCB Spike Mix

M-1668A-PAR 1 x 1 mL
At stated conc. (µg/mL) in Isooctane 19 comps.

4-Chlorobiphenyl	10
4,4'-Dichlorobiphenyl	10
2,4,4'-Trichlorobiphenyl	10
3,3',4,4'-Tetrachlorobiphenyl	0.2
2,3,3',4,4'-Pentachlorobiphenyl	10
2,3,4,4',5-Pentachlorobiphenyl	10
2,3',4,4',5-Pentachlorobiphenyl	10
2',3,4,4',5-Pentachlorobiphenyl	10
3,3',4,4',5-Pentachlorobiphenyl	1
2,3,3',4,4',5-Hexachlorobiphenyl	10
2,3,3',4,4',5'-Hexachlorobiphenyl	10
2,3',4,4',5,5'-Hexachlorobiphenyl	10
3,3',4,4',5,5'-Hexachlorobiphenyl	2
2,2',3,3',4,4',5-Heptachlorobiphenyl	2
2,2',3,4,4',5,5'-Heptachlorobiphenyl	10
2,3,3',4,4',5,5'-Heptachlorobiphenyl	2
2,2',3,3',4,4',5,5'-Octachlorobiphenyl	10
2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	10
Decachlorobiphenyl	20

Method 1668A - Combined Congener Standard

M-1668A-C-NT-LOC-WD
20 µg/mL each in Isooctane

1 x 1 mL
33 comps.

2-Chlorobiphenyl	2,2',4,4',6,6'-Hexachlorobiphenyl
4-Chlorobiphenyl	2,3,3',4,4',5-Hexachlorobiphenyl
2,2'-Dichlorobiphenyl	2,3,3',4,4',5'-Hexachlorobiphenyl
4,4'-Dichlorobiphenyl	2,3',4,4',5,5'-Hexachlorobiphenyl
2,2',6-Trichlorobiphenyl	3,3',4,4',5,5'-Hexachlorobiphenyl
2,3,5-Trichlorobiphenyl	2,2',3,3',4,4',5-Heptachlorobiphenyl
2',3,5-Trichlorobiphenyl	2,2',3,4,4',5,5'-Heptachlorobiphenyl
3,4,4'-Trichlorobiphenyl	2,2',3,4,4',5,6'-Heptachlorobiphenyl
2,2',6,6'-Tetrachlorobiphenyl	2,2',3,4',5,5',6-Heptachlorobiphenyl
3,3',4,4'-Tetrachlorobiphenyl	2,2',3,4',5,6,6'-Heptachlorobiphenyl
3,4,4',5-Tetrachlorobiphenyl	2,3,3',4,4',5,5'-Heptachlorobiphenyl
2,2',4,6,6'-Pentachlorobiphenyl	2,2',3,3',5,5',6,6'-Octachlorobiphenyl
2,3,3',4,4'-Pentachlorobiphenyl	2,2',3,3',4,4',5,5',6-Octachlorobiphenyl
2,3,4,4',5-Pentachlorobiphenyl	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl
2,3',4,4',5-Pentachlorobiphenyl	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl
2',3,4,4',5-Pentachlorobiphenyl	Decachlorobiphenyl
3,3',4,4',5-Pentachlorobiphenyl	

Method 1668A - QC Standard

M-1668A-QC

1 x 1 mL

M-1668A-QC-PAK **SAVE**

5 x 1 mL

At stated conc. (µg/mL) in Isooctane

13 comps.

3,3',4,4'-Tetrachlorobiphenyl	0.2
2,3,3',4,4'-Pentachlorobiphenyl	10
2,3,4,4',5-Pentachlorobiphenyl	10
2,3',4,4',5-Pentachlorobiphenyl	10
2',3,4,4',5-Pentachlorobiphenyl	10
3,3',4,4',5-Pentachlorobiphenyl	1
2,3,3',4,4',5-Hexachlorobiphenyl	10
2,3,3',4,4',5'-Hexachlorobiphenyl	10
2,3',4,4',5,5'-Hexachlorobiphenyl	10
3,3',4,4',5,5'-Hexachlorobiphenyl	2
2,2',3,3',4,4',5-Heptachlorobiphenyl	2
2,2',3,4,4',5,5'-Heptachlorobiphenyl	10
2,3,3',4,4',5,5'-Heptachlorobiphenyl	2

Method 1668 are listed in the PCB section with Congener Numbers.

All 209 Individual PCB Congeners are also listed.

Method 1671 VOCs Specific to PMI by GC/FID

PMI Internal Standard

M-1671A-IS		1 x 1 mL
M-1671A-IS-PAK	SAVE	5 x 1 mL
1.0 mg/mL in Water		
Tetrahydrofuran		

Custom Formulations

AccuStandard can obtain PEG with different mixtures of oligomers having molecular weights centered around 200, 300, 400, 550, 1000, 1450, 3350, 8000, 10,000 ca.

Method 1673 Polyethylene glycol-600 by Derivative & HPLC

Poly(ethylene glycol)-600

M-1673		1 x 1 mL
M-1673-PAK	SAVE	5 x 1 mL
2.5 mg/mL in Tetrahydrofuran		
Polyethylene glycol-600		

Surrogate Standard

M-1673-SS		1 x 1 mL
M-1673-SS-PAK	SAVE	5 x 1 mL
1.0 mg/mL in Tetrahydrofuran		
Diethylene glycol monohexyl ether		

Derivatization Reagent

M-1673-DERV-5ML		1 x 5 mL
10 mg/mL in Tetrahydrofuran		
3,5-Dinitrobenzyl chloride		



Custom Quotation Requests

Custom formulations can be requested by contacting Technical Service: techservice@accustandard.com or using our website AccuStandard.com.

See back of the catalog for detailed information

Standard Mixtures for EPA Method 8000 Series For Solid Waste



Background Information

The analytical methods used to identify and quantify organic compounds in solid waste are provided in US EPA SW-846, also known as the 8000 Series Methods.

These methods were developed in response to environmental problem areas such as Love Canal, N.Y. and Times Beach, MO. A historical perspective of the evolution of this series includes the Resource and Conservation Recovery Act (RCRA), which was amended by the Hazardous and Solid Waste Act (HSWA). HSWA also addressed previously exempted underground storage tanks containing petroleum and some hazardous substances.

The 8000 Series product line contains standards used in the proposed and promulgated methods for the identification and quantification of organic compounds on the EPA's Appendix VIII and Appendix IX lists in ground water, waste water, and solids at hazardous waste treatment, storage, and disposal sites. An additional method Toxicity Characteristic Leaching Procedure (TCLP) Method 1311 is used with 8000 series methods to estimate the toxicity of solid waste materials under the leaching conditions found in a landfill.

The organic compounds listed in these methods include volatile organic compounds (VOCs), pesticides, synthetic organic compounds (SOCs), and disinfection by-products.

Instrumentation

Analytical techniques used in identification and quantification include gas chromatography with selective detectors (AED, ELCD, ECD, FID, FTIR, TEA, TCD) gas chromatography /mass spectrometry, and high performance liquid chromatography.

Comprehensive

Complete analysis of target compounds by these 8000 Series Methods can be accomplished using the series of standards formulated by AccuStandard for each method along with the required internal and surrogate standards. Formulations for 8000 Series Methods have been developed as easy-to-use large core mixes containing target compounds and as high concentration sub mixes for combination with other formulations to meet laboratory specific analyte detection requirements.

Match frequently
requested products.

Alternate Source

ASL products can be used as
an independent second source.

Methods 8015A, 8020A, 8040A, 8080A, 8270



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Table of Contents

8000, APP IX	Appendix IX Individual Analytes	198-199
8000, APP IX	Appendix IX Mixtures	199-200
8000	Volatile & Semi-Volatile Mixtures	200
8000 Series	Volatile Internal/Surrogate Standards	201
8010, 8010A/B	Halogenated Volatiles (ELCD)	202-203
8011	EDB & DBCP (GC/MS)	203
8015A, 8015B	Non Halogenated Organics (FID)	204
8015B/5031	Azeotropic Distillation (GC/FID)	204
8020	Aromatic Volatiles (PID)	204
8021B	Halogenated Volatiles (PID/ELCD)	205-206
8030A	Acrolein & Acrylonitrile (FID)	206
8031	Acrylonitrile (NPD)	206
8032, 8032A	Acrylamide (ECD)	206
8033	Acetonitrile (NPD)	206
8040, 8040A	Phenols, PFB Derivatives (ECD)	207
8041	Phenols as PFB Derivatives (FID/ECD)	208
8060	Phthalate Esters (ECD)	208
8061A	Phthalate Esters (ECD)	208
8070A	Nitrosamines (NPD/TEA)	208
8080A	Organochlorine Pesticides & PCBs	209
8081/8081A/B	Organochlorine Pesticides (ECD)	209-213
8082	PCBs (ECD or ELCD)	214
8085	Pesticides (AED)	215
8090	Nitroaromatics & Isophorone (TCD/FID)	216
8091	Nitroaromatics & Cyclic Ketones (ECD/NPD)	216
8095	Explosives (ECD)	217
8100	Polynuclear Aromatic Hydrocarbons (FID)	217
8110	Haloethers (FID)	217
8111	Haloethers (GC)	218
8120, 8120A	Chlorinated Hydrocarbons (ECD)	218
8121	Chlorinated Hydrocarbons (ECD)	218
8131	Aniline & Derivatives (NPD/AFD/TSD)	218
8140	Organophosphorous Pesticides (NPD/ELCD/FPD)	219
8141A	Additions to Method 8140 (GC/NPD)	219
8150A, 8150B	Chlorinated Herbicides (ECD)	220-221
8151/8151A	Chlorinated Herbicides (ECD)	222
8240, 8240A	Volatiles (GC/MS)	222
8240 & 8260	Combined Method Volatile Organics (GC/MS)	223, 226
8260B	Volatiles (GC/MS)	224-225
8270, 8270C/D	Semi-Volatile (GC/MS) Alternate Source Line (ASL)	227-236
8272	PAHs (GC/MS)	237
8275A	Semi-Volatiles (Thermal Chromatography)	237
8280A	Dioxins & Furans (HRGC/LRMS)	237
8310	Polynuclear Aromatic Hydrocarbons (HPLC)	238
8315, 8315A	Ketones/Aldehydes (HPLC)	239
8316	Acrolein, Acrylamide, Acrylonitrile (HPLC)	239
8318	N-Methylcarbamates (HPLC)	239
8321	Solvent Extractable Non-Volatiles (HPLC/TSP/MS)	240
8323	Organometallic Tin Analysis (Ion Trap MS)	240
8325	Benzidine & Nitrogen Pesticides (HPLC/MS)	240
8330	Explosives (HPLC)	241-242
8410	Semi-Volatiles (FTIR)	242
8430	bis(2-Chloroethyl) ether & Hydrolysis Products	242
8440	Total Petroleum Hydrocarbons (IR)	242



EPA Method 8000 Series

Appendix IX Compounds

AccuStandard has assembled the compounds appearing below to aid the analyst in identifying all the contaminants the EPA has regulated for groundwater monitoring. This list (214 compounds), commonly called the Appendix IX list, was first published in July 1987. Federal Register Vol. 52, No. 131.

The entire list of compounds can be purchased as a complete set
APP-9-SET * 214 x 1 mL

All solutions are at 100 µg/mL in 1 mL

Appendix IX Compounds

Compound	CAS No.	Solv.	Cat. No.	Compound	CAS No.	Solv.	Cat. No.
Acenaphthene	83-32-9	MeOH	APP-9-001	1,2-Dichloroethane	107-06-2	MeOH	APP-9-071
Acenaphthylene	208-96-8	MeOH	APP-9-002	1,1-Dichloroethylene	75-35-4	MeOH	APP-9-072
Acetone	67-64-1	MeOH	APP-9-003 *	<i>trans</i> -1,2-Dichloroethylene	156-60-5	MeOH	APP-9-073
Acetonitrile	75-05-8	MeOH	APP-9-005	Dichloromethane	75-09-2	MeOH	APP-9-074
Acetophenone	98-86-2	CH ₂ Cl ₂	APP-9-004	2,4-Dichlorophenol	120-83-2	MeOH	APP-9-075
2-Acetylamino fluorene	53-96-3	CH ₂ Cl ₂	APP-9-006	2,6-Dichlorophenol	87-65-0	CH ₂ Cl ₂	APP-9-076
Acrolein	107-02-8	M:W	APP-9-007 *	1,2-Dichloropropane	78-87-5	MeOH	APP-9-077
Acrylonitrile	107-13-1	MeOH	APP-9-008	<i>cis</i> -1,3-Dichloropropene	10061-01-5	MeOH	APP-9-078
Aldrin	309-00-2	MeOH	APP-9-009	<i>trans</i> -1,3-Dichloropropene	10061-02-6	MeOH	APP-9-079
Allyl chloride	107-05-1	MeOH	APP-9-010	Dieldrin	60-57-1	MeOH	APP-9-080
4-Aminobiphenyl	92-67-1	CH ₂ Cl ₂	APP-9-011	Diethyl phthalate	84-66-2	MeOH	APP-9-081
Aniline	62-53-3	MeOH	APP-9-012	Dimethoate	60-51-5	MeOH	APP-9-082
Anthracene	120-12-7	MeOH	APP-9-013	<i>p</i> -Dimethylaminoazobenzene	60-11-7	CH ₂ Cl ₂	APP-9-083
Aramite	140-57-8	MeOH	APP-9-014	7,12-Dimethylbenz[a]anthracene	57-97-6	CH ₂ Cl ₂	APP-9-084
Benz[a]anthracene	56-55-3	MeOH	APP-9-016	3,3'-Dimethylbenzidine †	119-93-7	CH ₂ Cl ₂	APP-9-085
Benzene	71-43-2	MeOH	APP-9-015	<i>a,a</i> -Dimethylphenethylamine	122-09-8	CH ₂ Cl ₂	APP-9-086
Benzo[b]fluoranthene	205-99-2	MeOH	APP-9-017	2,4-Dimethylphenol	105-67-9	MeOH	APP-9-087
Benzo[k]fluoranthene	207-08-9	MeOH	APP-9-018	Dimethyl phthalate	131-11-3	MeOH	APP-9-088
Benzo[g,h,i]perylene	191-24-2	CH ₂ Cl ₂	APP-9-019	<i>m</i> -Dinitrobenzene	99-65-0	CH ₂ Cl ₂	APP-9-089
Benz[a]pyrene	50-32-8	MeOH	APP-9-020	4,6-Dinitro- <i>o</i> -cresol	534-52-1	MeOH	APP-9-090
Benzyl alcohol	100-51-6	MeOH	APP-9-021	2,4-Dinitrophenol	51-28-5	MeOH	APP-9-091
α -BHC	319-84-6	MeOH	APP-9-022	2,4-Dinitrotoluene	121-14-2	MeOH	APP-9-092
β -BHC	319-85-7	MeOH	APP-9-023	2,6-Dinitrotoluene	606-20-2	MeOH	APP-9-093
δ -BHC	319-86-8	MeOH	APP-9-024	Dinoseb	88-85-7	MeOH	APP-9-094
γ -BHC (Lindane)	58-89-9	MeOH	APP-9-025	Di- <i>n</i> -octyl phthalate	117-84-0	MeOH	APP-9-095
Bromodichloromethane	75-27-4	MeOH	APP-9-030	1,4-Dioxane	123-91-1	MeOH	APP-9-096
Bromoform	75-25-2	MeOH	APP-9-031	Diphenylamine	122-39-4	CH ₂ Cl ₂	APP-9-097
Bromomethane	74-83-9	MeOH	APP-9-032	Disulfoton	298-04-4	MeOH	APP-9-098
4-Bromophenyl phenyl ether	101-55-3	MeOH	APP-9-033	Endosulfan I	959-98-8	MeOH	APP-9-099
Butyl benzyl phthalate	85-68-7	MeOH	APP-9-034	Endosulfan II	33213-65-9	MeOH	APP-9-100
Carbon disulfide	75-15-0	MeOH	APP-9-035	Endosulfan sulfate	1031-07-8	MeOH	APP-9-101
Carbon tetrachloride	56-23-5	MeOH	APP-9-036	Endrin	72-20-8	MeOH	APP-9-102
Chlordane	12789-03-6	MeOH	APP-9-037	Endrin aldehyde	7421-93-4	MeOH	APP-9-103
<i>p</i> -Chloroaniline	106-47-8	MeOH	APP-9-038	Ethylbenzene	100-41-4	MeOH	APP-9-104
Chlorobenzene	108-90-7	MeOH	APP-9-039	bis(2-Ethylhexyl)phthalate	117-81-7	MeOH	APP-9-029
Chlorobenzilate	510-15-6	CH ₂ Cl ₂	APP-9-040	Ethyl methacrylate	97-63-2	MeOH	APP-9-105
<i>p</i> -Chloro- <i>m</i> -cresol	59-50-7	MeOH	APP-9-041	Ethyl methanesulfonate	62-50-0	CH ₂ Cl ₂	APP-9-106
Chloroethane	75-00-3	MeOH	APP-9-042	Famphur	52-85-7	MeOH	APP-9-107
bis(2-Chloroethoxy)methane	111-91-1	CH ₂ Cl ₂	APP-9-026	Fluoranthene	206-44-0	MeOH	APP-9-108
bis(2-Chloroethyl) ether	111-44-4	MeOH	APP-9-027	Fluorene	86-73-7	MeOH	APP-9-109
Chloroform	67-66-3	MeOH	APP-9-043	Heptachlor	76-44-8	MeOH	APP-9-110
bis(2-Chloroisopropyl) ether	108-60-1	CH ₂ Cl ₂	APP-9-028	Heptachlor epoxide (Isomer B)	1024-57-3	MeOH	APP-9-111
Chloromethane	74-87-3	MeOH	APP-9-044	Hexachlorobenzene	118-74-1	MeOH	APP-9-112
2-Chloronaphthalene	91-58-7	MeOH	APP-9-045	Hexachlorobutadiene	87-68-3	MeOH	APP-9-113
2-Chlorophenol	95-57-8	MeOH	APP-9-046	Hexachlorocyclopentadiene	77-47-4	MeOH	APP-9-114
4-Chlorophenyl phenyl ether	7005-72-3	MeOH	APP-9-047	Hexachloroethane	67-72-1	MeOH	APP-9-115
Chloroprene (Xylene-Free)	126-99-8	MeOH	APP-9-048-R1	Hexachlorophene	70-30-4	MeOH	APP-9-116
Chrysene	218-01-9	MeOH	APP-9-049	Hexachloropropene	1888-71-7	MeOH	APP-9-117
<i>m</i> -Cresol	108-39-4	CH ₂ Cl ₂	APP-9-050	2-Hexanone	591-78-6	MeOH	APP-9-118 *
<i>o</i> -Cresol	95-48-7	CH ₂ Cl ₂	APP-9-051	Indeno[1,2,3- <i>cd</i>]pyrene	193-39-5	MeOH	APP-9-119
<i>p</i> -Cresol	106-44-5	CH ₂ Cl ₂	APP-9-052	Isobutanol	78-83-1	MeOH	APP-9-120
2,4-D	94-75-7	MeOH	APP-9-053	Isodrin	465-73-6	MeOH	APP-9-121
4,4'-DDD	72-54-8	MeOH	APP-9-054	Isophorone	78-59-1	MeOH	APP-9-122
4,4'-DDE	72-55-9	MeOH	APP-9-055	Isosafrole	120-58-1	CH ₂ Cl ₂	APP-9-123
4,4'-DDT	50-29-3	MeOH	APP-9-056	Kepon	143-50-0	MeOH	APP-9-124
Diallate	2303-16-4	MeOH	APP-9-057	Methacrylonitrile	126-98-7	MeOH	APP-9-125
Dibenz[a,h]anthracene	53-70-3	MeOH	APP-9-058	Methapyrilene	91-80-5	CH ₂ Cl ₂	APP-9-126
Dibenzofuran	132-64-9	MeOH	APP-9-059	Methoxychlor	72-43-5	MeOH	APP-9-127
Dibromochloromethane	124-48-1	MeOH	APP-9-060	3-Methylcholanthrene	56-49-5	CH ₂ Cl ₂	APP-9-128
1,2-Dibromo-3-chloropropane	96-12-8	MeOH	APP-9-061	Methyl ethyl ketone (MEK)	78-93-3	MeOH	APP-9-129 *
Dibromomethane	74-95-3	MeOH	APP-9-062	Methyl iodide (Iodomethane)	74-88-4	MeOH	APP-9-130
1,2-Dibromoethane (EDB)	106-93-4	MeOH	APP-9-214	Methyl methacrylate	80-62-6	MeOH	APP-9-131
Di- <i>n</i> -butyl phthalate	84-74-2	MeOH	APP-9-063	Methyl methanesulfonate	66-27-3	CH ₂ Cl ₂	APP-9-132
<i>o</i> -Dichlorobenzene	95-50-1	MeOH	APP-9-064	2-Methylnaphthalene	91-57-6	CH ₂ Cl ₂	APP-9-133
<i>m</i> -Dichlorobenzene	541-73-1	MeOH	APP-9-065	Methyl parathion	298-00-0	MeOH	APP-9-134
<i>p</i> -Dichlorobenzene	106-46-7	MeOH	APP-9-066	4-Methyl-2-pentanone (MIBK)	108-10-1	MeOH	APP-9-135
3,3'-Dichlorobenzidine †	91-94-1	MeOH	APP-9-067	Naphthalene	91-20-3	CH ₂ Cl ₂	APP-9-136
<i>trans</i> -1,4-Dichloro-2-butene	110-57-6	MeOH	APP-9-068	1,4-Naphthoquinone	130-15-4	CH ₂ Cl ₂	APP-9-137
Dichlorodifluoromethane	75-71-8	MeOH	APP-9-069	1-Naphthylamine	134-32-7	CH ₂ Cl ₂	APP-9-138
1,1-Dichloroethane	75-34-3	MeOH	APP-9-070	2-Naphthylamine	91-59-8	CH ₂ Cl ₂	APP-9-139

† Subject to oxidation

* ColdPAK required to maintain integrity of product.

EPA Method 8000 Series

Appendix IX Compounds & Mixtures



Custom Appendix IX formulations are available.
Please use our Custom Quotation Request for any
custom mixture you may need.

Appendix IX

Appendix IX Compounds All solutions at 100 µg/mL in 1 mL

Compound	CAS No.	Solv.	Cat. No.	Compound	CAS No.	Solv.	Cat. No.
<i>o</i> -Nitroaniline	88-74-4	CH ₂ Cl ₂	APP-9-140	Pentachlorobenzene	608-93-5	MeOH	APP-9-173
<i>m</i> -Nitroaniline	99-09-2	CH ₂ Cl ₂	APP-9-141	Pentachloroethane	76-01-7	MeOH	APP-9-174
<i>p</i> -Nitroaniline	100-01-6	CH ₂ Cl ₂	APP-9-142	Pentachloronitrobenzene	82-68-8	MeOH	APP-9-175
Nitrobenzene	98-95-3	MeOH	APP-9-143	Pentachlorophenol	87-86-5	MeOH	APP-9-176
<i>o</i> -Nitrophenol	88-75-5	MeOH	APP-9-144	Phenacetin	62-44-2	CH ₂ Cl ₂	APP-9-177
<i>p</i> -Nitrophenol	100-02-7	MeOH	APP-9-145	Phenanthrene	85-01-8	MeOH	APP-9-178
4-Nitroquinoline-1-oxide	56-57-5	CH ₂ Cl ₂	APP-9-146	Phenol	108-95-2	CH ₂ Cl ₂	APP-9-179
N-Nitrosodi- <i>n</i> -butylamine	924-16-3	CH ₂ Cl ₂	APP-9-147	<i>p</i> -Phenylenediamine	106-50-3	MeOH	APP-9-180
N-Nitrosodiethylamine	55-18-5	CH ₂ Cl ₂	APP-9-148	Phorate	298-02-2	MeOH	APP-9-181
N-Nitrosodimethylamine	62-75-9	CH ₂ Cl ₂	APP-9-149	2-Picoline	109-06-8	MeOH	APP-9-182
N-Nitrosodiphenylamine	86-30-6	CH ₂ Cl ₂	APP-9-150	Pronamide	23950-58-5	MeOH	APP-9-183
N-Nitrosodipropylamine	621-64-7	CH ₂ Cl ₂	APP-9-151	Propionitrile	107-12-0	MeOH	APP-9-184
N-Nitrosomethylethylamine	10595-95-6	CH ₂ Cl ₂	APP-9-152	Pyrene	129-00-0	MeOH	APP-9-185
N-Nitrosomorpholine	59-89-2	CH ₂ Cl ₂	APP-9-153	Pyridine	110-86-1	MeOH	APP-9-186-M
N-Nitrosopiperidine	100-75-4	CH ₂ Cl ₂	APP-9-154	Safrole	94-59-7	MeOH	APP-9-187
N-Nitrosopyrrolidine	930-55-2	CH ₂ Cl ₂	APP-9-155	Silvex (2,4,5-TP)	93-72-1	MeOH	APP-9-188
5-Nitro- <i>o</i> -toluidine	99-55-8	CH ₂ Cl ₂	APP-9-156	Styrene	100-42-5	MeOH	APP-9-189
Parathion	56-38-2	MeOH	APP-9-157	2,4,5-T	93-76-5	MeOH	APP-9-190
Polychlorinated biphenyls:				1,2,4,5-Tetrachlorobenzene	95-94-3	MeOH	APP-9-191
Aroclor® 1016	12674-11-2	MeOH	APP-9-158	1,1,1,2-Tetrachloroethane	630-20-6	MeOH	APP-9-192
Aroclor 1221	11104-28-2	MeOH	APP-9-159	1,1,2,2-Tetrachloroethane	79-34-5	MeOH	APP-9-193
Aroclor 1232	11141-16-5	MeOH	APP-9-160	Tetrachloroethylene	127-18-4	MeOH	APP-9-194
Aroclor 1242	53469-21-9	MeOH	APP-9-161	2,3,4,6-Tetrachlorophenol	58-90-2	MeOH	APP-9-195
Aroclor 1248	12672-29-6	MeOH	APP-9-162	Tetraethyl dithiopyrophosphate (Sulfotep)	3689-24-5	MeOH	APP-9-196
Aroclor 1254	11097-69-1	MeOH	APP-9-163	Thionazin	297-97-2	MeOH	APP-9-197
Aroclor 1260	11096-82-5	MeOH	APP-9-164	Toluene	108-88-3	MeOH	APP-9-198
Aroclor 1262	37324-23-5	MeOH	APP-9-165	<i>o</i> -Toluidine	95-53-4	MeOH	APP-9-199
Aroclor 1268	11100-14-4	MeOH	APP-9-166	Toxaphene	8001-35-2	MeOH	APP-9-200
Dioxins:				1,2,4-Trichlorobenzene	120-82-1	MeOH	APP-9-201
1,2,3,4,7,8- <i>HCDD</i> (5 µg/mL)	39227-28-6	Toluene	APP-9-169	1,1,1-Trichloroethane	71-55-6	MeOH	APP-9-202
1,2,3,7,8- <i>PCCD</i> (5 µg/mL)	40321-76-4	Toluene	APP-9-168	1,1,2-Trichloroethane	79-00-5	MeOH	APP-9-203
2,3,7,8- <i>TCDD</i> (5 µg/mL)	1746-01-6	Toluene	APP-9-167	Trichloroethylene	79-01-6	MeOH	APP-9-204
Polychlorinated dibenzofurans:				Trichlorofluoromethane (Freon #11)	75-69-4	MeOH	APP-9-205
1,2,3,4,7,8- <i>HCDF</i> (5 µg/mL)	55684-94-1	Toluene	APP-9-172	2,4,5-Trichlorophenol	95-95-4	MeOH	APP-9-206
1,2,3,7,8- <i>PCDF</i> (5 µg/mL)	57117-41-6	Toluene	APP-9-171	2,4,6-Trichlorophenol	88-06-2	MeOH	APP-9-207
2,3,7,8- <i>TCDF</i> (5 µg/mL)	51207-31-9	Toluene	APP-9-170	1,2,3-Trichloropropane	96-18-4	MeOH	APP-9-208
				<i>O,O,O</i> -Triethylphosphorothioate	126-68-1	MeOH	APP-9-209
				1,3,5-Trinitrobenzene	99-35-4	MeOH	APP-9-210
				Vinyl acetate	108-05-4	MeOH	APP-9-211 *
				Vinyl chloride	75-01-4	MeOH	APP-9-212
				Xylene (total)	1330-20-7	MeOH	APP-9-213

Volatile Appendix IX Mixtures

M-8240A *	1 x 1 mL	M-502B	1 x 1 mL	M-8240C	1 x 1 mL
0.2 mg/mL each in MeOH	41 comps.	M-502B-PAK SAVE	5 x 1 mL	0.2 mg/mL each in MeOH	17 comps.
		0.2 mg/mL each in MeOH	6 comps.		
Acetone	<i>cis</i> -1,3-Dichloropropene	Bromomethane	Acetonitrile	Allyl chloride	
Acrolein	<i>trans</i> -1,3-Dichloropropene	Chloromethane	1,2-Dibromo-3-chloropropane	Dibromomethane	
Acrylonitrile	Ethanol	Chloroethane	1,2-Dibromoethane	1,4-Dioxane	
Benzene	Ethylbenzene	Dichlorodifluoromethane	Ethyl methacrylate	Isobutanol	
Bromodichloromethane	2-Hexanone	Trichlorofluoromethane	Methacrylonitrile	Methyl methacrylate	
Bromoform	Iodomethane	Vinyl chloride	Methyl methacrylate	Nitrobenzene	
Methyl ethyl ketone	4-Methyl-2-pentanone		Pentachloroethane	Propionitrile	
Carbon disulfide	Methylene chloride		Pyridine	1,1,1,2-Tetrachloroethane	
Carbon tetrachloride	Styrene		1,2,4-Trichlorobenzene	1,2,3-Trichloropropane	
Chlorobenzene	1,1,2,2-Tetrachloroethane				
Chloroform	Tetrachloroethene				
Dibromochloromethane	Toluene				
<i>cis</i> -1,4-Dichloro-2-butene (0.1 mg/mL)	1,1,1-Trichloroethane				
<i>trans</i> -1,4-Dichloro-2-butene (0.1 mg/mL)	1,1,2-Trichloroethane				
1,2-Dichlorobenzene	Trichloroethene				
1,3-Dichlorobenzene	Vinyl acetate				
1,4-Dichlorobenzene	<i>o</i> -Xylene				
1,1-Dichloroethane	<i>m</i> -Xylene				
1,2-Dichloroethane	<i>p</i> -Xylene				
1,1-Dichloroethene					
<i>trans</i> -1,2-Dichloroethene					
1,2-Dichloropropane					

Certificate will reflect actual
cis/trans ratio



EPA Method 8000 Series

Appendix IX Special Mixtures

Special Mixtures for Laboratories Testing Appendix IX Analytes

Volatile Mixtures

S-168A
0.5 mg/mL each in MeOH

Acetonitrile
Acrolein
Acrylonitrile
Allyl chloride
1,2-Dibromoethane
1,2-Dibromo-3-chloropropane
Dibromomethane

1 x 1 mL
14 comps.

1,4-Dioxane
Propionitrile
Iodomethane
Isobutanol
Methacrylonitrile
1,1,1,2-Tetrachloroethane
1,2,3-Trichloropropane

S-181M
0.1 mg/mL each in MeOH

bis(2-Chloroisopropyl)ether
Dichlorodifluoromethane
Ethyl methacrylate

1 x 1 mL
6 comps.

Methyl methacrylate
Pentachloroethane
Pyridine

Semi-Volatile Mixtures

Semi-Volatile Set

S-168-R1-SET * 2 x 1 mL
S-168-MIXA-R1, S-168-MIXB

Mix 1

S-168-MIXA-R1 *
500 µg/mL each in CH₂Cl₂

1 x 1 mL
4 comps.

3,3'-Dimethylbenzidine †
1,4-Naphthoquinone

4-Nitroquinoline-1-oxide
p-Phenylenediamine

Mix 2

S-168-MIXB
500 µg/mL each in CH₂Cl₂

1 x 1 mL
38 comps.

Acetophenone
2-Acetylaminofluorene
4-Aminobiphenyl
Aramite
2-sec-Butyl-4,6-dinitrophenol
m-Cresol
2,6-Dichlorophenol
p-Dimethylamino azobenzene
(Methyl Yellow)
7,12-Dimethylbenz[a]anthracene
m-Dinitrobenzene
Ethyl methacrylate
Ethyl methanesulfonate
Hexachlorophene
Hexachloropropene
Isosafrole
Methapyrilene
3-Methylcholanthrene
Methyl methacrylate
Methyl methanesulfonate

1-Naphthylamine
2-Naphthylamine
N-Nitrosodi-n-butylamine
N-Nitrosodiethylamine
N-Nitrosomethylethylamine
N-Nitrosomorpholine
N-Nitrosopyrrolidine
5-Nitro-o-toluidine
Pentachlorobenzene
Pentachloroethane
Pentachloronitrobenzene
Phenacetin
2-Picoline
Pronamide
Pyridine
Safrole
1,2,4,5-Tetrachlorobenzene
2,3,4,6-Tetrachlorophenol
o-Toluidine



Organic 2-Part Labels (ampules or vials)

Part One can be placed into a laboratory journal to document the standard used for the analysis. This label section includes the catalog number, description, lot number, expiration date, safety information, proper storage conditions and documents AccuStandard as the manufacturer.

Part Two duplicates required information for labeling transfer vial(s) with correct information.

† Subject to oxidation

* ColdPAK required to maintain integrity of product.



Custom Quotation Requests

Custom formulations can be requested by contacting
Technical Service: techservice@accustandard.com or
using our website AccuStandard.com.

See back of the catalog for detailed information

EPA Method 8000 Series

Volatile Internal (ISTD) / Surrogate(SS) Standards



With more proposed and promulgated methods available, analytical chemists are trying to combine analyte lists and shorten run times while still demonstrating method equivalence. AccuStandard has formulated a core evaluation deuterated solution and a second conventional internal/surrogate evaluation solution. These formulations allow the analyst to quickly evaluate ISTD/SS combinations for PID, Hall, FID or GC/MS applications.

Volatile ISTD & SS

Popular Internal Standards

M-502-IS 1 x 1 mL
2.0 mg/mL each in MeOH 2 comps.

1-Chloro-2-bromopropane
Fluorobenzene

M-524-IS-2 1 x 1 mL
2.0 mg/mL in MeOH

Fluorobenzene

M-524-IS 1 x 1 mL
2.0 mg/mL each in MeOH 2 comps.

1,2-Dichlorobenzene-d₄
Fluorobenzene

M-502-IS-2 1 x 1 mL
2.0 mg/mL each in MeOH 3 comps.

1-Chloro-2-bromopropane
Fluorobenzene
Methylene chloride-d₂

M-001R 1 x 1 mL
2.0 mg/mL each in MeOH 3 comps.

Bromochloromethane
1,4-Dichlorobutane
2-Bromo-1-chloropropane

M-8020-IS 1 x 1 mL
0.2 mg/mL each in MeOH 2 comps.

4-Bromofluorobenzene
 α,α,α -Trifluorotoluene

M-8240/60-IS 1 x 1 mL
0.2 mg/mL each in MeOH 5 comps.

Bromochloromethane
Chlorobenzene-d₅
1,4-Dichlorobenzene-d₄
1,4-Difluorobenzene
Pentafluorobenzene

M-8260-IS-R 1 x 1 mL
0.2 mg/mL each in MeOH 4 comps.

2-Bromo-1-chloropropane
1,4-Difluorobenzene
1,4-Dichlorobenzene-d₄
Pentafluorobenzene

M-8260-IS 1 x 1 mL
0.2 mg/mL each in MeOH 4 comps.

Chlorobenzene-d₅
1,4-Difluorobenzene
1,4-Dichlorobenzene-d₄
Pentafluorobenzene

M-8260A/B-IS 1 x 1 mL
0.2 mg/mL each in MeOH 3 comps.

Chlorobenzene-d₅
1,4-Dichlorobenzene-d₄
Fluorobenzene

ISTD/SS Evaluation Mixtures

Conventional ISTD/SS Evaluation Mix

M-CONV-IS/SS 1 x 1 mL
200 μ g/mL each in MeOH 15 comps.

2-Bromochlorobenzene 2-Chloropropane
4-Bromochlorobenzene Dibromofluoromethane
Bromochloromethane 1,4-Dichlorobutane
p-Bromofluorobenzene 1,4-Difluorobenzene
2-Bromo-1-chloropropane Fluorobenzene
1-Chloro-2-fluorobenzene Pentafluorobenzene
1-Chloro-3-fluorobenzene α,α,α -Trifluorotoluene
1-Chloro-4-fluorobenzene

Popular Surrogate Standards

M-502-IS-ASL 1 x 1 mL
2.0 mg/mL each in MeOH 2 comps.

2-Bromo-1-chloropropane
1-Chloro-2-fluorobenzene

M-524-SS 1 x 1 mL
2.0 mg/mL each in MeOH 2 comps.

4-Bromofluorobenzene
1,2-Dichlorobenzene-d₄

M-624-SS-M 1 x 1 mL
2.0 mg/mL each in MeOH 3 comps.

4-Bromofluorobenzene
Fluorobenzene
Pentafluorobenzene

M-8020-SS 1 x 1 mL
2.0 mg/mL each in MeOH 3 comps.

4-Bromochlorobenzene
1,4-Difluorobenzene
Fluorobenzene

M-8021-SS 1 x 1 mL
2.0 mg/mL each in MeOH 2 comps.

4-Bromochlorobenzene
1,4-Dichlorobutane

M-8021-SS-M 1 x 1 mL
2.0 mg/mL each in MeOH 2 comps.

Bromochloromethane
1,4-Dichlorobutane

M-8021A-SS 1 x 1 mL
2.0 mg/mL each in MeOH 4 comps.

4-Bromochlorobenzene
Bromochloromethane
1,4-Dichlorobutane
2-Bromo-1-chloropropane

M-8240/60-SS 1 x 1 mL
0.2 mg/mL each in MeOH 4 comps.

p-Bromofluorobenzene
Dibromofluoromethane
1,2-Dichloroethane-d₄
Toluene-d₈

Deuterated ISTD/SS Evaluation Mix

M-DEUT-IS/SS 1 x 1 mL
200 μ g/mL each in MeOH 8 comps.

Benzene-d₆ 1,2-Dichlorobenzene-d₄
Chlorobenzene-d₅ Ethylbenzene-d₁₀
1,2-Dichlorobenzene-d₄ Methylene chloride-d₂
1,4-Dichlorobenzene-d₄ Toluene-d₈

Popular ISTD/SS Standards

M-502-IS/SS 1 x 1 mL
2.0 mg/mL each in MeOH 4 comps.

1-Chloro-3-fluorobenzene
2-Chloropropane
Fluorobenzene
 α,α,α -Trifluorotoluene

M-524-FS 1 x 1 mL
2.0 mg/mL each in MeOH 3 comps.

4-Bromofluorobenzene
1,2-Dichlorobenzene-d₄
Fluorobenzene

M-8010-IS/SS 1 x 1 mL
150 μ g/mL each in MeOH 3 comps.

4-Bromochlorobenzene
Bromochloromethane
4-Bromofluorobenzene

M-8020-IS/SS-ASL 1 x 1 mL
1.5 mg/mL each in MeOH 5 comps.

4-Bromochlorobenzene
p-Bromofluorobenzene
1,4-Difluorobenzene
Fluorobenzene
 α,α,α -Trifluorotoluene

M-8240/60-IS/SS 1 x 1 mL
0.2 mg/mL each in MeOH 9 comps.

Bromochloromethane
p-Bromofluorobenzene
Chlorobenzene-d₅
Dibromofluoromethane
1,4-Dichlorobenzene-d₄
1,2-Dichloroethane-d₄
1,4-Difluorobenzene
Pentafluorobenzene
Toluene-d₈

M-8260A/B-IS/SS 1 x 1 mL
200 μ g/mL each in MeOH 7 comps.

p-Bromofluorobenzene
Chlorobenzene-d₅
Dibromofluoromethane
1,4-Dichlorobenzene-d₄
1,2-Dichloroethane-d₄
Fluorobenzene
Toluene-d₈



EPA Method 8000 Series

Method 8010

Method 8010 Halogenated VOCs by GC/ELCD (Hall)

Method 8010 Purgeable Halocarbon Set

M-601-SET * 4 x 1 mL
0.2 mg/mL in MeOH M-601A, M-502B, M-601C, M-501

M-601-10X-SET * 4 x 1 mL
2.0 mg/mL in MeOH M-601A-10X, M-502B-10X
M-601C-10X, M-501-10X

Liquids

M-601A 1 x 1 mL
M-601A-PAK SAVE 5 x 1 mL
0.2 mg/mL each in MeOH

M-601A-10X 1 x 1 mL
2.0 mg/mL each in MeOH 18 comps.

- | | |
|------------------------------------|--|
| Carbon tetrachloride | <i>cis</i> -1,3-Dichloropropylene * |
| Chlorobenzene | <i>trans</i> -1,3-Dichloropropylene ** |
| 1,2-Dichlorobenzene | Methylene chloride |
| 1,3-Dichlorobenzene | 1,1,2,2-Tetrachloroethane |
| 1,4-Dichlorobenzene | Tetrachloroethylene |
| 1,1-Dichloroethane | 1,1,1-Trichloroethane |
| 1,2-Dichloroethane | 1,1,2-Trichloroethane |
| 1,1-Dichloroethylene | Trichloroethylene |
| <i>trans</i> -1,2-Dichloroethylene | * <i>cis</i> (1.06 x conc.) |
| 1,2-Dichloropropane | ** <i>trans</i> (0.94 x conc.) |

Gases

M-502B 1 x 1 mL
M-502B-PAK SAVE 5 x 1 mL
0.2 mg/mL each in MeOH

M-502B-10X 1 x 1 mL
2.0 mg/mL each in MeOH 6 comps.

- | | |
|---------------|-------------------------|
| Bromomethane | Dichlorodifluoromethane |
| Chloromethane | Trichlorofluoromethane |
| Chloroethane | Vinyl chloride |

Liquid Component

M-601C * 1 x 1 mL
M-601C-PAK * SAVE 5 x 1 mL
0.2 mg/mL in MeOH

M-601C-10X * 1 x 1 mL
2.0 mg/mL in MeOH

Chloromethyl methyl ether

Trihalomethanes

M-501 1 x 1 mL
M-501-PAK SAVE 5 x 1 mL
0.2 mg/mL each in MeOH

M-501-10X 1 x 1 mL
2.0 mg/mL each in MeOH 4 comps.

- | | |
|------------|----------------------|
| Bromoform | Dichlorobromomethane |
| Chloroform | Dibromochloromethane |

Method 8010 Additional Analytes

M-8010R-1 1 x 1 mL
0.2 mg/mL each in MeOH 9 comps.

- | | |
|----------------------------|---------------------------|
| Benzylchloride | 4-Chlorotoluene |
| Bromobenzene | Dibromomethane |
| bis(2-Chloroethoxy)methane | 1,1,1,2-Tetrachloroethane |
| 1-Chlorohexane | 1,2,3-Trichloropropane |
| Chloromethylmethyl ether | |

Surrogate Standard

M-001R 1 x 1 mL
M-001R-PAK SAVE 5 x 1 mL
20 mg/mL each in MeOH 3 comps.

- | | |
|--------------------|-------------------------|
| Bromochloromethane | 2-Bromo-1-chloropropane |
| 1,4-Dichlorobutane | |

Halogenated VOCs by GC/ECLD (Hall)

M-8010A-SET * 2 x 1 mL
M-8010A-M, M-601C

Method 8010A (Methanol Version)

M-8010A-M 1 x 1 mL
0.2 mg/mL each in MeOH 33 comps.

- | | |
|-------------------------|--|
| Benzyl chloride | 1,2-Dichloroethane |
| Bromobenzene | 1,1-Dichloroethylene |
| Bromoform | <i>trans</i> -1,2-Dichloroethylene |
| Bromomethane | 1,2-Dichloropropane |
| Carbon tetrachloride | <i>cis</i> -1,3-Dichloropropylene * |
| Chlorobenzene | <i>trans</i> -1,3-Dichloropropylene ** |
| Chloroethane | Methylene chloride |
| Chloroform | 1,1,1,2-Tetrachloroethane |
| Chloromethane | 1,1,2,2-Tetrachloroethane |
| Dibromochloromethane | Tetrachloroethylene |
| Dibromomethane | 1,1,1-Trichloroethane |
| 1,2-Dichlorobenzene | 1,1,2-Trichloroethane |
| 1,3-Dichlorobenzene | Trichloroethylene |
| 1,4-Dichlorobenzene | Trichlorofluoromethane |
| Dichlorobromomethane | 1,2,3-Trichloropropane |
| Dichlorodifluoromethane | Vinyl chloride |
| 1,1-Dichloroethane | |

* 1.06 times conc.
** 0.94 times conc.

M-601C * 1 x 1 mL
0.2 mg/mL in MeOH

2-Chloroethylvinyl ether

* ColdPAK required to maintain integrity of product.

Method 8010A Acetonitrile Version

Method 8010A (Acetonitrile Version)

M-8010A 1 x 1 mL
0.2 mg/mL each in AcCN 34 comps.

- | | | |
|---------------------------|-------------------------------------|---------------------------------|
| Benzyl chloride | 1,2-Dichlorobenzene | Methylene chloride |
| Bromobenzene | 1,3-Dichlorobenzene | 1,1,1,2-Tetrachloroethane |
| Bromoform | 1,4-Dichlorobenzene | 1,1,2,2-Tetrachloroethane |
| Bromomethane | Dichlorobromomethane | Tetrachloroethylene |
| Carbon tetrachloride | Dichlorodifluoromethane | 1,1,1-Trichloroethane |
| Chlorobenzene | 1,1-Dichloroethane | 1,1,2-Trichloroethane |
| Chloroethane | 1,2-Dichloroethane | Trichloroethylene |
| 2-Chloroethyl vinyl ether | 1,1-Dichloroethylene | Trichlorofluoromethane |
| Chloroform | <i>trans</i> -1,2-Dichloroethylene | 1,2,3-Trichloropropane |
| Chloromethane | 1,2-Dichloropropane | Vinyl chloride |
| Dibromochloromethane | <i>cis</i> -1,3-Dichloropropylene | Certificate will reflect actual |
| Dibromomethane | <i>trans</i> -1,3-Dichloropropylene | cis/trans ratio |

Internal & Surrogate Standard

M-8010-IS/SS 1 x 1 mL
M-8010-IS/SS-PAK SAVE 5 x 1 mL
150 µg/mL each in MeOH 3 comps.

- | | |
|----------------------|--------------------|
| 4-Bromochlorobenzene | Bromochloromethane |
| 4-Bromofluorobenzene | |



Method 8010B Halogenated VOCs by GC/ELCD (Hall)

Halogenated Volatiles (Methanol Versions)

Mix #1

M-8010B

0.2 mg/mL each in MeOH

1 x 1 mL
40 comps.

Allyl chloride	1,1-Dichloroethane
Bromobenzene	1,2-Dichloroethane
Bromoform	1,1-Dichloroethene
Bromomethane	trans-1,2-Dichloroethene
Carbon tetrachloride	1,2-Dichloropropane
Chlorobenzene	1,3-Dichloro-2-propanol
Chloroethane	cis-1,3-Dichloropropene
2-Chloroethanol	trans-1,3-Dichloropropene
Chloroform	1,2-Dibromoethane
1-Chlorohexane	Methylene chloride
Chloromethane	1,1,1,2-Tetrachloroethane
4-Chlorotoluene	1,1,2,2-Tetrachloroethane
Dibromochloromethane	Tetrachloroethene
1,2-Dibromo-3-chloropropane	1,1,1-Trichloroethane
Dibromomethane	1,1,2-Trichloroethane
1,2-Dichlorobenzene	Trichloroethene
1,3-Dichlorobenzene	Trichlorofluoromethane
1,4-Dichlorobenzene	1,2,3-Trichloropropane
Dichlorobromomethane	Vinyl chloride
1,4-Dichloro-2-butene	
Dichlorodifluoromethane	

Certificate will reflect actual
cis/trans ratio

Mix #2

M-8021B-X1

0.2 mg/mL each in MeOH

1 x 1 mL
8 comps.

Allyl chloride	bis(2-Chloroisopropyl) ether
Benzyl chloride	Chloroprene (Xylene-free)
2-Chloroethanol	1,3-Dichloro-2-propanol
2-Chloroethyl vinyl ether	Epichlorohydrin

Internal and Surrogate Standard

M-8010-IS/SS

M-8010-IS/SS-PAK

150 µg/mL each in MeOH

SAVE

1 x 1 mL
5 x 1 mL
3 comps.

4-Bromochlorobenzene	4-Bromofluorobenzene
Bromochloromethane	

Surrogate Standard

M-001R

M-001R-PAK

20 mg/mL each in MeOH

SAVE

1 x 1 mL
5 x 1 mL
3 comps.

Bromochloromethane	2-Bromo-1-chloropropane
1,4-Dichlorobutane	

Halogenated Volatiles

M-8021B-X2

0.2 mg/mL each in Pentane

1 x 1 mL
2 comps.

Bromoacetone	Chloromethyl methyl ether
--------------	---------------------------

APP-9-030

100 µg/mL in MeOH

1 x 1 mL

Bromodichloromethane

APP-9-130

100 µg/mL in MeOH

1 x 1 mL

Methyl iodide

Chloroprene (Xylene-Free)

APP-9-048-R1

100 µg/mL in MeOH

1 x 1 mL

APP-9-048-R1-2X

200 µg/mL in MeOH

1 x 1 mL

APP-9-048-R1-20X

2000 µg/mL in MeOH

1 x 1 mL

Chloroprene

Method 8011 DBCP & EDB by GC/MS

M-504-10X

M-504-10X-PAK

2.0 mg/mL each in MeOH

SAVE

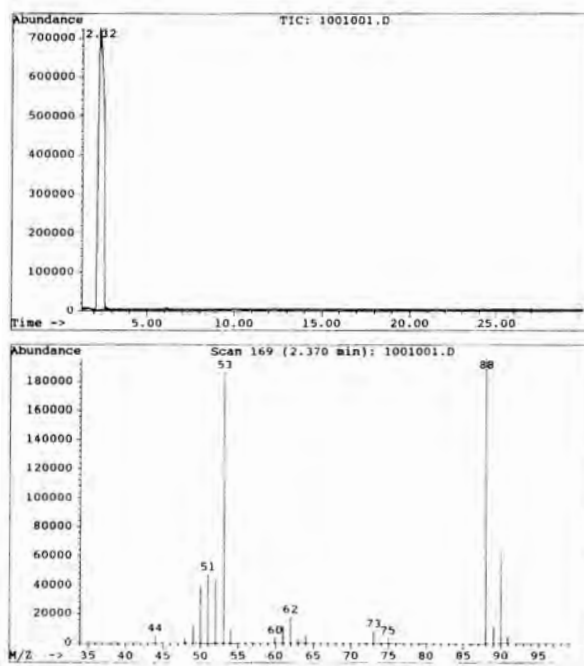
1 x 1 mL
5 x 1 mL
2 comps.

1,2-Dibromo-3-chloropropane (DBCP)	1,2-Dibromoethane (EDB)
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Pure Chloroprene

Unlike traditional sources, this Chloroprene does not contain any xylenes and is not contaminated with extraneous solvents and by-products of commercial Chloroprene.

It will facilitate quantification of analytes by **EPA Methods 524.2, 502.2, 8010, 8021 and 8240/8260** without interference from the xylenes previously present.





EPA Method 8000 Series

Method 8015-8020

Method 8015A (Rev 1, July 1992) Non-Halogenated Volatile Organics by GC/FID

Non-Halogenated Volatile Organics

M-8015A 1 x 1 mL
0.2 mg/mL each in MeOH 4 comps.

M-8015A-10X 1 x 1 mL
2.0 mg/mL each in MeOH 4 comps.

Diethyl ether Methyl ethyl ketone
Ethanol 4-Methyl-2-pentanone

M-8015-ASL 1 x 1 mL
100 µg/mL each in MeOH 12 comps. **Alternate Source**

Acetonitrile Ethyl methacrylate
Acrylamide Isobutanol
Methyl ethyl ketone Methacrylonitrile
Diethyl ether Methyl methacrylate
1,4-Dioxane 4-Methyl-2-pentanone
Ethanol Propionitrile

Internal Standard

M-8015B-IS-10X 1 x 1 mL
2.0 mg/mL each in Water 3 comps.

2-Chloroacrylonitrile Hexafluoro-2-propanol
Hexafluoro-2-methyl-2-propanol

Method 8015B Non-Halogenated Organics by GC/FID

M-8015B/5031-R-SET * 27 x 1 mL
Each at 10 mg/mL in Water

Compound	Cat. No.	1 mL
Acetone	M-8015B/5031-01	
Acetonitrile	M-8015B/5031-02	
Acrolein	M-8015B/5031-03	
Acrylonitrile	M-8015B/5031-04	
Allyl alcohol	M-8015B/5031-05	
n-Butanol	M-8015B/5031-06	
t-Butanol	M-8015B/5031-07	
Crotonaldehyde	M-8015B/5031-08	
Diethyl ether	M-8015B/5031-09	
p-Dioxane	M-8015B/5031-10	
Ethanol	M-8015B/5031-11	
Ethyl acetate	M-8015B/5031-12	
Ethylene glycol	M-8015B/5031-13	
Ethylene oxide (5.0 mg/mL)	M-8015B/5031-14-R1 *	
Isobutanol	M-8015B/5031-15	
Isopropanol	M-8015B/5031-16	
Methanol	M-8015B/5031-17	
Methyl ethyl ketone	M-8015B/5031-18	
4-Methyl-2-pentanone	M-8015B/5031-19	
N-Nitrosodi-n-butylamine (0.5 mg/mL)	M-8015B/5031-20	
Paraldehyde	M-8015B/5031-21	
2-Pentanone	M-8015B/5031-22	
2-Picoline	M-8015B/5031-23	
n-Propanol	M-8015B/5031-24	
Propionitrile	M-8015B/5031-25	
Pyridine	M-8015B/5031-26	
o-Toluidine	M-8015B/5031-27	

Method 5031 GC/FID Internal Standards for Method 8015B/5031 Azeotropic Distillation

M-8260/5031-IS-FID 1 x 1 mL
5.0 mg/mL each in Water 3 comps.

2-Chloroacetonitrile Hexafluoro-2-propanol
Hexafluoro-2-methyl-2-propanol

Technical Note

Method 5031 describes the separation procedures for non-purgeable, water-soluble and volatile organic compounds in aqueous samples of leachates from solid matrices using azeotropic distillation.

Method 8015B is the GC/FID analytical method of analysis. Fuels referenced for analysis by method 8015B can be found in LUFT/LUST.

Method 8020 Aromatic Volatiles by PID

Aromatic Volatile Analytes

M-8020 1 x 1 mL
0.2 mg/mL each in MeOH 10 comps.

M-8020-10X 1 x 1 mL
M-8020-10X-PAK 5 x 1 mL
2.0 mg/mL each in MeOH 10 comps. **SAVE**

Benzene Ethylbenzene
Chlorobenzene Toluene
1,2-Dichlorobenzene o-Xylene
1,3-Dichlorobenzene m-Xylene
1,4-Dichlorobenzene p-Xylene

M-8020B-R1 1 x 1 mL
M-8020B-R1-PAK 5 x 1 mL
2.0 mg/mL each in MeOH 13 comps. **SAVE**

Benzene Pyridine
Chlorobenzene Thiophenol
1,2-Dichlorobenzene Toluene
1,3-Dichlorobenzene o-Xylene
1,4-Dichlorobenzene m-Xylene
Ethylbenzene p-Xylene
2-Picoline

Performance Check Solution

M-8020-QC 1 x 1 mL
M-8020-QC-PAK 5 x 1 mL
2.0 mg/mL in MeOH **SAVE**

MtBE

Internal Standards

M-8020-IS 1 x 1 mL
M-8020-IS-PAK 5 x 1 mL
0.2 mg/mL each in MeOH 2 comps. **SAVE**

M-8020-IS-10X 1 x 1 mL
M-8020-IS-10X-PAK 5 x 1 mL
2.0 mg/mL each in MeOH 2 comps. **SAVE**

4-Bromofluorobenzene α,α,α-Trifluorotoluene

Surrogate Standards

M-8020-SS 1 x 1 mL
M-8020-SS-PAK 5 x 1 mL
2.0 mg/mL each in MeOH 3 comps. **SAVE**

4-Bromochlorobenzene Fluorobenzene
1,4-Difluorobenzene

M-8020-SS-1 1 x 1 mL
2.0 mg/mL each in MeOH

4-Bromochlorobenzene

Combined ISTD/SS Solution

M-8020-IS/SS-ASL 1 x 1 mL
M-8020-IS/SS-ASL-PAK 5 x 1 mL
1.5 mg/mL each in MeOH **Alternate Source** **SAVE**

4-Bromochlorobenzene Fluorobenzene
p-Bromofluorobenzene α,α,α-Trifluorotoluene
1,4-Difluorobenzene

* ColdPAK required to maintain integrity of product.



Method 8021B Purgeable Volatiles by PID/ELCD in Series

Method 8021 is used to determine volatile organic compounds in a variety of solid waste matrices using PID/ELCD detectors in series. AccuStandard segregated the analyte list into formulations that provide the widest adaptability to various types of samples and appropriate sample introduction techniques mentioned in the method.

54 Liquid Components

Benzene (01)	1,1-Dichloropropene (33)
Bromobenzene (02)	<i>cis</i> -1,3-Dichloropropene (34A)
Bromochloromethane (03)	<i>trans</i> -1,3-Dichloropropene (34B)
Bromodichloromethane (04)	Ethylbenzene (35)
Bromoform (05)	Hexachlorobutadiene (36)
<i>n</i> -Butylbenzene (07)	Isopropylbenzene (Cumene) (37)
<i>sec</i> -Butylbenzene (08)	<i>p</i> -Isopropyltoluene (<i>p</i> -Cymene) (38)
<i>t</i> -Butylbenzene (09)	Methylene chloride (39)
Carbon tetrachloride (10)	Naphthalene (40)
Chlorobenzene (11)	<i>n</i> -Propylbenzene (41)
Chloroform (13)	Styrene (42)
2-Chlorotoluene (15)	1,1,1,2-Tetrachloroethane (43)
4-Chlorotoluene (16)	1,1,2,2-Tetrachloroethane (44)
Dibromochloromethane (17)	Tetrachloroethene (45)
1,2-Dibromo-3-chloropropane (18)	Toluene (46)
1,2-Dibromoethane (19)	1,2,3-Trichlorobenzene (47)
Dibromomethane (20)	1,2,4-Trichlorobenzene (48)
1,2-Dichlorobenzene (21)	1,1,1-Trichloroethane (49)
1,3-Dichlorobenzene (22)	1,1,2-Trichloroethane (50)
1,4-Dichlorobenzene (23)	Trichloroethene (51)
1,1-Dichloroethane (25)	1,2,3-Trichloropropane (53)
1,2-Dichloroethane (26)	1,2,4-Trimethylbenzene (54)
1,1-Dichloroethene (27)	1,3,5-Trimethylbenzene (55)
<i>cis</i> -1,2-Dichloroethene (28)	<i>o</i> -Xylene (57)
<i>trans</i> -1,2-Dichloroethene (29)	<i>m</i> -Xylene (58)
1,2-Dichloropropane (30)	<i>p</i> -Xylene (59)
1,3-Dichloropropane (31)	
2,2-Dichloropropane (32)	

Certificate will reflect actual cis/trans ratio

6 Gas Components

Bromomethane (06)	Dichlorodifluoromethane (24)
Chloroethane (12)	Trichlorofluoromethane (52)
Chloromethane (14)	Vinyl chloride (56)

All 60 liquid and gas components in One Solution

M-502		1 x 1 mL
M-502-PAK	SAVE	5 x 1 mL
0.2 mg/mL each in MeOH		
M-502-10X		1 x 1 mL
M-502-10X-PAK	SAVE	5 x 1 mL
2.0 mg/mL each in MeOH		

59 Component Set

A complete set of each component in individual ampules.

M-502-SET	0.2 mg/mL in MeOH	59 x 1 mL
M-502-10X-SET	2.0 mg/mL in MeOH	59 x 1 mL

Individual Component Solutions

To order, specify identity (#) and conc. (0.2 or 2.0 mg/mL)		
M-502-#	0.2 mg/mL in MeOH	1 x 1 mL
M-502-#-10X	2.0 mg/mL in MeOH	1 x 1 mL
M-502-34A & M-502-34B only available as mixture: M-502-34R		
M-502-34-R		1 x 1 mL
0.4 mg/mL each in MeOH		
M-502-34-R-10X		1 x 1 mL
4.0 mg/mL each in MeOH		
<i>cis</i> -1,3-Dichloropropene	<i>trans</i> -1,3-Dichloropropene	
Certificate will reflect actual cis/trans ratio		

Individual Component Neats

To order, specify identity		Except		
M-502-##N	1 x 1 gram	M-502-##N	1 x 1 gram	
		M-502-04N	M-502-28N	M-502-34N
		M-502-08N	M-502-29N	M-502-43N
		M-502-17N	M-502-31N	M-502-44N
		M-502-18N	M-502-32N	

Halogenated Non-Aromatic Volatiles Solution #1

M-8021B-NAV		1 x 1 mL
M-8021B-NAV-PAK	SAVE	5 x 1 mL
0.2 mg/mL each in MeOH		
Bromochloromethane	1,2-Dichloropropane	
Bromodichloromethane	1,3-Dichloropropane	
Bromoform	2,2-Dichloropropane	
Bromomethane	1,1-Dichloropropene	
Carbon tetrachloride	<i>cis</i> -1,3-Dichloropropene	
Chloroethane	<i>trans</i> -1,3-Dichloropropene	
Chloroform	Hexachlorobutadiene	
Chlorodibromomethane	Tetrachloroethene	
Chloromethane	1,1,1,2-Tetrachloroethane	
1,2-Dibromo-3-chloropropane	1,1,2,2-Tetrachloroethane	
1,2-Dibromoethane	Trichloroethene	
Dibromomethane	1,1,1-Trichloroethane	
Dichlorodifluoromethane	1,1,2-Trichloroethane	
1,1-Dichloroethane	Trichlorofluoromethane	
1,2-Dichloroethane	1,2,3-Trichloropropane	
1,1-Dichloroethene	Vinyl chloride	
<i>cis</i> -1,2-Dichloroethene		
<i>trans</i> -1,2-Dichloroethene		
Dichloromethane		

Certificate will reflect actual cis/trans ratio

Aromatic Volatiles Solution #2

M-8021B-AV		1 x 1 mL
M-8021B-AV-PAK	SAVE	5 x 1 mL
0.2 mg/mL each in MeOH		
Benzene	<i>p</i> -Isopropyltoluene	
Bromobenzene	Naphthalene	
<i>n</i> -Butylbenzene	<i>n</i> -Propylbenzene	
<i>sec</i> -Butylbenzene	Styrene	
<i>t</i> -Butylbenzene	Toluene	
Chlorobenzene	1,2,3-Trichlorobenzene	
2-Chlorotoluene	1,2,4-Trichlorobenzene	
4-Chlorotoluene	1,2,4-Trimethylbenzene	
1,2-Dichlorobenzene	1,3,5-Trimethylbenzene	
1,3-Dichlorobenzene	<i>o</i> -Xylene	
1,4-Dichlorobenzene	<i>m</i> -Xylene	
Ethylbenzene	<i>p</i> -Xylene	
Isopropylbenzene		

Halogenated Volatiles Solution #3

M-8021B-X1		1 x 1 mL
0.2 mg/mL each in MeOH		
Allyl chloride	bis(2-Chloroisopropyl) ether	
Benzyl chloride	Chloroprene (Xylene-free)	
2-Chloroethanol	1,3-Dichloro-2-propanol	
2-Chloroethyl vinyl ether	Epichlorohydrin	

Halogenated Volatiles Solution #4

M-8021B-X2		1 x 1 mL
0.2 mg/mL each in Pentane		
Bromoacetone	Chloromethyl methyl ether	



EPA Method 8000 Series

Method 8021-8033

Method 8021B Purgeable Volatiles by PID/ELCD (Hall)

Internal Standard Solutions

M-8021B-IS		1 x 1 mL
M-8021B-IS-PAK	SAVE	5 x 1 mL 2 comps.
<i>5 µg/mL each in MeOH</i>		
M-8021B-IS-10X		1 x 1 mL
M-8021B-IS-10X-PAK	SAVE	5 x 1 mL 2 comps.
<i>50 µg/mL each in MeOH</i>		
M-8021B-IS-100X		1 x 1 mL
M-8021B-IS-100X-PAK	SAVE	5 x 1 mL 2 comps.
<i>500 µg/mL each in MeOH</i>		
2-Bromo-1-chloropropane		Fluorobenzene

Purgeable Internal Standards

M-001R-0.75X		1 x 1 mL
M-001R-0.75X-PAK	SAVE	5 x 1 mL 3 comps.
<i>15 mg/mL each in MeOH</i>		
M-001R-0.075X		1 x 1 mL
M-001R-0.075X-PAK	SAVE	5 x 1 mL 3 comps.
<i>1.5 mg/mL each in MeOH</i>		
M-001R-0.0075X		1 x 1 mL
M-001R-0.0075X-PAK	SAVE	5 x 1 mL 3 comps.
<i>150 µg/mL each in MeOH</i>		
Bromochloromethane		2-Bromo-1-chloropropane
1,4-Dichlorobutane		

Surrogate Standard Solutions

M-8021B-SS		1 x 1 mL
M-8021B-SS-PAK	SAVE	5 x 1 mL 2 comps.
<i>15 µg/mL each in MeOH</i>		
M-8021B-SS-10X		1 x 1 mL
M-8021B-SS-10X-PAK	SAVE	5 x 1 mL 2 comps.
<i>150 µg/mL each in MeOH</i>		
M-8021B-SS-100X		1 x 1 mL
M-8021B-SS-100X-PAK	SAVE	5 x 1 mL 2 comps.
<i>1,500 µg/mL each in MeOH</i>		
4-Bromochlorobenzene		1,4-Dichlorobutane

Surrogate Standards

M-8021-SS		1 x 1 mL
M-8021-SS-PAK	SAVE	5 x 1 mL 2 comps.
<i>2.0 mg/mL each in MeOH</i>		
4-Bromochlorobenzene		1,4-Dichlorobutane

M-8021-SS-M		1 x 1 mL
M-8021-SS-M-PAK	SAVE	5 x 1 mL 2 comps.
<i>2.0 mg/mL each in MeOH</i>		
Bromochloromethane		1,4-Dichlorobutane

M-001R		1 x 1 mL
M-001R-PAK	SAVE	5 x 1 mL 3 comps.
<i>20 mg/mL each in MeOH</i>		
Bromochloromethane		2-Bromo-1-chloropropane
1,4-Dichlorobutane		

M-8021A-SS		1 x 1 mL
M-8021A-SS-PAK	SAVE	5 x 1 mL 4 comps.
<i>20 mg/mL each in MeOH</i>		
4-Bromochlorobenzene		1,4-Dichlorobutane
Bromochloromethane		2-Bromo-1-chloropropane

Chloroprene Solution

APP-9-048-R1-2X		1 x 1 mL
<i>0.2 mg/mL in MeOH</i>		
Chloroprene (Xylene-free)		

Method 8030A Acrolein & Acrylonitrile by GC/FID

M-603-10X *		1 x 1 mL
<i>10 mg/mL each in Water</i>		
Acrolein		Acrylonitrile
		2 comps.

Method 8031 Acrylonitrile by GC/NPD

APP-9-008-10X		1 x 1 mL
APP-9-008-10X-PAK	SAVE	5 x 1 mL
<i>1.0 mg/mL in MeOH</i>		
Acrylonitrile		

Method 8032/8032A Acrylamide by GC/ECD

Acrylamide		
M-8032		1 x 1 mL
M-8032-PAK	SAVE	5 x 1 mL
<i>1.0 mg/mL in MeOH</i>		
Acrylamide		

Brominated Analyte

M-8032B		1 x 1 mL
M-8032B-PAK	SAVE	5 x 1 mL
<i>0.1 mg/mL in Ethyl acetate</i>		
2,3-Dibromopropionamide		

Internal Standard

M-8032-IS		1 x 1 mL
M-8032-IS-PAK	SAVE	5 x 1 mL
<i>0.1 mg/mL in Ethyl acetate</i>		
Dimethyl phthalate		

Method 8033 Acrylonitrile by GC/NPD

Acrylonitrile		
M-8033		1 x 1 mL
M-8033-PAK	SAVE	5 x 1 mL
<i>1.0 mg/mL in Water</i>		
Acrylonitrile		



* ColdPAK required to maintain integrity of product.



Method 8040 Phenols, PFB Derivatives by GC/ECD

Phenols, PFB Derivatives Set

M-8040-PFB-SET 19 x 1 mL
Each at 0.2 mg/mL in Isopropanol

4-Chloro-3-cresol-PFB	Dinoseb-PFB
<i>o</i> -Chlorophenol-PFB	2-Methyl-4,6-dinitrophenol-PFB
<i>m</i> -Cresol-PFB	<i>o</i> -Nitrophenol-PFB
<i>o</i> -Cresol-PFB	<i>p</i> -Nitrophenol-PFB
<i>p</i> -Cresol-PFB	Pentachlorophenol-PFB
2-Cyclohexyl-4,6-dinitrophenol-PFB (Dinex)	Phenol-PFB
2,4-Dichlorophenol-PFB	2,3,4,6-Tetrachlorophenol-PFB
2,6-Dichlorophenol-PFB	2,4,5-Trichlorophenol-PFB
2,4-Dimethylphenol-PFB	2,4,6-Trichlorophenol-PFB
2,4-Dinitrophenol-PFB	

Method 8040A Phenols by GC/FID

Phenol Set

M-8040-SET 19 x 1 mL
Each at 1.0 mg/mL in MeOH

4-Chloro-3-cresol	Dinoseb
<i>o</i> -Chlorophenol	2-Methyl-4,6-dinitrophenol
<i>m</i> -Cresol	<i>o</i> -Nitrophenol
<i>o</i> -Cresol	<i>p</i> -Nitrophenol
<i>p</i> -Cresol	Pentachlorophenol
2-Cyclohexyl-4,6-dinitrophenol (Dinex)	Phenol
2,4-Dichlorophenol	2,3,4,6-Tetrachlorophenol
2,6-Dichlorophenol	2,4,5-Trichlorophenol
2,4-Dimethylphenol	2,4,6-Trichlorophenol
2,4-Dinitrophenol	

Phenols, PFB Derivatives - Mix A

M-8040A-R-PFB 1 x 1 mL
M-8040A-R-PFB-PAK SAVE 5 x 1 mL
0.2 mg/mL each in MeOH 10 comps.

4-Chloro-3-cresol-PFB	<i>o</i> -Nitrophenol-PFB
<i>o</i> -Cresol-PFB	<i>p</i> -Nitrophenol-PFB
2-Cyclohexyl-4,6-dinitrophenol-PFB(Dinex)	2,4,6-Trichlorophenol-PFB
2,4-Dichlorophenol-PFB	Pentachlorophenol-PFB
2-Methyl-4,6-dinitrophenol-PFB	Phenol-PFB

Mix A

M-8040A-R 1 x 1 mL
M-8040A-R-PAK SAVE 5 x 1 mL
2.0 mg/mL each in Isopropanol 10 comps.

4-Chloro-3-cresol	<i>o</i> -Nitrophenol
<i>o</i> -Cresol	<i>p</i> -Nitrophenol
2-Cyclohexyl-4,6-dinitrophenol (Dinex)	2,4,6-Trichlorophenol
2,4-Dichlorophenol	Pentachlorophenol
2-Methyl-4,6-dinitrophenol	Phenol

Phenols, PFB Derivatives - Mix B

M-8040B-R-PFB 1 x 1 mL
M-8040B-R-PFB-PAK SAVE 5 x 1 mL
0.2 mg/mL each in MeOH 9 comps.

<i>o</i> -Chlorophenol-PFB	2,4-Dinitrophenol-PFB
<i>m</i> -Cresol-PFB	Dinoseb-PFB
<i>p</i> -Cresol-PFB	2,3,4,6-Tetrachlorophenol-PFB
2,6-Dichlorophenol-PFB	2,4,5-Trichlorophenol-PFB
2,4-Dimethylphenol-PFB	

Mix B

M-8040B-R 1 x 1 mL
M-8040B-R-PAK SAVE 5 x 1 mL
2.0 mg/mL each in Isopropanol 9 comps.

<i>o</i> -Chlorophenol	2,4-Dinitrophenol
<i>m</i> -Cresol	Dinoseb
<i>p</i> -Cresol	2,3,4,6-Tetrachlorophenol
2,6-Dichlorophenol	2,4,5-Trichlorophenol
2,4-Dimethylphenol	

Technical Note

2,4-Dinitrophenol, 4-Nitrophenol, and Pentachlorophenol are susceptible to adsorption on active surfaces found in injection ports or contaminated columns.

Surrogate Standard

M-8040-SS 1 x 1 mL
M-8040-SS-PAK SAVE 5 x 1 mL
2.0 mg/mL each in Isopropanol 2 comps.

2-Fluorophenol	2,4,6-Tribromophenol
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Surrogate Standard, PFB Derivatives

M-8040-SS-PFB 1 x 1 mL
M-8040-SS-PFB-PAK SAVE 5 x 1 mL
2.0 mg/mL each in MeOH 2 comps.

2-Fluorophenol-PFB	2,4,6-Tribromophenol-PFB
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Phenols QC Check Standard

M-8040A-ASL 1 x 1 mL
M-8040A-ASL-PAK Alternate Source SAVE 1 x 1 mL
100 µg/mL each in Isopropanol 19 comps.

M-8040A-ASL-20X 1 x 1 mL
2000 µg/mL each in Isopropanol 19 comps.

Dinoseb	4,6-Dinitro- <i>o</i> -cresol
4-Chloro-3-methylphenol	2,4-Dinitrophenol
2-Chlorophenol	2-Nitrophenol
<i>o</i> -Cresol	4-Nitrophenol
<i>m</i> -Cresol	Pentachlorophenol
<i>p</i> -Cresol	Phenol
2-Cyclohexyl-4,6-dinitrophenol (Dinex)	2,3,4,6-Tetrachlorophenol
2,4-Dichlorophenol	2,4,5-Trichlorophenol
2,6-Dichlorophenol	2,4,6-Trichlorophenol
2,4-Dimethylphenol	

Method 8040/8040A Bromophenols and Anisoles

Bromophenols

Each at 100 µg/mL in Toluene

Compound	Cat. No.	1 mL	Compound	Cat. No.	1 mL
2-Bromophenol	BP-002S		2,3,4-Tribromophenol	BP-234S	
3-Bromophenol	BP-003S		2,4,5-Tribromophenol	BP-245S	
4-Bromophenol	BP-004S		2,3,6-Tribromophenol	BP-236S	
2,3-Dibromophenol	BP-023S		2,4,6-Tribromophenol	BP-246S	
2,4-Dibromophenol	BP-024S		3,4,5-Tribromophenol	BP-345S	
2,5-Dibromophenol	BP-025S		2,3,4,5-Tetrabromophenol	BP-2345S	
2,6-Dibromophenol	BP-026S		2,3,4,6-Tetrabromophenol	BP-2346S	
3,5-Dibromophenol	BP-035S		2,3,5,6-Tetrabromophenol	BP-2356S	
			Pentabromophenol	BP-23456S	

Bromoanisoles (Methyl Esters)

Each at 50 µg/mL in Methanol

Compound	Cat. No.	1 mL
2-Bromoanisole	BAN-01	
3-Bromoanisole	BAN-02	
4-Bromoanisole	BAN-03	
2,3-Dibromoanisole	BAN-04	
2,4-Dibromoanisole	BAN-05	
2,5-Dibromoanisole	BAN-06	
2,6-Dibromoanisole	BAN-07	
3,5-Dibromoanisole	BAN-08	
2,4,5-Tribromoanisole	BAN-09	
2,4,6-Tribromoanisole	BAN-10	



EPA Method 8000 Series

Method 8041-8070

Method 8041 Phenols by GC-FID or ECD as the Derivatives

RCRA Target Phenols Solution

M-8041		1 x 1 mL
M-8041-PAK	SAVE	5 x 1 mL
1.0 mg/mL each in Isopropanol		
4-Chloro-3-methylphenol	<i>p</i> -Cresol	
2-Chlorophenol	2-Nitrophenol	
2-Cyclohexyl-4,6-dinitrophenol (Dinex)	4-Nitrophenol	
2,4-Dichlorophenol	Pentachlorophenol	
2,6-Dichlorophenol	Phenol	
2,4-Dimethylphenol	2,3,4,5-Tetrachlorophenol	
Dinoseb	2,3,4,6-Tetrachlorophenol	
2,4-Dinitrophenol	2,3,5,6-Tetrachlorophenol	
2-Methyl-4,6-dinitrophenol	2,4,5-Trichlorophenol	
<i>o</i> -Cresol	2,4,6-Trichlorophenol	
<i>m</i> -Cresol		

Technical Note

The method analytes were formulated into two distinct solutions to meet the needs of laboratories analyzing only the RCRA analytes or the combined RCRA/non-RCRA analytes.

Non-RCRA Target Phenols Solution

M-8041-X1		1 x 1 mL
M-8041-X1-PAK	SAVE	5 x 1 mL
1.0 mg/mL each in Isopropanol		
2-Chloro-5-methylphenol	2,5-Dimethylphenol	
4-Chloro-2-methylphenol	2,6-Dimethylphenol	
3-Chlorophenol	3,4-Dimethylphenol	
4-Chlorophenol	2,5-Dinitrophenol	
2,3-Dichlorophenol	3-Nitrophenol	
2,5-Dichlorophenol	2,3,4-Trichlorophenol	
3,4-Dichlorophenol	2,3,5-Trichlorophenol	
3,5-Dichlorophenol	2,3,6-Trichlorophenol	
2,3-Dimethylphenol	3,4,5-Trichlorophenol	

Internal Standards

M-8041-IS		1 x 1 mL
M-8041-IS-PAK	SAVE	5 x 1 mL
50 µg/mL each in Isopropanol		
M-8041-IS-10X		1 x 1 mL
M-8041-IS-10X-PAK	SAVE	5 x 1 mL
0.5 mg/mL each in Isopropanol		
M-8041-IS-20X		1 x 1 mL
M-8041-IS-20X-PAK	SAVE	5 x 1 mL
1.0 mg/mL each in Isopropanol		
2,5-Dibromotoluene	2,2',5,5'-Tetrabromobiphenyl	

Surrogate Standards

M-8041-SS		1 x 1 mL
M-8041-SS-PAK	SAVE	5 x 1 mL
1.6 µg/mL in Isopropanol		
M-8041-SS-10X		1 x 1 mL
M-8041-SS-10X-PAK	SAVE	5 x 1 mL
16 µg/mL in Isopropanol		
M-8041-SS-100X		1 x 1 mL
M-8041-SS-100X-PAK	SAVE	5 x 1 mL
160 µg/mL in Isopropanol		
M-8041-SS-625X		1 x 1 mL
M-8041-SS-625X-PAK	SAVE	5 x 1 mL
1.0 mg/mL in Isopropanol		
2,4-Dibromophenol		

Method 8070A Nitrosamines by NPD/Reductive Hall or TEA

Nitrosamines

M-8070		1 x 1 mL
M-8070-PAK	SAVE	5 x 1 mL
2.0 mg/mL each in MeOH		
N-Nitrosodimethylamine	N-Nitrosodi- <i>n</i> -propylamine	
N-Nitrosodiphenylamine		

Method 8060 Phthalate Esters by GC/ECD

Phthalate Esters

M-8060		1 x 1 mL
M-8060-PAK	SAVE	5 x 1 mL
2.0 mg/mL each in Isooctane		
Benzyl butyl phthalate	Di- <i>n</i> -butyl phthalate	
Diethyl phthalate	Di- <i>n</i> -octyl phthalate	
Dimethyl phthalate	bis(2-Ethylhexyl)phthalate	

M-8060-QC

M-8060-QC-PAK	SAVE	1 x 1 mL
At stated conc. (mg/mL) in MeOH		
Benzyl butyl phthalate	0.1	Di- <i>n</i> -butyl phthalate
Diethyl phthalate	0.25	Di- <i>n</i> -octyl phthalate
Dimethyl phthalate	0.25	bis(2-Ethylhexyl)phthalate

Method 8061A Phthalate Esters by GC/ECD

Phthalate Esters

M-8061-R1		1 x 1 mL
M-8061-R1-PAK	SAVE	5 x 1 mL
1.0 mg/mL each in Hexane		
bis(2- <i>n</i> -Butoxyethyl)phthalate	Dimethyl phthalate	
Butyl benzyl phthalate	Dinonyl phthalate	
Diamyl phthalate	Di- <i>n</i> -octyl phthalate	
Di- <i>n</i> -butyl phthalate	bis(2-Ethoxyethyl)phthalate	
Dicyclohexyl phthalate	bis(2-Ethylhexyl)phthalate	
Diethyl phthalate	bis(2-Methoxyethyl)phthalate	
Dihexyl phthalate	bis(4-Methyl-2-pentyl)phthalate	
Diisobutyl phthalate		

M-8061A

M-8061A-PAK	SAVE	1 x 1 mL
1.0 mg/mL each in Hexane		
Butyl benzyl phthalate	Diethyl phthalate	
bis(2-Ethylhexyl)phthalate	Dimethyl phthalate	
Di- <i>n</i> -butyl phthalate	Di- <i>n</i> -octyl phthalate	

Matrix Spike Solution

M-8061A-MS		1 x 1 mL
M-8061A-MS-PAK	SAVE	5 x 1 mL
2.0 mg/mL each in Acetone		
Butyl benzyl phthalate	bis(2-Ethylhexyl)phthalate	

Internal Standard

M-8061-IS		1 x 1 mL
M-8061-IS-PAK	SAVE	5 x 1 mL
5.0 mg/mL in Hexane		
Benzyl benzoate		

Surrogate Standards

M-8061-SS		1 x 1 mL
M-8061-SS-PAK	SAVE	5 x 1 mL
50 µg/mL each in Acetone		
M-8061-SS-10X		1 x 1 mL
M-8061-SS-10X-PAK	SAVE	5 x 1 mL
500 µg/mL each in Acetone		
Dibenzyl phthalate	Diphenyl phthalate	
Diphenyl isophthalate		

Nitrosamines Mix

M-8270-03-ASL		1 x 1 mL
2.0 mg/mL each in CH ₂ Cl ₂		
N-Nitrosodi- <i>n</i> -butylamine	N-Nitrosomethylethylamine	
N-Nitrosodiethylamine	N-Nitrosomorpholine	
N-Nitrosodimethylamine	N-Nitrosopiperidine	
N-Nitrosodiphenylamine	N-Nitrosopyrrolidine	
N-Nitrosodi- <i>n</i> -propylamine		

Alternate Source



Method 8080A Organochlorine Pesticides and PCBs by GC/ECD

Organochlorine Pesticides

M-8080			1 x 1 mL
M-8080-PAK	SAVE		5 x 1 mL
2.0 mg/mL each in Acetone			
Aldrin	Endosulfan I		17 comps.
α-BHC	Endosulfan II		
β-BHC	Endosulfan sulfate		
δ-BHC	Endrin		
γ-BHC	Endrin aldehyde		
4,4'-DDD	Heptachlor		
4,4'-DDE	Heptachlor epoxide (Isomer B)		
4,4'-DDT	Methoxychlor		
Dieldrin			

Organochlorine Pesticide QC Standard

M-8080-QC-R			1 x 1 mL
M-8080-QC-R-PAK	SAVE		5 x 1 mL
At stated conc. (mg/mL) in Acetone			
Aldrin	0.02	Endosulfan I	0.02
α-BHC	0.02	Endosulfan II	0.1
β-BHC	0.02	Endosulfan sulfate	0.1
δ-BHC	0.02	Endrin	0.1
γ-BHC	0.02	Endrin aldehyde	0.02
4,4'-DDD	0.1	Heptachlor	0.02
4,4'-DDE	0.02	Heptachlor epoxide (Isomer B)	0.02
4,4'-DDT	0.1	Methoxychlor	0.02
Dieldrin	0.02		

Internal Standard

M-508-IS			1 x 1 mL
M-508-IS-PAK	SAVE		5 x 1 mL
0.1 mg/mL in MtBE			
Pentachloronitrobenzene			

Surrogate Standard

CLP-032-R			1 x 1 mL
CLP-032-R-PAK	SAVE		5 x 1 mL
0.2 mg/mL each in Acetone			
Decachlorobiphenyl		Tetrachloro- <i>m</i> -xylene	2 comps.

Multi-Component Analytes

Polychlorinated Biphenyls, Chlordane & Toxaphene

Each at 1,000 µg/mL in Hexane		SAVE	(5 x 1 mL)
Aroclors®#	Cat. No.	1 mL	PAK
Aroclor 1016	C-216S-H-10X		C-216S-H-10X-PAK
Aroclor 1221	C-221S-H-10X		C-221S-H-10X-PAK
Aroclor 1232	C-232S-H-10X		C-232S-H-10X-PAK
Aroclor 1242	C-242S-H-10X		C-242S-H-10X-PAK
Aroclor 1248	C-248S-H-10X		C-248S-H-10X-PAK
Aroclor 1254	C-254S-H-10X		C-254S-H-10X-PAK
Aroclor 1260	C-260S-H-10X		C-260S-H-10X-PAK
Aroclor 1262	C-262S-H-10X		C-262S-H-10X-PAK
Aroclor 1268	C-268S-H-10X		C-268S-H-10X-PAK
Pesticides			
Chlordane	P-017S-H-10X		P-017S-H-10X-PAK
Toxaphene	P-093S-H-10X		P-093S-H-10X-PAK

Decomposition Solution

M-1618D *			1 x 1 mL
M-1618D-PAK *	SAVE		5 x 1 mL
At stated conc. (µg/mL) in Acetone			
p,p'-DDT	2	Endrin	1
2 comps.			

o,p'-DDT and Metabolites

M-8080-OP			1 x 1 mL
M-8080-OP-PAK	SAVE		5 x 1 mL
0.25 mg/mL each in Hexane:Toluene (50:50)			
o,p'-DDD		o,p'-DDT	3 comps.
o,p'-DDE			

Organochlorine Pesticide Mixture

M-8080A-ASL			1 x 1 mL
M-8080A-ASL-PAK	Alternate Source	SAVE	5 x 1 mL
250 µg/mL each in Hexane:Toluene (50:50)			
Aldrin	p,p'-DDE	Endrin	
α-BHC	p,p'-DDT	Endrin aldehyde	
β-BHC	Dieldrin	Heptachlor	
δ-BHC	Endosulfan I	Heptachlor epoxide (Isomer B)	
γ-BHC	Endosulfan II	Methoxychlor (1000 µg/mL)	
p,p'-DDD	Endosulfan sulfate		

Method 8080/8081 Matrix Spike Solutions & Surrogates at Working Level

Matrix Spiking Solutions

For Water Samples

CLP-014-5ML			1 x 5 mL
CLP-014-25ML			1 x 25 mL
At stated conc. (ng/mL) in MeOH			
Aldrin	200	Endrin	500
4,4'-DDT	500	Heptachlor	200
Dieldrin	500	Lindane	200

For Waste Samples

CLP-014-5X-5ML			1 x 5 mL
CLP-014-5X-25ML			1 x 25 mL
At stated conc. (ng/mL) in MeOH			
Aldrin	1,000	Endrin	2,500
4,4'-DDT	2,500	Heptachlor	1,000
Dieldrin	2,500	Lindane	1,000

Surrogate Solutions

For Water Samples

CLP-032R-WL-10ML			1 x 10 mL
CLP-032R-WL-50ML			1 x 50 mL
CLP-032R-WL-100ML			1 x 100 mL
1 µg/mL each in Acetone			
Decachlorobiphenyl		Tetrachloro- <i>m</i> -xylene	2 comps.

For Waste Samples

CLP-032R-WL-5X-10ML			1 x 10 mL
CLP-032R-WL-5X-50ML			1 x 50 mL
CLP-032R-WL-5X-100ML			1 x 100 mL
5 µg/mL each in Acetone			
Decachlorobiphenyl		Tetrachloro- <i>m</i> -xylene	2 comps.

* ColdPAK required to maintain integrity of product.

EPA Method 8000 Series

Ready-to-Inject Working Level Pesticide Standards

Method 8080/8081 7 Point Working Level Pesticide Curves

AccuStandard has expanded the existing organo-halide pesticide standard line to include the working level Continuing Calibration Check Standard Line for Method 8080/8081. The working level CCC Line revolutionizes the way the analytical chemist prepares standards for pesticide analysis.

M-8080-CAL-SET

At stated conc. (ng/mL) in Isooctane

7 x 1 mL
21 comps.

Components	Level 1	Level 2 (2.5X)	Level 3 (5X)	Level 4 (10X)	Level 5 (25X)	Level 6 (50X)	Level 7 (100X)
Aldrin	2	5	10	20	50	100	200
α-BHC	2	5	10	20	50	100	200
β-BHC	2	5	10	20	50	100	200
γ-BHC	2	5	10	20	50	100	200
δ-BHC	2	5	10	20	50	100	200
α-Chlordane	2	5	10	20	50	100	200
γ-Chlordane	2	5	10	20	50	100	200
4,4'-DDD	4	10	20	40	100	200	400
4,4'-DDE	4	10	20	40	100	200	400
4,4'-DDT	4	10	20	40	100	200	400
Dieldrin	4	10	20	40	100	200	400
Endosulfan I	2	5	10	20	50	100	200
Endosulfan II	4	10	20	40	100	200	400
Endosulfan sulfate	4	10	20	40	100	200	400
Endrin	4	10	20	40	100	200	400
Endrin aldehyde	4	10	20	40	100	200	400
Heptachlor	2	5	10	20	50	100	200
Heptachlor epoxide (Isomer B)	2	5	10	20	50	100	200
Methoxychlor	20	50	100	200	500	1,000	2,000
Tetrachloro- <i>m</i> -xylene	2	5	10	20	50	100	200
Decachlorobiphenyl	4	10	20	40	100	200	400

Level 3 Daily QC Working Level

Low level curves

M-8080-WL-5X-10ML	1 x 10 mL
M-8080-WL-5X-25ML	1 x 25 mL
M-8080-WL-5X-50ML	1 x 50 mL

At stated conc. (ng/mL) in Isooctane 21 comps.

Level 4 Daily QC Working Level

Higher level curves

M-8080-WL-10X-10ML	1 x 10 mL
M-8080-WL-10X-25ML	1 x 25 mL
M-8080-WL-10X-50ML	1 x 50 mL

At stated conc. (ng/mL) in Isooctane 21 comps.

Level 5 Daily QC Working Level

Higher level curves

M-8080-WL-25X-10ML	1 x 10 mL
M-8080-WL-25X-25ML	1 x 25 mL
M-8080-WL-25X-50ML	1 x 50 mL

At stated conc. (ng/mL) in Isooctane 21 comps.

M-8080-R2-CAL-SET

At stated conc. (ng/mL) in Isooctane

7 x 1 mL
23 comps.

Components	Level 1	Level 2 (2.5X)	Level 3 (5X)	Level 4 (10X)	Level 5 (25X)	Level 6 (50X)	Level 7 (100X)
Aldrin	2	5	10	20	50	100	200
α-BHC	2	5	10	20	50	100	200
β-BHC	2	5	10	20	50	100	200
γ-BHC	2	5	10	20	50	100	200
δ-BHC	2	5	10	20	50	100	200
α-Chlordane	2	5	10	20	50	100	200
γ-Chlordane	2	5	10	20	50	100	200
4,4'-DDD	4	10	20	40	100	200	400
4,4'-DDE	4	10	20	40	100	200	400
4,4'-DDT	4	10	20	40	100	200	400
Dieldrin	4	10	20	40	100	200	400
Endosulfan I	2	5	10	20	50	100	200
Endosulfan II	4	10	20	40	100	200	400
Endosulfan sulfate	4	10	20	40	100	200	400
Endrin	4	10	20	40	100	200	400
Endrin aldehyde	4	10	20	40	100	200	400
Endrin ketone	4	10	20	40	100	200	400
Heptachlor	2	5	10	20	50	100	200
Heptachlor epoxide (Isomer B)	2	5	10	20	50	100	200
Isodrin	2	5	10	20	50	100	200
Methoxychlor	20	50	100	200	500	1,000	2,000
Tetrachloro- <i>m</i> -xylene	2	5	10	20	50	100	200
Decachlorobiphenyl	4	10	20	40	100	200	400

Level 3 Daily QC Working Level

Low level curves

M-8080-R2-WL-5X-10ML	1 x 10 mL
M-8080-R2-WL-5X-25ML	1 x 25 mL
M-8080-R2-WL-5X-50ML	1 x 50 mL

At stated conc. (ng/mL) in Isooctane 23 comps.

Level 4 Daily QC Working Level

Higher level curves

M-8080-R2-WL-10X-10ML	1 x 10 mL
M-8080-R2-WL-10X-25ML	1 x 25 mL
M-8080-R2-WL-10X-50ML	1 x 50 mL

At stated conc. (ng/mL) in Isooctane 23 comps.

Level 5 Daily QC Working Level

Higher level curves

M-8080-R2-WL-25X-10ML	1 x 10 mL
M-8080-R2-WL-25X-25ML	1 x 25 mL
M-8080-R2-WL-25X-50ML	1 x 50 mL

At stated conc. (ng/mL) in Isooctane 23 comps.

Ready-to-Inject

EPA Method 8000 Series

Ready-to-Inject Working Level Standards for Aroclors



Method 8080/8081 Aroclor Calibration Curves

Aroclor 1016/1260 Calibration Curve

C-216/260-CAL-SET

At stated conc. (ng/mL) in Isooctane

6 x 1 mL
4 comps.

Components	Level 1	Level 2 (2X)	Level 3 (5X)	Level 4 (10X)	Level 5 (15X)	Level 6 (20X)
Aroclor 1016	50	100	250	500	750	1000
Aroclor 1260	50	100	250	500	750	1000
Decachlorobiphenyl	10	20	50	100	150	200
Tetrachloro- <i>m</i> -xylene	10	20	50	100	150	200

Level 3 Daily Working Level

Low level curves

C-216/260-WL-5X-5ML

1 x 5 mL

C-216/260-WL-5X-10ML

1 x 10 mL

At stated conc. (ng/mL) in Isooctane

4 comps.

Level 4 Daily Working Level

Higher level curves

C-216/260-WL-10X-5ML

1 x 5 mL

C-216/260-WL-10X-10ML

1 x 10 mL

At stated conc. (ng/mL) in Isooctane

4 comps.

Aroclor 1221 Calibration Curve

C-221-CAL-SET

At stated conc. (ng/mL) in Isooctane

6 x 1 mL
3 comps.

Components	Level 1	Level 2 (2X)	Level 3 (5X)	Level 4 (10X)	Level 5 (15X)	Level 6 (20X)
Aroclor 1221	50	100	250	500	750	1000
Decachlorobiphenyl	10	20	50	100	150	200
Tetrachloro- <i>m</i> -xylene	10	20	50	100	150	200

Level 3 Daily Working Level

Low level curves

C-221-WL-5X-5ML

1 x 5 mL

C-221-WL-5X-10ML

1 x 10 mL

At stated conc. (ng/mL) in Isooctane

3 comps.

Level 4 Daily Working Level

Higher level curves

C-221-WL-10X-5ML

1 x 5 mL

C-221-WL-10X-10ML

1 x 10 mL

At stated conc. (ng/mL) in Isooctane

3 comps.

Aroclor 1232 Calibration Curve

C-232-CAL-SET

At stated conc. (ng/mL) in Isooctane

6 x 1 mL
3 comps.

Components	Level 1	Level 2 (2X)	Level 3 (5X)	Level 4 (10X)	Level 5 (15X)	Level 6 (20X)
Aroclor 1232	50	100	250	500	750	1000
Decachlorobiphenyl	10	20	50	100	150	200
Tetrachloro- <i>m</i> -xylene	10	20	50	100	150	200

Level 3 Daily Working Level

Low level curves

C-232-WL-5X-5ML

1 x 5 mL

C-232-WL-5X-10ML

1 x 10 mL

At stated conc. (ng/mL) in Isooctane

3 comps.

Level 4 Daily Working Level

Higher level curves

C-232-WL-10X-5ML

1 x 5 mL

C-232-WL-10X-10ML

1 x 10 mL

At stated conc. (ng/mL) in Isooctane

3 comps.

Aroclor 1242 Calibration Curve

C-242-CAL-SET

At stated conc. (ng/mL) in Isooctane

6 x 1 mL
3 comps.

Components	Level 1	Level 2 (2X)	Level 3 (5X)	Level 4 (10X)	Level 5 (15X)	Level 6 (20X)
Aroclor 1242	50	100	250	500	750	1000
Decachlorobiphenyl	10	20	50	100	150	200
Tetrachloro- <i>m</i> -xylene	10	20	50	100	150	200

Level 3 Daily Working Level

Low level curves

C-242-WL-5X-5ML

1 x 5 mL

C-242-WL-5X-10ML

1 x 10 mL

At stated conc. (ng/mL) in Isooctane

3 comps.

Level 4 Daily Working Level

Higher level curves

C-242-WL-10X-5ML

1 x 5 mL

C-242-WL-10X-10ML

1 x 10 mL

At stated conc. (ng/mL) in Isooctane

3 comps.

Aroclor 1248 Calibration Curve

C-248-CAL-SET

At stated conc. (ng/mL) in Isooctane

6 x 1 mL
3 comps.

Components	Level 1	Level 2 (2X)	Level 3 (5X)	Level 4 (10X)	Level 5 (15X)	Level 6 (20X)
Aroclor 1248	50	100	250	500	750	1000
Decachlorobiphenyl	10	20	50	100	150	200
Tetrachloro- <i>m</i> -xylene	10	20	50	100	150	200

Level 3 Daily Working Level

Low level curves

C-248-WL-5X-5ML

1 x 5 mL

C-248-WL-5X-10ML

1 x 10 mL

At stated conc. (ng/mL) in Isooctane

3 comps.

Level 4 Daily Working Level

Higher level curves

C-248-WL-10X-5ML

1 x 5 mL

C-248-WL-10X-10ML

1 x 10 mL

At stated conc. (ng/mL) in Isooctane

3 comps.



EPA Method 8000 Series

Ready-to-Inject Working Level Aroclor & GPC Standards

Method 8080/8081

Method 8080/8081 Aroclor Calibration Curves (Continued)

Aroclor 1254 Calibration Curve

C-254-CAL-SET

At stated conc. (ng/mL) in Isooctane

6 x 1 mL
3 comps.

Components	Level 1	Level 2 (2X)	Level 3 (5X)	Level 4 (10X)	Level 5 (15X)	Level 6 (20X)
Aroclor 1254	50	100	250	500	750	1000
Decachlorobiphenyl	10	20	50	100	150	200
Tetrachloro- <i>m</i> -xylene	10	20	50	100	150	200

Level 3 Daily Working Level

Low level curves

C-254-WL-5X-5ML

1 x 5 mL

C-254-WL-5X-10ML

1 x 10 mL

At stated conc. (ng/mL) in Isooctane

3 comps.

Level 4 Daily Working Level

Higher level curves

C-254-WL-10X-5ML

1 x 5 mL

C-254-WL-10X-10ML

1 x 10 mL

At stated conc. (ng/mL) in Isooctane

3 comps.

Toxaphene Calibration Curve

P-093-CAL-SET

At stated conc. (ng/mL) in Isooctane

6 x 1 mL
3 comps.

Components	Level 1	Level 2 (2X)	Level 3 (5X)	Level 4 (10X)	Level 5 (15X)	Level 6 (20X)
Toxaphene	50	100	250	500	750	1000
Decachlorobiphenyl	2	4	10	20	30	40
Tetrachloro- <i>m</i> -xylene	2	4	10	20	30	40

Level 3 Daily Working Level

Low level curves

P-093-WL-5X-5ML

1 x 5 mL

P-093-WL-5X-10ML

1 x 10 mL

At stated conc. (ng/mL) in Isooctane

3 comps.

Level 4 Daily Working Level

Higher level curves

P-093-WL-10X-5ML

1 x 5 mL

P-093-WL-10X-10ML

1 x 10 mL

At stated conc. (ng/mL) in Isooctane

3 comps.

Chlordane Calibration Curve

P-017-CAL-SET

At stated conc. (ng/mL) in Isooctane

6 x 1 mL
3 comps.

Components	Level 1	Level 2 (2X)	Level 3 (5X)	Level 4 (10X)	Level 5 (15X)	Level 6 (20X)
Chlordane	50	100	250	500	750	1000
Decachlorobiphenyl	20	40	70	100	150	200
Tetrachloro- <i>m</i> -xylene	20	40	70	100	150	200

Level 3 Daily Working Level

Low level curves

P-017R-WL-5X-5ML

1 x 5 mL

P-017R-WL-5X-10ML

1 x 10 mL

At stated conc. (ng/mL) in Isooctane

3 comps.

Level 4 Daily Working Level

Higher level curves

P-017R-WL-10X-5ML

1 x 5 mL

P-017R-WL-10X-10ML

1 x 10 mL

At stated conc. (ng/mL) in Isooctane

3 comps.



GPC Standards Sample Clean-up Solutions at Working Level

GPC Calibration Solution

CLP-027-WL-10ML

At stated conc. (mg/mL) in CH₂Cl₂

1 x 10 mL
5 comps.

Corn Oil	25	Perylene	0.02
bis(2-Ethylhexyl)phthalate	1.0	Sulfur	0.08
Methoxychlor	0.2		

Florisol Cartridge Check Solution

CLP-FC-WL-10ML

0.1 µg/mL in Acetone

1 x 10 mL

2,4,5-Trichlorophenol

GPC Calibration Solution for 8/94 SOW OLM03.1

CLP-027-R2-WL-10ML

At stated conc. (mg/mL) in CH₂Cl₂

1 x 10 mL
5 comps.

Corn Oil	25	Perylene	0.02
bis(2-Ethylhexyl)phthalate	0.5	Sulfur	0.08
Methoxychlor	0.1		

GPC Calibration Check Solutions

GPC-CC-A-WL-10ML

At stated conc. (µg/mL) in CH₂Cl₂

1 x 10 mL
6 comps.

Aldrin	0.1	Dieldrin	0.2
γ-BHC (Lindane)	0.1	Endrin	0.2
4,4'-DDT	0.2	Heptachlor	0.1

GPC-CC-B-WL-10ML

0.2 µg/mL each in CH₂Cl₂

1 x 10 mL
2 comps.

Aroclor 1016

Aroclor 1260



Method 8080/8081A/8081B Organochlorine Pesticides by Capillary Column GC/ECD

Single/Dual Column Organochlorine Pesticides

M-8081-SC		1 x 1 mL
M-8081-SC-PAK	SAVE	5 x 1 mL
1.0 mg/mL each in Hexane:Toluene (50:50)		
Aldrin	Dieldrin	
α-BHC	Endosulfan I	
β-BHC	Endosulfan II	
γ-BHC	Endosulfan sulfate	
δ-BHC	Endrin	
α-Chlordane	Endrin aldehyde	
γ-Chlordane	Endrin ketone	
4,4'-DDD	Heptachlor	
4,4'-DDE	Heptachlor epoxide (Isomer B)	
4,4'-DDT	Methoxychlor	

Technical Note

M-8081A-SC was formulated for use in combination with M-8081-SC when performing single or dual column pesticide analysis. These two product formulations provide the typically analyzed pesticides in one core mixture (M-8081-SC) with the additional 7 analytes (M-8081A-SC) to meet the 27 analytes listed in Method 8081 (January 1995).

Organochlorine Pesticide Mixes

M-8081A-SC		1 x 1 mL
M-8081A-SC-PAK	SAVE	5 x 1 mL
1.0 mg/mL each in Hexane:Toluene (50:50)		
Chlorobenzilate	Hexachlorocyclopentadiene	
1,2-Dibromo-3-chloropropane	Isodrin	
Diallate	Kepone	
Hexachlorobenzene		

M-8081A-SC-R		1 x 1 mL
M-8081A-SC-R-PAK	SAVE	5 x 1 mL
1.0 mg/mL each in Hexane:Toluene (50:50)		
Chlorobenzilate	Hexachlorobenzene	
1,2-Dibromo-3-chloropropane	Hexachlorocyclopentadiene	
Diallate	Isodrin	

Dual Column Organochlorine Pesticides

M-8081-DC		1 x 1 mL
1.0 mg/mL each in Hexane:Toluene (50:50)		
Alachlor	Etridiazole	
Captafol	Hexachlorobenzene	
Captan	Hexachlorocyclopentadiene	
Chlorobenzilate	Isodrin	
Chloroneb	Mirex	
Chloropropylate	trans-Nonachlor	
Chlorothalonil	Pentachloronitrobenzene	
1,2-Dibromo-3-chloropropane	Perthane	
DCPA	Propachlor	
Diallate	Permethrin * (cis & trans)	
Dicofol	Trifluralin	

* isomer concentration as stated on certificate of product data

Tailing Test Standard

M-8081-T		1 x 1 mL
1.0 mg/mL each in Hexane:Toluene (50:50)		
Carbophenothion	Kepone	
Dichlone	Nitrofen	

M-8081-T-R		1 x 1 mL
1.0 mg/mL each in Hexane:Toluene (50:50)		
Carbophenothion	Nitrofen	
Dichlone		

Surrogate Standards

CLP-032-R		1 x 1 mL
CLP-032-R-PAK	SAVE	5 x 1 mL
0.2 mg/mL each in Acetone		
Decachlorobiphenyl	Tetrachloro- <i>m</i> -xylene	

CLP-034		1 x 1 mL
CLP-034-PAK	SAVE	5 x 1 mL
0.2 mg/mL each in Acetone		
Dibutylchloroendate	Tetrachloro- <i>m</i> -xylene	

M-8081-SS-X		1 x 1 mL
M-8081-SS-X-PAK	SAVE	5 x 1 mL
1.0 mg/mL in Acetone		
2-Bromobiphenyl		

For Dual Column

M-8081-SS-DC		1 x 1 mL
M-8081-SS-DC-PAK	SAVE	5 x 1 mL
1.0 mg/mL in Acetone		
4-Chloro-3-nitrobenzotrifluoride		

Internal Standards

M-8081-IS		1 x 1 mL
M-8081-IS-PAK	SAVE	5 x 1 mL
1.0 mg/mL in Acetone		
Pentachloronitrobenzene (PCNB)		

M-8081-IS-X		1 x 1 mL
M-8081-IS-X-PAK	SAVE	5 x 1 mL
1.0 mg/mL in Acetone		
α,α-Dibromo- <i>m</i> -xylene		

For Dual Column

M-8081-IS-DC		1 x 1 mL
M-8081-IS-DC-PAK	SAVE	5 x 1 mL
1.0 mg/mL in Acetone		
1-Bromo-2-nitrobenzene		

Decomposition Standard

M-8081-DS		1 x 1 mL
M-8081-DS-PAK	SAVE	5 x 1 mL
0.2 mg/mL each in Hexane		
4,4'-DDT	Endrin	
		2 comps.



EPA Method 8000 Series

Method 8082

Method 8082/8082A PCBs by Capillary Column GC by ECD or ELCD

PCB Congeners Mixture

M-8082				1 x 1 mL
M-8082-PAK	SAVE			5 x 1 mL
100 µg/mL each in Hexane				
1	2-Chlorobiphenyl	137	2,2',3,4,4',5'-Hexachlorobiphenyl	
5	2,3-Dichlorobiphenyl	141	2,2',3,4,5,5'-Hexachlorobiphenyl	
18	2,2',5-Trichlorobiphenyl	151	2,2',3,5,5',6'-Hexachlorobiphenyl	
31	2,4',5-Trichlorobiphenyl	153	2,2',4,4',5,5'-Hexachlorobiphenyl	
44	2,2',3,5'-Tetrachlorobiphenyl	170	2,2',3,3',4,4',5-Heptachlorobiphenyl	
52	2,2',5,5'-Tetrachlorobiphenyl	180	2,2',3,4,4',5,5'-Heptachlorobiphenyl	
66	2,3',4,4'-Tetrachlorobiphenyl	183	2,2',3,4,4',5,6-Heptachlorobiphenyl	
87	2,2',3,4,5'-Pentachlorobiphenyl	187	2,2',3,4',5,5',6-Heptachlorobiphenyl	
101	2,2',4,5,5'-Pentachlorobiphenyl	206	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	
110	2,3,3',4',6-Pentachlorobiphenyl			

Reformulated PCB Congeners Mixture

M-8082A				1 x 1 mL
M-8082A-PAK	SAVE			5 x 1 mL
100 µg/mL each in Hexane				
1	2-Chlorobiphenyl	138	2,2',3,4,4',5'-Hexachlorobiphenyl	
5	2,3-Dichlorobiphenyl	141	2,2',3,4,5,5'-Hexachlorobiphenyl	
18	2,2',5-Trichlorobiphenyl	151	2,2',3,5,5',6'-Hexachlorobiphenyl	
31	2,4',5-Trichlorobiphenyl	153	2,2',4,4',5,5'-Hexachlorobiphenyl	
44	2,2',3,5'-Tetrachlorobiphenyl	170	2,2',3,3',4,4',5-Heptachlorobiphenyl	
52	2,2',5,5'-Tetrachlorobiphenyl	180	2,2',3,4,4',5,5'-Heptachlorobiphenyl	
66	2,3',4,4'-Tetrachlorobiphenyl	183	2,2',3,4,4',5,6-Heptachlorobiphenyl	
87	2,2',3,4,5'-Pentachlorobiphenyl	187	2,2',3,4',5,5',6-Heptachlorobiphenyl	
101	2,2',4,5,5'-Pentachlorobiphenyl	206	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	
110	2,3,3',4',6-Pentachlorobiphenyl			

Technical Note

AccuStandard has formulated these standards for use in determining the concentrations of Aroclors (Industrial PCBs), specific PCB congeners, or "total PCBs". Additional Aroclor stock solutions are available at higher concentrations and in other solvents.

Internal and Surrogate Standard

CLP-032-H-5X				1 x 1 mL
1.0 mg/mL each in Hexane				
Decachlorobiphenyl		Tetrachloro- <i>m</i> -xylene		2 comps.

Surrogate Standards

M-8082-SSA-WL-10ML				1 x 10 mL
M-8082-SSA-WL-10ML-PAK	SAVE			5 x 10 mL
5 µg/mL in Acetone				
Decachlorobiphenyl				

M-8082-SS				1 x 1 mL
100 µg/mL in Hexane				

M-8082-SS-10X				1 x 1 mL
1.0 mg/mL in Hexane				
Tetrachloro- <i>m</i> -xylene				

Internal Standards

M-8082-ISC-WL-10ML				1 x 10 mL
M-8082-ISC-WL-10ML-PAK	SAVE			5 x 10 mL
5 µg/mL in Hexane				
Decachlorobiphenyl				

M-8082-SSC-WL-10ML				1 x 10 mL
M-8082-SSC-WL-10ML-PAK	SAVE			5 x 10 mL
5 µg/mL in Acetone				
Tetrachloro- <i>m</i> -xylene				

Method 8082 Aroclor 1016/1260 Calibration Curve

Aroclor 1016/1260 Calibration Curve

C-216/260-CAL-SET						6 x 1 mL
At stated conc. (ng/mL) in Isooctane						
		Level 1	Level 2	Level 3	Level 4	Level 5
Components			(2X)	(5X)	(10X)	(15X)
Aroclor 1016	50	100	250	500	750	1000
Aroclor 1260	50	100	250	500	750	1000
Decachlorobiphenyl	10	20	50	100	150	200
Tetrachloro- <i>m</i> -xylene	10	20	50	100	150	200

Level 3 Daily Working Level

Low level curves

C-216/260-WL-5X-5ML		1 x 5 mL
C-216/260-WL-5X-10ML		1 x 10 mL
At stated conc. (ng/mL) in Isooctane		

Level 4 Daily Working Level

Higher level curves

C-216/260-WL-10X-5ML		1 x 5 mL
C-216/260-WL-10X-10ML		1 x 10 mL
At stated conc. (ng/mL) in Isooctane		

Method 8082A Polychlorinated Biphenyl (PCBs) by GC/ECD

Individual PCB Congener Solutions

Congener	35 µg/mL in Isooctane	100 µg/mL in Isooctane	1 mL
2-Chlorobiphenyl	C-001S	C-001S-TP	
2,3-Dichlorobiphenyl	C-005S	C-005S-TP	
2,2',5-Trichlorobiphenyl	C-018S	C-018S-TP	
2,4',5-Trichlorobiphenyl	C-031S	C-031S-TP	
2,2',3,5'-Tetrachlorobiphenyl	C-044S	C-044S-TP	
2,2',5,5'-Tetrachlorobiphenyl	C-052S	C-052S-TP	
2,3',4,4'-Tetrachlorobiphenyl	C-066S	C-066S-TP	
2,2',3,4,5'-Pentachlorobiphenyl	C-087S	C-087S-TP	
2,2',4,5,5'-Pentachlorobiphenyl	C-101S	C-101S-TP	
2,3,3',4',6-Pentachlorobiphenyl	C-110S	C-110S-TP	
2,2',3,4,4',5-Hexachlorobiphenyl	C-137S	C-137S-TP	
2,2',3,4,4',5'-Hexachlorobiphenyl	C-138S	C-138S-TP	
2,2',3,4,5,5'-Hexachlorobiphenyl	C-141S	C-141S-TP	
2,2',3,5,5',6-Hexachlorobiphenyl	C-151S	C-151S-TP	
2,2',4,4',5,5'-Hexachlorobiphenyl	C-153S	C-153S-TP	
2,2',3,3',4,4',5-Heptachlorobiphenyl	C-170S	C-170S-TP	
2,2',3,4,4',5,5'-Heptachlorobiphenyl	C-180S	C-180S-TP	
2,2',3,4,4',5',6-Heptachlorobiphenyl	C-183S	C-183S-TP	
2,2',3,4',5,5',6-Heptachlorobiphenyl	C-187S	C-187S-TP	
2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	C-206S	C-206S-TP	

Internal Standards

C-209S-H		1 x 1 mL
100 µg/mL in Hexane		
C-209S-H-10X		1 x 1 mL
1.0 mg/mL in Hexane		
Decachlorobiphenyl		

Internal and Surrogate Standard

CLP-032-H-5X			1 x 1 mL
1.0 mg/mL each in Hexane			
Decachlorobiphenyl		Tetrachloro- <i>m</i> -xylene	2 comps.

Surrogate Standard

M-8082-SS		1 x 1 mL
100 µg/mL in Hexane		
M-8082-SS-10X		1 x 1 mL
1.0 mg/mL in Hexane		
Tetrachloro- <i>m</i> -xylene		



Method 8085 Pesticides by GC/AED

Nitrogen Containing Pesticides

Mix #1

M-8085-N1				1 x 5 mL	
At stated conc. (µg/mL) in MtBE				19 comps.	
Alachlor	18	Metribuzin	5	Pronamide	20
Atrazine	5	Napropamide	15	Propachlor	12
Bromacil	20	Norflurazon	10	Simazine	5
Dichlobenil	10	Oxyfluorfen	20	Tebuthiuron	7.5
Diphenamid	15	Pendimethalin	7.5	Terbacil	15
Ethalfuralin	7.5	Prometryne	5	Trifluralin	7.5
Metolachlor	20				

Mix #2

M-8085-N2				1 x 5 mL	
At stated conc. (µg/mL) in MtBE				18 comps.	
Ametryn	5	Cycloate	10	Prometon	5
Benfluralin	7.5	EPTC	10	Propargite	10
Butylate	10	Hexazinone	7.5	Propazine	5
Chlorpropham	20	Molinate	10	Tillam	10
Chlorothalonil	12	Prebana	5	Triallate	13
Cyanazine	7.5	Profluralin	12	Vernolate	10

Mix #3

M-8085-N3				1 x 5 mL	
At stated conc. (µg/mL) in MtBE				15 comps.	
Butachlor	30	Gesatamine	7.5	cis-Permethrin	10
Carboxin	30	Hexazinone	7.5	Resmethrin	10
Diallate	35	Karmex	30	Sumithrin	10
Fenarimol	15	Metalaxyl	30	Triadimefon	13
Fenvalerate	20	MGK-264	40	Triallate	15

Technical Note

These standards are for those laboratories participating in the analysis of pesticides by EPA Method 8085 Pesticide Screening and Compound Independent Elemental Quantitation by Gas Chromatography with Atomic Emission Detection (AED).

Chlorinated Pesticides

Mix #1

M-8085-C1			1 x 5 mL
2.5 µg/mL each in Hexane			23 comps.
Aldrin	p,p'-DDE	Endrin ketone	
α-BHC	p,p'-DDT	Heptachlor	
β-BHC	Dieldrin	Heptachlor epoxide (Isomer B)	
γ-BHC	Endosulfan I	Methoxychlor	
δ-BHC	Endosulfan II	cis-nonachlor	
γ-Chlordane	Endosulfan sulfate	Oxychlordane	
α-Chlordane	Endrin	Pentachloroanisole	
p,p'-DDD	Endrin aldehyde		

Mix #2

M-8085-C2			1 x 5 mL
At stated conc. (µg/mL) in Hexane			9 comps.
Captan	6.75	Hexachlorobenzene	2.5
Captafol	12.5	Kelthane	10
o,p'-DDE	2.5	Mirex	2.5
o,p'-DDD	2.5	trans-Nonachlor	2.5
o,p'-DDT	2.5		

Compound Independent Calibration (CIC) Mix

M-8085-CIC				1 x 5 mL
At stated conc. (ng/mL) in MtBE				15 comps.
Decachlorobiphenyl	492	Pentachloronitrobenzene	1690	
Diazinon	9800	Phorate	2100	
4,4'-Dibromooctafluorobiphenyl	1000	Silvex methyl ester	400	
Dichlobenil	6140	Terbufos	7600	
Dursban	5680	2,4,6-Tribromoanisole	2870	
Ethoprop	391	1,2,3-Trichlorobenzene	6810	
loxynil methyl	500	Trifluralin	16000	
Malathion	1070			

Organo Phosphorous Pesticides

Mix #1

M-8085-P1				1 x 5 mL
At stated conc. (µg/mL) in MtBE				14 comps.
Azinphos ethyl	8	EPN	5	
Carbophenothion	5	Ethion	3.5	
Chlorpyrifos methyl ester	4	Fenamiphos	5	
Demeton (mixed isomers)	7	Fenitrothion	3.5	
Disulfoton	3	Malathion	4	
Dursban	4	Merphos	6	
Dyfonate	3	Sulfotep	3	

Mix #2

M-8085-P2				1 x 5 mL	
At stated conc. (µg/mL) in MtBE				12 comps.	
Azinphos methyl	8	Ethoprop	4	Methyl parathion	3.5
Bolstar	3.5	Fensulfotothion	5	Parathion	4
Diazinon	4	Fenthion	3.5	Phorate	3.5
Dimethoate	4	Imidan	5.5	Ronnel	3.5

Herbicides as Methyl Derivatives

Mix #1

M-8085-H1-M				1 x 5 mL
At stated conc. (µg/mL) in MtBE				12 comps.
Bentazon methyl ester	7.5	4-Nitroanisole	10	
Bromoxynil methyl ether	5	Pentachloroanisole	2.5	
Chloramben methyl ester	5	2,3,4,5-Tetrachloroanisole	2.75	
Dinoseb methyl ether	7.5	2,3,4,6-Tetrachloroanisole	2.75	
MCPA methyl ester	10	2,4,5-Trichloroanisole	3	
MCPP methyl ester	10	2,4,6-Trichloroanisole	3	

Mix #2

M-8085-H2-M				1 x 5 mL
At stated conc. (µg/mL) in MtBE				13 comps.
Dalapon methyl ester	4	loxynil methyl ether	5	
2,4-D methyl ester	5	Methyl 3,5-Dichlorobenzoate	5	
2,4-DB methyl ester	6	Picloram methyl ester	5	
DCPA methyl ester	4	Silvex methyl ester	4	
Dicamba methyl ester	5	2,4,5-T methyl ester	4	
Dichloroprop methyl ester	5.5	Triclopyr methyl ester	4	
Diclofop methyl	7.5			

Surrogates

M-8085-PEST-SS			1 x 5 mL
At stated conc. (µg/mL) in MtBE			4 comps.
Decachlorobiphenyl	10	1,3-Dimethyl-2-nitrobenzene	20
4,4'-Dibromooctafluorobiphenyl	20	Triphenylphosphate	20

Technical Note

Organophosphorus and Nitrogen/Phosphorus pesticides are light sensitive, store in deactivated amber vials.

Alternate Surrogates

M-8085-PEST-SS2		1 x 5 mL
20 µg/mL each in MtBE		2 comps.
Dibutylchloroendate		Tetrachloro- <i>m</i> -xylene

Herbicide Surrogate

M-8085-HERB-SS		1 x 5 mL
20 µg/mL in MtBE		
2,4,6-Tribromophenol		



EPA Method 8000 Series

Method 8090-8091

Method 8090 Nitroaromatics & Isophorone by GC/TCD or FID

Analyte Calibration Set (609)

M-609-10X-SET 2 x 1 mL
M-609A-10X, M-609B-10X

M-609A-10X 1 x 1 mL
2.0 mg/mL each in MeOH 2 comps.
Isophorone Nitrobenzene

M-609B-10X 1 x 1 mL
2.0 mg/mL each in MeOH 2 comps.
2,4-Dinitrotoluene 2,6-Dinitrotoluene

Analyte Calibration Set (8090)

M-8090-10X-SET 2 x 1 mL
M-8090-10X, M-609-QC

M-8090-10X 1 x 1 mL
2.0 mg/mL each in MeOH 4 comps.
1,3-Dinitrobenzene 1,4-Naphthoquinone
Isophorone Nitrobenzene

M-609-QC 1 x 1 mL
At stated conc. (µg/mL) in Acetone 4 comps.
Isophorone 100 2,6-Dinitrotoluene 20
2,4-Dinitrotoluene 20 Nitrobenzene 100

M-8090-QC 1 x 1 mL
At stated conc. (µg/mL) in Acetone 6 comps.
1,3-Dinitrobenzene 40 Isophorone 100
2,4-Dinitrotoluene 20 1,4-Naphthoquinone 40
2,6-Dinitrotoluene 20 Nitrobenzene 100

Method 8091 Nitroaromatics & Cyclic Ketones by GC/ECD or NPD

RCRA Analytes

M-8091 1 x 1 mL
1.0 mg/mL each in Isooctane:Toluene (50:50) 6 comps.
1,4-Dinitrobenzene 1,4-Naphthoquinone
2,4-Dinitrotoluene Nitrobenzene
2,6-Dinitrotoluene Pentachloronitrobenzene

Chloronitroaromatics: non-RCRA Analytes

M-8091-X1 1 x 1 mL
1.0 mg/mL each in Isooctane 17 comps.
1-Chloro-2,4-dinitrobenzene 3,5-Dichloronitrobenzene
1-Chloro-3,4-dinitrobenzene 3,4-Dichloronitrobenzene
1-Chloro-2-nitrobenzene 2,5-Dichloronitrobenzene
1-Chloro-4-nitrobenzene 2,3,5,6-Tetrachloronitrobenzene
2-Chloro-6-nitrotoluene 2,3,4,5-Tetrachloronitrobenzene
4-Chloro-2-nitrotoluene 1,2,3-Trichloro-4-nitrobenzene
4-Chloro-3-nitrotoluene 1,2,4-Trichloro-5-nitrobenzene
2,3-Dichloronitrobenzene 2,4,6-Trichloronitrobenzene
2,4-Dichloronitrobenzene

Internal Standard

M-8091-IS-20X 1 x 1 mL
M-8091-IS-20X-PAK SAVE 5 x 1 mL
1.0 mg/mL in Acetone
Hexachlorobenzene

Surrogate Standard

M-8091-SS-100X 1 x 1 mL
M-8091-SS-100X-PAK SAVE 5 x 1 mL
1.0 mg/mL in Acetone
1-Chloro-3-nitrobenzene





Method 8095 Explosives by GC/ECD

This method is a companion to EPA Method 8330 found later in this section. Utilizing the sensitivity and selectivity of the ECD as well as the resolution capabilities of capillary columns allows the chemist to quantitatively analyze for the typical explosives. The method uses familiar extraction techniques which reduce sample preparation time.

Explosive Stock Solution A

M-8095-SSA-100X 1 x 1 mL
M-8095-SSA-100X-PAK **SAVE** 5 x 1 mL
 100 µg/mL each in AcCN:MeOH (50:50) 10 comps.

2-Amino-4,6-dinitrotoluene	1,3,5-Trinitrobenzene
4-Amino-2,6-dinitrotoluene	TNT
1,3-Dinitrobenzene	RDX
2,6-Dinitrotoluene	Tetryl
2,4-Dinitrotoluene	HMX

Explosive Stock Solution B

M-8095-SSB-100X 1 x 1 mL
M-8095-SSB-100X-PAK **SAVE** 5 x 1 mL
 At stated conc. (µg/mL) in AcCN:MeOH (50:50) 7 comps.

Nitrobenzene	500	Nitroglycerin	500
3-Nitrotoluene	500	PETN	500
2-Nitrotoluene	500	3,5-Dinitroaniline	100
4-Nitrotoluene	500		

Explosive Surrogate Standards

M-8095-SS-01 1 x 1 mL
M-8095-SS-01-PAK **SAVE** 5 x 1 mL
 100 µg/mL in AcCN

3,4-Dinitrotoluene

M-8095-SS-02 1 x 1 mL
M-8095-SS-02-PAK **SAVE** 5 x 1 mL
 100 µg/mL in AcCN

2-Methyl-4-nitroaniline

M-8095-SS-03 1 x 1 mL
M-8095-SS-03-PAK **SAVE** 5 x 1 mL
 100 µg/mL in AcCN

2,5-Dinitrotoluene

Method 8100 PAHs by GC/FID

Polynuclear Aromatic Hydrocarbon Mix

Z-014G-R 1 x 1 mL
Z-014G-R-PAK **SAVE** 5 x 1 mL
 2.0 mg/mL each in CH₂Cl₂:Benzene (50:50) 17 comps.

Acenaphthene	Chrysene
Acenaphthylene	Dibenz[a,h]anthracene
Anthracene	Fluoranthene
Benz[a]anthracene	Fluorene
Benz[a]pyrene	Indeno[1,2,3-cd]pyrene
Benzo[b]fluoranthene	Naphthalene
Benzo[g,h,i]perylene	Phenanthrene
Benzo[k]fluoranthene	Pyrene
Carbazole	

PAH Additions to Method 8100 by GC/FID

M-8100-R 1 x 1 mL
 1.0 mg/mL each in CH₂Cl₂ 8 comps.

Benzo[j]fluoranthene	Dibenz[a,e]pyrene
Dibenz[a,h]acridine	Dibenz[a,h]pyrene
Dibenz[a,i]acridine	Dibenz[a,i]pyrene
7H-Dibenzo[c,g]carbazole	3-Methylcholanthrene

PAH QC Mix

M-8100-QC 1 x 1 mL
M-8100-QC-PAK **SAVE** 5 x 1 mL
 At stated conc. (µg/mL) in AcCN 24 comps.

Acenaphthene	100	Dibenz[a,h]anthracene	10
Acenaphthylene	100	7H-Dibenzo[c,g]carbazole	10
Anthracene	100	Dibenz[a,e]pyrene	10
Benz[a]anthracene	10	Dibenz[a,h]pyrene	10
Benzo[b]fluoranthene	10	Dibenz[a,i]pyrene	10
Benzo[j]fluoranthene	10	Fluoranthene	10
Benzo[k]fluoranthene	5	Fluorene	100
Benzo[g,h,i]perylene	10	Indeno[1,2,3-cd]pyrene	10
Benz[a]pyrene	10	3-Methylcholanthrene	10
Chrysene	10	Naphthalene	100
Dibenz[a,h]acridine	10	Phenanthrene	100
Dibenz[a,i]acridine	10	Pyrene	10

Surrogate Standard

M-8100-SS 1 x 1 mL
M-8100-SS-PAK **SAVE** 5 x 1 mL
 2.0 mg/mL each in CH₂Cl₂ 2 comps.

2-Fluorobiphenyl	1-Fluoronaphthalene
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Method 8110 Haloethers by GC/FID

Haloethers

M-611-10X 1 x 1 mL
 2.0 mg/mL each in MeOH 5 comps.

4-Bromophenyl phenyl ether	bis(2-Chloroisopropyl)ether
bis(2-Chloroethoxy)methane	4-Chlorophenyl phenyl ether
bis(2-Chloroethyl) ether	

Buy AccuPAKs
Save 20-40% 5 x 1 mL





EPA Method 8000 Series

Method 8111-8131

Method 8111 Haloethers Mix: non-RCRA Analytes

Haloethers Mix

M-8111-X1 1 x 1 mL
1.0 mg/mL each in Isooctane 19 comps.

Individual Haloethers
see page 79

- 4-Bromophenyl phenyl ether
- 2-Chlorophenyl-4'-nitrophenyl ether
- 3-Chlorophenyl-4'-nitrophenyl ether
- 4-Chlorophenyl-4'-nitrophenyl ether
- 2,4-Dibromophenyl-4'-nitrophenyl ether
- 2,4-Dichlorophenyl-3'-methyl-4'-nitrophenyl ether
- 2,6-Dichlorophenyl-4'-nitrophenyl ether
- 3,5-Dichlorophenyl-4'-nitrophenyl ether
- 2,5-Dichlorophenyl-4'-nitrophenyl ether
- 2,4-Dichlorophenyl-4'-nitrophenyl ether
- 2,3-Dichlorophenyl-4'-nitrophenyl ether
- 3,4-Dichlorophenyl-4'-nitrophenyl ether
- 4-Nitrophenyl phenyl ether
- 2,4,6-Trichlorophenyl-4'-nitrophenyl ether
- 2,3,6-Trichlorophenyl-4'-nitrophenyl ether
- 2,3,5-Trichlorophenyl-4'-nitrophenyl ether
- 2,4,5-Trichlorophenyl-4'-nitrophenyl ether
- 3,4,5-Trichlorophenyl-4'-nitrophenyl ether
- 2,3,4-Trichlorophenyl-4'-nitrophenyl ether

Haloethers Mix: RCRA Analytes

M-8111 1 x 1 mL
M-8111-PAK **SAVE** 5 x 1 mL
 1.0 mg/mL each in Isooctane 4 comps.

bis(2-Chloroethoxy)methane bis(2-Chloroisopropyl)ether
 bis(2-Chloroethyl) ether 4-Chlorophenyl phenyl ether

Internal Standard

M-8111-IS-20X 1 x 1 mL
M-8111-IS-20X-PAK **SAVE** 5 x 1 mL
 1,000 µg/mL in Acetone

4,4'-Dibromobiphenyl

Surrogate Standard

M-8111-SS-50X 1 x 1 mL
 1,000 µg/mL each in Acetone 2 comps.

2,4-Dichlorophenyl phenyl ether 2,3,4-Trichlorophenyl phenyl ether

Method 8120 & 8120A Chlorinated Hydrocarbons by GC/ECD

Chlorinated Hydrocarbons

M-8120 1 x 1 mL
Each at 2.0 mg/mL each in Hexane 10 comps.

Compound	Cat.No.	1 mL
2-Chloronaphthalene	M-8120-01	
1,2-Dichlorobenzene	M-8120-02	
1,3-Dichlorobenzene	M-8120-03	
1,4-Dichlorobenzene	M-8120-04	
Hexachlorobenzene	M-8120-05	
Hexachlorobutadiene	M-8120-06	
Hexachlorocyclopentadiene	M-8120-07	
Hexachloroethane	M-8120-08	
1,2,4,5-Tetrachlorobenzene	M-8120-09	
1,2,4-Trichlorobenzene	M-8120-10	

Performance Check Solution

M-8120-QC 1 x 1 mL
 At stated conc. (mg/mL) in Acetone 10 comps.

2-Chloronaphthalene	1.0	Hexachlorobutadiene	0.1
1,2-Dichlorobenzene	1.0	Hexachlorocyclopentadiene	0.1
1,3-Dichlorobenzene	1.0	Hexachloroethane	0.1
1,4-Dichlorobenzene	1.0	1,2,4,5-Tetrachlorobenzene	1.0
Hexachlorobenzene	0.1	1,2,4-Trichlorobenzene	1.0

Method 8121 Chlorinated Hydrocarbons by GC/ECD

Chlorinated Hydrocarbons

M-8121 1 x 1 mL
1.0 mg/mL each in Hexane 22 comps.

- | | |
|---------------------|----------------------------|
| Benzal chloride | Hexachlorobenzene |
| Benzotrichloride | Hexachlorobutadiene |
| Benzyl chloride | Hexachlorocyclopentadiene |
| α-BHC | Hexachloroethane |
| β-BHC | Pentachlorobenzene |
| γ-BHC | 1,2,3,4-Tetrachlorobenzene |
| δ-BHC | 1,2,3,5-Tetrachlorobenzene |
| 2-Chloronaphthalene | 1,2,4,5-Tetrachlorobenzene |
| 1,2-Dichlorobenzene | 1,2,3-Trichlorobenzene |
| 1,3-Dichlorobenzene | 1,2,4-Trichlorobenzene |
| 1,4-Dichlorobenzene | 1,3,5-Trichlorobenzene |

Internal Standards

M-8121-IS 1 x 1 mL
M-8121-IS-PAK **SAVE** 5 x 1 mL
 50 µg/mL in Acetone

1,3,5-Tribromobenzene

M-8121-IS-M 1 x 1 mL
M-8121-IS-M-PAK **SAVE** 5 x 1 mL
 50 µg/mL each in Acetone 3 comps.

2,5-Dibromotoluene 1,3,5-Tribromobenzene
 α,α'-Dibromo-*m*-xylene

Surrogate Standard

M-8121-SS 1 x 1 mL
M-8121-SS-PAK **SAVE** 5 x 1 mL
 At stated conc. (µg/mL) in Acetone 3 comps.

1,4-Dichloronaphthalene	1	α,2,6-Trichlorotoluene	10
2,3,4,5,6-Pentachlorotoluene	1		

Varied Concentration QC Mix

M-8121-QC 1 x 1 mL
 At stated conc. (µg/mL) in Hexane 22 comps.

Benzal chloride	100	Hexachlorobenzene	10
Benzotrichloride	100	Hexachlorobutadiene	10
Benzyl chloride	100	Hexachlorocyclopentadiene	10
α-BHC	100	Hexachloroethane	10
β-BHC	100	Pentachlorobenzene	10
γ-BHC	100	1,2,3,4-Tetrachlorobenzene	100
δ-BHC	100	1,2,3,5-Tetrachlorobenzene	100
2-Chloronaphthalene	2,000	1,2,4,5-Tetrachlorobenzene	100
1,2-Dichlorobenzene	1,000	1,2,3-Trichlorobenzene	100
1,3-Dichlorobenzene	1,000	1,2,4-Trichlorobenzene	100
1,4-Dichlorobenzene	1,000	1,3,5-Trichlorobenzene	100

Method 8131 Aniline & Selected Derivatives by GC/NPD, GC/AFD, GC/TSD

Aniline & Selected Derivatives

M-8131 1 x 1 mL
1.0 mg/mL each in Toluene 19 comps.

- | | |
|---------------------------------|-----------------------------|
| Aniline | 2,6-Dibromo-4-nitroaniline |
| 4-Bromoaniline | 3,4-Dichloroaniline |
| 2-Bromo-6-chloro-4-nitroaniline | 2,6-Dichloro-4-nitroaniline |
| 2-Bromo-4,6-dinitroaniline | 2,4-Dinitroaniline |
| 2-Chloroaniline | 2-Nitroaniline |
| 3-Chloroaniline | 3-Nitroaniline |
| 4-Chloroaniline | 4-Nitroaniline |
| 2-Chloro-4,6-dinitroaniline | 2,4,6-Trichloroaniline |
| 2-Chloro-4-nitroaniline | 2,4,5-Trichloroaniline |
| 4-Chloro-2-nitroaniline | |



Method 8140 Organophosphorous Pesticides by GC/NPD/ELCD/FPD

Organophosphorous Pesticides

M-8140M			1 x 1 mL
M-8140M-PAK	SAVE		5 x 1 mL
0.04 mg/mL each in Hexane			20 comps.
M-8140M-5X *			1 x 1 mL
M-8140M-5X-PAK *	SAVE		5 x 1 mL
0.2 mg/mL each in Hexane:Acetone (95:5)			20 comps.

Organophosphorous Pesticide Set

M-8140-SET 20 x 1 mL
Each at 1.0 mg/mL in Hexane, * Hexane:Acetone (95:5)

Compound	Cat. No.	1 mL	Compound	Cat. No.	1 mL	Compound	Cat. No.	1 mL
Azinphosmethyl	M-8140-01		Disulfoton	M-8140-08		Naled	M-8140-15	
Bolstar	M-8140-02		Ethoprop	M-8140-09		Phorate	M-8140-16	
Chloropyrifos	M-8140-03		Fensulfothion	M-8140-10 *		Ronnel	M-8140-17	
Coumaphos	M-8140-04		Fenthion	M-8140-11		Stirophos	M-8140-18	
Demeton	M-8140-05		Merphos	M-8140-12		Tokuthion	M-8140-19	
Diazinon	M-8140-06		Methyl parathion	M-8140-13		Trichloronate	M-8140-20	
Dichlorovos	M-8140-07		Mevinphos	M-8140-14				* Hexane:Acetone (95:5)

Method 8141A Additions to Method 8140 Organophosphorous Pesticides by GC/NPD

Mix #1

M-8141M *		1 x 1 mL
M-8141M-PAK *	SAVE	5 x 1 mL
0.2 mg/mL each in Hexane		7 comps.
M-8141-SET		7 x 1 mL
Each at 1.0 mg/mL in Hexane, * Hexane:Acetone (90:10), ** (95:5)		

Compound	Cat. No.	1 mL
Dimethoate	M-8141-01 *	
EPN	M-8141-02	
Malathion	M-8141-03	
Monocrotophos	M-8141-04 **	
Ethyl parathion	M-8141-05	
Sulfotep	M-8141-06	
TEPP	M-8141-07	

Industrial Chemicals & Triazine Herbicides

M-8141A-IC		1 x 1 mL
0.2 mg/mL each in Hexane		2 comps.
Hexamethylphosphoramide (HMPA)	Tri- <i>o</i> -cresylphosphate (TOCP)	

M-8141A-TH		1 x 1 mL
M-8141A-TH-PAK	SAVE	5 x 1 mL
0.2 mg/mL each in Acetone		2 comps.
Atrazine	Simazine	

M-8141B-HSD		1 x 1 mL
M-8141B-HSD-PAK	SAVE	5 x 1 mL
0.2 mg/mL each in Hexane		9 comps.

Chlorpyrifos	EPN	Stirophos
Coumaphos	Naled	Trichloronate
Dichlorovos	Ronnel	Tokuthion

Technical Note

Tetraethyl pyrophosphate TEPP is unstable, decomposes in water, and is thermally labile at inlet temperatures above 170°C.

Mix #2

M-8141A-1M		1 x 1 mL
0.2 mg/mL each in Hexane		10 comps.
M-8141A-1-SET *		10 x 1 mL
Each at 1.0 mg/mL in Hexane		

Compound	Cat. No.	1 mL
Azinphos ethyl	M-8141A-1-01	
Carbophenothion	M-8141A-1-02	
Chlorfenvinphos	M-8141A-1-03	
Dioxathion	M-8141A-1-04 *	
Ethion	M-8141A-1-05	
Famphur	M-8141A-1-06	
Leptophos	M-8141A-1-07	
Phosmet	M-8141A-1-08	
Phosphamidon	M-8141A-1-09 *	
Terbufos	M-8141A-1-10	

Internal Standard for NPD

M-8141A-IS		1 x 1 mL
M-8141A-IS-PAK	SAVE	5 x 1 mL
1.0 mg/mL in Acetone		
1-Bromo-2-nitrobenzene		

Technical Note

For use with a halogen-specific detector (i.e., electrolytic conductivity or microcoulometry). ECD should only be used when previous analyses have demonstrated that interferences do not adversely affect quantitation.

Surrogate Standard for NPD & FPD

M-8141A-SS		1 x 1 mL
M-8141A-SS-PAK	SAVE	5 x 1 mL
1.0 mg/mL each in Acetone		2 comps.
Tributylphosphate	Triphenylphosphate	

Surrogate Standard for NPD only

M-8141A-SS-X		1 x 1 mL
M-8141A-SS-X-PAK	SAVE	5 x 1 mL
1.0 mg/mL in Acetone		
4-Chloro-3-nitrobenzotrifluoride		

Technical Note

Organophosphorus and Nitrogen/Phosphorus pesticides are light sensitive, store in deactivated amber vials.

Mix #3

M-8141A-2M		1 x 1 mL
0.2 mg/mL each in Hexane		9 comps.
M-8141A-2-SET		9 x 1 mL
Each at 1.0 mg/mL in Hexane		

Aspon	Fenitrothion
Chlorpyrifos methyl ester	Fonophos
Crotoxyphos	Thionazin
Dichlofenthion	Trichlorfon
Dicrotophos	

* ColdPAK required to maintain integrity of product.



EPA Method 8000 Series

Method 8150/8151

Method 8150/8151 7 Point Working Level Phenoxy-Herbicide Methyl Derivative Curve

The CCC Line for Herbicide analysis provides the necessary free acid and derivatized solutions to establish a calibration curve, perform the required daily QC checks and validate extraction efficiencies through the use of surrogates and matrix spikes.

M-8150/51-CAL-SET

At stated conc. (ng/mL) in Isooctane

7 x 1 mL
11 comps.

Components	Level 1 M-8150/51-WL	Level 2 (-2X)	Level 3 (-4X)	Level 4 (-10X)	Level 5 (-25X)	Level 6 (-35X)	Level 7 (-50X)
2,4-D	20	40	80	200	500	700	1000
2,4-DB	20	40	80	200	500	700	1000
2,4,5-TP	5	10	20	50	125	175	250
2,4,5-T	5	10	20	50	125	175	250
Dalapon	10	20	40	100	250	350	500
Dicamba	10	20	40	100	250	350	500
Dichloroprop	20	40	80	200	500	700	1000
Dinoseb	5	10	20	50	125	175	250
MCPA	2000	4000	8,000	20,000	50,000	70,000	100,000
MCPP	2000	4000	8,000	20,000	50,000	70,000	100,000
2,4-Dichlorophenylacetic acid	20	40	80	200	500	700	1000

Level 1	M-8150/51-WL	1 mL
Level 2	M-8150/51-WL-2X	1 mL
Level 3	M-8150/51-WL-4X	1 mL
Level 4	M-8150/51-WL-10X	1 mL
Level 5	M-8150/51-WL-25X	1 mL
Level 6	M-8150/51-WL-35X	1 mL
Level 7	M-8150/51-WL-50X	1 mL

Level 3 Daily QC Working Level

Low level curves

M-8150/51-WL-4X-10ML	1 x 10 mL
M-8150/51-WL-4X-25ML	1 x 25 mL
M-8150/51-WL-4X-50ML	1 x 50 mL
At stated conc. (ng/mL) in Isooctane	11 comps.

Level 4 Daily QC Working Level

Higher level curves

M-8150/51-WL-10X-10ML	1 x 10 mL
M-8150/51-WL-10X-25ML	1 x 25 mL
M-8150/51-WL-10X-50ML	1 x 50 mL
At stated conc. (ng/mL) in Isooctane	11 comps.

Level 5 Daily QC Working Level

Higher level curves

M-8150/51-WL-25X-10ML	1 x 10 mL
M-8150/51-WL-25X-25ML	1 x 25 mL
M-8150/51-WL-25X-50ML	1 x 50 mL
At stated conc. (ng/mL) in Isooctane	11 comps.

Herbicide Molecular Weights

The COA for the Working Level Herbicide calibration curves and Daily QC check standards lists both the methyl derivative and acid equivalent concentrations. Since the EPA method for Herbicide analysis requires the final analytical results to be calculated and reported as the acid equivalent, AccuStandard provides both formats to ease calculations.

Herbicide	Free Acid M.W.	Methylated M.W.
2,4-D	221.04	235.07
Dalapon	143.97	157.00
2,4-DB	249.09	263.12
Dicamba	221.04	235.07
Dichloroprop	235.07	249.09
Dinoseb	240.22	254.24
MCPA	200.62	214.65
MCPP	214.65	228.67
Silvex (2,4,5-TP)	269.51	283.54
2,4,5-T	255.48	269.51

Equivalency conversion to the free acid:

$$\text{ng (free acid)} = \frac{\text{M.W. Herbicide acid}}{\text{M.W. methylated Herbicide}} \times \text{ng (methylated acid)}$$

The molecular weights for conversion of methyl esters to the acid equivalent concentrations are provided above.



Method 8150/8151 Working Level Herbicide Standards

Prep Note

To validate instrument response, 10 µL of internal standard is added to a 10 mL herbicide sample extract.

Internal Standard - Herbicide Solution 1

M-8151-IS		1 x 1 mL
M-8151-IS-PAK	SAVE	5 x 1 mL
250 µg/mL in Acetone		
4,4'-Dibromooctafluorobiphenyl		

Internal Standard - Herbicide Solution 2

M-8151-IS-2		1 x 1 mL
M-8151-IS-2-PAK	SAVE	5 x 1 mL
250 µg/mL in Acetone		
1,4-Dichlorobenzene		

Laboratory Performance Check Solution

M-8150/51-LPC-5ML		1 x 5 mL	
At stated conc. (ng/mL) in Isooctane		5 comps.	
3,5-Dichlorobenzoic acid	618	2,4-Dichlorophenylacetic acid	500
Dinoseb	4	4,4'-Dibromooctafluorobiphenyl	250
4-Nitrophenol	1600		

Prep Note

To verify extraction efficiency, 1 mL of surrogate is added to a herbicide sample.

Herbicide Surrogate Spiking Solution

M-8150/51-SS-WL-25ML	1 x 25 mL
M-8150/51-SS-WL-50ML	1 x 50 mL
2 µg/mL in MeOH	
2,4-Dichlorophenylacetic acid (DCAA)	

Prep Note

To verify QA/QC for the analytical batch, 1 mL of matrix spike is added to an herbicide sample.

Herbicide Matrix Spike (Components as Acids)

M-8150/51-MS-WL-10ML		1 x 10 mL	
M-8150/51-MS-WL-25ML		1 x 25 mL	
M-8150/51-MS-WL-50ML		1 x 50 mL	
At stated conc. (µg/mL) in MeOH		5 comps.	
2,4-D	2	Dalapon	1
2,4-DB	2	Dicamba	1
2,4,5-TP (Silvex)	0.8		



Method 8150A/8150B Chlorinated Herbicides by GC/ECD

Chlorinated Herbicides in Ground Water (Rev. 1, July 1992) and their Methyl Derivatives

Compound	(mg/mL) Conc.	Herbicides Acids (in MeOH) Cat. No.	Methyl Derivative (in Hexane) Cat. No.	1 mL
2,4-D	0.2	M-8150S-A-01	M-8150-01	
2,4-DB	0.2	M-8150S-A-02	M-8150-02	
2,4,5-T	0.2	M-8150S-A-03	M-8150-03	
2,4,5-TP	0.2	M-8150S-A-04	M-8150-04	
Dalapon	0.2	M-8150S-A-05 *	M-8150-05	
Dicamba	0.2	M-8150S-A-06	M-8150-06	
Dichlorprop	0.2	M-8150S-A-07	M-8150-07	
Dinoseb	0.2	M-8150S-A-08	M-8150-08	
MCPA	2.0	M-8150S-A-09	M-8150-09	
MCPP	2.0	M-8150S-A-10	M-8150-10	
		M-8150A-SET *	M-8150-SET	10 x 1 mL

Underivatized Solution (Varied Concentration)

M-8150A		1 x 1 mL
M-8150A-PAK	SAVE	5 x 1 mL
0.1 mg/mL in MeOH, except MCPA and MCPP		
2,4-D	Dichlorprop	MCPP (10 mg/mL)
Dalapon	Dinoseb	2,4,5-TP
2,4-DB	MCPA (10 mg/mL)	2,4,5-T
Dicamba		

Methyl Derivatives Solutions (Varied Concentration)

M-8150		1 x 1 mL
0.1 mg/mL in MeOH, except MCPA and MCPP		
10 comps.		
2,4-D methyl ester	Dinoseb methyl ester	
Dalapon methyl ester	MCPA methyl ester (10 mg/mL)	
2,4-DB methyl ester	MCPP methyl ester (10 mg/mL)	
Dicamba methyl ester	2,4,5-TP methyl ester	
Dichlorprop methyl ester	2,4,5-T methyl ester	

Underivatized Solution (Equal Concentration)

M-8150M-A		1 x 1 mL
M-8150M-A-PAK	SAVE	5 x 1 mL
0.2 mg/mL each in MeOH		
2,4-D	Dichlorprop	MCPP
Dalapon	Dinoseb	2,4,5-TP
2,4-DB	MCPA	2,4,5-T
Dicamba		

Methyl Derivatives Solutions (Equal Concentration)

M-8150M-SET **2 x 1 mL**
M-8150M, M-8150M-2

M-8150M		1 x 1 mL
M-8150M-PAK	SAVE	5 x 1 mL
20 µg/mL each in Hexane		
8 comps.		
2,4-D methyl ester	Dichlorprop methyl ester	
Dalapon methyl ester	Dinoseb methyl ester	
2,4-DB methyl ester	2,4,5-TP methyl ester	
Dicamba methyl ester	2,4,5-T methyl ester	

Underivatized Surrogate Standards

M-8150B-SS		1 x 1 mL
M-8150B-SS-PAK	SAVE	5 x 1 mL
0.1 mg/mL in Acetone		
M-8150B-SS-10X		1 x 1 mL
1.0 mg/mL in Acetone		
2,4-Dichlorophenylacetic acid		

M-8150M-2		1 x 1 mL
M-8150M-2-PAK	SAVE	5 x 1 mL
2,000 µg/mL each in Hexane		
2 comps.		
MCPA methyl ester	MCPP methyl ester	

Internal Standard

M-8151-IS		1 x 1 mL
M-8151-IS-PAK	SAVE	5 x 1 mL
0.25 mg/mL in Acetone		
4,4'-Dibromooctafluorobiphenyl		

Methyl Derivative Surrogate Standard

M-515-SS		1 x 1 mL
M-515-SS-PAK	SAVE	5 x 1 mL
0.1 mg/mL in MtBE		
Methyl 2,4-dichlorophenylacetate		

* ColdPAK required to maintain integrity of product.

PFB Derivatized Chlorinated Herbicides

M-8150-02-PFB		1 x 1 mL
0.1 mg/mL in MtBE		
2,4-D-PFB		
M-8150-04-PFB		1 x 1 mL
0.1 mg/mL in MtBE		
2,4,5-TP-PFB		



EPA Method 8000 Series

Method 8151-8240

Method 8151/8151A Chlorinated Herbicides by GC/ECD

Methyl Derivatives

M-8151 0.1 mg/mL each in MtBE, except MCPA & MCPP		1 x 1 mL 18 comps.
Acifluorfen methyl ester	Dichlorprop methyl ester	
Bentazon methyl ester	Dinoseb methyl ester	
Chloramben methyl ester	MCPA methyl ester (10 mg/mL)	
2,4-D methyl ester	MCPP methyl ester (10 mg/mL)	
Dalapon methyl ester	4-Nitroanisole	
2,4-DB methyl ester	Pentachloroanisole	
DCPA methyl ester	Picloram methyl ester	
Dicamba methyl ester	2,4,5-TP methyl ester	
Methyl-3,5-dichlorobenzoate	2,4,5-T methyl ester	

Underivatized

M-8151A		1 x 1 mL
M-8151A-PAK	SAVE	5 x 1 mL
0.1 mg/mL each in Acetone, except MCPA & MCPP		18 comps.
Acifluorfen	Dichlorprop	
Bentazon	Dinoseb	
Chloramben	MCPA (10 mg/mL)	
2,4-D	MCPP (10 mg/mL)	
Dalapon	4-Nitrophenol	
2,4-DB	Pentachlorophenol	
DCPA diacid	Picloram	
Dicamba	2,4,5-TP	
3,5-Dichlorobenzoic acid	2,4,5-T	

Internal Standards

M-8151-IS		1 x 1 mL
M-8151-IS-PAK	SAVE	5 x 1 mL
0.25 mg/mL in Acetone		
4,4'-Dibromooctafluorobiphenyl		
M-8151-IS-2		1 x 1 mL
M-8151-IS-2-PAK	SAVE	5 x 1 mL
0.25 mg/mL in Acetone		
1,4-Dichlorobenzene		

Surrogate Standards

M-515-SS		1 x 1 mL
M-515-SS-PAK	SAVE	5 x 1 mL
0.1 mg/mL in MtBE		
Methyl-2,4-dichlorophenylacetate		
M-8150B-SS		1 x 1 mL
M-8150B-SS-PAK	SAVE	5 x 1 mL
0.1 mg/mL in Acetone		
M-8150B-SS-10X		1 x 1 mL
1.0 mg/mL in Acetone		
2,4-Dichlorophenylacetic acid		

Method 8240 Volatile Organics by GC/MS

M-8240A * 0.2 mg/mL each in MeOH		1 x 1 mL 41 comps.
Acetone	<i>cis</i> -1,3-Dichloropropene	
Acrolein	<i>trans</i> -1,3-Dichloropropene	
Acrylonitrile	Ethanol	
Benzene	Ethylbenzene	
Bromodichloromethane	2-Hexanone	
Bromoform	Iodomethane	
Methyl ethyl ketone	4-Methyl-2-pentanone	
Carbon disulfide	Methylene chloride	
Carbon tetrachloride	Styrene	
Chlorobenzene	1,1,2,2-Tetrachloroethane	
Chloroform	Tetrachloroethene	
Dibromochloromethane	Toluene	
<i>cis</i> -1,4-Dichloro-2-butene	1,1,1-Trichloroethane	
<i>trans</i> -1,4-Dichloro-2-butene	1,1,2-Trichloroethane	
1,2-Dichlorobenzene	Trichloroethene	
1,3-Dichlorobenzene	Vinyl acetate	
1,4-Dichlorobenzene	<i>o</i> -Xylene	
1,1-Dichloroethane	<i>m</i> -Xylene	
1,2-Dichloroethane	<i>p</i> -Xylene	
1,1-Dichloroethene		
<i>trans</i> -1,2-Dichloroethene		
1,2-Dichloropropane		

Certificate will reflect actual cis/trans ratio

Technical Note

Acrolein quickly polymerizes and degrades in methanol solutions; therefore these standards have a short shelf life.

Auxiliary Standards for all 8240 Methods (VOC analysis) see Catalog Number Index

Surrogate Standard	see CLP-PS-10X
Internal Standard	see CLP-PI-2.5X
Gases	see M-601B
Matrix Spiking Solution	see CLP-003R
Tuning Standard	see CLP-004
System Performance	see CLP-021
Calibration Check Compounds	see CLP-020

Method 8240A Volatiles by GC/MS

APP-9-048-R1-2X 0.2 mg/mL in MeOH		1 x 1 mL
Chloroprene (Xylene-free)		
S-354-2 0.2 mg/mL in Isooctane		1 x 1 mL
Ethylene oxide		

* ColdPAK required to maintain integrity of product.



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Method 8240 & 8260 Volatile Organic Compounds by GC/MS

The following solutions can be used to construct a single calibration curve containing the volatile analytes in Appendix IX for analysis by either Method 8240 or Method 8260 by GC/MS. Bromochloromethane is excluded in the calibration solutions since it is used as an internal standard in Method 8240. If Method 8260 methodology is used, the addition of bromochloromethane from the internal standard mix can serve as the source for bromochloromethane to complement the target compound list.

Liquid Components

Benzene	<i>cis</i> -1,3-Dichloropropene
Bromobenzene	<i>trans</i> -1,3-Dichloropropene
Bromodichloromethane	Ethylbenzene
Bromoform	Hexachlorobutadiene
<i>n</i> -Butylbenzene	Isopropylbenzene (Cumene)
<i>sec</i> -Butylbenzene	<i>p</i> -Isopropyltoluene (<i>p</i> -Cymene)
<i>t</i> -Butylbenzene	Methylene chloride
Carbon tetrachloride	Naphthalene
Chlorobenzene	<i>n</i> -Propylbenzene
Chloroform	Styrene
2-Chlorotoluene	1,1,1,2-Tetrachloroethane
4-Chlorotoluene	1,1,2,2-Tetrachloroethane
Dibromochloromethane	Tetrachloroethene
1,2-Dibromo-3-chloropropane	Toluene
1,2-Dibromoethane	1,2,3-Trichlorobenzene
Dibromomethane	1,2,4-Trichlorobenzene
1,2-Dichlorobenzene	1,1,1-Trichloroethane
1,3-Dichlorobenzene	1,1,2-Trichloroethane
1,4-Dichlorobenzene	Trichloroethene
1,1-Dichloroethane	1,2,3-Trichloropropane
1,2-Dichloroethane	1,2,4-Trimethylbenzene
1,1-Dichloroethene	1,3,5-Trimethylbenzene
<i>cis</i> -1,2-Dichloroethene	<i>o</i> -Xylene
<i>trans</i> -1,2-Dichloroethene	<i>m</i> -Xylene
1,2-Dichloropropane	<i>p</i> -Xylene
1,3-Dichloropropane	
2,2-Dichloropropane	
1,1-Dichloropropene	

Certificate will reflect actual cis/trans ratio

Gas Components

Bromomethane	Dichlorodifluoromethane
Chloroethane	Trichlorofluoromethane
Chloromethane	Vinyl chloride

Liquids

M-502A-R2		1 x 1 mL
M-502A-R2-PAK	SAVE	5 x 1 mL
0.2 mg/mL each in MeOH		53 comps.
M-502A-R2-10X		1 x 1 mL
M-502A-R2-10X-PAK	SAVE	5 x 1 mL
2.0 mg/mL each in MeOH		53 comps.

Gases

M-502B		1 x 1 mL
M-502B-PAK	SAVE	5 x 1 mL
0.2 mg/mL each in MeOH		6 comps.
M-502B-10X		1 x 1 mL
M-502B-10X-PAK	SAVE	5 x 1 mL
2.0 mg/mL each in MeOH		6 comps.

Liquid and Gas Sets

M-502A-R2/B-SET	2 x 1 mL
0.2 mg/mL each in MeOH	M-502A-R2, M-502B
M-502A-R2/B-10X-SET	2 x 1 mL
2.0 mg/mL each in MeOH	M-502A-R2-10X, M-502B-10X

All 60 liquid and gas components in One Solution

M-502		1 x 1 mL
M-502-PAK	SAVE	5 x 1 mL
0.2 mg/mL each in MeOH		60 comps.
M-502-10X		1 x 1 mL
M-502-10X-PAK	SAVE	5 x 1 mL
2.0 mg/mL each in MeOH		60 comps.

See also Method 8240 & 8260

Appendix IX Volatiles

M-8240C		1 x 1 mL
0.2 mg/mL each in MeOH		17 comps.
Acetonitrile	Methyl methacrylate	
Allyl chloride	Nitrobenzene	
1,2-Dibromo-3-chloropropane	Pentachloroethane	
Dibromomethane	Propionitrile	
1,2-Dibromoethane	Pyridine	
1,4-Dioxane	1,1,1,2-Tetrachloroethane	
Ethyl methacrylate	1,2,4-Trichlorobenzene	
Isobutanol	1,2,3-Trichloropropane	
Methacrylonitrile		

M-8240C-R3		1 x 1 mL
At stated conc. (mg/mL) in MeOH		12 comps.

M-8240C-R3-10X		1 x 1 mL
At 10X stated conc. (mg/mL) in MeOH		12 comps.

Acetonitrile	2.0	Ethyl methacrylate	0.2
Allyl chloride	0.2	Isobutanol	4.0
<i>cis</i> -1,4-Dichloro-2-butene	0.2	Methacrylonitrile	2.0
<i>trans</i> -1,4-Dichloro-2-butene	0.2	Methyl methacrylate	0.2
1,4-Dioxane	4.0	Pentachloroethane	0.2
Ethanol	4.0	Propionitrile	2.0

Certificate will reflect actual cis/trans ratio

Same as M-8240C-R3-10X without Pentachloroethane

M-8240C-R6		1 x 1 mL
At stated conc. (mg/mL) in MeOH		11 comps.

Acetonitrile	20	Isobutanol	40
Allyl chloride	2.0	Methacrylonitrile	20
<i>cis</i> -1,4-Dichloro-2-butene	2.0	Methyl methacrylate	2.0
<i>trans</i> -1,4-Dichloro-2-butene	2.0	Propionitrile	20
1,4-Dioxane	40		
Ethanol	40		
Ethyl methacrylate	2.0		

Certificate will reflect actual cis/trans ratio

M-8260-ADD *		1 x 1 mL
0.2 mg/mL each in MeOH		8 comps.

M-8260-ADD-10X *		1 x 1 mL
M-8260-ADD-10X-PAK *	SAVE	5 x 1 mL
2.0 mg/mL each in MeOH		8 comps.

Acetone	2-Hexanone
Methyl ethyl ketone	Iodomethane
Carbon disulfide	4-Methyl-2-pentanone
2-Chloroethyl vinyl ether	Vinyl acetate

M-603 *		1 x 1 mL
M-603-PAK *	SAVE	5 x 1 mL
1.0 mg/mL each in Water		2 comps.

M-603-10X *		1 x 1 mL
10.0 mg/mL each in Water		2 comps.

M-603-M-0.1X *		1 x 1 mL
100 µg/mL each in MeOH:Water (90:10)		2 comps.

M-603-M-5X *		1 x 1 mL
5 mg/mL each in MeOH:Water (90:10)		2 comps.

Acrolein	Acrylonitrile
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* ColdPAK required to maintain integrity of product.



EPA Method 8000 Series

Method 8260B Volatile Organic Compounds by GC/MS

The following formulations have been put together for a complete 8260B target compound list. We have utilized our standard M-502A-R containing the 54 typical analytes found in this method and a number of other EPA methods. In addition, we have tried to minimize the number of additional standards required to get the complete analyte list, while still addressing the various chromatographic problems associated to specific analytes.

Volatile Organic Compounds (VOC) Set

M-502A-R/B-SET
2 x 1 mL
M-502A-R, M-502B

Liquids

M-502A-R
0.2 mg/mL each in MeOH
1 x 1 mL
54 comps.

Benzene	1,1-Dichloropropene
Bromobenzene	<i>cis</i> -1,3-Dichloropropene
Bromochloromethane	<i>trans</i> -1,3-Dichloropropene
Bromodichloromethane	Ethylbenzene
Bromoform	Hexachlorobutadiene
<i>n</i> -Butylbenzene	Isopropylbenzene (<i>Cumene</i>)
<i>sec</i> -Butylbenzene	<i>p</i> -Isopropyltoluene (<i>p</i> - <i>Cymene</i>)
<i>t</i> -Butylbenzene	Methylene chloride
Carbon tetrachloride	Naphthalene
Chlorobenzene	<i>n</i> -Propylbenzene
Chloroform	Styrene
2-Chlorotoluene	1,1,1,2-Tetrachloroethane
4-Chlorotoluene	1,1,2,2-Tetrachloroethane
Dibromochloromethane	Tetrachloroethene
1,2-Dibromo-3-chloropropane	Toluene
1,2-Dibromoethane	1,2,3-Trichlorobenzene
Dibromomethane	1,2,4-Trichlorobenzene
1,2-Dichlorobenzene	1,1,1-Trichloroethane
1,3-Dichlorobenzene	1,1,2-Trichloroethane
1,4-Dichlorobenzene	Trichloroethene
1,1-Dichloroethane	1,2,3-Trichloropropane
1,2-Dichloroethane	1,2,4-Trimethylbenzene
1,1-Dichloroethene	1,3,5-Trimethylbenzene
<i>cis</i> -1,2-Dichloroethene	<i>o</i> -Xylene
<i>trans</i> -1,2-Dichloroethene	<i>m</i> -Xylene
1,2-Dichloropropane	<i>p</i> -Xylene
1,3-Dichloropropane	
2,2-Dichloropropane	

Certificate will reflect actual *cis/trans* ratio

Gases

M-502B
0.2 mg/mL each in MeOH
1 x 1 mL
6 comps.

Bromomethane	Dichlorodifluoromethane
Chloroethane	Trichlorofluoromethane
Chloromethane	Vinyl chloride

M-603 *
1.0 mg/mL each in water
1 x 1 mL
2 comps.

Acrolein	Acrylonitrile
----------	---------------

Technical Note

Acrolein quickly polymerizes and degrades in methanol solutions; therefore these standards have a short shelf life.

M-8240C-R3-10X
At stated conc. (mg/mL) in MeOH
1 x 1 mL
12 comps.

Acetonitrile	20	Ethyl methacrylate	2.0
Allyl chloride	2.0	Isobutanol	40
<i>cis</i> -1,4-Dichloro-2-butene	2.0	Methacrylonitrile	20
<i>trans</i> -1,4-Dichloro-2-butene	2.0	Methyl methacrylate	2.0
1,4-Dioxane	40	Pentachloroethane	2.0
Ethanol	40	Propionitrile	20

Certificate will reflect actual *cis/trans* ratio

Technical Note

Bromoform, Chloroform and other light volatiles may exhibit reduced response from a contaminated trap, un-optimized purge & trap conditions, i.e. purge flow too high / low, or contamination / cold spot in the transfer line.

Additional VOCs by Method 8260B

M-8260B-01
M-8260B-01-PAK
2000 µg/mL each in MeOH
1 x 1 mL
5 x 1 mL
11 comps.

SAVE

Benzyl chloride	2-Nitropropane
1-Chlorobutane	Dibromofluoromethane
1-Chlorohexane	Methyl acrylate
1,2,3,4-Diepoxybutane	MtBE
Diethyl ether	Pentafluorobenzene
Nitrobenzene	

M-8260B-02 *
M-8260B-02-PAK *
2000 µg/mL each in MeOH
1 x 1 mL
5 x 1 mL
10 comps.

SAVE

Allyl alcohol	Ethyl acetate
<i>n</i> -Butanol	Hexachloroethane
Chloroacetonitrile	2-Hydroxypropionitrile
3-Chloropropionitrile	Malonitrile
Epichlorohydrin	Pyridine

M-8260B-03
M-8260B-03-PAK
2000 µg/mL each in MeOH:Water (90:10)
1 x 1 mL
5 x 1 mL
4 comps.

SAVE

N-Nitrosodi- <i>n</i> -butylamine	Propylamine
2-Picoline	<i>o</i> -Toluidine

M-8260B-04
M-8260B-04-PAK
2000 µg/mL each in MeOH
1 x 1 mL
5 x 1 mL
6 comps.

SAVE

<i>t</i> -Butanol	<i>n</i> -Propanol
2-Chloroethanol	Isopropanol
1,3-Dichloro-2-propanol	Propargyl alcohol

M-8260B-06-PAK *
2000 µg/mL each in MeOH
5 x 1 mL
3 comps.

SAVE

Bromoacetone	<i>b</i> -Propiolactone
2-Pentanone	

Chloroprene (Xylene-Free)

APP-9-048-R1-10X
1.0 mg/mL in MeOH
1 x 1 mL

APP-9-048-R1-20X
2.0 mg/mL in MeOH
1 x 1 mL

Ethylene oxide

M-8015B/5031-14-R1 *
5 mg/mL in Water
1 x 1 mL

Chloral hydrate

M-E-1179-M *
1.0 mg/mL in MeOH
1 x 1 mL

M-8260B continued on the next page

* ColdPAK required to maintain integrity of product.



Method 8260B (Continued) Volatile Organic Compounds by GC/MS

Internal Standards

M-8260-IS 1 x 1 mL
 M-8260-IS-PAK **SAVE** 5 x 1 mL
 0.2 mg/mL each in MeOH 4 comps.

M-8260-IS-10X 1 x 1 mL
 M-8260-IS-10X-PAK **SAVE** 5 x 1 mL
 2.0 mg/mL each in MeOH 4 comps.

Chlorobenzene-d₅ 1,4-Dichlorobenzene-d₄
 1,4-Difluorobenzene Pentafluorobenzene

M-8260-IS-R 1 x 1 mL
 M-8260-IS-R-PAK **SAVE** 5 x 1 mL
 0.2 mg/mL each in MeOH 4 comps.

M-8260-IS-R-10X 1 x 1 mL
 M-8260-IS-R-10X-PAK **SAVE** 5 x 1 mL
 2.0 mg/mL each in MeOH 4 comps.

2-Bromo-1-chloropropane 1,4-Dichlorobenzene-d₄
 1,4-Difluorobenzene Pentafluorobenzene

M-8260A/B-IS 1 x 1 mL
 M-8260A/B-IS-PAK **SAVE** 5 x 1 mL
 0.2 mg/mL each in MeOH 3 comps.

M-8260A/B-IS-10X 1 x 1 mL
 M-8260A/B-IS-10X-PAK **SAVE** 5 x 1 mL
 2.0 mg/mL each in MeOH 3 comps.

Chlorobenzene-d₅ Fluorobenzene
 1,4-Dichlorobenzene-d₄

Combined Internal/Surrogate Standard VOA Mix

M-8260A/B-IS/SS 1 x 1 mL
 M-8260A/B-IS/SS-PAK **SAVE** 5 x 1 mL
 200 µg/mL each in MeOH 7 comps.

M-8260A/B-IS/SS-10X 1 x 1 mL
 M-8260A/B-IS/SS-10XPAK **SAVE** 5 x 1 mL
 2.0 mg/mL each in MeOH 7 comps.

p-Bromofluorobenzene 1,2-Dichloroethane-d₄
 Chlorobenzene-d₅ Fluorobenzene
 Dibromofluoromethane Toluene-d₈
 1,4-Dichlorobenzene-d₄

Surrogate Standards

M-8260-SS 1 x 1 mL
 M-8260-SS-PAK **SAVE** 5 x 1 mL
 0.2 mg/mL each in MeOH 3 comps.

M-8260-SS-10X 1 x 1 mL
 M-8260-SS-10X-PAK **SAVE** 5 x 1 mL
 2.0 mg/mL each in MeOH 3 comps.

4-Bromofluorobenzene Toluene-d₈
 Dibromofluoromethane

M-8260-SS-2 1 x 1 mL
 0.2 mg/mL in MeOH

M-8260-SS-2-10X 1 x 1 mL
 2.0 mg/mL in MeOH

Dibromofluoromethane

M-8260A/B-SS 1 x 1 mL
 M-8260A/B-SS-PAK **SAVE** 5 x 1 mL
 0.2 mg/mL each in MeOH 4 comps.

M-8260A/B-SS-10X 1 x 1 mL
 M-8260A/B-SS-10X-PAK **SAVE** 5 x 1 mL
 2.0 mg/mL each in MeOH 4 comps.

p-Bromofluorobenzene 1,2-Dichloroethane-d₄
 Dibromofluoromethane Toluene-d₈

**Tens of Thousands of Standards
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EPA Method 8000 Series

Method 8240 & 8260

Method 8240 & 8260 Volatile Organic Compounds Auxiliary Standards

Internal Standard VOA

M-8240/60-IS		1 x 1 mL
M-8240/60-IS-PAK	SAVE	5 x 1 mL
0.2 mg/mL each in MeOH		
M-8240/60-IS-10X		1 x 1 mL
M-8240/60-IS-10X-PAK	SAVE	5 x 1 mL
2.0 mg/mL each in MeOH		
Bromochloromethane	1,4-Difluorobenzene	
Chlorobenzene-d ₅	Pentafluorobenzene	
1,4-Dichlorobenzene-d ₄		

Surrogate Standard VOA

M-8240/60-SS		1 x 1 mL
M-8240/60-SS-PAK	SAVE	5 x 1 mL
0.2 mg/mL each in MeOH		
M-8240/60-SS-10X		1 x 1 mL
M-8240/60-SS-10X-PAK	SAVE	5 x 1 mL
2.0 mg/mL each in MeOH		
p-Bromofluorobenzene	1,2-Dichloroethane-d ₄	
Dibromofluoromethane	Toluene-d ₈	

Internal / Surrogate Standard VOA

M-8240/60-IS/SS		1 x 1 mL
M-8240/60-IS/SS-PAK	SAVE	5 x 1 mL
0.2 mg/mL each in MeOH		
M-8240/60-IS/SS-10X		1 x 1 mL
M-8240/60-IS/SS-10XPAK	SAVE	5 x 1 mL
2.0 mg/mL each in MeOH		
Bromochloromethane	1,2-Dichloroethane-d ₄	
p-Bromofluorobenzene	1,4-Difluorobenzene	
Chlorobenzene-d ₅	Pentafluorobenzene	
Dibromofluoromethane	Toluene-d ₈	
1,4-Dichlorobenzene-d ₄		

Volatile Calibration Check Compounds (CCC)

CLP-020		1 x 1 mL
CLP-020-PAK	SAVE	5 x 1 mL
0.2 mg/mL each in MeOH		
CLP-020-10X		1 x 1 mL
CLP-020-10X-PAK	SAVE	5 x 1 mL
2.0 mg/mL each in MeOH		
Chloroform	Ethylbenzene	
1,1-Dichloroethene	Toluene	
1,2-Dichloropropane	Vinyl chloride	

Volatile System Performance Check Compounds (SPCC)

CLP-021		1 x 1 mL
CLP-021-PAK	SAVE	5 x 1 mL
0.2 mg/mL each in MeOH		
CLP-021-10X		1 x 1 mL
CLP-021-10X-PAK	SAVE	5 x 1 mL
2.0 mg/mL each in MeOH		
Bromoform	1,1-Dichloroethane	
Chlorobenzene	1,1,2,2-Tetrachloroethane	
Chloromethane		

Instrument Performance Check Solutions

CLP-004		1 x 1 mL
CLP-004-PAK	SAVE	5 x 1 mL
25 µg/mL in MeOH		
CLP-004-10X		1 x 1 mL
CLP-004-10X-PAK	SAVE	5 x 1 mL
250 µg/mL in MeOH		
CLP-004-100X		1 x 1 mL
CLP-004-100X-PAK	SAVE	5 x 1 mL
2500 µg/mL in MeOH		
p-Bromofluorobenzene		

Purgeable Organic Matrix Spiking Solutions

CLP-003-R		1 x 1 mL
CLP-003-R-PAK	SAVE	5 x 1 mL
0.25 mg/mL each in MeOH		
CLP-003-R-10X		1 x 1 mL
CLP-003-R-10X-PAK	SAVE	5 x 1 mL
2.5 mg/mL each in MeOH		
Benzene	Toluene	
Chlorobenzene	Trichloroethene	
1,1-Dichloroethene		



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Method 8270C/D Semi-Volatile by GC/MS as Core Mix

The primary analytes typically analyzed in Method 8270 version C and D have been formulated based on one of the following considerations: large core mixes, analyte retention time association to ISTD's, similar functional groups, Third Party Certified Standards, or as working level Ready-to-Inject standards.

Use of these Method 8270C/D components in 5 mixtures can save you time and money in preparing your calibration curves. Four high concentration solutions CLP-HC-BN-SET, CLP-HC-A-R, CLP-HC-X1 and Z-014E can be combined to give you the 92 typical analytes needed for Method 8270C/D. Product Z-014E-R can be used in lieu of Z-014E for those labs interested in adding pyridine to their target list.

These mixtures can also serve as your **second source** requirements since they are independently prepared from product M-8270 (7 x 1 mL).

Base-Neutral Mixture

CLP-HC-BN-R

Acenaphthene	4-Chlorophenyl phenyl ether	Hexachlorobenzene
Acenaphthylene	Chrysene	Hexachlorobutadiene
Anthracene	Dibenz[a,h]anthracene	Hexachlorocyclopentadiene
Azobenzene	Di- <i>n</i> -butyl phthalate	Hexachloroethane
Benz[a]anthracene	1,2-Dichlorobenzene	Indeno[1,2,3- <i>cd</i>]pyrene
Benzo[b]fluoranthene	1,3-Dichlorobenzene	Isophorone
Benzo[k]fluoranthene	1,4-Dichlorobenzene	Naphthalene
Benzo[g,h,i]perylene	Diethyl phthalate	Nitrobenzene
Benz[a]pyrene	Dimethyl phthalate	N-Nitrosodimethylamine
4-Bromophenyl phenyl ether	2,4-Dinitrotoluene	N-Nitrosodiphenylamine
Butyl benzyl phthalate	2,6-Dinitrotoluene	N-Nitrosodi- <i>n</i> -propylamine
bis(2-Chloroethoxy)methane	Di- <i>n</i> -octyl phthalate	Phenanthrene
bis(2-Chloroethyl) ether	bis(2-Ethylhexyl)phthalate	Pyrene
bis(2-Chloroisopropyl)ether	Fluoranthene	1,2,4-Trichlorobenzene
2-Chloronaphthalene	Fluorene	

Benzidine Mixture

Z-014F

Benzidine †	3,3'-Dichlorobenzidine †
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Technical Note

Azobenzene was substituted for 1,2-diphenylhydrazine since it pyrolyses to azobenzene under GC operating conditions.

Base-Neutrals

CLP-HC-BN-R	1 x 1 mL
CLP-HC-BN-R-PAK SAVE	5 x 1 mL
2.0 mg/mL each in Benzene:CH ₂ Cl ₂ :AcCN (40:40:20)	
	44 comps.

Benzidine

Z-014F	1 x 1 mL
Z-014F-PAK	1 x 1 mL
2.0 mg/mL each in MeOH	
	2 comps.

Base-Neutral and Benzidine Set

CLP-HC-BN-SET	2 x 1 mL
CLP-HC-BN-SET-PAK SAVE	5 x (2 x 1 mL)
	CLP-HC-BN-R, Z-014F

Additional Analyte Solutions

Acid Composite Mixture

CLP-HC-A-R	1 x 1 mL
CLP-HC-A-R-PAK SAVE	5 x 1 mL
2.0 mg/mL each in CH ₂ Cl ₂	
	19 comps.

- Benzoic acid
- 4-Chloro-3-methylphenol
- 2-Chlorophenol
- o*-Cresol
- p*-Cresol
- 2,4-Dichlorophenol
- 2,6-Dichlorophenol
- 2,4-Dimethylphenol
- 4,6-Dinitro-2-methylphenol
- 2,4-Dinitrophenol
- Ethyl methanesulfonate
- Methyl methanesulfonate
- 2-Nitrophenol
- 4-Nitrophenol
- Pentachlorophenol
- Phenol
- 2,3,4,6-Tetrachlorophenol
- 2,4,5-Trichlorophenol
- 2,4,6-Trichlorophenol

Composite #1

Z-014E	1 x 1 mL
Z-014E-PAK SAVE	5 x 1 mL
2.0 mg/mL each in CH ₂ Cl ₂	
	8 comps.

- | | |
|-----------------|---------------------|
| Aniline | 2-Methylnaphthalene |
| Benzyl alcohol | 2-Nitroaniline |
| 4-Chloroaniline | 3-Nitroaniline |
| Dibenzofuran | 4-Nitroaniline |

Composite #2

Z-014E-R	1 x 1 mL
2.0 mg/mL each in CH ₂ Cl ₂	
	9 comps.

- | | |
|---------------------|----------------|
| Aniline | 2-Nitroaniline |
| Benzyl alcohol | 3-Nitroaniline |
| 4-Chloroaniline | 4-Nitroaniline |
| Dibenzofuran | Pyridine |
| 2-Methylnaphthalene | |

Composite #3A

CLP-HC-X1	1 x 1 mL
2.0 mg/mL each in CH ₂ Cl ₂	
	19 comps.

- Acetophenone
- 4-Aminobiphenyl
- 1-Chloronaphthalene
- Dibenz[a,j]acridine
- p*-Dimethylaminoazobenzene
- 7,12-Dimethylbenz[a]anthracene
- α,α -Dimethylphenethylamine
- Diphenylamine
- 3-Methylcholanthrene
- 1-Naphthylamine
- 2-Naphthylamine
- N-Nitrosodi-*n*-butylamine
- N-Nitrosopiperidine
- Pentachlorobenzene
- Pentachloronitrobenzene
- Phenacetin
- 2-Picoline
- Pronamide
- 1,2,4,5-Tetrachlorobenzene

M-8270-07-SET *	2 x 1 mL
M-8270-07-R1, APP-9-014-D-10X	

M-8270-07-R1 *	1 x 1 mL
2.0 mg/mL each in CH ₂ Cl ₂	
	14 comps.

- | | |
|-----------------|-------------------|
| Chlorobenzilate | Kepone |
| Diallate | Methyl parathion |
| 2,4-D | Parathion |
| Dimethoate | Phorate |
| Dinoseb | Silvex (2,4,5-TP) |
| Disulfoton | Sulfotep |
| Famphur | Thionazin |

APP-9-014-D-10X	1 x 1 mL
2.0 mg/mL in CH ₂ Cl ₂	
	Aramite

M-8270-08	1 x 1 mL
2.0 mg/mL each in CH ₂ Cl ₂	
	9 comps.

- 3,3'-Dimethylbenzidine †
- 4-Nitroquinoline-1-oxide
- N-Nitrosodiethylamine
- N-Nitrosomethylethylamine
- N-Nitrosomorpholine
- N-Nitrosopyrrolidine
- 5-Nitro-*o*-toluidine
- p*-Phenylenediamine
- o*-Toluidine

M-8270-09	1 x 1 mL
2.0 mg/mL each in CH ₂ Cl ₂	
	10 comps.

- 2-Acetyl aminofluorene
- m*-Dinitrobenzene
- Hexachlorophene
- Hexachloropropene
- Isodrin
- Isosafrole
- Methapyrilene
- 1,4-Naphthoquinone
- Safrole
- 0,0,0-Triethyl phosphorothioate

* ColdPAK required to maintain integrity of product.
† Subject to oxidation

EPA Method 8000 Series

Method 8270C/D (Continued) Semi-Volatiles by Capillary Column GC/MS

These Method 8270C/D formulations are designed based on the association of the analyte to a specific internal standard. These formulations allow for easy preparation of the typical analytes in the calibration curve. In addition, instrument/method problems can be rapidly diagnosed by examining those specific analytes and the associated internal standard in the affected part of the analysis.

Complete 8270 Method Mixture Set

M-8270-SET	7 x 1 mL M-8270-01, M-8270-02, M-8270-03, M-8270-04A M-8270-04B, M-8270-05, M-8270-06
M-8270-R-SET	7 x 1 mL M-8270-01, M-8270-02, M-8270-03, M-8270-04A M-8270-04B-R1, M-8270-05, M-8270-06

Save when ordering
a complete set over
individual solutions

M-8270-01 2.0 mg/mL each in CH ₂ Cl ₂	1 x 1 mL 17 comps.	M-8270-02 2.0 mg/mL each in CH ₂ Cl ₂	1 x 1 mL 18 comps.	M-8270-03 2.0 mg/mL each in CH ₂ Cl ₂	1 x 1 mL 24 comps.
Aniline Benzyl alcohol bis(2-Chloroethyl) ether bis(2-Chloroisopropyl)ether 2-Chlorophenol 1,2-Dichlorobenzene 1,3-Dichlorobenzene 1,4-Dichlorobenzene Ethylmethanesulfonate Hexachloroethane Methylmethanesulfonate o-Cresol p-Cresol N-Nitrosodimethylamine N-Nitrosodi-n-propylamine Phenol 2-Picoline		Acetophenone Benzoic acid bis(2-Chloroethoxy)methane 4-Chloroaniline 4-Chloro-3-methylphenol 2,4-Dichlorophenol 2,6-Dichlorophenol α,α-Dimethylphenethylamine 2,4-Dimethylphenol Hexachlorobutadiene Isophorone 2-Methylnaphthalene Naphthalene Nitrobenzene 2-Nitrophenol N-Nitroso-di-n-butylamine N-Nitrosopiperidine 1,2,4-Trichlorobenzene		Acenaphthene Acenaphthylene 1-Chloronaphthalene 2-Chloronaphthalene 4-Chlorophenyl phenyl ether Dibenzofuran Diethyl phthalate Dimethyl phthalate 2,4-Dinitrophenol 2,4-Dinitrotoluene 2,6-Dinitrotoluene Fluorene Hexachlorocyclopentadiene 1-Naphthylamine 2-Naphthylamine 2-Nitroaniline 3-Nitroaniline 4-Nitroaniline 4-Nitrophenol Pentachlorobenzene 1,2,4,5-Tetrachlorobenzene 2,3,4,6-Tetrachlorophenol 2,4,6-Trichlorophenol 2,4,5-Trichlorophenol	
M-8270-04A 2.0 mg/mL each in CH ₂ Cl ₂	1 x 1 mL 9 comps.	M-8270-04B 2.0 mg/mL each in CH ₂ Cl ₂	1 x 1 mL 6 comps.	M-8270-05 2.0 mg/mL each in CH ₂ Cl ₂	1 x 1 mL 8 comps.
4-Aminobiphenyl Anthracene 4-Bromophenyl phenyl ether Di-n-butyl phthalate 4,6-Dinitro-2-methylphenol Fluoranthene Hexachlorobenzene Pentachlorophenol Phenanthrene		Diphenylamine 1,2-Diphenylhydrazine N-Nitrosodiphenylamine Pentachloronitrobenzene Phenacetin Pronamide		Benzidine † Benzo[a]anthracene bis(2-Ethylhexyl)phthalate Butyl benzyl phthalate Chrysene 3,3'-Dichlorobenzidine † p-Dimethylaminoazobenzene Pyrene	
		M-8270-04B-R1 2.0 mg/mL each in CH ₂ Cl ₂	1 x 1 mL 6 comps.	M-8270-06 2.0 mg/mL each in CH ₂ Cl ₂	1 x 1 mL 10 comps.
		Azobenzene Diphenylamine N-Nitrosodiphenylamine Pentachloronitrobenzene Phenacetin Pronamide		Benzo[b]fluoranthene Benzo[k]fluoranthene Benzo[g,h,i]perylene Benz[a]pyrene Dibenz[a,j]acridine Dibenz[a,h]anthracene 7,12-Dimethylbenz[a]anthracene Di-n-octylphthalate Indeno[1,2,3-cd]pyrene 3-Methylcholanthrene	

Technical Note

Under EPA recommended GC conditions (Method 8270) the analyte 1,2-Diphenylhydrazine is converted in varying degrees to Azobenzene and breakdown products. According to our study, the use of an injection port temperature range of 240°C-300°C will cause the 1,2-Diphenylhydrazine to break down.

Substituting Azobenzene for 1,2-Diphenylhydrazine will allow analysis yielding a single peak regardless of the EPA recommended injection port temperature range used.

Alternate Formulation

M-8270-04B-R1 2.0 mg/mL each in CH ₂ Cl ₂	1 x 1 mL 6 comps.
Azobenzene Diphenylamine N-Nitrosodiphenylamine Pentachloronitrobenzene Phenacetin Pronamide	

† Subject to oxidation



Method 8270C/D (Continued) Auxiliary Standards

Internal Standard

Z-014J		1 x 1 mL
Z-014J-PAK	SAVE	5 x 1 mL
4.0 mg/mL each in CH ₂ Cl ₂		
Acenaphthene-d ₁₀	Naphthalene-d ₈	
Chrysene-d ₁₂	Perylene-d ₁₂	
1,4-Dichlorobenzene-d ₄	Phenanthrene-d ₁₀	

GC/MS Tuning Standard

M-625-TS-20X	1 x 1 mL
2.0 mg/mL each in CH ₂ Cl ₂	4 comps.
Benzidine †	DFTPP
p,p'-DDT	Pentachlorophenol

Surrogate Standards

M-8270-SS		1 x 1 mL
M-8270-SS-PAK	SAVE	5 x 1 mL
4.0 mg/mL each in CH ₂ Cl ₂		
2-Fluorobiphenyl	Phenol-d ₅	
2-Fluorophenol	p-Terphenyl-d ₁₄	
Nitrobenzene-d ₅	2,4,6-Tribromophenol	

M-8270-SS-R		1 x 1 mL	
M-8270-SS-R-PAK	SAVE	5 x 1 mL	
At stated conc. (mg/mL) each in CH ₂ Cl ₂ :MeOH (80:20)			
2-Fluorobiphenyl	1.0	Phenol-d ₅	2.0
2-Fluorophenol	2.0	Terphenyl-d ₁₄	1.0
Nitrobenzene-d ₅	1.0	2,4,6-Tribromophenol	2.0

Calibration Check Compounds (CCC)

CLP-011-SET	2 x 1 mL
	CLP-011A, CLP-011B

Base/Neutrals

CLP-011A	1 x 1 mL
2.0 mg/mL each in CH ₂ Cl ₂	7 comps.
Acenaphthene	Hexachlorobutadiene
Benz[a]pyrene	Fluoranthene
1,4-Dichlorobenzene	N-nitroso-diphenylamine
Di-n-octyl phthalate	

Acids

CLP-011B	1 x 1 mL
2.0 mg/mL each in CH ₂ Cl ₂	6 comps.
4-Chloro-3-methylphenol	Pentachlorophenol
2,4-Dichlorophenol	Phenol
2-Nitrophenol	2,4,6-Trichlorophenol

Base/Neutrals & Acids Matrix Standard Spiking Solutions

CLP-007-SET		2 x 1 mL
CLP-007-SET-PAK	SAVE	5 x (2 x 1 mL)
		CLP-007A, CLP-007B

Base/Neutrals

CLP-007A	1 x 1 mL
1.0 mg/mL each in MeOH	6 comps.
Acenaphthene	N-Nitrosodi-n-propylamine
1,4-Dichlorobenzene	Pyrene
2,4-Dinitrotoluene	1,2,4-Trichlorobenzene

Acids

CLP-007B	1 x 1 mL
2.0 mg/mL each in MeOH	5 comps.
2-Chlorophenol	Pentachlorophenol
4-Chloro-3-methylphenol	Phenol
4-Nitrophenol	

System Performance Check Compounds (SPCC)

CLP-010	1 x 1 mL
0.2 mg/mL each in CH ₂ Cl ₂	4 comps.
CLP-010-10X	1 x 1 mL
2.0 mg/mL each in CH ₂ Cl ₂	4 comps.
2,4-Dinitrophenol	4-Nitrophenol
Hexachlorocyclopentadiene	N-nitroso-di-n-propylamine

Multi-Component Analytes

Polychlorinated Biphenyls, Chlordane & Toxaphene

Each at 1,000 µg/mL in Hexane **AccuPAK (5 x 1 mL)**
SAVE

Aroclors #	Cat. No.	1 mL	Cat. No.	PAK
Aroclor 1016	C-216S-H-10X		C-216S-H-10X-PAK	
Aroclor 1221	C-221S-H-10X		C-221S-H-10X-PAK	
Aroclor 1232	C-232S-H-10X		C-232S-H-10X-PAK	
Aroclor 1242	C-242S-H-10X		C-242S-H-10X-PAK	
Aroclor 1248	C-248S-H-10X		C-248S-H-10X-PAK	
Aroclor 1254	C-254S-H-10X		C-254S-H-10X-PAK	
Aroclor 1260	C-260S-H-10X		C-260S-H-10X-PAK	
Aroclor 1262	C-262S-H-10X		C-262S-H-10X-PAK	
Aroclor 1268	C-268S-H-10X		C-268S-H-10X-PAK	
Pesticides				
Chlordane	P-017S-H-10X		P-017S-H-10X-PAK	
Toxaphene	P-093S-H-10X		P-093S-H-10X-PAK	



EPA Method 8000 Series

Method 8270C/D (Continued) Appendix IX Semi-Volatiles Analyzed by Method 8270

Method 8270

M-8270-10 1 x 1 mL
2.0 mg/mL in MeOH
1,3,5-Trinitrobenzene

M-8270-10-R 1 x 1 mL
2.0 mg/mL each in MeOH 2 comps.
Pyridine 1,3,5-Trinitrobenzene

Additions to Method 8270

M-8270-13-SET 2 x 1 mL
M-8270-13A-R, M-8270-13B-R

M-8270-13A-R 1 x 1 mL
2.0 mg/mL each in CH₂Cl₂ 12 comps.

4-Aminoazobenzene 4,4'-Methylenebis(N,N-dimethylaniline)
3-Amino-9-ethylcarbazole 4,4'-Methylene bis(2-chloroaniline)
o-Anisidine 4,4'-Oxydianiline
5-Chloro-2-methylaniline 2-Picoline
p-Cresidine Pyridine
2,4-Diaminotoluene 2,4,5-Trimethylaniline

M-8270-13B-R 1 x 1 mL
2.0 mg/mL each in THF 3 comps.
2-Aminoanthraquinone 4-Chloro-1,3-phenylenediamine
4-Chloro-1,2-phenylenediamine

M-8270-14-SET * 3 x 1 mL
M-8270-14A, M-8270-14B, M-8270-14C

M-8270-14A 1 x 1 mL
2.0 mg/mL each in CH₂Cl₂ 6 comps.
m-Cresol Thiophenol
o-Cresol tris(2,3-Dibromopropyl)phosphate
Resorcinol Tri-p-tolyl phosphate

M-8270-14B 1 x 1 mL
2.0 mg/mL each in THF 5 comps.
p-Benzoquinone Phthalic anhydride
Hydroquinone Trimethyl phosphate
Maleic anhydride

M-8270-14C * 1 x 1 mL
2.0 mg/mL each in CH₂Cl₂:MeOH (75:25) 5 comps.
1-Acetyl-2-thiourea 3-Picolyl chloride HCl
Diethyl sulfate Toluene diisocyanate
Hexamethylphosphoramide

M-8270-15 1 x 1 mL
1.0 mg/mL each in CH₂Cl₂:MeOH (90:10) 13 comps.
Dibenz[a,e]pyrene Nicotine
1,2-Dibromo-3-chloropropane 5-Nitroacenaphthene
Diethyl stilbestrol 5-Nitro-o-anisidine
1,2-Dinitrobenzene 4-Nitrophenyl
1,4-Dinitrobenzene Propylthiouracil
5,5-Diphenylhydantoin Strychnine
Mestranol

Pesticides

M-8270-16 1 x 1 mL
1000 µg/mL each in CH₂Cl₂ 10 comps.
Anilazine Dioxathion
Azinphos methyl Mirex
Barbamate Sulfoxide
Demeton (mixed isomers) Sulfallate
Dichlone Trifluralin

M-8270-17 1 x 1 mL
1000 µg/mL each in CH₂Cl₂ 7 comps.
Brominal Dinocap
Captafol Fluchloralin
Captan Nitrofen
Dinex

Carbamates/Pesticides

M-8270-18 1 x 1 mL
1000 µg/mL each in CH₂Cl₂ 6 comps.
Carbaryl Mexacarbate
Carbofuran Schradan (Octamethylpyrophosphoramidate)
Ethyl carbamate Phenobarbital

Pesticides

M-8270-19 1 x 1 mL
1000 µg/mL each in CH₂Cl₂ 12 comps.
Carbophenothion Leptophos
Coumaphos Malathion
EPN Phosalone
Ethion Imidan (Phosmet)
Fensulfthion Terbufos
Fenthion Tetrachlorvinphos

M-8270-20 1 x 1 mL
1000 µg/mL each in CH₂Cl₂ 9 comps.
Chlorfenvinphos Monocrotophos
Ciodrin (Crotoxyphos) Naled
Dichlorvos Phosphamidon
Dicrotophos TEPP (Tetraethylpyrophosphate)
Mevinphos

Azo Dye

RAC-12-10X 1 x 1 mL
1.0 mg/mL in CH₂Cl₂
3,3'-Dimethoxybenzidine †

Pesticide Mix

Z-014C-R 1 x 1 mL
Z-014C-R-PAK 5 x 1 mL
2.0 mg/mL each in Toluene:Hexane (50:50) 20 comps. **SAVE**
Aldrin Dieldrin
α-BHC Endosulfan I
β-BHC Endosulfan II
γ-BHC Endosulfan sulfate
δ-BHC Endrin
α-Chlordane Endrin aldehyde
γ-Chlordane Endrin ketone
4,4'-DDD Heptachlor
4,4'-DDE Heptachlor epoxide (Isomer B)
4,4'-DDT Methoxychlor

* ColdPAK required to maintain integrity of product.

† Subject to oxidation

EPA Method 8000 Series

Ready-to-Inject Working Level Semi-Volatile Standards



Method 8270

Method 8270C/D 5 point Semi-Volatile Calibration Curve

AccuStandard provides a 5 point semi-volatile calibration curve in 2 formats. One calibration curve already incorporates the internal standards in each level of the curve. To begin the analysis, the chemist cracks the ampule open and transfers the content to the autosampler vial. The second semi-volatile curve does not contain the internal standard.

The analytical chemist will need to add 10 µL of internal standard to each level of the curve and the environmental samples as the vials are placed on the GC/MS. We offer both types of curves to meet your laboratory's preference regarding the addition of internal standards.

Target Analytes (Semi-Volatiles)

Acenaphthene	Carbazole	Di- <i>n</i> -butyl phthalate	bis(2-Ethylhexyl)phthalate	Nitrobenzene
Acenaphthylene	4-Chloroaniline	1,2-Dichlorobenzene	Fluoranthene	2-Nitrophenol
Aniline	bis(2-Chloroethoxy)methane	1,3-Dichlorobenzene	Fluorene	4-Nitrophenol
Anthracene	bis(2-Chloroethyl) ether	1,4-Dichlorobenzene	Hexachlorobenzene	N-Nitrosodimethylamine
Azobenzene	bis(2-Chloroisopropyl)ether	3,3'-Dichlorobenzidine †	Hexachlorobutadiene	N-Nitrosodiphenylamine
Benz[a]anthracene	4-Chloro-3-methylphenol	2,4-Dichlorophenol	Hexachlorocyclopentadiene	N-Nitrosodi- <i>n</i> -propylamine
Benzidine †	2-Chloronaphthalene	Diethyl phthalate	Hexachloroethane	Pentachlorophenol
Benzo[b]fluoranthene	2-Chlorophenol	2,4-Dimethylphenol	Indeno[1,2,3- <i>cd</i>]pyrene	Phenanthrene
Benzo[k]fluoranthene	4-Chlorophenyl phenyl ether	Dimethyl phthalate	Isophorone	Phenol
Benzoic acid	Chrysene	4,6-Dinitro-2-methylphenol	2-Methylnaphthalene	Pyrene
Benzo[g,h,i]perylene	<i>o</i> -Cresol	2,4-Dinitrophenol	Naphthalene	Pyridine
Benz[a]pyrene	<i>p</i> -Cresol	2,4-Dinitrotoluene	2-Nitroaniline	1,2,4-Trichlorobenzene
Benzyl alcohol	Dibenz[a,h]anthracene	2,6-Dinitrotoluene	3-Nitroaniline	2,4,5-Trichlorophenol
4-Bromophenyl phenyl ether	Dibenzofuran	Di- <i>n</i> -octyl phthalate	4-Nitroaniline	2,4,6-Trichlorophenol
Butyl benzyl phthalate				

Internal Standard Analytes

Acenaphthene-d ₁₀	Naphthalene-d ₈
Chrysene-d ₁₂	Perylene-d ₁₂
1,4-Dichlorobenzene-d ₄	Phenanthrene-d ₁₀

Surrogates Analytes

2-Fluorobiphenyl	Phenol-d ₅
2-Fluorophenol	<i>p</i> -Terphenyl-d ₁₄
Nitrobenzene-d ₅	2,4,6-Tribromophenol

Technical Note

2,4-Dinitrophenol, 4-Nitrophenol, and Pentachlorophenol are susceptible to adsorption on active surfaces found in injection ports or contaminated columns.

Working Level Semi-Volatiles Curve With Internal Standards

M-8270-CAL-IS-SET

At stated conc. (µg/mL) in CH₂Cl₂

5 x 1 mL
83 comps.

Components	Level 1	Level 2 (2.5X)	Level 3 (4X)	Level 4 (6X)	Level 5 (8X)
Target Analytes	20	50	80	120	160
Surrogate Analytes	20	50	80	120	160
Internal Analytes	40	40	40	40	40

Level 2 Daily QC Working Level Internal Standard

M-8270-IS-WL-2.5X-5ML

M-8270-IS-WL-2.5X-10ML
At stated conc. (µg/mL) in CH₂Cl₂

1 x 5 mL
1 x 10 mL

Working Level Semi-Volatiles Curve Without Internal Standards

M-8270-CAL-SET

At stated conc. (µg/mL) in CH₂Cl₂

5 x 1 mL
77 comps.

Components	Level 1	Level 2 (2.5X)	Level 3 (4X)	Level 4 (6X)	Level 5 (8X)
Target Analytes	20	50	80	120	160
Surrogate Analytes	20	50	80	120	160

Level 2 Daily QC Working Level without Internal Standard

M-8270-WL-2.5X-5ML

M-8270-WL-2.5X-10ML
At stated conc. (µg/mL) in CH₂Cl₂

1 x 5 mL
1 x 10 mL





EPA Method 8000 Series

Ready-to-Inject Working Level Semi-Volatile Standards

Method 8270C/D

Method 8270C/D (Continued)

Matrix Spike (SW 846)

CLP-007-WL-50ML		1 x 50 mL	
At stated conc. ($\mu\text{g/mL}$) in MeOH		11 comps.	
4-Chloro-3-methyl phenol	200	1,4-Dichlorobenzene	100
2-Chlorophenol	200	2,4-Dinitrotoluene	100
4-Nitrophenol	200	N-Nitrosodi- <i>n</i> -propylamine	100
Pentachlorophenol	200	Pyrene	100
Phenol	200	1,2,4-Trichlorobenzene	100
Acenaphthene	100		

Matrix Spike (3/90 SOW)

CLP-007R-WL-50ML		1 x 50 mL	
At stated conc. ($\mu\text{g/mL}$) in MeOH		11 comps.	
4-Chloro-3-methyl phenol	150	1,4-Dichlorobenzene	100
2-Chlorophenol	150	2,4-Dinitrotoluene	100
4-Nitrophenol	150	N-Nitrosodi- <i>n</i> -propylamine	100
Pentachlorophenol	150	Pyrene	100
Phenol	150	1,2,4-Trichlorobenzene	100
Acenaphthene	100		

Prep Note

To help maximize instrument performance, add 10 μL of internal standard to a 1 mL sample extract.

Internal Standard

Z-014J		1 x 1 mL
Z-014J-PAK	SAVE	5 x 1 mL
4.0 mg/mL each in CH_2Cl_2		6 comps.
Acenaphthene- d_{10}	Naphthalene- d_8	
Chrysene- d_{12}	Perylene- d_{12}	
1,4-Dichlorobenzene- d_4	Phenanthrene- d_{10}	

Benzidine Solution

M-625C-1-40X	1 x 1 mL
2.0 mg/mL in CH_2Cl_2	
Benzidine †	

GC/MS Tuning Solution

M-625-TS	1 x 1 mL
M-625-TS-PAK	5 x 1 mL
50 $\mu\text{g/mL}$ each in CH_2Cl_2	
Benzidine †	DFTPP
p,p'-DDT	Pentachlorophenol

DFTPP GC/MS Tuning Solution

M-625C-3	1 x 1 mL
M-625C-3-PAK	5 x 1 mL
25 $\mu\text{g/mL}$ in CH_2Cl_2	
Decafluorotriphenylphosphine (DFTPP)	

Technical Note

Benzidine and 3,3'-Dichlorobenzidine are easily oxidized and are light sensitive.

† Subject to oxidation

Method 8270 Surrogate Spiking Solutions

M-8270-SS-R-WL-PAK	5 x 10 mL		
M-8270-SS-R-WL-VAP	10 x 10 mL		
At stated conc. ($\mu\text{g/mL}$) in CH_2Cl_2 :MeOH (80:20)			
2-Fluorobiphenyl	100	Phenol- d_5	200
2-Fluorophenol	200	Terphenyl- d_{14}	100
Nitrobenzene- d_5	100	2,4,6-Tribromophenol	200

M-8270-SS-R	1 x 1 mL		
M-8270-SS-R-PAK	5 x 1 mL		
At stated conc. ($\mu\text{g/mL}$) in CH_2Cl_2 :MeOH (80:20)			
2-Fluorobiphenyl	1000	Phenol- d_5	2000
2-Fluorophenol	2000	p-Terphenyl- d_{14}	1000
Nitrobenzene- d_5	1000	2,4,6-Tribromophenol	2000

Prep Note

To ensure extraction efficiency add, 1 mL of Surrogate to the sample.

CLP Surrogate Spiking Solution

CLP-031-R-WL-25ML	1 x 25 mL		
CLP-031-R-WL-50ML	1 x 50 mL		
At stated conc. ($\mu\text{g/mL}$) in MeOH			
2-Chlorophenol- d_4	150	Nitrobenzene- d_5	100
1,2-Dichlorobenzene- d_4	100	Phenol- d_6	150
2-Fluorobiphenyl	100	p-Terphenyl- d_{14}	100
2-Fluorophenol	150	2,4,6-Tribromophenol	150

Technical Note

We have found that benzidine degrades in multi-component semi-volatile solutions. Therefore the benzidine in any calibration curve should be used as a qualitative retention time marker. Reported hits for benzidine should be quantitatively determined by analyzing a single benzidine solution or by using the benzidine response observed in the Daily GC/MS tuning solution.



EPA Method 8000 Series

Alternate Source Line (ASL)



AccuStandard formulated the **M-8270-ASL-SET** with convenient mixtures based on similar analytical or functional group characteristics. Should your semi-volatile calibration table have additional required analytes, we can easily manufacture specific formulations.

Method 8270C/D

M-8270-ASL-SET * Alternate Source		Alternate Source Method 8270C/D Set		17 x 1 mL
M-8270-01-ASL	Ethers & Phthalates Mix	M-8270-08-ASL	Phenols Mix	
M-8270-02-ASL	Chlorinated Hydrocarbons Mix	M-8270-09-ASL	Organochlorine Pesticide Mix	
M-8270-03-ASL	Nitrosamines Mix	M-8270-10-ASL	Pesticide Mix	
M-8270-04-ASL	Base/Neutrals Mix	M-8270-11-ASL	Toxic Substances Mix	
M-8270-05-ASL	Base/Neutrals Mix	M-8270-12-ASL	Phenols Mix	
M-8270-06-ASL	PAH Mix	M-8270-13-ASL	Polynuclear Aromatic Hydrocarbon Mix	
M-8270-07-ASL	Pyridines Mix	M-8270-14-ASL	Organochlorine Pesticide Mix	
		Z-014J	Internal Standards Mix	
		CLP-BNS	Base/Neutrals Surrogate Standard	
		CLP-AS	Acid Surrogate Standard	

ASL Method 8270C/D Alternate Method 8270 Formulations Alternate Source

Ethers & Phthalates Mix

M-8270-01-ASL 2.0 mg/mL each in CH ₂ Cl ₂	1 x 1 mL 11 comps.
bis(2-Chloroethoxy)methane bis(2-Chloroethyl)ether bis(2-Ethylhexyl)phthalate bis(2-Chloroisopropyl)ether 4-Bromophenyl phenyl ether Benzyl butyl phthalate	4-Chlorophenyl phenyl ether Diethyl phthalate Dimethyl phthalate Dibutyl phthalate Di- <i>n</i> -octyl phthalate

Chlorinated Hydrocarbons Mix

M-8270-02-ASL 2.0 mg/mL each in CH ₂ Cl ₂	1 x 1 mL 13 comps.
2-Chloronaphthalene 1,2-Dichlorobenzene 1,3-Dichlorobenzene 1,4-Dichlorobenzene Hexachlorobenzene Hexachlorobutadiene Hexachlorocyclopentadiene	Hexachloroethane Hexachloropropene Pentachlorobenzene Pentachloroethane 1,2,4,5-Tetrachlorobenzene 1,2,4-Trichlorobenzene

Nitrosamines Mix

M-8270-03-ASL 2.0 mg/mL each in CH ₂ Cl ₂	1 x 1 mL 9 comps.
N-Nitrosodi- <i>n</i> -butylamine N-Nitrosodiethylamine N-Nitrosodimethylamine N-Nitrosodiphenylamine N-Nitrosodi- <i>n</i> -propylamine	N-Nitrosomethylethylamine N-Nitrosomorpholine N-Nitrosopiperidine N-Nitrosopyrrolidine

Base/Neutrals Mix

M-8270-04-ASL 2.0 mg/mL each in CH ₂ Cl ₂	1 x 1 mL 13 comps.
2-Acetylaminofluorene 4-Aminobiphenyl 3,3'-Dichlorobenzidine † 4-Dimethylaminoazobenzene 3,3'-Dimethylbenzidine † α,α-Dimethylphenethylamine Diphenylamine	1-Naphthylamine 2-Naphthylamine 5-Nitro- <i>o</i> -toluidine Phenacetin <i>p</i> -Phenylenediamine <i>o</i> -Toluidine

Base/Neutrals Mix

M-8270-05-ASL 2.0 mg/mL each in CH ₂ Cl ₂	1 x 1 mL 13 comps.
Acetophenone 1,3-Dinitrobenzene 2,4-Dinitrotoluene 2,6-Dinitrotoluene Ethyl methanesulfonate Isophorone Isosafrole	Methyl methanesulfonate 1,4-Naphthoquinone Nitrobenzene Pentachloronitrobenzene Safrole 1,3,5-Trinitrobenzene

PAH Mix

M-8270-06-ASL 2.0 mg/mL each CH ₂ Cl ₂ :Benzene (50:50)	1 x 1 mL 2 comps.
7,12-Dimethylbenz[<i>a</i>]anthracene 3-Methylcholanthrene	

Pyridine Mix

M-8270-07-ASL 2.0 mg/mL each in Acetone	1 x 1 mL 4 comps.
Methapyrilene 4-Nitroquinoline-1-oxide	2-Picoline Pyridine

Phenol Mix

M-8270-08-ASL 2.0 mg/mL each in CH ₂ Cl ₂	1 x 1 mL 8 comps.
<i>o</i> -Cresol <i>m</i> -Cresol <i>p</i> -Cresol 2,6-Dichlorophenol	Dinoseb Hexachlorophene 2,3,4,6-Tetrachlorophenol 2,4,5-Trichlorophenol

Organophosphorous Pesticide Mix

M-8270-09-ASL 2.0 mg/mL each in CH ₂ Cl ₂	1 x 1 mL 9 comps.
Dimethoate Disulfoton Famphur Thionazin Sulfotep	O,O,O-Triethylphosphorothioate Methyl parathion Parathion Phorate

Pesticide Mix

M-8270-10-ASL * 2.0 mg/mL each in CH ₂ Cl ₂	1 x 1 mL 6 comps.
Aramite Chlorobenzilate Diallate	Isodrin Kepone Pronamide

Toxic Substance Mix

M-8270-11-ASL 2.0 mg/mL each in CH ₂ Cl ₂	1 x 1 mL 8 comps.
Aniline Benzyl alcohol 4-Chloroaniline Dibenzofuran	2-Methylnaphthalene 2-Nitroaniline 3-Nitroaniline 4-Nitroaniline

Internal Standard Mix

Z-014J	1 x 1 mL
Z-014J-PAK 4.0 mg/mL each in CH ₂ Cl ₂	5 x 1 mL 6 comps.
Acenaphthene- <i>d</i> ₁₀ Chrysene- <i>d</i> ₁₂ 1,4-Dichlorobenzene- <i>d</i> ₄	Naphthalene- <i>d</i> ₈ Perylene- <i>d</i> ₁₂ Phenanthrene- <i>d</i> ₁₀

* ColdPAK required to maintain integrity of product.
 † Subject to oxidation

Alternate Method 8270C/D Formulations continued on the next page



EPA Method 8000 Series

Alternate Source Line (ASL)

ASL Method 8270C/D Semi-Volatiles by GC/MS Alternate Method 8270 Formulations (Continued)

Alternate **Source**

Acid Surrogate Standard

CLP-AS		1 x 1 mL
CLP-AS-PAK	SAVE	5 x 1 mL
2.0 mg/mL each in MeOH		
2-Fluorophenol	2,4,6-Tribromophenol	3 comps.
Phenol-d ₅		

Base/Neutrals Surrogate Standard

CLP-BNS		1 x 1 mL
CLP-BNS-PAK	SAVE	5 x 1 mL
1.0 mg/mL each in CH ₂ Cl ₂		
2-Fluorobiphenyl	p-Terphenyl-d ₁₄	3 comps.
Nitrobenzene-d ₅		

Phenol Mixture

M-8270-12-ASL		1 x 1 mL
2.0 mg/mL each in CH ₂ Cl ₂		
4-Chloro-3-methylphenol	2-Nitrophenol	11 comps.
2-Chlorophenol	4-Nitrophenol	
2,4-Dichlorophenol	Pentachlorophenol	
2,4-Dimethylphenol	Phenol	
2,4-Dinitrophenol	2,4,6-Trichlorophenol	
2-Methyl-4,6-dinitrophenol		

These additional formulations, used in conjunction with the ASL 8270C/D formulations and designed on a functional group basis, will allow the chemist to analyze a complete method 8270C/D.

Additions to Method 8270

M-8270-13A-R2		1 x 1 mL
2.0 mg/mL each in CH ₂ Cl ₂		
4-Aminoazobenzene	2,4-Diaminotoluene	10 comps.
3-Amino-9-ethylcarbazole	4,4'-Methylenebis(N,N-dimethylaniline)	
o-Anisidine	4,4'-Methylenebis(2-chloroaniline)	
5-Chloro-2-methylaniline	4,4'-Oxydianiline	
p-Cresidine	2,4,5-Trimethylaniline	

M-8270-13B-R		1 x 1 mL
2.0 mg/mL each in THF		
2-Aminoanthraquinone	4-Chloro-1,3-phenylenediamine	3 comps.
4-Chloro-1,2-phenylenediamine		

M-8270-14A-R1		1 x 1 mL
2.0 mg/mL each in CH ₂ Cl ₂		
Benzoic acid	Thiophenol	7 comps.
1-Chloronaphthalene	tris-(2,3-Dibromopropyl)phosphate	
Dibenz[a,j]acridine	Tri-p-tolyl phosphate	
Resorcinol		

M-8270-14B *		1 x 1 mL
2.0 mg/mL each in THF		
p-Benzoquinone	Phthalic anhydride	5 comps.
Hydroquinone	Trimethyl phosphate	
Maleic anhydride		

M-8270-14C *		1 x 1 mL
2.0 mg/mL each in CH ₂ Cl ₂ :MeOH (75:25)		
1-Acetyl-2-thiourea	3-Picolyl chloride HCl	5 comps.
Diethyl sulfate	Toluene diisocyanate	
Hexamethylphosphoramide		

Polynuclear Aromatic Hydrocarbon Mixture

M-8270-13-ASL		1 x 1 mL
2.0 mg/mL each in CH ₂ Cl ₂ :Benzene (50:50)		
Acenaphthene	Chrysene	16 comps.
Acenaphthylene	Dibenz[a,h]anthracene	
Anthracene	Fluoranthene	
Benz[a]anthracene	Fluorene	
Benz[a]pyrene	Indeno[1,2,3-cd]pyrene	
Benzo[b]fluoranthene	Naphthalene	
Benzo[g,h,i]perylene	Phenanthrene	
Benzo[k]fluoranthene	Pyrene	

Organochlorine Pesticide Mix

M-8270-14-ASL		1 x 1 mL
2.0 mg/mL each in Acetone		
Aldrin	Endosulfan I	17 comps.
α-BHC	Endosulfan II	
β-BHC	Endosulfan sulfate	
δ-BHC	Endrin	
γ-BHC	Endrin aldehyde	
4,4'-DDD	Heptachlor	
4,4'-DDE	Heptachlor epoxide (Isomer B)	
4,4'-DDT	Methoxychlor	
Dieldrin		

M-8270-15		1 x 1 mL
1.0 mg/mL each in CH ₂ Cl ₂ :MeOH (90:10)		
Dibenz[a,e]pyrene	Nicotine	13 comps.
1,2-Dibromo-3-chloropropane	5-Nitroacenaphthene	
Diethyl stilbestrol	5-Nitro-o-anisidine	
1,2-Dinitrobenzene	4-Nitrobiphenyl	
1,4-Dinitrobenzene	Propylthiouracil	
5,5-Diphenylhydantoin	Strychnine	
Mestranol		

Pesticides

M-8270-16		1 x 1 mL
1000 µg/mL each in Acetone:CH ₂ Cl ₂ (25:75)		
Anilazine	Dioxathion	10 comps.
Azinphos methyl	Mirex	
Barbamate	Sulfoxide	
Demeton (mixed isomers)	Sulfalate	
Dichlone	Trifluralin	

M-8270-17		1 x 1 mL
1000 µg/mL each in CH ₂ Cl ₂		
Brominal	Dinocap	7 comps.
Captafol	Fluchloralin	
Captan	Nitrofen	
Dinex		

Carbamates/Pesticides

M-8270-18		1 x 1 mL
1000 µg/mL each in CH ₂ Cl ₂		
Carbaryl	Mexacarbate	6 comps.
Carbofuran	Schradan (Octamethylpyrophosphoramidate)	
Ethyl carbamate	Phenobarbital	

* ColdPAK required to maintain integrity of product.

EPA Method 8000 Series

Alternate Source Line (ASL)



ASL Method 8270C/D Semi-Volatiles by GC/MS Alternate Method 8270 Formulations (Continued)

Alternate Source

Pesticides

M-8270-19 1000 µg/mL each in CH ₂ Cl ₂	1 x 1 mL 12 comps.
Carbophenothion	Leptophos
Coumaphos	Malathion
EPN	Phosalone
Ethion	Imidan (Phosmet)
Fensulfothion	Terbufos
Fenthion	Tetrachlorvinphos

M-8270-20 1000 µg/mL each in CH ₂ Cl ₂	1 x 1 mL 9 comps.
Chlorfenvinphos	Monocrotophos
Ciodrin (Crotoxyphos)	Naled
Dichlorvos	Phosphamidon
Dicrotophos	TEPP (Tetraethyl pyrophosphate)
Mevinphos	

M-8270-21 2.0 mg/mL each in Acetone	1 x 1 mL 3 comps.
α-Chlordane	Endrin ketone
γ-Chlordane	

Semi-Volatile additions

M-8270-22 2.0 mg/mL each in CH ₂ Cl ₂	1 x 1 mL 2 comps.
Benzidine †	3,3'-Dimethoxybenzidine †

APP-9-126-10X 1.0 mg/mL in CH ₂ Cl ₂	1 x 1 mL
Methapyrilene	

P-427S-10X 1.0 mg/mL in MeOH	1 x 1 mL
Dinex	

† Subject to oxidation

ASL Method 8270C/D Appendix IX Semi-Volatiles by Method 8270

The following formulations allow the analytical chemist to combine more analytes at one time in the development of a Method 8270C/D calibration curve. Use of these Alternate Source standards allow you to check product comparability from an independent source. AccuStandard has formulated the necessary additional standards required to have the most complete 8270C/D analyte list in the industry.

8270 Semi-Volatile Standards

M-8270-AG01-ASL 1000 µg/mL each in CH ₂ Cl ₂ :Benzene (75:25)	Alternate Source 1 x 1 mL 64 comps.
Acenaphthene	2,4-Dinitrophenol
Acenaphthylene	Dimethyl phthalate
Anthracene	2,4-Dinitrotoluene
Azobenzene	2,6-Dinitrotoluene
Benz[a]anthracene	Di- <i>n</i> -octyl phthalate
Benz[a]pyrene	Fluoranthene
Benzo[b]fluoranthene	Fluorene
Benzo[g,h,i]perylene	Hexachlorobenzene
Benzo[k]fluoranthene	Hexachlorobutadiene
Benzyl butyl phthalate	Hexachlorocyclopentadiene
bis(2-Chloroethoxy)methane	Hexachloroethane
bis(2-Chloroethyl)ether	Indeno[1,2,3- <i>cd</i>]pyrene
bis(2-Chloroisopropyl)ether	Isophorone
bis(2-Ethylhexyl)phthalate	2-Methylnaphthalene
4-Bromophenyl phenyl ether	<i>o</i> -Cresol
Carbazole	<i>p</i> -Cresol
4-Chloroaniline	Naphthalene
2-Chloronaphthalene	2-Nitroaniline
4-Chloro-3-methylphenol	3-Nitroaniline
2-Chlorophenol	4-Nitroaniline
4-Chlorophenyl phenyl ether	Nitrobenzene
Chrysene	2-Nitrophenol
Dibenz[a,h]anthracene	4-Nitrophenol
Dibenzofuran	<i>n</i> -Nitrosodimethylamine
Dibutyl phthalate	<i>N</i> -Nitrosodi- <i>n</i> -propylamine
1,2-Dichlorobenzene	Pentachlorophenol
1,3-Dichlorobenzene	Phenanthrene
1,4-Dichlorobenzene	Phenol
2,4-Dichlorophenol	Pyrene
Diethyl phthalate	1,2,4-Trichlorobenzene
2,4-Dimethylphenol	2,4,5-Trichlorophenol
4,6-Dinitro-2-methylphenol	2,4,6-Trichlorophenol

M-8270-AG02-ASL 1000 µg/mL each in CH ₂ Cl ₂	Alternate Source 1 x 1 mL 39 comps.
Aniline	4-Nitroquinoline-N-oxide
Acetophenone	<i>N</i> -Nitrosodi- <i>n</i> -butylamine
2-Acetamidofluorene	<i>N</i> -Nitrosodiethylamine
4-Aminobiphenyl	<i>N</i> -Nitrosomethylethylamine
Benzyl alcohol	<i>N</i> -Nitrosomorpholine
2,6-Dichlorophenol	<i>N</i> -Nitrosopiperidine
4-Dimethylaminoazobenzene	<i>N</i> -Nitrosopyrrolidine
7,12-Dimethylbenz[a]anthracene	5-Nitro- <i>o</i> -toluidine
1,3-Dinitrobenzene	Pentachlorobenzene
Dinoseb	Pentachloronitrobenzene
Diphenylamine	Pentachloroethane
Ethyl methanesulfonate	Phenacetin
Hexachloropropene	2-Picoline
Isosafrole	Pyridine
Methapyrilene	Safrole
3-Methylcholanthrene	1,2,4,5-Tetrachlorobenzene
Methyl methanesulfonate	2,3,4,6-Tetrachlorophenol
<i>m</i> -Cresol	1,3,5-Trinitrobenzene
1-Naphthylamine	<i>o</i> -Toluidine
2-Naphthylamine	



EPA Method 8000 Series

Alternate Source Line (ASL)

ASL Method 8270C/D Semi-Volatiles by GC/MS Alternate Method 8270 Formulations (Continued)

Alternate **Source**

Appendix IX Semi-Volatiles

M-8270-07-SET * 2 x 1 mL
M-8270-07-R1, APP-9-014-D-10X

M-8270-07-R1 * 1 x 1 mL
2.0 mg/mL each in CH₂Cl₂ 14 comps.

Chlorobenzilate	Disulfoton	Phorate
Diallate	Famphur	Silvex (2,4,5-TP)
2,4-D	Kepone	Sulfotep
Dimethoate	Methyl parathion	Thionazin
Dinoseb	Parathion	

APP-9-014-D-10X 1 x 1 mL
2.0 mg/mL in CH₂Cl₂

Aramite

Additions to Method 8270

M-8270-13A-R 1 x 1 mL
2.0 mg/mL each in CH₂Cl₂ 12 comps.

4-Aminoazobenzene	4,4'-Methylenebis(N,N-dimethylaniline)
3-Amino-9-ethylcarbazole	4,4'-Methylene bis(2-chloroaniline)
<i>o</i> -Anisidine	4,4'-Oxydianiline
5-Chloro-2-methylaniline	2-Picoline
<i>p</i> -Cresidine	Pyridine
2,4-Diaminotoluene	2,4,5-Trimethylaniline

M-8270-13B-R 1 x 1 mL
2.0 mg/mL each in THF 3 comps

2-Aminoanthraquinone	4-Chloro-1,3-phenylenediamine
4-Chloro-1,2-phenylenediamine	

M-8270-14A-R1 1 x 1 mL
2.0 mg/mL each in CH₂Cl₂ 7 comps.

Benzoic acid	Thiophenol
1-Chloronaphthalene	tris-(2,3-Dibromopropyl)phosphate
Dibenz[a,j]acridine	Tri- <i>p</i> -tolyl phosphate
Resorcinol	

M-8270-14B 1 x 1 mL
2.0 mg/mL each in THF 5 comps.

<i>p</i> -Benzoquinone	Phthalic anhydride
Hydroquinone	Trimethyl phosphate
Maleic anhydride	

M-8270-14C * 1 x 1 mL
2.0 mg/mL each in CH₂Cl₂:MeOH (75:25) 5 comps.

1-Acetyl-2-thiourea	3-Picolyl chloride HCl
Diethyl sulfate	Toluene diisocyanate
Hexamethylphosphoramide	

M-8270-15 1 x 1 mL
1.0 mg/mL each in CH₂Cl₂:MeOH (90:10) 13 comps.

Dibenz[a,e]pyrene	Nicotine
1,2-Dibromo-3-chloropropane	5-Nitroacenaphthene
Diethyl stilbestrol	5-Nitro- <i>o</i> -anisidine
1,2-Dinitrobenzene	4-Nitrophenyl
1,4-Dinitrobenzene	Propylthiouracil
5,5-Diphenylhydantoin	Strychnine
Mestranol	

Pesticides

M-8270-16 1 x 1 mL
1000 µg/mL each in Acetone:CH₂Cl₂ (25:75) 10 comps.

Anilazine	Dichlone	Sulfoxide
Azinphos methyl	Dioxathion	Sulfallate
Barbamate	Mirex	Trifluralin
Demeton (mixed isomers)		

Pesticides

M-8270-17 1 x 1 mL
1000 µg/mL each in CH₂Cl₂ 7 comps.

Brominal	Dinex	Fluchloralin
Captafol	Dinocap	Nitrofen
Captan		

Carbamates/Pesticides

M-8270-18 1 x 1 mL
1000 µg/mL each in CH₂Cl₂ 6 comps.

Carbaryl	Mexacarbate
Carbofuran	Schradan (Octamethylpyrophosphoramidate)
Ethyl carbamate	Phenobarbital

Pesticides

M-8270-19 1 x 1 mL
1000 µg/mL each in CH₂Cl₂ 12 comps.

Carbophenothion	Fensulfothion	Phosalone
Coumaphos	Fenthion	Imidan (Phosmet)
EPN	Leptophos	Terbufos
Ethion	Malathion	Tetrachlorvinphos

M-8270-20 1 x 1 mL
1000 µg/mL each in CH₂Cl₂ 9 comps.

Chlorfenvinphos	Monocrotophos
Ciodrin (Crotoxyphos)	Naled
Dichlorvos	Phosphamidon
Dicrotophos	TEPP (Tetraethyl pyrophosphate)
Mevinphos	

Semi-Volatile additions

M-8270-22 1 x 1 mL
2.0 mg/mL each in CH₂Cl₂ 2 comps.

Benzidine †	3,3'-Dimethoxybenzidine †
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Pesticides - Mix #2

Z-014C-R 1 x 1 mL
Z-014C-R-PAK 5 x 1 mL
2.0 mg/mL each in Toluene:Hexane (50:50) 20 comps. **SAVE**

Aldrin	4,4'-DDD	Endrin
α-BHC	4,4'-DDE	Endrin aldehyde
β-BHC	4,4'-DDT	Endrin ketone
γ-BHC	Dieldrin	Heptachlor
δ-BHC	Endosulfan I	Heptachlor epoxide
α-Chlordane	Endosulfan II	(Isomer B)
γ-Chlordane	Endosulfan sulfate	Methoxychlor

Semi-Volatile additions

M-8270-23-R1 1 x 1 mL
2.0 mg/mL each in CH₂Cl₂ 4 comps.

3,3'-Dichlorobenzidine †	<i>a,a</i> -Dimethylphenethylamine
3,3'-Dimethylbenzidine †	<i>p</i> -Phenylenediamine

M-8270-24 1 x 1 mL
2.0 mg/mL each in CH₂Cl₂ 4 comps

Hexachlorophene	Pronamide
Isodrin	<i>o,o,o</i> -Triethylphosphorothioate

AS-E0060 1 x 1 mL

5.0 mg/mL in MeOH
N-Nitrosodiphenylamine

* ColdPAK required to maintain integrity of product.
† Subject to oxidation



Method 8272 PAHs (GC/MS)

M-8272			1 x 1 mL
At stated conc. (mg/mL) in CH ₂ Cl ₂			12 comps.
Naphthalene	42	Anthracene	0.6
1-Methylnaphthalene	24	Phenanthrene	5.5
2-Methylnaphthalene	20	Fluoranthene	2.1
Acenaphthylene	9	Pyrene	1.8
Acenaphthene	11	Benz(a)anthracene	0.08
Fluorene	7.6	Chrysene	0.03

Internal Standard - Deuterated Analogs

M-8272-IS			1 x 1 mL
At stated conc. (mg/mL) in Acetone			8 comps.
Naphthalene-d ₈	5	Phenanthrene-d ₁₀	0.96
1-Methylnaphthalene-d ₁₀	6	Fluoranthene-d ₁₀	0.93
Acenaphthene-d ₁₀	1.2	Perylene-d ₁₂	0.84
Fluorene-d ₁₀	1.2	Chrysene-d ₁₂	0.033

Method 8275A (Thermal Extraction/GC/FID/MS) Semi-Volatiles by Thermal Chromatography

Semi-Volatiles

M-8275			1 x 1 mL
1.0 mg/mL each in Acetone			17 comps.
Aldrin		2,4-Dinitrotoluene	
Benzo[k]fluoranthene		Diphenylamine	
Benz[a]pyrene		Fluorene	
Carbazole		Hexachlorobenzene	
4-Chloro-3-methylphenol		p-Cresol	
1-Chloronaphthalene		Naphthalene	
2-Chlorophenol		Phenanthrene	
Dibenzothiophene		Pyrene	
2,4-Dichlorophenol			

Internal Standard

Z-014J			1 x 1 mL
Z-014J-PAK	SAVE		5 x 1 mL
4.0 mg/mL each in CH ₂ Cl ₂			6 comps.
Acenaphthene-d ₁₀		Naphthalene-d ₈	
Chrysene-d ₁₂		Perylene-d ₁₂	
1,4-Dichlorobenzene-d ₄		Phenanthrene-d ₁₀	

Canadian Environmental Method Multi-Component Dioxin Mixtures

Custom Window Defining Mixture

D-WD		1 x 1 mL
20 ng/mL in Toluene		7 comps.
D-WD-2.5X		1 x 1 mL
50 ng/mL in Toluene		7 comps.
1,2,4,6,8/1,2,4,7,9-Pentachlorodibenzo-p-dioxin (Isomer pair)		
1,2,3,8,9-Pentachlorodibenzo-p-dioxin		
1,2,4,6,7,9/1,2,4,6,8,9-Hexachlorodibenzo-p-dioxin (Isomer pair)		
1,2,3,4,6,7-Hexachlorodibenzo-p-dioxin		
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin		
1,2,3,4,6,7,9-Heptachlorodibenzo-p-dioxin		
Octachlorodibenzo-p-dioxin		

Formulations at Highest Conc. for Economical Prices

Custom Calibration Mixture

D-CAL		1 x 1 mL
20 ng/mL in Toluene		6 comps.
D-CAL-2.5X		1 x 1 mL
50 ng/mL in Toluene		6 comps.
1,2,3,7,8-Pentachlorodibenzo-p-dioxin		
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin		
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin		
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin		
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin		
Octachlorodibenzo-p-dioxin		

Method 8280A Dioxins & Furans by HRGC/LRMS

Dioxin Mixture

M-8280A			1 x 1 mL
M-8280A-PAK	SAVE		5 x 1 mL
5 µg/mL each in Toluene			5 comps.
2,3,7,8-Tetrachlorodibenzo-p-dioxin			
1,2,3,7,8-Pentachlorodibenzo-p-dioxin			
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin			
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin			
Octachlorodibenzo-p-dioxin			

Furan Mixture

M-8280B			1 x 1 mL
M-8280B-PAK	SAVE		5 x 1 mL
5 µg/mL each in Toluene			5 comps.
2,3,7,8-Tetrachlorodibenzofuran			
1,2,3,7,8-Pentachlorodibenzofuran			
1,2,3,4,7,8-Hexachlorodibenzofuran			
1,2,3,4,6,7,8-Heptachlorodibenzofuran			
Octachlorodibenzofuran			

Column Performance Check

M-8280-CPC			1 x 1 mL
5 µg/mL each in Toluene			7 comps.
1,2,3,4-Tetrachlorodibenzo-p-dioxin			
2,3,7,8-Tetrachlorodibenzo-p-dioxin			
1,2,3,4,7-Pentachlorodibenzo-p-dioxin			
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin			
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin			
Octachlorodibenzo-p-dioxin			
2,3,7,8-Tetrachlorodibenzofuran			

Column Performance Check

M-8280-CPC			1 x 1 mL
5.0 µg/mL each in Toluene			7 comps.
1,2,3,4-Tetrachlorodibenzo-p-dioxin			
2,3,7,8-Tetrachlorodibenzo-p-dioxin			
1,2,3,4,7-Pentachlorodibenzo-p-dioxin			
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin			
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin			
Octachlorodibenzo-p-dioxin			
2,3,7,8-Tetrachlorodibenzofuran			

Standards of Interest

For more Canadian Methods see the Regional Section of this catalog



EPA Method 8000 Series

Method 8310, Florida

Method 8310 PAHs by HPLC

PAH Mixture

M-8310 1 x 1 mL
M-8310-PAK 5 x 1 mL
0.5 mg/mL each in AcCN 16 comps. **SAVE**

Acenaphthene	Chrysene
Acenaphthylene	Dibenz[a,h]anthracene
Anthracene	Fluoranthene
Benz[a]anthracene	Fluorene
Benz[a]pyrene	Indeno[1,2,3-cd]pyrene
Benzo[b]fluoranthene	Naphthalene
Benzo[g,h,i]perylene	Phenanthrene
Benzo[k]fluoranthene	Pyrene

PAH Quality Control Calibration Mixture

M-610-QC 1 x 1 mL
At stated conc. (mg/mL) in AcCN 16 comps.

Acenaphthene	0.1	Chrysene	0.01
Acenaphthylene	0.1	Dibenz[a,h]anthracene	0.01
Anthracene	0.1	Fluoranthene	0.01
Benz[a]anthracene	0.01	Fluorene	0.1
Benz[a]pyrene	0.01	Indeno[1,2,3-cd]pyrene	0.01
Benzo[b]fluoranthene	0.01	Naphthalene	0.1
Benzo[g,h,i]perylene	0.01	Phenanthrene	0.1
Benzo[k]fluoranthene	0.005	Pyrene	0.01

Surrogate Standard

M-8310-SS 1 x 1 mL
M-8310-SS-PAK 5 x 1 mL
0.1 mg/mL in Acetonitrile **SAVE**

Decafluorobiphenyl

Internal Standard Post Supercritical Fluid Extraction

M-8310-SFE-IS-100X 1 x 1 mL
M-8310-SFE-IS-100X-PAK 5 x 1 mL
20 mg/mL in AcCN:THF (50:50) **SAVE**

Biphenyl

Florida Method PAH Mixture

Z-014G-FL 1 x 1 mL
2.0 mg/mL each in CH₂Cl₂:Benzene (50:50) 18 comps.

Acenaphthene	Dibenz[a,h]anthracene
Acenaphthylene	Fluoranthene
Anthracene	Fluorene
Benz[a]anthracene	Indeno[1,2,3-cd]pyrene
Benz[a]pyrene	Naphthalene
Benzo[b]fluoranthene	Phenanthrene
Benzo[g,h,i]perylene	Pyrene
Benzo[k]fluoranthene	1-Methylnaphthalene
Chrysene	2-Methylnaphthalene

Florida Administrative Code (continued) PAHs by HPLC

Performance Check Solution

M-610-QC-FL 1 x 1 mL
M-610-QC-FL-PAK 5 x 1 mL
At stated conc. (mg/mL) in AcCN 18 comps. **SAVE**

Acenaphthene	0.1	Dibenz[a,h]anthracene	0.01
Acenaphthylene	0.1	Fluoranthene	0.01
Anthracene	0.1	Fluorene	0.1
Benz[a]anthracene	0.01	Indeno[1,2,3-cd]pyrene	0.01
Benz[a]pyrene	0.01	1-Methyl naphthalene	0.1
Benzo[b]fluoranthene	0.01	2-Methyl naphthalene	0.1
Benzo[g,h,i]perylene	0.01	Naphthalene	0.1
Benzo[k]fluoranthene	0.005	Phenanthrene	0.1
Chrysene	0.01	Pyrene	0.01

Matrix Spiking Solution

M-610-MS 1 x 1 mL
M-610-MS-PAK 5 x 1 mL
At stated conc. (mg/mL) in AcCN 6 comps. **SAVE**

Benz[a]pyrene	0.5	2-Methylnaphthalene	5.0
Chrysene	0.5	Phenanthrene	0.5
1-Methylnaphthalene	5.0	Pyrene	0.5

PAH Mix Additions

H-001S/002S-M-20X 1 x 1 mL
1.0 mg/mL each in MeOH 2 comps.

1-Methyl naphthalene	2-Methyl naphthalene
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Polynuclear Aromatic Hydrocarbons (HPLC)

M-8310-FL 1 x 1 mL
M-8310-FL-PAK 5 x 1 mL
0.5 mg/mL each in AcCN 18 comps. **SAVE**

M-8310-FL-SET 18 x 1 mL

Acenaphthene	M-8310-FL-01
Acenaphthylene	M-8310-FL-02
Anthracene	M-8310-FL-03
Benz[a]anthracene	M-8310-FL-04
Benz[a]pyrene	M-8310-FL-05
Benzo[b]fluoranthene	M-8310-FL-06
Benzo[g,h,i]perylene	M-8310-FL-07
Benzo[k]fluoranthene	M-8310-FL-08
Chrysene	M-8310-FL-09
Dibenz[a,h]anthracene	M-8310-FL-10
Fluoranthene	M-8310-FL-11
Fluorene	M-8310-FL-12
Indeno[1,2,3-cd]pyrene	M-8310-FL-13
1-Methylnaphthalene	M-8310-FL-14
2-Methylnaphthalene	M-8310-FL-15
Naphthalene	M-8310-FL-16
Phenanthrene	M-8310-FL-17
Pyrene	M-8310-FL-18

Polynuclear Aromatic Hydrocarbons (HPLC)

M-8310-QC-ATI 1 x 1 mL
M-8310-QC-ATI-PAK 5 x 1 mL
At stated conc. (µg/mL) in AcCN 18 comps. **SAVE**

Acenaphthene	1000	Dibenz[a,h]anthracene	200
Acenaphthylene	2000	Fluoranthene	200
Anthracene	100	Fluorene	200
Benz[a]anthracene	100	Indeno[1,2,3-cd]pyrene	100
Benz[a]pyrene	100	1-Methylnaphthalene	1000
Benzo[b]fluoranthene	200	2-Methylnaphthalene	1000
Benzo[g,h,i]perylene	200	Naphthalene	1000
Benzo[k]fluoranthene	100	Phenanthrene	100
Chrysene	100	Pyrene	100



Method 8315/8315A Ketones/Aldehydes by HPLC

Aldehyde Mixture

M-8315		1 x 1 mL
M-8315-PAK	SAVE	5 x 1 mL
1.0 mg/mL each in Water		
Acetaldehyde	Formaldehyde	2 comps.

Aldehyde Individuals

Acetaldehyde (1.0 mg/mL in Water)	M-8315-01	1 x 1 mL
Formaldehyde (1.0 mg/mL in Water)	M-8315-02	1 x 1 mL

Aldehyde as DNPH Derivatives

M-8315-DNPH-10ML		1 x 10 mL
1.0 mg/mL each in MeOH		
Acetaldehyde-DNPH	Formaldehyde-DNPH	2 comps.

Option 1

(Samples Collected from Water, Air, Soil, Waste or Stacks by Method 0011)

Carbonyl Mixture

M-8315-R1		1 x 1 mL
1.0 mg/mL each in AcCN		

Acetaldehyde	Heptanal
Butanal (Butyraldehyde)	Hexanal (Hexaldehyde)
Crotonaldehyde	Nonanal
Cyclohexanone	Octanal
Decanal	Pentanal (Valeraldehyde)
Formaldehyde	Propanal (Propionaldehyde)

Carbonyl DNPH Derivative Mixture

M-8315-R1-DNPH		1 x 1 mL
0.1 mg/mL each in AcCN		

Acetaldehyde-DNPH	Heptanal-DNPH
Butanal-DNPH (Butyraldehyde)	Hexanal-DNPH (Hexaldehyde)
Crotonaldehyde-DNPH	Nonanal-DNPH
Cyclohexanone-DNPH	Octanal-DNPH
Decanal-DNPH	Pentanal-DNPH (Valeraldehyde)
Formaldehyde-DNPH	Propanal-DNPH (Propionaldehyde)

Option 2

(Samples Collected from Indoor Air by Method 0100)

Carbonyl Mixture

M-8315-R2		1 x 1 mL
1.0 mg/mL each in AcCN		

Acetaldehyde	Hexanal (Hexaldehyde)
Acetone	Isovaleraldehyde
Acrolein	Pentanal (Valeraldehyde)
Benzaldehyde	Propanal (Propionaldehyde)
Butanal (Butyraldehyde)	<i>m</i> -Tolualdehyde
Crotonaldehyde	<i>o</i> -Tolualdehyde
2,5-Dimethylbenzaldehyde	<i>p</i> -Tolualdehyde
Formaldehyde	

Method 8316 Acrolein, Acrylamide, Acrylonitrile by HPLC

M-8316 *		1 x 1 mL
1.0 mg/mL each in Water		

Acrolein	Acrylonitrile
Acrylamide	

* ColdPAK required to maintain integrity of product.

Carbonyl DNPH Derivative Mixture

M-8315-R2-DNPH		1 x 1 mL
0.1 mg/mL each in AcCN		

Acetaldehyde-DNPH	Hexanal (Hexaldehyde)
Acetone-DNPH	Isovaleraldehyde-DNPH
Acrolein-DNPH	Pentanal-DNPH (Valeraldehyde)
Benzaldehyde-DNPH	Propanal-DNPH (Propionaldehyde)
Butanal-DNPH (Butyraldehyde)	<i>m</i> -Tolualdehyde-DNPH
Crotonaldehyde-DNPH	<i>o</i> -Tolualdehyde-DNPH
2,5-Dimethylbenzaldehyde-DNPH	<i>p</i> -Tolualdehyde-DNPH
Formaldehyde-DNPH	

Carbonyl Compound Set

M-8315-R3-10X-SET	20 x 1 mL
Each at 1.0 mg/mL in AcCN	

Acetaldehyde	Heptanal
Acetone	Hexanal (Hexaldehyde)
Acrolein	Isovaleraldehyde
Benzaldehyde	Nonanal
Butanal (Butyraldehyde)	Octanal
Crotonaldehyde	Pentanal (Valeraldehyde)
Cyclohexanone	Propanal (Propionaldehyde)
Decanal	<i>m</i> -Tolualdehyde
2,5-Dimethylbenzaldehyde	<i>o</i> -Tolualdehyde
Formaldehyde	<i>p</i> -Tolualdehyde

Carbonyl DNPH Derivative Set

M-8315-R-DNPH-SET	20 x 1 mL
Each at 0.1 mg/mL in AcCN	

Acetaldehyde-DNPH	Heptanal-DNPH
Acetone-DNPH	Hexanal-DNPH (Hexaldehyde)
Acrolein-DNPH	Isovaleraldehyde-DNPH
Benzaldehyde-DNPH	Nonanal-DNPH
Butanal-DNPH (Butyraldehyde)	Octanal-DNPH
Crotonaldehyde-DNPH	Pentanal-DNPH (Valeraldehyde)
Cyclohexanone-DNPH	Propanal-DNPH (Propionaldehyde)
Decanal-DNPH	<i>m</i> -Tolualdehyde-DNPH
2,5-Dimethylbenzaldehyde-DNPH	<i>o</i> -Tolualdehyde-DNPH
Formaldehyde-DNPH	<i>p</i> -Tolualdehyde-DNPH

Technical Note

For initial Method 8315 development, AccuStandard offers individual analyte sets (20 x 1 mL) for both the Carbonyl compounds and their corresponding DNPH derivatives. Use of these sets will allow the analytical chemist to rapidly establish individual analyte retention times and to troubleshoot possible extraction recovery problems.

Method 8318 N-Methylcarbamates by HPLC

N-Methylcarbamates

M-8318M		1 x 1 mL
0.1 mg/mL each in MeOH		

M-8318-SET		10 x 1 mL
Each at 0.1 mg/mL in MeOH		

Aldicarb	3-Hydroxycarbofuran
Aldicarb sulfone	Methiocarb
Carbaryl	Methomyl
Carbofuran	Promecarb
Dioxacarb	Propoxur



EPA Method 8000 Series

Method 8321-8323

Method 8321 Non-Volatile Compounds by HPLC/TSP/MS or UV Solvent Extractable

Chlorinated Phenoxyacid Herbicide Mix

M-8321-HERB 1 x 1 mL
0.1 mg/mL each in AcCN 14 comps.

Dalapon	Dinoseb
Dicamba	MCPA
2,4-D	MCPP
2,4-D butoxyethanol ester	Silvex (2,4,5-TP)
2,4-D ethylhexyl ester	2,4,5-T
2,4-DB	2,4,5-T butyl ester
Dichlorprop	2,4,5-T butoxyethanol ester

Organophosphorus Pesticide Mix

M-8321-OP 1 x 1 mL
0.1 mg/mL each in AcCN 15 comps.

Asulam	Methyl parathion
Dichlorvos	Monocrotophos
Dimethoate	Naled
Disulfoton	Phorate
Famphur	Thiofanox
Fensulfothion	Trichlorfon
Merphos	Tris(2,3-dibromopropyl)phosphate
Methomyl	

Method 8325 Benzidines & Nitrogen containing Pesticides by L-L or L-S Extraction & RP HPLC/Particle Beam/MS

Benzidine/Pesticide Mix

M-553* 1 x 1 mL
At stated conc. (µg/mL) in AcCN:MeOH (50:50) 13 comps.

Benzidine †	250	3,3'-Dimethylbenzidine †	350
Benzoylprop ethyl	350	Diuron	450
Caffeine	300	Linuron	1,300
Carbaryl	1,000	Monuron	400
o-Chlorophenyl thiourea	750	Rotenone	3,200
3,3'-Dichlorobenzidine †	250	Siduron	450
3,3'-Dimethoxybenzidine †	750		

Performance Check Solution

M-553-PC 1 x 1 mL
0.1 mg/mL in AcCN

DFTPPO (Decafluorotriphenylphosphine oxide)

Method 8323 Organometallic Tin Analysis by Electrospray Ion Trap Mass Spectrometry

The following Organo-tin standards were originally formulated to meet custom applications for a number of our customers. AccuStandard has introduced the below set of standards as regular catalog items to meet the increased requests for Organo-tin standards. The environmental interest in these compounds stems from their addition to the list of endocrine disrupters. Organo-tin compounds such as Tributyl-tin were used as marine antifouling agents and Triphenyl-tin as a crop pesticide.

Organometallic Butyltin Chloride Standard

OMT-001 1 x 1 mL
OMT-001-PAK **SAVE** 5 x 1 mL
2000 µg/mL each in CH₂Cl₂ 4 comps.

Butyltin trichloride	Tetrabutyltin
Dibutyltin dichloride	Tributyltin chloride

Tri-n-propyltin Surrogate Standard

OMT-003 1 x 1 mL
OMT-003-PAK **SAVE** 5 x 1 mL
2000 µg/mL in CH₂Cl₂

Tri-n-propyltin chloride

Tetra-n-propyltin Internal Standard

OMT-005 1 x 1 mL
OMT-005-PAK **SAVE** 5 x 1 mL
2000 µg/mL in CH₂Cl₂

Tetra-n-propyltin

Organometallic Phenyltin Chloride Standard

OMT-002 1 x 1 mL
OMT-002-PAK **SAVE** 5 x 1 mL
2000 µg/mL each in CH₂Cl₂ 4 comps.

Diphenyltin dichloride	Tetraphenyltin
Phenyltin trichloride	Triphenyltin chloride

Triphenyltin Chloride Surrogate Standard

OMT-004 1 x 1 mL
OMT-004-PAK **SAVE** 5 x 1 mL
2000 µg/mL in CH₂Cl₂

Triphenyltin chloride

Tetraphenyltin Internal Standard

OMT-006 1 x 1 mL
OMT-006-PAK **SAVE** 5 x 1 mL
2000 µg/mL in CH₂Cl₂

Tetraphenyltin



Thousands of Standards, just a click away

AccuStandard.com

* ColdPAK required to maintain integrity of product.

† Subject to oxidation

EPA Method 8000 Series Explosives



Method 8330

Method 8330 Explosives

TNT Metabolites

Analyte	Conc. (µg/mL)	Solvent	Cat. No.	(1 mL)
2-Amino-4,6-dinitrotoluene	100	AcCN:MeOH (50:50)	M-8330-13-0.1X	
4-Amino-2,6-dinitrotoluene	100	AcCN:MeOH (50:50)	M-8330-14-0.1X	
2,4-Diamino-6-nitrotoluene	100	AcCN	M-8330-ADD-12	
2,6-Diamino-4-nitrotoluene	100	AcCN	M-8330-ADD-13	
1,2-Dinitrobenzene	1000	MeOH	M-8330-SS	
1,3-Dinitrobenzene	100	AcCN:MeOH (50:50)	M-8330-01-0.1X	
2,4-Dinitrotoluene	100	AcCN:MeOH (50:50)	M-8330-02-0.1X	
2,6-Dinitrotoluene	100	AcCN:MeOH (50:50)	M-8330-03-0.1X	
3,4-Dinitrotoluene	1000	MeOH	M-8330-IS	
3,5-Dinitrotoluene	100	AcCN:MeOH (50:50)	M-8330-ADD-39	
2-Hydroxylamino-4,6-dinitrotoluene ★	100	AcCN	M-8330-ADD-18 *	
4-Hydroxylamino-2,6-dinitrotoluene ★	100	AcCN	M-8330-ADD-20 *	
Nitrobenzene	100	AcCN:MeOH (50:50)	M-8330-06-0.1X	
2-Nitrotoluene	100	AcCN:MeOH (50:50)	M-8330-07-0.1X	
3-Nitrotoluene	100	AcCN:MeOH (50:50)	M-8330-08-0.1X	
4-Nitrotoluene	100	AcCN:MeOH (50:50)	M-8330-09-0.1X	
2,2',6,6'-Tetranitro-4,4'-azoxytoluene	100	AcCN:MeOH (50:50)	M-8330-ADD-15	
2,2',6,6'-Tetranitro-4,4'-azotoluene	100	AcCN	M-8330-ADD-17	
4,4',6,6'-Tetranitro-2,2'-azotoluene	100	AcCN	M-8330-ADD-19	
TNT	100	AcCN:MeOH (50:50)	M-8330-11-0.1X	
1,3,5-Trinitrobenzene	100	AcCN:MeOH (50:50)	M-8330-12-0.1X	

Additional Explosives by HPLC

Ammonium picrate	100	AcCN	M-8330-ADD-27
DEGDN	100	AcCN:MeOH (50:50)	M-8330-ADD-36
1,2-Diaminopropane	100	MeOH	M-8330-ADD-9
2,3-Dimethyl-2,3-dinitrobutane (DMNB)	100	AcCN	M-8330-ADD-21
3,5-Dinitroaniline	100	AcCN:MeOH (50:50)	M-8330-ADD-4
1,2-Dinitroglycerin	100	AcCN:MeOH (50:50)	M-8330-ADD-33
1,3-Dinitroglycerin	100	AcCN:MeOH (50:50)	M-8330-ADD-34
EGDN	100	AcCN	M-8330-ADD-5
Guanidine nitrate	100	MeOH	M-8330-ADD-10
Hexamethylenetriperoxide diamine (HMTD)	100	AcCN	M-8330-ADD-25
Hexanitrodiphenylamine	100	AcCN:MeOH (50:50)	M-8330-ADD-37
Hexanitrostilbene (HNS)	100	AcCN	M-8330-ADD-26 *
HMX	100	AcCN:MeOH (50:50)	M-8330-04-0.1X
	1000	AcCN:MeOH (50:50)	M-8330-04
Hydrazine	100	MeOH	M-8330-ADD-8
N-Nitrodimethylamine	100	AcCN	M-8330-ADD-40
Nitroglycerin	100	EtOH	M-8330-ADD-1
	1000	EtOH	M-8330-ADD-1-10X
1-Nitroglycerin	100	AcCN:MeOH (50:50)	M-8330-ADD-31
2-Nitroglycerin	100	AcCN:MeOH (50:50)	M-8330-ADD-32
Nitroguanidine	100	MeOH	M-8330-ADD-6
Nitromethane	100	MeOH	M-8330-ADD-7
PETN	100	MeOH	M-8330-ADD-2
	1000	MeOH	M-8330-ADD-2-10X
Picramic acid	100	AcCN:MeOH (50:50)	M-8330-ADD-22
Picric acid	100	AcCN:MeOH (50:50)	M-8330-ADD-3
			-8330-ADD-11
RDX	100	AcCN:MeOH (50:50)	M-8330-05-0.1X
TEGDN	100	AcCN:MeOH (50:50)	M-8330-ADD-41-R1
Tetryl	100	AcCN:MeOH (50:50)	M-8330-10-0.1X
1,3,5-Triamino-2,4,6-trinitrobenzene (TATB)	40	Dimethyl formamide	M-8330-ADD-14-DMF
TATP	100	AcCN	M-8330-ADD-24 *
2,4,6-Triaminotoluene trihydrochloride	N/A	5 mg	M-8330-ADD-23N-5MG
Trimethylethane trinitrate	100	AcCN:MeOH (50:50)	M-8330-ADD-28
2,4,6-Trinitroresorcinol	100	AcCN:MeOH (50:50)	M-8330-ADD-29

★ 3 month stability

* ColdPAK required to maintain integrity of product.

Explosives by HPLC Set

M-8330-R-SET * 14 x 1 mL
Each at 100 µg/mL in AcCN:MeOH (50:50)

M-8330-R-10X-SET * 14 x 1 mL
Each at 1000 µg/mL in AcCN:MeOH (50:50)

1,3-Dinitrobenzene
2,4-Dinitrotoluene
2,6-Dinitrotoluene
HMX
RDX
Nitrobenzene
2-Nitrotoluene
3-Nitrotoluene
4-Nitrotoluene
Tetryl
TNT
1,3,5-Trinitrobenzene
2-Amino-4,6-dinitrotoluene
4-Amino-2,6-dinitrotoluene

Technical Note

DMNB (M-8330-ADD-21) is a required taggant added to commercially manufactured plastic explosives.

Additional Individual Explosives

Explosive section see page 84-85

Additional Explosive Methods

**Method 529 Explosive & Related Compounds by
SPE & Capillary Column GC/MS**

Method 8095 Explosive Intermediate by GC/ECD



EPA Method 8000 Series

Method 8330-8440

Method 8330 Multi-Component Formulations for Explosive Analysis

The following A and B mixes provide better resolution between possible coeluting analytes, assisting the chemist to optimize the HPLC system. We suggest, when first performing Method 8330 development, to purchase the high concentration 14 x 1 mL set "M-8330-R-10X-SET":

M-8330A * 1 x 1 mL
0.1 mg/mL each in AcCN:MeOH (50:50) 7 comps.

M-8330A-10X * 1 x 1 mL
1.0 mg/mL each in AcCN:MeOH (50:50) 7 comps.

1,3-Dinitrobenzene	RDX
2,4-Dinitrotoluene	1,3,5-Trinitrobenzene
HMX	TNT
Nitrobenzene	

M-8330A-R * 1 x 1 mL
0.1 mg/mL each in AcCN:MeOH (50:50)

M-8330A-R-10X * 1 x 1 mL
1.0 mg/mL each in AcCN:MeOH (50:50) 8 comps.

2-Amino-4,6-dinitrotoluene	Nitrobenzene
1,3-Dinitrobenzene	RDX
2,4-Dinitrotoluene	1,3,5-Trinitrobenzene
HMX	TNT

Composite Explosive Mixture

M-8330-R-0.1X 1 x 1 mL
0.1 mg/mL each in AcCN:MeOH (50:50) 14 comps.

M-8330-R-0.5X 1 x 1 mL
0.5 mg/mL each in AcCN:MeOH (50:50) 14 comps.

1,3-Dinitrobenzene	3-Nitrotoluene
2,4-Dinitrotoluene	4-Nitrotoluene
2,6-Dinitrotoluene	Tetryl
HMX	TNT
RDX	1,3,5-Trinitrobenzene
Nitrobenzene	2-Amino-4,6-dinitrotoluene
2-Nitrotoluene	4-Amino-2,6-dinitrotoluene

Internal Standard

M-8330-IS 1 x 1 mL
M-8330-IS-PAK **SAVE** 5 x 1 mL

1.0 mg/mL in MeOH
3,4-Dinitrotoluene

Method 8410 Semi-Volatiles by GC/FTIR

Internal Standard

M-8410-IS 1 x 1 mL
M-8410-IS-PAK **SAVE** 5 x 1 mL

2.0 mg/mL each in CH₂Cl₂

1-Fluoronaphthalene p-Terphenyl-d₁₄

Method 8430 bis(2-Chloroethyl)ether & Hydrolysis Products

M-8430 1 x 1 mL
1.0 mg/mL each in Water 5 comps.

bis(2-Chloroethyl) ether	Diethylene glycol
2-Chloroethanol	Ethylene glycol
2-(2-Chloroethoxy)-ethanol	

M-8330B * 1 x 1 mL
0.1 mg/mL each in AcCN:MeOH (50:50) 5 comps.

M-8330B-10X * 1 x 1 mL
1.0 mg/mL each in AcCN:MeOH (50:50) 5 comps.

Tetryl	3-Nitrotoluene
2,6-Dinitrotoluene	4-Nitrotoluene
2-Nitrotoluene	

M-8330B-R * 1 x 1 mL
0.1 mg/mL each in AcCN:MeOH (50:50)

M-8330B-R-10X * 1 x 1 mL
1.0 mg/mL each in AcCN:MeOH (50:50) 7 comps.

2-Amino-4,6-dinitrotoluene	2-Nitrotoluene
4-Amino-2,6-dinitrotoluene	3-Nitrotoluene
Tetryl	4-Nitrotoluene
2,6-Dinitrotoluene	

M-8330B-R2 * 1 x 1 mL
0.1 mg/mL each in AcCN:MeOH (50:50)

M-8330B-R2-10X * 1 x 1 mL
1.0 mg/mL each in AcCN:MeOH (50:50) 6 comps.

4-Amino-2,6-dinitrotoluene	2-Nitrotoluene
Tetryl	3-Nitrotoluene
2,6-Dinitrotoluene	4-Nitrotoluene

Surrogate Standard

M-8330-SS 1 x 1 mL
1.0 mg/mL in MeOH

1,2-Dinitrobenzene

Method 8440 Total Petroleum Hydrocarbon

Total Recoverable Petroleum Hydrocarbon Mix

M-8440 1 x 1 mL
M-8440-PAK **SAVE** 5 x 1 mL

At stated Wt.% in Tetrachloroethene

Chlorobenzene	0.10	Isooctane	0.15
n-Hexadecane	0.15		

Silica Gel Cleanup Calibration Solution

M-8440-SGC 1 x 1 mL
M-8440-SGC-PAK **SAVE** 5 x 1 mL

10.0 mg/mL in Tetrachloroethene

Corn Oil

Total Petroleum Hydrocarbon Concentrate Mix

M-8440-CON 1 x 1 mL
M-8440-CON-PAK **SAVE** 5 x 1 mL

At stated Vol.%

Chlorobenzene	25.0	Isooctane	37.5
n-Hexadecane	37.5		

* ColdPAK required to maintain integrity of product.



REACH Statement

In an effort to ensure that all chemicals are tested and used in safe ways, the European Union has adopted the REACH (Registration, Evaluation, Authorization and Restriction of Chemicals) directive, which went into effect on June 1, 2007. This plan originated out of the desire to replace the patchwork of existing regulations in Europe with a more comprehensive law that encompasses all chemicals, including those placed on the market prior to 1981 when the industry did not have to provide documented health and safety information.

Listed below are the current dates outlined in the REACH directive.

June 1, 2013 PHASE 2 - Deadline for registration of substances supplied at ≥ 100 tons per year

June 1, 2018 PHASE 3 - Deadline for registration of substances supplied at ≥ 1 ton per year

AccuStandard fully supports the efforts and objectives of the REACH Directive and will continue to monitor any changes in the scope of this regulation. Changes may include newly banned substances, expiring exemptions or lowered maximum concentration levels. As a leading manufacturer of chemical reference standards in the world, AccuStandard will take all necessary actions under REACH in order to continue to expand the supply of our products in Europe. For other guidance on REACH, please go to the ECHA-website (www.echa.europa.eu).

Standards for International Testing Protocols

AccuStandard has researched and developed standard solutions that meet the requirements of various governmental bodies around the world. If you do not locate a solution that meets your requirements, please contact our Technical Department, and we will quickly develop a formulation that meets your requirements.

Organic Chemicals	USEPA Methods	DIN	ISO
PCBs	508, 617, 680, 1668, 8082		
Congeners	508, 525.1, 525.2, 1668, 8082	38407-3, 38414-20	6468
PCB Metabolites and Derivatives	8082		
Aroclors	505, 508, 508A, 625		
Dibenzofurans	613, 8280A		
PAHs and Derivatives	525, 550, 553, 610, 625, 8100, 8310, 1653	38407-8, 38407-18, 38414-23	
Nitroaromatics	609, 8070A, 8090, 8091	38407-17	
Amines, Anilines and Amino Aromatics	605, 607, 620, 8131, 8325	38407-16	
Nitrogen Containing Compounds (other)	509, 553		
Phenols and Derivatives	528, 604, 642, 8040, 8040, 8041, 8085	12673	17495
Phthalates	506, 606, 8060, 8061A		
Aldehydes	554, 556, 1667A, 8315, 8315A		
Ketones	554, 556, 8315, 8315A, 8091		
Halo Ethers	611, 8110, 8111		
Haloacetic acids	552		
Pesticides and Herbicides	501, 505, 507, 508, 515, 525, 531, 547, 548, 549, 552, 551, 555, 608, 614, 615, 619, 608.1, 625, 627, 629, 631, 632, 633, 634, 635, 636, 639, 640, 641, 643, 644, 645, 680, 1618, 1656, 1657, 1658, 1659, 8080, 8081, 8085, 8140, 8141, 8318, 8150, 8151	38407-2, 38407-11, 38407-14, 38407-22	6468, 10695
Volatiles	502, 503, 504, 524, 551B, 556, 601, 602, 603, 624, 1666, 8010, 8011, 8015B, 8020, 8021, 8030, 8031, 8032, 8033,	38407-2, 38407-9	10301
Explosives	8095, 8330	38407-17, 38407-21	

Table of Contents

Canada	244-246
PCB Congener Standards	244
Dioxin Calibration & Window Defining Stds	244
PAH & Brownfield Regulation Mixtures	245
MISA Standards	246
Europe	247-255
Allergens (see Application section)	102-107
Dyes & Aryl Amines (see Dye section)	108-109
PCB Congeners	247
Volatiles	248
Chlorinated Organic Volatiles	248
Nitroaromatic Compounds	248
Explosives	248
PAHs	249
PBDEs	249
Aliphatic, Aromatic Amines and Derivatives	250
Halo Acetic Acids	250
European Food Safety Authority (EFSA) ITX	250
Pesticides	251-254
Phenols and Derivatives	254
Hydrocarbon Oil Index	255
Automotive Engine Exhaust	255
Carbonyl Compounds by HPLC	255
Japan	256
Ministry of Health & Welfare Standards	256
Environmental Agency Methods	256
Korea	256
Drinking Water Standards	256
USA	257-258
California	257
Florida	257
Minnesota	258
Wisconsin	258
State Specific LUFT/LUST (UST)	314-327
Methods other than EPA	259-264
Biocides	259-262
Halobenzoquinones, ASTM D7065, D7485, F-List	263
ASTM D7598, D7599 D7600, D7645, D5837	264
USP 467	



Regional Standards

Canadian Methodologies

PCB Congeners

Toxicity and Abundance based PCB Congener Formulations

These formulations have been selected by the Institute for Biological Sciences of Canada. The concentration level for these formulations is selected so that 1 mL of standard diluted into 100 mL will show equal response by ECD.

PCB Congener (Canadian RM) Set
C-CAN-SET **4 x 1 mL**
 C-CAN-01, C-CAN-02, C-CAN-03, C-CAN-04

PCB Congeners Mix #1

C-CAN-01	1 x 1 mL	
At stated conc. (µg/mL) in Isooctane		
	14 comps.	
18	2,2',5'-Trichlorobiphenyl	11.8
31	2,4',5'-Trichlorobiphenyl	6.6
40	2,2',3,3'-Tetrachlorobiphenyl	4.9
44	2,2',3,5'-Tetrachlorobiphenyl	5.9
49	2,2',4,5'-Tetrachlorobiphenyl	7.6
54	2,2',6,6'-Tetrachlorobiphenyl	16.6
77	3,3',4,4'-Tetrachlorobiphenyl	5.5
86	2,2',3,4,5-Pentachlorobiphenyl	2.9
87	2,2',3,4,5'-Pentachlorobiphenyl	4.2
121	2,3',4,5',6-Pentachlorobiphenyl	3.1
153	2,2',4,4',5,5'-Hexachlorobiphenyl	2.1
156	2,3,3',4,4',5-Hexachlorobiphenyl	1.5
159	2,3,3',4,5,5'-Hexachlorobiphenyl	1.2
209	Decachlorobiphenyl	1.7

PCB Congeners Mix #2

C-CAN-02	1 x 1 mL	
At stated conc. (µg/mL) in Isooctane		
	15 comps.	
15	4,4'-Dichlorobiphenyl	91.9
52	2,2',5,5'-Tetrachlorobiphenyl	15.2
60	2,3,4,4'-Tetrachlorobiphenyl	3.9
103	2,2',4,5',6-Pentachlorobiphenyl	10.8
105	2,3,3',4,4'-Pentachlorobiphenyl	4.0
128	2,2',3,3',4,4'-Hexachlorobiphenyl	4.9
143	2,2',3,4,5,6'-Hexachlorobiphenyl	5.7
154	2,2',4,4',5,6'-Hexachlorobiphenyl	6.2
173	2,2',3,3',4,5,6-Heptachlorobiphenyl	2.3
182	2,2',3,4,4',5,6'-Heptachlorobiphenyl	3.8
202	2,2',3,3',5,5',6,6'-Octachlorobiphenyl	3.6
205	2,3,3',4,4',5,5',6-Octachlorobiphenyl	3.2
207	2,2',3,3',4,4',5,6,6'-Nonachlorobiphenyl	3.8
208	2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl	2.4
209	Decachlorobiphenyl	2.8

PCB Congeners Mix #3

C-CAN-03	1 x 1 mL	
At stated conc. (µg/mL) in Isooctane		
	15 comps.	
15	4,4'-Dichlorobiphenyl	138.1
114	2,3,4,4',5-Pentachlorobiphenyl	6.3
129	2,2',3,3',4,5-Hexachlorobiphenyl	8.3
137	2,2',3,4,4',5-Hexachlorobiphenyl	7.4
153	2,2',4,4',5,5'-Hexachlorobiphenyl	7.3
171	2,2',3,3',4,4',6-Heptachlorobiphenyl	5.2
183	2,2',3,4,4',5',6-Heptachlorobiphenyl	6.6
185	2,2',3,4,5,5',6-Heptachlorobiphenyl	3.5
189	2,3,3',4,4',5,5'-Heptachlorobiphenyl	4.7
191	2,3,3',4,4',5',6-Heptachlorobiphenyl	5.0
201	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	4.8
199	2,2',3,3',4,5,5',6'-Octachlorobiphenyl	7.0
203	2,2',3,4,4',5,5',6-Octachlorobiphenyl	5.1
206	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	6.7
209	Decachlorobiphenyl	6.5

PCB Congeners Mix #4

C-CAN-04	1 x 1 mL	
At stated conc. (µg/mL) in Isooctane		
	15 comps.	
14	4,4'-Dichlorobiphenyl	76.7
101	2,2',4,5,5'-Pentachlorobiphenyl	8.9
118	2,3',4,4',5-Pentachlorobiphenyl	3.9
138	2,2',3,4,4',5'-Hexachlorobiphenyl	4.2
141	2,2',3,4,5,5'-Hexachlorobiphenyl	2.8
151	2,2',3,5,5',6-Hexachlorobiphenyl	5.0
153	2,2',4,4',5,5'-Hexachlorobiphenyl	3.3
170	2,2',3,3',4,4',5-Heptachlorobiphenyl	3.0
180	2,2',3,4,4',5,5'-Heptachlorobiphenyl	2.8
187	2,2',3,4',5,5',6-Heptachlorobiphenyl	3.2
194	2,2',3,3',4,4',5,5'-Octachlorobiphenyl	2.4
195	2,2',3,3',4,4',5,6-Octachlorobiphenyl	2.6
196	2,2',3,3',4,4',5,6'-Octachlorobiphenyl	3.3
199	2,2',3,3',4,5,5',6'-Octachlorobiphenyl	3.6
209	Decachlorobiphenyl	2.7

PCB Congener Formulation Quebec Ministry of Environment

Quebec Ministry of Environment Congener Mix

C-QME-01	1 x 1 mL	
At stated conc. (ng/mL) in Isooctane		
	41 comps.	
17	2,2',4'-Trichlorobiphenyl	500
18	2,2',5'-Trichlorobiphenyl	2000
28	2,4,4'-Trichlorobiphenyl	2000
31	2,4',5'-Trichlorobiphenyl	1500
33	2',3,4-Trichlorobiphenyl	2000
44	2,2',3,5'-Tetrachlorobiphenyl	2000
49	2,2',4,5'-Tetrachlorobiphenyl	2000
52	2,2',5,5'-Tetrachlorobiphenyl	2000
70	2,3',4',5-Tetrachlorobiphenyl	2000
74	2,4,4',5-Tetrachlorobiphenyl	2000
82	2,2',3,3',4-Pentachlorobiphenyl	500
87	2,2',3,4,4'-Pentachlorobiphenyl	2000
95	2,2',3,5',6-Pentachlorobiphenyl	1000
99	2,2',4,4',5-Pentachlorobiphenyl	2000
101	2,2',4,5,5'-Pentachlorobiphenyl	2000
105	2,3,3',4,4'-Pentachlorobiphenyl	500
110	2,3,3',4',6-Pentachlorobiphenyl	2000
118	2,3',4,4',5-Pentachlorobiphenyl	2000
128	2,2',3,3',4,4'-Hexachlorobiphenyl	2000
132	2,2',3,3',4,6'-Hexachlorobiphenyl	1000
138	2,2',3,4,4',5'-Hexachlorobiphenyl	2000
149	2,2',3,4',5',6-Hexachlorobiphenyl	2000
151	2,2',3,5,5',6-Hexachlorobiphenyl	2000
153	2,2',4,4',5,5'-Hexachlorobiphenyl	2000
156	2,3,3',4,4',5-Hexachlorobiphenyl	2000
158	2,3,3',4,4',6-Hexachlorobiphenyl	500
169	3,3',4,4',5,5'-Hexachlorobiphenyl	2000
170	2,2',3,3',4,4',5-Heptachlorobiphenyl	2000
171	2,2',3,3',4,4',6-Heptachlorobiphenyl	2000
177	2,2',3,3',4',5,6-Heptachlorobiphenyl	2000
180	2,2',3,4,4',5,5'-Heptachlorobiphenyl	2000
183	2,2',3,4,4',5',6-Heptachlorobiphenyl	2000
187	2,2',3,4',5,5',6-Heptachlorobiphenyl	2000
191	2,3,3',4,4',5',6-Heptachlorobiphenyl	2000
194	2,2',3,3',4,4',5,5'-Octachlorobiphenyl	2000
195	2,2',3,3',4,4',5,6-Octachlorobiphenyl	2000
199	2,2',3,3',4,5,5',6'-Octachlorobiphenyl	1500
205	2,3,3',4,4',5,5',6-Octachlorobiphenyl	2000
206	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	2000
208	2,2',3,3',4,4',5,5',6,6'-Nonachlorobiphenyl	2000
209	Decachlorobiphenyl	2000

Dioxins: Calibration & Window Defining Mixtures (Canadian Environmental Methods)

Custom Window Defining Mixture

D-WD
20 ng/mL in Toluene

1 x 1 mL
7 comps.

D-WD-2.5X
50 ng/mL in Toluene

1 x 1 mL
7 comps.

- 1,2,4,6,8/1,2,4,7,9-Pentachlorodibenzo-p-dioxin (Isomer pair)
- 1,2,3,8,9-Pentachlorodibenzo-p-dioxin
- 1,2,4,6,7,9/1,2,4,6,8,9-Hexachlorodibenzo-p-dioxin (Isomer pair)
- 1,2,3,4,6,7-Hexachlorodibenzo-p-dioxin
- 1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin
- 1,2,3,4,6,7,9-Heptachlorodibenzo-p-dioxin
- Octachlorodibenzo-p-dioxin

Custom Calibration Mixture

D-CAL
20 ng/mL in Toluene

1 x 1 mL
6 comps.

D-CAL-2.5X
50 ng/mL in Toluene

1 x 1 mL
6 comps.

- 1,2,3,7,8-Pentachlorodibenzo-p-dioxin
- 1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin
- 1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin
- 1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin
- 1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin
- Octachlorodibenzo-p-dioxin



PAH Mixture

Quebec Ministry of Environment

PAH Standard

H-QME-01 1 x 1 mL
500 µg/mL each in CH₂Cl₂ : Benzene (50:50) 24 comps

Acenaphthene	Dibenz[a,h]anthracene
Acenaphthylene	Dibenz[a,h]pyrene
Anthracene	Dibenz[a,i]pyrene
Benz[a]anthracene	Dibenz[a,l]pyrene
Benzo[b]fluoranthene	7,12-Dimethylbenz[a]anthracene
Benzo[j]fluoranthene	Fluoranthene
Benzo[k]fluoranthene	Fluorene
Benzo[g,h,i]perylene	Indeno[1,2,3-cd]pyrene
Benzo[c]phenanthrene	3-Methylcholanthrene
Benz[a]pyrene	Naphthalene
Benz[e]pyrene	Phenanthrene
Chrysene	Pyrene



Petroleum Brownfield Regulation

The Brownfield Regulation has been approved by the Canadian Ministry of the Environment as of October 1, 2004.

Light Petroleum Fraction

CCME-LPF-SET 5 x 1 mL
At stated conc. (µg/mL) in MeOH 8 comps.

Compound	0.05X	0.1X	0.2X	0.5X	1X
<i>n</i> -Decane	12.5	25	50	125	250
<i>n</i> -Hexane	12.5	25	50	125	250
Toluene	12.5	25	50	125	250
Benzene	12.5	25	50	125	250
<i>o</i> -Xylene	12.5	25	50	125	250
<i>m</i> -Xylene	6.25	12.5	25	62.5	125
<i>p</i> -Xylene	6.25	12.5	25	62.5	125
Ethylbenzene	12.5	25	50	125	250

Medium & Heavy Petroleum Fraction

CCME-MHPF-SET 3 x 1 mL
At stated conc. (µg/mL) in *n*-Hexane 3 comps.

Compound	0.1X	0.5X	1X
<i>n</i> -Decane	40	200	400
<i>n</i> -Hexadecane	40	200	400
<i>n</i> -Tetraatriacontane	40	200	400

Performance Check Standard

CCME-QC 1 x 1 mL
CCME-QC-PAK **SAVE** 5 x 1 mL
40 µg/mL each in *n*-Hexane:Cyclohexane (50:50) 2 comps.

n-Pentacontane
n-Tetracontane

Spike Standard

CCME-SPIKE 1 x 1 mL
2500 µg/mL each in *n*-Hexane 2 comps.

SAE 30W Motor Oil - Non-Detergent Formula
#2 Diesel Fuel - 50% Weathered

Canadian Atlantic RBCA EPH Mix

CCME-EPH 1 x 1 mL
1000 µg/mL each in Hexane : CH₂Cl₂ (85:15) 11 comps.

Acenaphthene	<i>n</i> -Dotriacontane
Anthracene	<i>n</i> -Heneicosane
Benz[a]pyrene	<i>n</i> -Hexadecane
Chrysene	<i>n</i> -Octacosane
<i>n</i> -Decane	Naphthalene
<i>n</i> -Dodecane	

Canadian Atlantic RBCA VPH Mix

CCME-VPH 1 x 1 mL
1000 µg/mL each in MeOH 12 comps.

Benzene	<i>n</i> -Octane
<i>n</i> -Decane	Toluene
Ethylbenzene	1,2,4-Trimethylbenzene
<i>n</i> -Heptane	1,3,5-Trimethylbenzene
<i>n</i> -Hexane	<i>o</i> -Xylene
1-Methyl-3-ethylbenzene	<i>p</i> -Xylene

Surrogate Standard

CCME-EPH/SS 1 x 1 mL
1000 µg/mL each in CH₂Cl₂ 2 comps.

n-Dotriacontane Isobutylbenzene

Surrogate Standard

CCME-VPH/SS 1 x 1 mL
1000 µg/mL in MeOH

Isobutylbenzene

† Subject to oxidation

Canadian Drinking Water Brownfield Regulation

Phenoxyacid Herbicides Mix

CCME-CDW-PHERB 1 x 1 mL
1000 µg/mL each in Acetone 11 comps.

Bromoxynil	Pentachlorophenol
2,4-D	Picloram
Dicamba	2,4,5-T
2,4-Dichlorophenol	2,3,4,6-Tetrachlorophenol
Diclofop methyl	2,4,6-Trichlorophenol
Dinoseb	

Carbamates Mix

CCME-CDW-CARB 1 x 1 mL
100 µg/mL each in AcCN 5 comps.

Aldicarb	Carbofuran
Bendiocarb	Triallate
Carbaryl	

Chlorinated Pesticide Mix

CCME-CDW-CPEST 1 x 1 mL
200 µg/mL each in Hexane:Toluene (50:50) 14 comps.

Aldrin	4,4'-DDT
γ-BHC	Dieldrin
α-Chlordane	Heptachlor
γ-Chlordane	Heptachlor epoxide (Isomer B)
2,4'-DDE	Methoxychlor
4,4'-DDE	Oxychlordane Isomer
2,4'-DDT	Trifluralin



Regional Standards

Municipal & Industrial Strategy for Abatement (MISA) - Canadian

MISA Analytical Test Groups

Group 16: Volatiles, Halogenated Set

MISA-VH-1/VH-2-SET 2 x 1 mL
MISA-VH-1, MISA-VH-2

MISA-VH-1		1 x 1 mL
MISA-VH-1-PAK	SAVE	5 x 1 mL
0.5 mg/mL each in MeOH		
Bromoform	<i>trans</i> -1,2-Dichloroethene	Certificate will reflect actual cis/trans ratio
Carbon tetrachloride	1,1-Dichloroethene	
Chlorobenzene	1,2-Dichloropropane	
Chloroform	<i>cis</i> -1,3-Dichloropropene	
Dibromochloromethane	<i>trans</i> -1,3-Dichloropropene	
1,2-Dibromoethane	Methylene chloride	
1,2-Dichlorobenzene	1,1,1,2-Tetrachloroethane	
1,3-Dichlorobenzene	Tetrachloroethene	
1,4-Dichlorobenzene	1,1,1-Trichloroethane	
1,2-Dichloroethane	1,1,2-Trichloroethane	
1,1-Dichloroethane	Trichloroethene	

MISA-VH-2		1 x 1 mL
MISA-VH-2-PAK	SAVE	5 x 1 mL
0.5 mg/mL each in MeOH		
Bromomethane	Trichlorofluoromethane	5 comps.
Chloroethane	Vinyl chloride	
Chloromethane		

Group 17: Volatiles, Non-Halogenated

MISA-VNH		1 x 1 mL
MISA-VNH-PAK	SAVE	5 x 1 mL
0.5 mg/mL each in MeOH		
Benzene	<i>o</i> -Xylene	7 comps.
Ethylbenzene	<i>m</i> -Xylene	
Styrene	<i>p</i> -Xylene	
Toluene		

Group 18: Volatiles, Water Soluble

MISA-VWS		1 x 1 mL
2.0 mg/mL each in Water		
Acrolein	Acrylonitrile	2 comps.

Group 19: Extractables, Base-Neutral

Z-014G		1 x 1 mL
Z-014G-PAK	SAVE	5 x 1 mL
2.0 mg/mL each in CH ₂ Cl ₂ : Benzene (50:50)		
Acenaphthene	Chrysene	16 comps.
Acenaphthylene	Dibenz[a,h]anthracene	
Anthracene	Fluoranthene	
Benz[a]anthracene	Fluorene	
Benz[a]pyrene	Indeno[1,2,3-cd]pyrene	
Benzo[b]fluoranthene	Naphthalene	
Benzo[ghi]perylene	Phenanthrene	
Benzo[k]fluoranthene	Pyrene	

MISA-BN-1		1 x 1 mL
2.0 mg/mL each in CH ₂ Cl ₂		
Biphenyl	1-Methylnaphthalene	8 comps.
Camphene	2-Methylnaphthalene	
1-Chloronaphthalene	5-Nitroacenaphthene	
2-Chloronaphthalene	Perylene	

MISA-BN-2		1 x 1 mL
2.0 mg/mL each in CH ₂ Cl ₂		
Benzyl butyl phthalate	4-Chlorophenyl phenyl ether	8 comps.
4-Bromophenyl phenyl ether	Di- <i>n</i> -butyl phthalate	
bis(2-Chloroethyl)ether	Di- <i>n</i> -octyl phthalate	
bis(2-Chloroisopropyl)ether	bis(2-Ethylhexyl)phthalate	

MISA-BN-3		1 x 1 mL
2.0 mg/mL each in CH ₂ Cl ₂		
bis(2-Chloroethoxy)methane	Diphenylether	8 comps.
2,4-Dinitrotoluene	Indole	
2,6-Dinitrotoluene	N-Nitroso-diphenylamine	
Diphenylamine	N-Nitroso-di- <i>n</i> -propyl amine	

Group 20: Extractables, Acid (Phenolics)

MISA-A		1 x 1 mL
MISA-A-PAK	SAVE	5 x 1 mL
2.0 mg/mL each in CH ₂ Cl ₂		
4-Chloro-3-methylphenol	4-Nitrophenol	20 comps.
2-Chlorophenol	Pentachlorophenol	
<i>o</i> -Cresol	Phenol	
<i>m</i> -Cresol	2,3,4,5-Tetrachlorophenol	
<i>p</i> -Cresol	2,3,4,6-Tetrachlorophenol	
2,4-Dichlorophenol	2,3,5,6-Tetrachlorophenol	
2,6-Dichlorophenol	2,3,4-Trichlorophenol	
2,4-Dimethylphenol	2,3,5-Trichlorophenol	
4,6-Dinitro-2-cresol	2,4,5-Trichlorophenol	
2,4-Dinitrophenol	2,4,6-Trichlorophenol	

Group 22: Organochlorine Pesticides

MISA-PEST		1 x 1 mL
MISA-PEST-PAK	SAVE	5 x 1 mL
2.0 mg/mL each in Acetone		
Aldrin	Endosulfan I	18 comps.
α -BHC	Endosulfan II	
β -BHC	Endosulfan sulfate	
γ -BHC	Endrin	
δ -BHC	Endrin aldehyde	
4,4'-DDD	Endrin ketone	
4,4'-DDE	Heptachlor	
4,4'-DDT	Heptachlor epoxide (Isomer B)	
Dieldrin	Methoxychlor	

Group 23: Extractables, Chlorinated Neutrals

MISA-NC		1 x 1 mL
2.0 mg/mL each in CH ₂ Cl ₂		
Hexachlorobenzene	1,2,3,4-Tetrachlorobenzene	12 comps.
Hexachlorobutadiene	1,2,3,5-Tetrachlorobenzene	
Hexachlorocyclopentadiene	1,2,4,5-Tetrachlorobenzene	
Hexachloroethane	1,2,3-Trichlorobenzene	
Octachlorostyrene	1,2,4-Trichlorobenzene	
Pentachlorobenzene	2,4,5-Trichlorotoluene	

Group 27: Polychlorinated Biphenyls Solutions and Sets

Each at 35 μ g/mL	Isooctane	MeOH	1 mL
Aroclor 1016	C-216S	C-216S-M	
Aroclor 1221	C-221S	C-221S-M	
Aroclor 1232	C-232S	C-232S-M	
Aroclor 1242	C-242S	C-242S-M	
Aroclor 1248	C-248S	C-248S-M	
Aroclor 1254	C-254S	C-254S-M	
Aroclor 1260	C-260S	C-260S-M	
Aroclor 1262	C-262S	C-262S-M	
Aroclor 1268	C-268S	C-268S-M	
	Z-008S-SET	Z-008S-M-SET	

PCB Congener Standards

PCB Congener Mixture

PCB-W22 1 x 1 mL
PCB-W22-PAK SAVE 5 x 1 mL
 10 µg/mL each in Isooctane 15 comps.

PCB-W22-SET 15 x 1 mL
 100 µg/mL each in Isooctane

- 18 2,2',5'-Trichlorobiphenyl
- 20 2,3,3'-Trichlorobiphenyl
- 28 2,4,4'-Trichlorobiphenyl
- 31 2,4',5'-Trichlorobiphenyl
- 44 2,2',3,5'-Tetrachlorobiphenyl
- 52 2,2',5,5'-Tetrachlorobiphenyl
- 101 2,2',4,5,5'-Pentachlorobiphenyl
- 105 2,3,3',4,4'-Pentachlorobiphenyl
- 118 2,3',4,4',5'-Pentachlorobiphenyl
- 138 2,2',3,4,4',5'-Hexachlorobiphenyl
- 149 2,2',3,4',5',6'-Hexachlorobiphenyl
- 153 2,2',4,4',5,5'-Hexachlorobiphenyl
- 170 2,2',3,3',4,4',5'-Heptachlorobiphenyl
- 180 2,2',3,4,4',5,5'-Heptachlorobiphenyl
- 194 2,2',3,3',4,4',5,5'-Octachlorobiphenyl

Internal Standard

C-EU-IS-10ML 1 x 10 mL
 At stated conc. (µg/mL) in Isooctane 2 comps.

- 2,4,6-Trichlorobiphenyl 300
- Decachlorobiphenyl 100

ISO 6468 PCB Standard

ISO6468-PCB 1 x 1 mL
 10 µg/mL each in Hexane 7 comps.

- 28 2,4,4'-Trichlorobiphenyl
- 52 2,2',5,5'-Tetrachlorobiphenyl
- 101 2,2',4,5,5'-Pentachlorobiphenyl
- 138 2,2',3,4,4',5'-Hexachlorobiphenyl
- 153 2,2',4,4',5,5'-Hexachlorobiphenyl
- 180 2,2',3,4,4',5,5'-Heptachlorobiphenyl
- 194 2,2',3,3',4,4',5,5'-Octachlorobiphenyl

PCB Congener Content Evaluation Mix #1

AE-00059 1 x 1 mL
AE-00059-10ML 1 x 10 mL
 10 µg/mL each in Isooctane 6 comps.

- 28 2,4,4'-Trichlorobiphenyl
- 52 2,2',5,5'-Tetrachlorobiphenyl
- 101 2,2',4,5,5'-Pentachlorobiphenyl
- 138 2,2',3,4,4',5'-Hexachlorobiphenyl
- 153 2,2',4,4',5,5'-Hexachlorobiphenyl
- 180 2,2',3,4,4',5,5'-Heptachlorobiphenyl

PCB Congener Content Evaluation Mix #2

AE-00060 1 x 1 mL
AE-00060-10ML 1 x 10 mL
 10 µg/mL each in Isooctane 3 comps.

- 77 3,3',4,4'-Tetrachlorobiphenyl
- 126 3,3',4,4',5'-Pentachlorobiphenyl
- 169 3,3',4,4',5,5'-Hexachlorobiphenyl

Congener Calibration Mix #27

AE-00081-10ML 1 x 10 mL
 100 µg/mL each in Isooctane 10 comps.

- 28 2,4,4'-Trichlorobiphenyl
- 52 2,2',5,5'-Tetrachlorobiphenyl
- 101 2,2',4,5,5'-Pentachlorobiphenyl
- 105 2,3,3',4,4'-Pentachlorobiphenyl
- 118 2,3',4,4',5'-Pentachlorobiphenyl
- 138 2,2',3,4,4',5'-Hexachlorobiphenyl
- 153 2,2',4,4',5,5'-Hexachlorobiphenyl
- 156 2,3,3',4,4',5'-Hexachlorobiphenyl
- 180 2,2',3,4,4',5,5'-Heptachlorobiphenyl
- 209 Decachlorobiphenyl

Congener Calibration Mix

AE-00061 1 x 1 mL
AE-00061-10ML 1 x 10 mL
 10 µg/mL each in Isooctane 14 comps.

- 18 2,2',5'-Trichlorobiphenyl
- 28 2,4,4'-Trichlorobiphenyl
- 31 2,4',5'-Trichlorobiphenyl
- 44 2,2',3,5'-Tetrachlorobiphenyl
- 52 2,2',5,5'-Tetrachlorobiphenyl
- 101 2,2',4,5,5'-Pentachlorobiphenyl
- 118 2,3',4,4',5'-Pentachlorobiphenyl
- 138 2,2',3,4,4',5'-Hexachlorobiphenyl
- 149 2,2',3,4',5',6'-Hexachlorobiphenyl
- 153 2,2',4,4',5,5'-Hexachlorobiphenyl
- 170 2,2',3,3',4,4',5'-Heptachlorobiphenyl
- 180 2,2',3,4,4',5,5'-Heptachlorobiphenyl
- 194 2,2',3,3',4,4',5,5'-Octachlorobiphenyl
- 209 Decachlorobiphenyl

Internal Standards

C-030S-TP 1 x 1 mL
 100 µg/mL in Isooctane
 2,4,6-Trichlorobiphenyl

C-209S-TP 1 x 1 mL
 100 µg/mL in Isooctane
 Decachlorobiphenyl

Technical Note

These Congener Content Evaluation Mixes have proven useful for European Laboratories estimating the PCB content of a sample when following EU guideline 96/59/EU for cleanup of PCBs.



Custom Quotation Requests

Custom formulations can be requested by contacting
Technical Service: techservice@accustandard.com or
 using our website **AccuStandard.com**.

See back of the catalog for detailed information

Volatiles

DIN 38407-2 Benzene Standard

Determination of water, waste water and sludge for low volatile halogenated hydrocarbons by GC.

DIN38407-2-BENZ 1 x 1 mL
10 µg/mL each in *n*-Hexane 5 comps.

Hexachlorobenzene
Pentachlorobenzene
Pentachloronitrobenzene
1,2,4,5-Tetrachlorobenzene
1,2,4-Trichlorobenzene

Volatile Standard

AE-00048 1 x 1 mL
100 µg/mL each in MeOH 5 comps.

1,1,1-Trichloroethane Dichloromethane
Trichloroethene Tetrachloromethane
Tetrachloroethene

Calibration Solution

Set of 5 ampules with a conc. each in MeOH of
1 µg/mL, 5 µg/mL, 10 µg/mL, 50 µg/mL and 100 µg/mL

Compound	Cat. No.	Unit
1,1,1-Trichloroethane	AE-00034-CAL-SET	5 x 1 mL
Tetrachloroethene	AE-00036-CAL-SET	5 x 1 mL
Dichloromethane	AE-00037-CAL-SET	5 x 1 mL
Carbon tetrachloride	AE-00038-CAL-SET	5 x 1 mL

DIN 38407-9 Benzene Mix

Determination of Benzene and Benzene derivatives in water, wastewater and sludge by GC.

DIN38407-9-BENZ 1 x 1 mL
100 µg/mL each in MeOH 8 comps.

Benzene 1,4-Dichlorobenzene
Toluene *o*-Xylene
Ethylbenzene *m*-Xylene
Chlorobenzene *p*-Xylene

DIN EN ISO 10301 - Halogenated VOCs

Determination of water, waste water and sludge for low volatile halogenated hydrocarbons by GC.

DINENISO-10301 1 x 1 mL
1 µg/mL each in MeOH 17 comps.

Dichloromethane 1,2-Dichloropropane
Trichloromethane 1,3-Dichloropropane
Carbon tetrachloride 1,3-Dichloropropene
1,1-Dichloroethane Dibromomethane
1,2-Dichloroethane Tribromoethene
1,1,1-Trichloroethane Bromochloromethane
1,1,2-Trichloroethane Bromodichloromethane
Trichloroethene Dibromochloromethane
Tetrachloroethene

Volatiles Calibration Curve Mix 1

AE-00039-CAL-SET 5 x 1 mL
1 µg/mL, 5 µg/mL, 10 µg/mL, 50 µg/mL, 100 µg/mL
Each comp. in MeOH 5 comps.

Dichloromethane 1,1,1-Trichloroethane
Tetrachloroethene Trichloroethene
Tetrachloromethane

Volatiles Calibration Curve Mix 2

AE-00040-CAL-SET 5 x 1 mL
1 µg/mL, 5 µg/mL, 10 µg/mL, 50 µg/mL, 100 µg/mL
Each comp. in MeOH 6 comps.

Chloroform Tetrachloromethane
Dichloromethane 1,1,1-Trichloroethane
Tetrachloroethene Trichloroethene

Chlorinated Organic Volatile

Calibration Standards

Appendix 2, Drinking Water Regulation of May 22, 1986.

Each at 100 µg/mL in MeOH

Compound	Cat. No.	1 mL
1,1,1-Trichloroethane	APP-9-202	
Trichloroethene	APP-9-204	
Tetrachloroethene	APP-9-194	
Dichloromethane	APP-9-074	
Carbon tetrachloride	APP-9-036	

Nitroaromatic Compounds

DIN-38407-17 Nitroaromatic Compounds

Examination of water, wastewater, and sludge for the determination of selected nitroaromatic compounds by Gas-Liquid Chromatography

DIN38407-17 1 x 1 mL
500 µg/mL each in MeOH 12 comps.

Nitrobenzene 3,4-Dinitrotoluene
2-Nitrotoluene 2-Amino-6-nitrotoluene
4-Nitrotoluene 4-Amino-2-nitrotoluene
1,3-Dinitrobenzene 4-Amino-2,6-dinitrotoluene
2,6-Dinitrotoluene 2-Amino-4,6-dinitrotoluene
2,4-Dinitrotoluene 2,4,6-Trinitrotoluene

Explosives

DIN 38407-21 Explosives

Examination of water, wastewater, and sludge for determination of selected explosives and related compounds by HPLC with UV detection

DIN38407-21-A 1 x 1 mL
10 µg/mL each in MeOH 12 comps.

Picric acid Nitroglycerin
HMX TNT
RDX 2-Nitrotoluene
Tetryl PETN
EGDN 4-Nitrotoluene
DEGDN 3-Nitrotoluene

DIN 38407-21 Related Compounds

Examination of water, wastewater, and sludge for determination of selected explosives and related compounds by HPLC with UV detection

DIN38407-21-B 1 x 1 mL
10 µg/mL each in MeOH:AcCN (98:2) 8 comps.

1,3,5-Trinitrobenzene
1,3-Dinitrobenzene
4-Amino-2,6-dinitrotoluene
2,2',4,4',6,6'-Hexanitrodiphenylamine
2-Amino-4,6-dinitrotoluene
2,6-Dinitrotoluene
2,4-Dinitrotoluene
Diphenylamine

PAHs

DIN 38407-8 PAH Mix (WHO 6 List)

Determination of PAH in water, wastewater and sludge by HPLC.

DIN38407-8-PAH

2 µg/mL each in Acetonitrile

1 x 1 mL
6 comps.

Fluoranthene	Benzo[a]pyrene
Benzo[b]fluoranthene	Benzo[k]fluoranthene
Benzo[g,h,i]perylene	Indeno[1,2,3-cd]pyrene

DIN 38407-18 PAH Solution

Examination of water, wastewater and sludge for the determination of 15 polycyclic aromatic hydrocarbons (PAH) by HPLC with fluorescence detection.

DIN38407-18

10 µg/mL each in Acetonitrile

1 x 1 mL
15 comps.

Naphthalene	Benzo[k]fluoranthene
Acenaphthene	Benzo[a]pyrene (Ames grade)
Fluorene	Dibenz[a,h]anthracene
Phenanthrene	Benzo[g,h,i]perylene
Anthracene	Pyrene
Fluoranthene	Benzo[a]anthracene
Chrysene	Indeno[1,2,3-cd]pyrene
Benzo(b)fluoranthene	

DIN 38414-23 PAHs

Determination of 15 PAHs in water, waste water and sludge by HPLC and Fluorescence detection.

DIN38414-23

10 µg/mL each in Acetonitrile

1 x 1 mL
15 comps.

Naphthalene	Benzo[k]fluoranthene
Acenaphthene	Benzo[a]pyrene (Ames grade)
Fluorene	Dibenz[a,h]anthracene
Phenanthrene	Benzo[g,h,i]perylene
Anthracene	Pyrene
Fluoranthene	Benzo[a]anthracene
Chrysene	Indeno[1,2,3-cd]pyrene
Benzo[b]fluoranthene	

PAH Standard Kits and Solutions

The following mixtures and kits have been prepared to meet the needs of laboratories utilizing European and USEPA methodologies. Minimum purity 99%, except where indicated.

PAH Mix #1

Regulations for drinking water analysis, (E-DIN 38407-F-18, E-DIN 38414-F-21). Regulations for sediment and sludge

AE-00025

AE-00025-10ML

At stated conc. (µg/mL) in Acetonitrile

1 x 1 mL
1 x 10 mL
16 comps.

Acenaphthene	25	Chrysene	20
Acenaphthylene	25	Dibenz[a,h]anthracene	40
Anthracene	25	Fluoranthene	40
Benzo[a]anthracene	10	Fluorene	40
Benzo[b]fluoranthene	25	Indeno[1,2,3-cd]pyrene	25
Benzo[k]fluoranthene	10	Naphthalene	50
Benzo[g,h,i]perylene	25	Phenanthrene (98%)	30
Benzo[a]pyrene	20	Pyrene	40

PAH Mix #2

For European methods according to customer requests.

AE-00045

AE-00045-10ML

At stated conc. (µg/mL) in Acetonitrile

1 x 1 mL
1 x 10 mL
7 comps.

Benzo[b]fluoranthene	2	Fluoranthene	10
Benzo[k]fluoranthene	2	Indeno[1,2,3-cd]pyrene	2
Benzo[g,h,i]perylene	2	Perylene	10
Benzo[a]pyrene	2		

PAH Mix #3

German method for drinking water analysis.

AE-00032

AE-00032-10ML

10 µg/mL each in Acetonitrile

1 x 1 mL
1 x 10 mL
7 comps.

Benzo[b]fluoranthene		Fluoranthene	
Benzo[k]fluoranthene		Indeno[1,2,3-cd]pyrene	
Benzo[g,h,i]perylene		Perylene	
Benzo[a]pyrene			

PAH Mix #4

For European methods according to customer requests.

AE-00033

AE-00033-10ML

At stated conc. (µg/mL) in Acetonitrile

1 x 1 mL
1 x 10 mL
7 comps.

Benzo[b]fluoranthene	20	Fluoranthene	50
Benzo[k]fluoranthene	20	Indeno[1,2,3-cd]pyrene	40
Benzo[g,h,i]perylene	20	Perylene	20
Benzo[a]pyrene	20		

ISO/DIS 22032 PBDEs in Sediment & Sludge

Draft International Standard

ISO/DIS 22032 Calibration Curve Set

ISO/DIS-22032-SET

At stated conc. (ng/mL) in Isooctane

7 x 1 mL
8 comps. each

Compound	01	02	03	04	05	06	07
47 2,2',4,4'-Tetrabromodiphenyl ether	5	12.5	25	50	100	150	250
99 2,2',4,4',5-Pentabromodiphenyl ether	5	12.5	25	50	100	150	250
100 2,2',4,4',6-Pentabromodiphenyl ether	5	12.5	25	50	100	150	250
153 2,2',4,4',5,5'-Hexabromodiphenyl ether	5	12.5	25	50	100	150	250
154 2,2',4,4',5,6'-Hexabromodiphenyl ether	5	12.5	25	50	100	150	250
183 2,2',3,4,4',5',6-Heptabromodiphenyl ether	5	12.5	25	50	100	150	250
205 2,3,3',4,4',5,5',6-Octabromodiphenyl ether	5	12.5	25	50	100	150	250
209 Decabromodiphenyl ether	25	50	100	200	500	700	1000

Internal Standard for

BDE No. 47, 99 and 100

ISO22032-IS-1-5ML

ISO22032-IS-1-10ML

100 ng/mL each in Isooctane

3,3',4,4'-Tetrabromodiphenyl ether

1 x 5 mL
1 x 10 mL

Internal Standard for

BDE No. 153, 154 and 183

ISO22032-IS-2-5ML

ISO22032-IS-2-10ML

100 ng/mL each in Isooctane

2,2',3,4,4',5,6-Heptabromodiphenyl ether

1 x 5 mL
1 x 10 mL

Aliphatic, Aromatic Amines and Derivatives

Aryl Amine Multi-Component Solutions

AE-00049-SET		2 x 1 mL
10 µg/mL each in Ethyl acetate		24 comps.
	AE-00049-R1, RAC-08	
AE-00049-R1		1 x 1 mL
10 µg/mL each in Ethyl acetate		23 comps.
<i>o</i> -Aminoazotoluene	3,3'-Dimethyl-4,4'-diaminodiphenylmethane	
4-Aminobiphenyl	4,4'-Methylenebis(2-chloroaniline)	
2-Amino-4-nitrotoluene	2-Naphthylamine	
Benzidine †	4,4'-Oxydianiline	
4-Chloroaniline	4,4'-Thiodianiline	
4-Chloro- <i>o</i> -toluidine	<i>o</i> -Toluidine	
<i>p</i> -Cresidine	2,4,5-Trimethylaniline	
4,4'-Diaminodiphenylmethane	<i>p</i> -Aminoazobenzene	
2,4-Diaminotoluene	2-Aminobiphenyl	
3,3'-Dichlorobenzidine †	<i>o</i> -Anisidine	
3,3'-Dimethoxybenzidine †	3-Chloro- <i>o</i> -toluidine	
3,3'-Dimethylbenzidine †		

RAC-08	1 x 1 mL
100 µg/mL each in Pyridine	
2,4-Diaminoanisole	

Note: 2,4-Diaminoanisole is introduced with the sulfate hydrate

EFSA for Isopropylthioxanthone (ITX)

Responding to the hazard found in Italy, France, Spain, and Portugal, AccuStandard has formulated Isopropylthioxanth-9-one (a photographical chemical found in baby milk in Italy).

2-Isopropylthioxanthone (ITX)

EFSA-ITX-01	1 x 1 mL
1.0 mg/mL in Isooctane	
2-Isopropylthioxanth-9-one	

Isopropylthioxanthone (ITX)

Mixed Isomers	1 x 1 mL
EFSA-ITX-02	
1.0 mg/mL in Isooctane	
2-and 4-Isopropylthioxanth-9-one	

† Subject to oxidation



Pesticide Standards

The following Pesticide Standards are for German Regulations (for residue thresholds), Swiss Regulations (for components and contaminants in food), and DFG collected methods.

Pesticide Mix #1

AE-00010	1 x 1 mL
AE-00010-10ML	1 x 10 mL
<i>At stated conc. (µg/mL) in Toluene</i> 31 comps.	
Aldrin	10
α-BHC	10
β-BHC	10
γ-BHC	10
δ-BHC	10
α-Chlordane	10
γ-Chlordane	10
o,p'-DDD	10
p,p'-DDD	10
o,p'-DDE	10
p,p'-DDE	10
o,p'-DDT	10
p,p'-DDT	10
Dieldrin	10
Endosulfan I	10
Endosulfan II	10
Endrin	10
Heptachlor	10
Heptachlor epoxide (Isomer A)	10
Heptachlor epoxide (Isomer B)	10
2,2',3,4,4',5,5'-Heptachlorobiphenyl	1
Hexachlorobenzene	10
2,2',3,4,4',5,5'-Hexachlorobiphenyl	1
2,2',4,4',5,5'-Hexachlorobiphenyl	1
Isodrin	10
Methoxychlor	10
Mirex	10
Oxychlordane	10
2,2',4,5,5'-Pentachlorobiphenyl	1
2,2',5,5'-Tetrachlorobiphenyl	1
2,4,4'-Trichlorobiphenyl	1

Pesticide Mix #2

AE-00011	1 x 1 mL
AE-00011-10ML	1 x 10 mL
<i>10 µg/mL each in Toluene</i> 22 comps.	
Anilazine	Tecnacene
Captan	Tetradifon
Chlorthalonil	Tetrasul
Clorfenson	Tridiametof
Dichlofluandil	Tridiamenol
Dicofol	Trifluarin
Endosulfan sulfate	Pentachloroaniline
Fenson	Procymidol
Folpet	Propyzamid
Imazalil	Quintozen
Iprodion	Vinclozolin

Pesticide Mix #3

AE-00012	1 x 1 mL
AE-00012-10ML	1 x 10 mL
<i>At stated conc. (µg/mL) in Toluene</i> 10 comps.	
Captafol	200
Captan	100
Demethon-S-methyl	500
Demethon-S-methyl-sulfone	500
Dicofol	200
Pentachlorophenol	100
Tetrachlorvinphos	10
Trichlorfon	100
Tolyfluandil	100
Vamidithion	200

Pesticide Mix #4

AE-00013	1 x 1 mL
AE-00013-10ML	1 x 10 mL
<i>At stated conc. (µg/mL) in Toluene</i> 5 comps.	
Cyproconazole	500
Hexaconazole	500
Penconazole	500
Tebuconazole	500
Tetrachlorvinphos	10

Pesticide Mix #5

AE-00014	1 x 1 mL
AE-00014-10ML	1 x 10 mL
<i>At stated conc. (µg/mL) in Ethyl acetate</i> 8 comps.	
Atrazine	200
Cyanazine	200
Desmertryn	500
Metribuzin	500
Prometryne	500
Simazine	200
Terbutryn	500
Tetrachlorvinphos	10

Tetrachlorvinphos Surrogate / Internal Standard

AE-00047	1 x 1 mL
<i>1000 µg/mL in Acetonitrile</i>	
Tetrachlorvinphos	

Pesticide Mix #6

AE-00015	1 x 1 mL
AE-00015-10ML	1 x 10 mL
<i>At stated conc. (µg/mL) in Toluene</i> 8 comps.	
Chlorpyrifos-methyl	100
Diazinon	100
Ethion	100
Etrifos	50
Iodofenphos	200
Malathion	100
Phosphamidon	200
Tetrachlorvinphos	10

Pesticide Mix #7

AE-00016	1 x 1 mL
AE-00016-10ML	1 x 10 mL
<i>At stated conc. (µg/mL) in Toluene</i> 8 comps.	
Bromophos-methyl	100
Bromophos-ethyl	150
Fenitrothion	200
Methacryfos	150
Omethoate	150
Phosalone	100
Tetrachlorvinfos	10
Tolclofos-methyl	100

Pesticide Mix #8

AE-00017	1 x 1 mL
AE-00017-10ML	1 x 10 mL
<i>At stated conc. (µg/mL) in Toluene:Acetone:Hexane (90:5:5)</i> 6 comps.	
Chlorbufam	500
Chlorpropham	500
Dichlobenil	200
Imazalil	500
Pyrazon	500
2,3,5,6-Tetrachloronitrobenzene	100

Pesticide Mix #9

AE-00018	1 x 1 mL
AE-00018-10ML	1 x 10 mL
<i>At stated conc. (µg/mL) in Toluene</i> 9 comps.	
Azinphos ethyl	100
Fenclorvos	100
Fonophos	150
Methidathion	100
Mevinphos	200
Parathion-ethyl	150
Parathion-methyl	100
Pirimiphos-methyl	100
Tetrachlorvinphos	10

Pesticide Mix #10

AE-00019	1 x 1 mL
AE-00019-10ML	1 x 10 mL
<i>At stated conc. (µg/mL) in Toluene</i> 7 comps.	
Benalaxyl	500
Carbaryl	500
Oxadixyl	500
Terbutylazine	250
Tetrachlorvinphos	10
Triadimefon	500
Triadimenol	500

Pesticide Standards continued on next page

Pesticide Standards

The following Pesticide Standards are for German Regulations (for residue thresholds), Swiss Regulations (for components and contaminants in food), and DFG collected methods.

Pesticide Mix #11

AE-00020 1 x 1 mL
AE-00020-10ML 1 x 10 mL
10 µg/mL each in Toluene 19 comps.

Aldrin	β-BHC
Chloridazon	γ-BHC
o,p'-DDD	δ-BHC
p,p'-DDD	Heptachlor
o,p'-DDE	Heptachlor epoxide (Isomer B)
p,p'-DDE	Heptachlor epoxide (Isomer A)
o,p'-DDT	Hexachlorobenzene
p,p'-DDT	Tecnazene
Endrin	Tetrachlorvinphos
α-BHC	

Pesticide Mix #12

AE-00021 1 x 1 mL
AE-00021-10ML 1 x 10 mL
At stated conc. (µg/mL) in Toluene 9 comps.

Carbophenothion	100
Disulfoton	150
Fenthion	100
Methamidophos	100
Phorate	150
Phorate sulfonate	100
Phorate sulfone	150
Tetrachlorvinphos	10
Thiomethon	100

Pesticide Mix #13

AE-00022 1 x 1 mL
AE-00022-10ML 1 x 10 mL
At stated conc. (µg/mL) in Toluene 8 comps.

Chlorfenvinphos (CFVP)	100
Chlorpyrifos	100
Dichlorvos	100
Dimethoate	100
Heptenophos	100
Quinalphos	100
Tetrachlorvinphos	10
Triazophos	100

Pesticide Mix #14

AE-00023 1 x 1 mL
AE-00023-10ML 1 x 10 mL
At stated conc. (µg/mL) in Toluene 10 comps.

Cyfluthrin	500
λ-Cyhalothrin	500
Cypermethrin	500
Deltamethrin	500
Dichloran	100
Fenvalerate	500
Pendimethalin	100
Permethrin	500
Tefluthrin	100
Tetrachlorvinphos	10

Regulations for drinking water and water used in food manufacturing, May 27, 1986, BGBl, I, S. 760.

Pesticide Mix #15

AE-00024 1 x 1 mL
AE-00024-10ML 1 x 10 mL
0.02 µg/mL each in Ethyl acetate 33 comps.

Atrazine	Linuron
Bifenox	Pencycuron
Bromacil	Pendimethalin
Carbetamide	Prometryne
Chloridazo	Propazine
Chloroxuron	Metamitron
Chlorpropham	Metazachlor
Chlortoluron	Methabenzthiazuron
Crimidine	Methoprotryne
Cyanazine	Metobromuron
Desethyl atrazine	Metolachlor
Desisopropylatrazine	Monolinuron
Desethylterbutylazine	Sebuthylazin
Dimefuron	Simazine
Diuron	Terbutryn
Isoproturon	Terbutylazine
Karbutilate	

Regulations for drinking water analysis, (E-DIN 38407-F-18, E-DIN 38414-F-21)
Regulations for sediment and sludge.

Pesticide Mix #16

AE-00030 1 x 1 mL
AE-00030-10ML 1 x 10 mL
10 µg/mL each in Ethyl acetate 20 comps.

Aldicarb	Lindane
Atrazine	MCPA *
Bentazone *	Mechlorprop *
Chlortofuron	Metazachlor
Cyanazine	Metobromuron
2,4-D *	Metoxuron
Dichlorprop *	Sebuthylazin
1,3-Dichloropropene	Simazine
Endosulfan I	Terbutylazine
Endosulfan II	
Isoproturon	* Underivatized

Regulations - Test methods for organochlorine and organophosphorus compounds and pyrethroid Current Science and Technology, German Book of Medicine (1996).

Pesticide Mix #17

AE-00027 1 x 1 mL
AE-00027-10ML 1 x 10 mL
10 µg/mL each in Toluene 14 comps.

Alachlor
Bromopropylate
Carbophenothion
Cypermethrin
Deltamethrin
Endosulfane sulfate
Fenvalerate
Methyl pentachlorophenyl sulfide
Pentachloraniline
cis-Permethrin
trans-Permethrin
Piperonyl butoxide
Pyrethrins
Quintozene

Pesticide Mix #18

AE-00028 1 x 1 mL
AE-00028-10ML 1 x 10 mL
10 µg/mL each in Toluene 16 comps.

Azinphos methyl	Ethyl parathion
Carbophenothion	Fenitrothion
Chlorfenvinphos	Fonofos
Chlorpyrifos-ethyl	Methyl parathion
Chlorpyrifos-methyl	Malathion
Diazinon	Methidathion
Dichlorvos	Phosalone
Ethion	Pirimiphos-methyl

Pesticide Mix #19

AE-00029 1 x 1 mL
AE-00029-10ML 1 x 10 mL
10 µg/mL each in Toluene 13 comps.

Chlorpyrifos-methyl	Fenitrothion
p,p'-DDT	Lindane
Deltamethrin	Methyl parathion
Dichlorvos	Phosalone
Dieldrin	Quintozene
Endosulfan sulfate	Tecnazene
Ethion	

Pesticide Standards

Pesticide Mix #20

AE-00050 1 x 1 mL
 AE-00050-10ML 1 x 10 mL
 10 µg/mL each in Ethyl acetate 20 comps.

Aldicarb	Isoproturon
Atrazine	γ-BHC
Bentazon	MCPA
Chlortoluron	MCPP acid
Cyanazine	Metazachlor
2,4-D	Metobromuron
Dichlorprop	Metoxuron
1,1-Dichloropropene	Sebutylazin
Endosulfan I	Simazine
Endosulfan II	Terbutylazine

Pesticide Mix #21

AE-00051 1 x 1 mL
 AE-00051-10ML 1 x 10 mL
 10 µg/mL each in Cyclohexane 16 comps.

Aldrin	Endrin
p,p'-DDD	Heptachlor
p,p'-DDE	Heptachlor epoxide (isomer B)
o,p'-DDT	Hexachlorobenzene
p,p'-DDT	α-BHC
Dieldrin	β-BHC
Endosulfan I	γ-BHC
Endosulfan II	Methoxychlor

Pesticide Mix #22

AE-00052 1 x 1 mL
 AE-00052-10ML 1 x 10 mL
 10 µg/mL each in Acetonitrile 8 comps.

Atrazine	Metoxuron
Desethyl atrazine	Propazine
Bromacil	Simazine
Chloridazon	Terbutylazine

Pesticide Mix #23

AE-00053 1 x 1 mL
 AE-00053-10ML 1 x 10 mL
 10 µg/mL each in Acetonitrile 6 comps.

2,4-D	MCPA
2,4-DB	MCPB
Dichlorprop	MCPA acid

Pesticide Mix #24

AE-00054 1 x 1 mL
 AE-00054-10ML 1 x 10 mL
 At stated conc. (µg/mL) in Cyclohexane 6 comps.

Aldrin	0.2	α-BHC	0.15
p,p'-DDT	0.4	γ-BHC	0.15
Dieldrin	0.3	Heptachlor	0.2

Pesticide Mix #25

AE-00055 1 x 1 mL
 AE-00055-10ML 1 x 10 mL
 10 µg/mL each in Cyclohexane 4 comps.

α-BHC	γ-BHC
β-BHC	δ-BHC

Pesticide Mix #26

AE-00056 1 x 1 mL
 AE-00056-10ML 1 x 10 mL
 1.0 µg/mL each in Cyclohexane 5 comps.

α-BHC	δ-BHC
β-BHC	ε-BHC
γ-BHC	

Pesticide Mix #27

AE-00057 1 x 1 mL
 AE-00057-10ML 1 x 10 mL
 1.0 µg/mL each in Isooctane 13 comps.

α-BHC	p,p'-DDE
β-BHC	Dieldrin
γ-BHC	Endrin
δ-BHC	Heptachlor epoxide (isomer B)
o,p'-DDD	Methoxychlor
p,p'-DDD	Mirex
o,p'-DDE	



Custom Quotation Requests

Custom formulations can be requested by contacting
 Technical Service: techservice@accustandard.com or
 using our website AccuStandard.com.

See back of the catalog for detailed information

Pesticides

EN ISO 10695 Pesticide Mix

Water quality determination of selected organic nitrogen and phosphorous compound by GC.

ENISO10695-PEST 1 x 1 mL
10 µg/mL each in Acetone 12 comps.

Atrazine	Propazine
Cyanazine	Sebuthylazin
Metazachlor	Simazine
Parathion	Terbutylazine
Methyl parathion	Trifluralin
Pendimethalin	Vinclozolin

EN ISO 11369 Pesticide Mix 20

Regulation DIN V 38407 Part 12 Method F12

AE-00031 1 x 1 mL
AE-00031-10ML 1 x 10 mL
10 µg/mL each in Ethyl acetate 17 comps.

Atrazine	Methabenzthiazuron
Chlortoluron	Metobromuron
Cyanazine	Metolachlor
Desethyl atrazine	Metoxuron
Hexazinone	Monolinuron
Isoproturon	Sebuthylazin
Karmex (Diuron)	Simazine
Linuron	Terbutylazine
Metazachlor	

ISO 6468 Pesticide Standard

Water quality determination of certain organochlorine insecticides, polychlorine biphenyls and chlorobenzenes by GC after liquid-liquid extraction.

ISO6468-PEST 1 x 1 mL
10 µg/mL each in *n*-Hexane 19 comps.

α-BHC	Methoxychlor
β-BHC	Aldrin
γ-BHC	Dieldrin
δ-BHC	Endrin
o,p'-DDE	Heptachlor
p,p'-DDE	Heptachlor epoxide (Isomer A)
o,p'-DDT	Heptachlor epoxide (Isomer B)
o,p'-DDD	Endosulfan I
p,p'-DDD	Endosulfan II
p,p'-DDT	

DIN 38407-2 Pesticide Standard

Determination of water, waste water and sludge for low volatile halogenated hydrocarbons by GC.

DIN38407-2-PEST 1 x 1 mL
10 µg/mL each in *n*-Hexane 17 comps.

Aldrin	Endrin
p,p'-DDD	Heptachlor
o,p'-DDE	Heptachlor epoxide (Isomer A)
p,p'-DDE	Heptachlor epoxide (Isomer B)
o,p'-DDT	α-BHC
p,p'-DDT	β-BHC
Dieldrin	γ-BHC
Endosulfan I	Methoxychlor
Endosulfan II	

DIN V 38407-11 Pesticide Mix

Scope: Determination of plant protection agents in water, wastewater and sludge.

DINV38407-11-PST 1 x 1 mL
DINV38407-11-PST-PAK 5 x 1 mL
5 µg/mL each in Acetonitrile 21 comps.

Alachlor	Monuron
Atrazine	Parathion
Chlorfenvinphos	Pendimethalin
Chlortoluron	Propazine
Cyanazine	Sebuthylazin
2,4-D	Simazine
MCPA acid	2,4,5-T
Metazachlor	Terbutylazine
Metobromuron	Trifluralin
Metolachlor	Vinclozolin
Metoxuron	

DIN 38407-14 Free Acid Mix

Examination of water, wastewater and sludge for phenoxyalkyl carbonic acids by GC and MS detection after solid-liquid extraction and derivatization.

DIN38407-14-ACID 1 x 1 mL
500 µg/mL each in *n*-Hexane 8 comps.

Mecoprop acid	Fenoprop acid
MCPA acid	MCPB acid
Dichlorprop acid	2,4,5-T acid
2,4-D acid	2,4-DB acid

DIN 38407-14 Methyl Esters Mix

Examination of water, wastewater and sludge for phenoxyalkyl carbonic acids by GC and MS detection after solid-liquid extraction and derivatization.

DIN38407-14-ME 1 x 1 mL
500 µg/mL each in *n*-Hexane 8 comps.

Mecoprop methyl ester
MCPA methyl ester
Dichlorprop methyl ester
2,4-D methyl ester
Fenoprop methyl ester
MCPB methyl ester
2,4,5-T methyl ester
2,4-DB methyl ester

DIN 38407-22 Glyphosate & AMPA

Examination of water, wastewater, and sludge for Glyphosate and Aminomethyl phosphonic acid (AMPA)

DIN38407-22 1 x 1 mL
100 µg/mL each in Water 2 comps.

Glyphosate
Aminomethylphosphonic acid

Phenols & Derivatives

DIN EN 12673 Chlorophenols

Scope: Determination of selected chlorophenols in water by GC

DINEN-12673 1 x 1 mL
At stated conc. (µg/mL) in Ethanol 19 comps.

2-Chlorophenol	30	2,3,5-Trichlorophenol	3
3-Chlorophenol	30	2,3,6-Trichlorophenol	3
4-Chlorophenol	30	2,4,5-Trichlorophenol	3
2,3-Dichlorophenol	4	2,4,6-Trichlorophenol	3
2,4-Dichlorophenol	4	3,4,5-Trichlorophenol	3
2,5-Dichlorophenol	4	2,3,4,5-Tetrachlorophenol	2
2,6-Dichlorophenol	4	2,3,4,6-Tetrachlorophenol	2
3,4-Dichlorophenol	4	2,3,5,6-Tetrachlorophenol	2
3,5-Dichlorophenol	4	Pentachlorophenol	1
2,3,4-Trichlorophenol	3		

DIN EN ISO 17495 Nitrophenols

Scope: determination of selected nitrophenols by solid-phase extraction and gas chromatography with mass spectrometric detection.

DINENISO-17495 1 x 1 mL
500 µg/mL each in Acetone 14 comps.

2,4-Dinitrophenol	2-Nitrophenol
2,5-Dinitrophenol	3-Nitrophenol
2,6-Dinitrophenol	4-Nitrophenol
2-Methyl-4,6-dinitrophenol	4-Methyl-2-nitrophenol
2,6-Dimethyl-4-nitrophenol	3-Methyl-4-nitrophenol
2,4-Dichlor-6-nitrophenol	5-Methyl-2-nitrophenol
2,6-Dichlor-4-nitrophenol	3-Methyl-2-nitrophenol

ENISO 9377 Determination of Hydrocarbon Oil Index

Diesel #2/Mineral Oil Standard
ENISO9377-2-1 1 x 1 mL
 5000 µg/mL each hydrocarbon in Hexane
 2 comps.
 #2 Diesel Fuel
 Mineral Oil

Quality Control Standard Mix
ISO/DIS9377-4-1 1 x 1 mL
 500 µg/mL each hydrocarbon in Acetone
 2 comps.
 #2 Diesel Fuel
 Mineral Oil

Extraction Solvent Stock Solution
ENISO9377-2-3 1 x 5 mL
 At stated conc. (µg/mL) in Hexane 2 comps.
 n-Decane 14.5
 n-Tetracontane 20

System Performance Standard of n-alkanes
ENISO9377-2-2 1 x 1 mL
 50 µg/mL each in Hexane 16 comps.

n-Decane	n-Hexacosane
n-Dodecane	n-Octacosane
n-Tetradecane	n-Triacontane
n-Hexadecane	n-Dotriacontane
n-Octadecane	n-Tetracontane
n-Eicosane	n-Hexatriacontane
n-Docosane	n-Octatriacontane
n-Tetracosane	n-Tetracontane

Stearyl Stearate Test Solution
ISO/DIS9377-4-2 1 x 10 mL
 2000 µg/mL in Cyclohexane
 Stearyl stearate

ISO/DIS 9377-4 Standard Mix Stock Solution
TPH-006-10X 1 x 1 mL
TPH-006-10X-PAK SAVE 5 x 1 mL
 5000 µg/mL each in Cyclohexane 2 comps.
 #2 Diesel fuel
 Mineral oil

Florisol Cartridge QC Standard Mix
ENISO9377-2-4 1 x 10 mL
 1000 µg/mL each hydrocarbon in Hexane 2 comps.
 #2 Diesel Fuel
 Mineral Oil

European Equivalents of Alcohol Oxidation Products in Automotive Engine Exhaust by HPLC of DNPH Derivatives

Carbonyl-DNPH Mix #1
AE-00043 1 x 1 mL
 20 µg/mL each in Acetonitrile, except where indicated 13 comps.

Acetaldehyde-DNPH	Formaldehyde-DNPH (40 µg/mL)
Acetone-DNPH	Hexanal-DNPH
Acrolein-DNPH	Methacrolein-DNPH
Benzaldehyde-DNPH	Propionaldehyde-DNPH
Butanal-DNPH	p-Tolualdehyde-DNPH
Methyl ethyl ketone-DNPH	Valeraldehyde-DNPH
Crotonaldehyde-DNPH	

Carbonyl-DNPH Mix #2
AE-00044 1 x 1 mL
 2 µg/mL each in Acetonitrile, except where indicated 14 comps.

Acetaldehyde-DNPH	Cyclohexanone-DNPH (5 µg/mL)
Acetone-DNPH	Formaldehyde-DNPH (4 µg/mL)
Acrolein-DNPH	Hexanal-DNPH
Benzaldehyde-DNPH	Methacrolein-DNPH
Butanal-DNPH	Propionaldehyde-DNPH
n-Butyraldehyde-DNPH	p-Tolualdehyde-DNPH
Crotonaldehyde-DNPH	Valeraldehyde-DNPH

Cyclohexanone
AE-00046 1 x 1 mL
 500 µg/mL in Acetonitrile
 Cyclohexanone-DNPH



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Regional Standards

Pacific Rim Methodologies

Japan Ministry of Health and Welfare Standards

Volatile Organic Solution

JMHW-001 1 x 1 mL
 JMHW-001-PAK **SAVE** 5 x 1 mL
 1000 µg/mL each in MeOH 23 comps.

- Benzene
- Bromodichloromethane
- Bromoform
- Carbon tetrachloride
- Chloroform
- Dibromochloromethane
- 1,4-Dichlorobenzene
- 1,2-Dichloroethane
- 1,1-Dichloroethene
- cis-1,2-Dichloroethene
- trans-1,2-Dichloroethene
- Dichloromethane
- 1,2-Dichloropropane
- cis-1,3-Dichloropropene
- trans-1,3-Dichloropropene
- Tetrachloroethene
- Toluene
- 1,1,1-Trichloroethane
- 1,1,2-Trichloroethane
- Trichloroethene
- m-Xylene
- o-Xylene
- p-Xylene

Volatile Organic Solution

JMHW-002 1 x 1 mL
 JMHW-002-PAK **SAVE** 5 x 1 mL
 2000 µg/mL each in MeOH 16 comps.

- Benzene
- Bromodichloromethane
- Bromoform
- Carbon tetrachloride
- Chloroform
- Dibromochloromethane
- 1,2-Dichloroethane
- 1,1-Dichloroethene
- cis-1,2-Dichloroethene
- Dichloromethane
- cis-1,3-Dichloropropene
- trans-1,3-Dichloropropene
- Tetrachloroethene
- 1,1,1-Trichloroethane
- 1,1,2-Trichloroethane
- Trichloroethene

Volatile Organic Solution B

JMHW-003 1 x 1 mL
 JMHW-003-PAK **SAVE** 5 x 1 mL
 2000 µg/mL each in MeOH 7 comps.

- 1,4-Dichlorobenzene
- trans-1,2-Dichloroethene
- 1,2-Dichloropropane
- Toluene
- m-Xylene
- o-Xylene
- p-Xylene

Method of Interests

Japanese Methods JIS-K0311 and JIS-K0312
 See EPA Method 1613 Dioxins & Furans

Tuning Solution/Surrogate

Standard Mixture

CLP-004-100X 1 x 1 mL
 CLP-004-100X-PAK **SAVE** 5 x 1 mL
 2.5 mg/mL in MeOH
 p-Bromofluorobenzene

Japan Environmental Agency Standards

Volatile Organic Solution

JEAM-001 1 x 1 mL
 JEAM-001-PAK **SAVE** 5 x 1 mL
 1000 µg/mL each in MeOH 12 comps.

- Benzene
- Carbon Tetrachloride
- 1,1-Dichloroethene
- cis-1,2-Dichloroethene
- Dichloromethane
- 1,2-Dichloroethane
- cis-1,3-Dichloropropene
- trans-1,3-Dichloropropene
- Tetrachloroethene
- 1,1,1-Trichloroethane
- 1,1,2-Trichloroethane
- Trichloroethene

Method Aldehydes as DNPH Derivatives

JEAM-002 1 x 1 mL
 JEAM-002-PAK **SAVE** 5 x 1 mL
 100 µg/mL each in Ethyl acetate 6 comps.

- Acetaldehyde-DNPH
- Butyraldehyde-DNPH
- Isobutyraldehyde-DNPH
- Isovaleraldehyde-DNPH
- Propionaldehyde-DNPH
- Pentanal-DNPH

Internal Standard

M-524-IS 1 x 1 mL
 M-524-IS-PAK **SAVE** 5 x 1 mL
 2.0 mg/mL each in MeOH 2 comps.

- 1,2-Dichlorobenzene-d₄
- Fluorobenzene

Drinking Water Odor Standard

ODOR-JDWOS 1 x 1 mL
 100 µg/mL each in MeOH 2 comps.
 (+/-) Geosmin
 2-Methylisoborneol

Korean Drinking Water Regulations Standards

VOC Mix A

KDWR-001 1 x 1 mL
 KDWR-001-PAK **SAVE** 5 x 1 mL
 100 µg/mL each in MeOH 15 comps.

- Benzene
- Bromodichloromethane
- Bromoform
- Chloroform
- Dibromochloromethane
- Ethylbenzene
- Dichloromethane
- Phenol
- Tetrachloroethene
- Toluene
- 1,1,1-Trichloroethane
- Trichloroethene
- m-Xylene
- p-Xylene
- o-Xylene

VOC Mix B

KDWR-002 1 x 1 mL
 KDWR-002-PAK **SAVE** 5 x 1 mL
 100 µg/mL each in MeOH 8 comps.

- Bromodichloromethane
- Bromoform
- Chloroform
- Dibromochloromethane
- Dichloromethane
- Tetrachloroethene
- 1,1,1-Trichloroethane
- Trichloroethene

Pesticide Mix

KDWR-003 1 x 1 mL
 KDWR-003-PAK **SAVE** 5 x 1 mL
 1000 µg/mL each in MeOH 5 comps.

- Carbaryl
- Diazinon
- Fenitrothion
- Malathion
- Parathion

Regional Standards

State Methods



California Methods

California Air Resources Board Method 1004

DHPH Derivatives

M-1004 1 x 1 mL
At stated conc. (µg/mL) in AcCN 13 comps.

M-1004-10X 1 x 1 mL
At 10 times the stated conc. (µg/mL) in AcCN 13 comps.

Acetaldehyde-DNPH	15.3	Formaldehyde-DNPH	21.0
Acetone-DNPH	12.3	Hexanal-DNPH	8.4
Acrolein-DNPH	12.7	Methacrolein-DNPH	10.7
Benzaldehyde-DNPH	8.1	Propionaldehyde-DNPH	12.3
2-Butanone-DNPH	10.5	<i>m</i> -Tolualdehyde-DNPH	7.5
<i>n</i> -Butyraldehyde-DNPH	10.5	Valeraldehyde-DNPH	9.3
Crotonaldehyde-DNPH	10.7		

Carbonyl Compounds as DNPH Derivatives (HPLC)

CAR-DNPH 1 x 1 mL
At stated conc. (µg/mL) in AcCN 7 comps.

Acetaldehyde-DNPH	1000	Butyraldehyde-DNPH	500
Acetone-DNPH	500	Formaldehyde-DNPH	1500
Acrolein-DNPH	500	Propionaldehyde-DNPH	500
Benzaldehyde-DNPH	500		

California Method 750-M Standard

BDE-CALEWS 1 x 1 mL
10 µg/mL each in Isooctane 13 comps.

- 17 2,2',4-Tribromodiphenyl ether
- 28 2,4,4'-Tribromodiphenyl ether
- 47 2,2',4,4'-Tetrabromodiphenyl ether
- 66 2,3',4,4'-Tetrabromodiphenyl ether
- 71 2,3',4',6-Tetrabromodiphenyl ether
- 99 2,2',4,4',5-Pentabromodiphenyl ether
- 100 2,2',4,4',6-Pentabromodiphenyl ether
- 138 2,2',3,4,4',5'-Hexabromodiphenyl ether
- 153 2,2',4,4',5,5'-Hexabromodiphenyl ether
- 154 2,2',4,4',5,6'-Hexabromodiphenyl ether
- 183 2,2',3,4,4',5',6-Heptabromodiphenyl ether
- 209 Decabromodiphenyl ether
- 2,2',6,6'-Tetrabromobisphenol A

Reference Gas Oil Sample

RGS-001 1 x 1 mL
Hydrocarbon Mixture (boiling point range 250-850°F)

Florida Methods PAH by HPLC

Z-014G-FL 1 x 1 mL
2.0 mg/mL each in CH₂Cl₂:Benzene (50:50) 18 comps.

Acenaphthene	Dibenz[a,h]anthracene
Acenaphthylene	Fluoranthene
Anthracene	Fluorene
Benz[a]anthracene	Indeno[1,2,3-cd]pyrene
Benz[a]pyrene	Naphthalene
Benzo[b]fluoranthene	Phenanthrene
Benzo[g,h,i]perylene	Pyrene
Benzo[k]fluoranthene	1-Methylnaphthalene
Chrysene	2-Methylnaphthalene

Performance Check Solution

M-610-QC-FL 1 x 1 mL
M-610-QC-FL-PAK 5 x 1 mL **SAVE**
At stated conc. (mg/mL) in AcCN 18 comps.

Acenaphthene	0.1	Dibenz[a,h]anthracene	0.01
Acenaphthylene	0.1	Fluoranthene	0.01
Anthracene	0.1	Fluorene	0.1
Benz[a]anthracene	0.01	Indeno[1,2,3-cd]pyrene	0.01
Benz[a]pyrene	0.01	1-Methyl naphthalene	0.1
Benzo[b]fluoranthene	0.01	2-Methyl naphthalene	0.1
Benzo[g,h,i]perylene	0.01	Naphthalene	0.1
Benzo[k]fluoranthene	0.005	Phenanthrene	0.1
Chrysene	0.01	Pyrene	0.01

Matrix Spiking Solution

M-610-MS 1 x 1 mL
M-610-MS-PAK 5 x 1 mL **SAVE**
At stated conc. (mg/mL) in AcCN 6 comps.

Benz[a]pyrene	0.5	2-Methylnaphthalene	5.0
Chrysene	0.5	Phenanthrene	0.5
1-Methylnaphthalene	5.0	Pyrene	0.5

PAH Mix Additions

H-001S/002S-M-20X 1 x 1 mL
1.0 mg/mL each in MeOH 2 comps.

1-Methyl naphthalene	2-Methyl naphthalene
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Polynuclear Aromatic Hydrocarbons (HPLC)

M-8310-FL 1 x 1 mL
M-8310-FL-PAK 5 x 1 mL **SAVE**
0.5 mg/mL each in AcCN 18 comps.

M-8310-FL-SET 18 x 1 mL

Acenaphthene	M-8310-FL-01
Acenaphthylene	M-8310-FL-02
Anthracene	M-8310-FL-03
Benz[a]anthracene	M-8310-FL-04
Benz[a]pyrene	M-8310-FL-05
Benzo[b]fluoranthene	M-8310-FL-06
Benzo[g,h,i]perylene	M-8310-FL-07
Benzo[k]fluoranthene	M-8310-FL-08
Chrysene	M-8310-FL-09
Dibenz[a,h]anthracene	M-8310-FL-10
Fluoranthene	M-8310-FL-11
Fluorene	M-8310-FL-12
Indeno[1,2,3-cd]pyrene	M-8310-FL-13
1-Methylnaphthalene	M-8310-FL-14
2-Methylnaphthalene	M-8310-FL-15
Naphthalene	M-8310-FL-16
Phenanthrene	M-8310-FL-17
Pyrene	M-8310-FL-18

Polynuclear Aromatic Hydrocarbons (HPLC)

M-8310-QC-ATI 1 x 1 mL
M-8310-QC-ATI-PAK 5 x 1 mL **SAVE**
At stated conc. (µg/mL) in AcCN 18 comps.

Acenaphthene	1000	Dibenz[a,h]anthracene	200
Acenaphthylene	2000	Fluoranthene	200
Anthracene	100	Fluorene	200
Benz[a]anthracene	100	Indeno[1,2,3-cd]pyrene	100
Benz[a]pyrene	100	1-Methylnaphthalene	1000
Benzo[b]fluoranthene	200	2-Methylnaphthalene	1000
Benzo[g,h,i]perylene	200	Naphthalene	1000
Benzo[k]fluoranthene	100	Phenanthrene	100
Chrysene	100	Pyrene	100



Regional Standards

State Methods

Minnesota Method 465-D

List of Volatiles

Liquids

M-502A-R
M-502A-R-PAK
0.2 mg/mL each in MeOH

Benzene
Bromobenzene
Bromochloromethane
Bromodichloromethane
Bromoform
n-Butylbenzene
sec-Butylbenzene
t-Butylbenzene
Carbon tetrachloride
Chlorobenzene
Chloroform
2-Chlorotoluene
4-Chlorotoluene
Dibromochloromethane
1,2-Dibromo-3-chloropropane
1,2-Dibromoethane
Dibromomethane
1,2-Dichlorobenzene
1,3-Dichlorobenzene
1,4-Dichlorobenzene
1,1-Dichloroethane
1,2-Dichloroethane
1,1-Dichloroethene
cis-1,2-Dichloroethene
trans-1,2-Dichloroethene
1,2-Dichloropropane
1,3-Dichloropropane

2,2-Dichloropropane
1,1-Dichloropropene
cis-1,3-Dichloropropene
trans-1,3-Dichloropropene
Ethylbenzene
Hexachlorobutadiene
Isopropylbenzene (Cumene)
p-Isopropyltoluene (*p*-Cymene)
Methylene chloride
Naphthalene
n-Propylbenzene
Styrene
1,1,1,2-Tetrachloroethane
1,1,2,2-Tetrachloroethane
Tetrachloroethene
Toluene
1,2,3-Trichlorobenzene
1,2,4-Trichlorobenzene
1,1,1-Trichloroethane
1,1,2-Trichloroethane
Trichloroethene
1,2,3-Trichloropropane
1,2,4-Trimethylbenzene
1,3,5-Trimethylbenzene
o-Xylene
m-Xylene
p-Xylene

1 x 1 mL
5 x 1 mL
54 comps.

SAVE

Certificate will reflect
actual *cis/trans* ratio

Gases

M-465B-10X
M-465B-10X-PAK
0.2 mg/mL each in MeOH

Bromomethane
Chloroethane
Chloromethane
Dichlorodifluoromethane

Dichlorofluoromethane
Trichlorofluoromethane
Vinyl chloride

SAVE

1 x 1 mL
5 x 1 mL
7 comps.

M-465D-ADD-R *
0.2 mg/mL each in MeOH

Acetone
Allyl chloride
Ethyl ether
Methyl ethyl ketone

Methyl isobutyl ketone
Methyl-*t*-butyl ether
Tetrahydrofuran
Trichlorotrifluoroethane

1 x 1 mL
8 comps.

Method 465-D Volatiles Set

M-465D-SET * 3 x 1 mL
M-465D-SET-PAK * 5 x (3 x 1 mL)
M-502A-R, M-465B-10X, M-465D-ADD-R

SAVE

* ColdPAK required to maintain integrity of product.

Pesticides & Herbicides

List 1 - Pesticide Standard

MDA-PEST-01-R1
MDA-PEST-01-R1-PAK
500 µg/mL each in CH₂Cl₂

Acetochlor
Alachlor
Atrazine
Atrazine-desisopropyl
Cyanazine
Desethyl atrazine
Dimethenamid
Dursban
Dyfonate
EPTC

Ethalfuralin
Metolachlor
Metribuzin
Pendimethalin
Phorate
Propachlor
Prometon
Propazine

1 x 1 mL
5 x 1 mL
22 comps.

SAVE

List 2 - Herbicide Acids Standards

MDA-HERB-01
At stated conc. (mg/mL) in Acetone

2,4-D	0.1	Silvex	0.1	MCPA	10
2,4-DB	0.1	Bentazon	0.1	Picloram	0.1
2,4,5-T	0.1	Dicamba	0.1	Triclopyr	0.1

1 x 1 mL
9 comps.

Butylate

P-088S-10X
1000 µg/mL in MeOH

1 x 1 mL

Technical Note

This expanded analyte list for Method 465-D contains all the analytes in one multi-component standard at a high concentration. This eliminates the need to combine more than one standard to cover the complete analyte list. The "Butylate" pesticide in conjunction with the MDA Method 465 formulation has all the required analytes for the Wisconsin DATCP pesticide program. Since many labs perform work in both Minnesota and Wisconsin, a single calibration curve can be used to monitor analytes covered by both methods.

Wisconsin DNR VOC Mixture

S-989
2.0 mg/mL each in MeOH

Benzene
Bromobenzene
Bromodichloromethane
n-Butylbenzene
sec-Butylbenzene
tert-Butylbenzene
Carbon tetrachloride
Chlorobenzene
Chlorodibromomethane
Chloroethane
Chloroform
Chloromethane
2-Chlorotoluene
4-Chlorotoluene
1,2-Dibromo-3-chloropropane
1,2-Dibromoethane
1,2-Dichlorobenzene
1,3-Dichlorobenzene

1,4-Dichlorobenzene
Dichlorodifluoromethane
1,1-Dichloroethane
1,2-Dichloroethane
1,1-Dichloroethene
cis-1,2-Dichloroethene
trans-1,2-Dichloroethene
1,2-Dichloropropane
1,3-Dichloropropane
2,2-Dichloropropane
Diisopropyl ether
Ethylbenzene
Hexachlorobutadiene
Isopropylbenzene
p-Isopropyltoluene
Methylene chloride
Methyl *tert*-butyl ether

Naphthalene
n-Propylbenzene
1,1,2,2-Tetrachloroethane
Tetrachloroethene
Toluene
1,2,3-Trichlorobenzene
1,2,4-Trichlorobenzene
1,1,1-Trichloroethane
1,1,2-Trichloroethane
Trichloroethene
Trichlorofluoromethane
1,2,4-Trimethylbenzene
1,3,5-Trimethylbenzene
Vinyl chloride
o-Xylene
m-Xylene
p-Xylene

1 x 1 mL
52 comps.



Biocides are used in all types of industries to control viruses, bacteria, fungi, insects and animals. The intended use and chemical potency of biocides require that their use, storage and disposal be controlled to prevent adverse effects to the public and/or environment. To ensure the safety of biocides, government regulations are in place to assess the active substances within commercial products.

One such regulation is the Biological Products Directive 98/8/EC (BPD), which has been recently revised and is now designated as EU Biocides Regulation 528/2012 (EU BPR). Under this legislation active compounds are submitted for approval on the list of Approved Active Substances. This regulation went into effect in September 2013 and classifies biocides into 22 biocide product types, grouped into four main areas.

MAIN GROUP I: Disinfectants and general biocidal products

Product-type

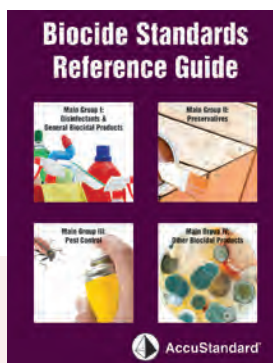
- 1: Human hygiene biocidal products
- 2: Private and public health areas disinfectants and other biocidal products
- 3: Veterinary hygiene biocidal products
- 4: Food and feed areas disinfectants
- 5: Drinking water disinfectants



MAIN GROUP II: Preservatives

Product-type

- 6: In-can preservatives
- 7: Film preservatives
- 8: Wood preservatives
- 9: Fiber, leather, rubber and polymerized materials preservatives
- 10: Masonry preservatives
- 11: Preservatives for liquid-cooling and processing systems
- 12: Slimicides
- 13: Metalworking-fluid preservatives



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Biocide Guide
from our website



MAIN GROUP III: Pest control

Product-type

- 14: Rodenticides
- 15: Avicides
- 16: Molluscicides
- 17: Piscicides
- 18: Insecticides, acaricides and products to control other arthropods
- 19: Repellents and attractants



MAIN GROUP IV: Other biocidal products

Product-type

- 20: Preservatives for food or feedstocks
- 21: Anti-fouling products
- 22: Embalming and taxidermist fluids
- 23: Control of other vertebrates

Biocide Standards

Compound	CAS No.	Group / Uses	Cat. No.	Unit
Abamectin	71751-41-2	III / 18	BIOC-236N-10MG	10 mg
Acetamiprid	135410-20-7	III / 18	BIOC-237N-10MG	10 mg
Allethrin	584-79-2	III / 18	BIOC-239N-10MG	10 mg
Ammonium bromide	1212-97-9	I, II / 2, 4, 6, 7, 9, 11, 12	BIOC-095N-10MG	10 mg
Ammonium sulfate	7783-20-2	II / 11, 12	BIOC-168N	100 mg
Azamethiphos	35575-96-3	III / 18	BIOC-215N-10MG	10 mg
Bendiocarb	22781-23-3	III / 18	BIOC-211N-10MG	10 mg
Benzalkonium chloride (Tech)	63449-41-2	I, II, III, IV / 1,2,3,4,5,6,7,9,10, 11,12,13,17, 22	BIOC-052N	100 mg
Benzethonium chloride	121-54-0	I / 1	BIOC-018N-25MG	25 mg
1,2-Benzisothiazol-3(2H)-one	2634-33-5	I, II, IV / 2, 6, 7, 9, 10, 11, 12, 13, 22	BIOC-082N	1 mL
			19.3 Wt.% in Water	
Benzoic acid	65-85-0	I, II, IV / 1, 2, 3, 4, 6, 11, 20	BIOC-006N-25MG	25 mg
Benzyl benzoate	120-51-4	I, III / 2, 18	BIOC-067N	100 mg
Benzyltrimethylammonium chloride	139-07-1	I, II / 2, 4, 6, 7, 9, 11, 12	BIOC-197N	10 mg
2-Benzyl-4-chlorophenol	120-32-1	I, II / 1, 2, 3, 4, 6	BIOC-017N	100 mg

Biocide Standards continued on next page



Biocides

Biocide Standards

Compound	CAS No.	Group / Uses	Cat. No.	Unit
Bifenthrin	82657-04-3	II, III / 8, 18	BIOC-161N-10MG	10 mg
2-Biphenylol sodium salt tetrahydrate	132-27-4	I, II / 1, 2, 3, 4, 6, 7, 9, 10, 13	BIOC-022N	100 mg
Boric acid	10043-35-3	I, II, III, IV / 1, 2, 3, 6,7,8,9,10,11,12,13,18,22	BIOC-044N-1G	1 gram
Brodifacoum	56073-10-0	III / 14	BIOC-180N-10MG	10 mg
Bromadiolone	28772-56-7	III / 14	BIOC-178N-10MG	10 mg
Bromoacetic acid	79-08-3	I / 4	BIOC-114N	100 mg
2-Bromo-2-(bromomethyl)pentanedinitrile	35691-65-7	II / 6, 7, 9, 10, 11, 13	BIOC-136N	100 mg
2-Bromo-2-nitropropane-1,3-diol	52-51-7	I, II, IV / 1, 2, 3, 4, 6, 7, 9, 10, 11, 12, 13, 22	BIOC-002N-25MG	25 mg
N-Bromosuccinimide	128-08-5	I / 1, 2, 3, 4, 5	BIOC-240N	25 mg
Busan (TCMTB)	21564-17-0	I, II / 2, 4, 6, 7, 9, 10, 11, 12, 13	BIOC-097S-CN	1 mL
			100 µg/mL in Acetonitrile	
Calcium hydroxide	1305-62-0	I / 2, 3	BIOC-078N	100 mg
Calcium hypochlorite	7778-54-3	I, II / 1, 2, 3, 4, 5, 11	BIOC-041N	100 mg
Calcium oxide	1305-78-8	I / 2, 3	BIOC-079N	100 mg
Calcium sorbate	7492-55-9	I, II, IV / 1, 3, 6, 7, 9, 20	BIOC-032N	100 mg
Captan	133-06-2	II / 6, 7, 9, 10	BIOC-122N-10MG	10 mg
Carbendazim	10605-21-7	II / 6, 7, 9, 10, 11, 12, 13	BIOC-133N-10MG	10 mg
Cetylpyridinium chloride	123-03-5	I, II, IV / 1, 2, 3, 4, 5, 6, 7, 9, 20	BIOC-020N	100 mg
Chloralose	15879-93-3	III, IV / 14, 15, 23	BIOC-177N-10MG	10 mg
Chloramine T trihydrate	7080-50-4	I, II / 1, 2, 3, 4, 5, 6, 9, 10, 11	BIOC-021N	100 mg
Chlorfenapyr	122453-73-0	II, III / 6, 7, 8, 9, 10, 12, 13, 18	BIOC-143N-10MG	10 mg
Chloroacetamide	79-07-2	I, II / 3, 6, 7, 9, 10, 11, 13	BIOC-109N	100 mg
4-Chloro-3,5-dimethylphenol	88-04-0	I, II / 1, 2, 3, 4, 5, 6	BIOC-012N-25MG	25 mg
4-Chloro-3-methylphenol	59-50-7	I, II / 1, 2, 3, 4, 6, 9, 10, 13	BIOC-003N-25MG	25 mg
Chlorophacinone	3691-35-8	III / 14	BIOC-175N-10MG	10 mg
Chlorothalonil	18974-45-6	II / 6, 7, 9, 10	BIOC-126N-10MG	10 mg
Chlorotoluron	15545-48-9	II / 6, 7, 9, 10, 11, 12, 13	BIOC-134N-10MG	10 mg
Cinnamal	104-55-2	I / 2	BIOC-062N	100 mg
Citric acid	77-92-9	I / 1, 2, 3	BIOC-010N-25MG	25 mg
Clothianidin	210880-92-5	I, II, III / 3, 8, 18	BIOC-112N-10MG	10 mg
Copper	7440-50-8	I, II, IV / 2, 4, 5, 11, 21	BIOC-089S	100 mL
			1000 µg/mL in 2-5% Nitric acid	
Copper (II) carbonate	12069-69-1	II / 8	BIOC-154N	100 mg
Copper dihydroxide	20427-59-2	II / 8	BIOC-155N	100 mg
Copper (I) oxide	1317-39-1	IV / 21	BIOC-151N	100 mg
Copper (II) oxide	1317-38-0	II / 8	BIOC-203N	100 mg
Copper (II) sulfate	7758-98-7	I / 1, 2, 4	BIOC-039N-1G	1 gram
Copper thiocyanate	1111-67-7	III, IV / 19, 21	BIOC-202N	100 mg
Coumatetralyl	5836-29-3	III / 14	BIOC-176N-10MG	10 mg
Creosote from beechwood tar	8021-39-4	II / 8	BIOC-153N	100 mg
m-Cresol	108-39-4	I / 2, 3	BIOC-064N	100 mg
Cyanamide	420-04-2	I, III / 3, 18	BIOC-110N	100 mg
N-Cyclopropyl-1,3,5-triazine-2,4,6-triamine	66215-27-8	III / 18	BIOC-221N-10MG	10 mg
Cyfluthrin - Mix of isomers	68359-37-5	III / 18	BIOC-222N-10MG	10 mg
L-Cyhalothrin	91465-08-6	III / 18	BIOC-227N-10MG	10 mg
a-Cypermethrin	67375-30-8	II, III / 6, 9, 18	BIOC-142N-10MG	10 mg
Cypermethrin	52315-07-8	II, III / 8, 9, 18	BIOC-156N-10MG	10 mg
Cyphenothrin	39515-40-7	III / 18	BIOC-216N-10MG	10 mg
Cyproconazole	94361-06-5	II / 8	BIOC-162S	1 mL
			100 µg/mL in Methanol	
Dazomet	533-74-4	I, II / 6, 7, 8, 9, 10, 11, 12	BIOC-125N-10MG	10 mg
Decanoic acid	334-48-5	I, III / 4, 18, 19	BIOC-116N *	100 mg
Deltamethrin	52918-63-5	III / 18	BIOC-218N-10MG	10 mg
Diazinon	333-41-5	III / 18	BIOC-201N-10MG	10 mg
Diazolidinyl urea	78491-02-8	II / 6, 7	BIOC-140N	100 mg
Diboron trioxide	1303-86-2	II / 8	BIOC-150N	100 mg
2,2-Dibromo-2-cyanoacetamide	10222-01-2	I, II / 1, 2, 3, 4, 5, 6, 7, 9, 10, 11, 12, 13	BIOC-046N	100 mg
1,3-Dibromo-5,5-dimethylhydantoin	77-48-5	I, II / 2, 11, 12	BIOC-057N	100 mg
Dichlofluanid	1085-98-9	II, IV / 7, 8, 10, 21	BIOC-146N-10MG	10 mg
2,4-Dichlorobenzyl alcohol	1777-82-8	I, II / 2, 6, 7, 9, 10, 12, 13	BIOC-081N	100 mg
1,3-Dichloro-5,5-dimethylhydantoin	118-52-5	I, II / 2, 11, 12	BIOC-066N-1G	1 gram
Dichlorophen	97-23-4	I, II / 2, 3, 4, 6, 7, 9, 10, 11, 12, 13	BIOC-061N-10MG	10 mg
Dichlorvos	62-73-7	III / 18	BIOC-185N-10MG	10 mg
Didecyl-dimethylammonium chloride	7173-51-5	I, II / 1, 2, 3, 4, 6, 7, 8, 9, 10, 11, 12, 13	BIOC-030N-10MG	10 mg
			BIOC-030S	1 mL
			100 µg/mL in Methanol	
1,3-Didecyl-2-methyl-1H-imidazolium chloride	70862-65-6	I, II / 2, 3, 4, 6, 7, 10, 11, 12, 13	BIOC-103N	100 mg
N,N-Diethyl-m-toluamide (DEET, OFF)	134-62-3	III, IV / 19, 22	BIOC-196N-10MG	10 mg
Difenacoum	56073-07-5	III / 14	BIOC-179S-D	1 mL
			100 µg/mL in Dichloromethane	
Diffubenzuron	35367-38-5	III / 18	BIOC-214N-10MG	10 mg
Diphenoxarsin-10-yl oxide	58-36-6	II / 9	BIOC-163N	100 mg
Dipotassium disulfite	16731-55-8	I, II, IV / 1, 2, 4, 5, 6, 9, 11, 12, 13, 20, 22	BIOC-047N-1G	1 gram
Diuron (Karmex)	330-54-1	II / 6, 7, 10	BIOC-124N-10MG	10 mg
Disilver oxide	20667-12-3	II / 11	BIOC-169N	100 mg
2,2'-Dithiobis(pyridine-N-oxide)	3696-28-4	II / 9	BIOC-165N-10MG	10 mg



Biocide Standards

Compound	CAS No.	Group / Uses	Cat. No.	Unit
Empenthrin	54406-48-3	III / 18	BIOC-219N-10MG	10 mg
Esfenvalerate	66230-04-4	III / 18	BIOC-235N-10MG	10 mg
Ethanol	64-17-5	I / 1, 2, 3, 4	BIOC-004N-25MG	25 mg
5-Ethyl-1-aza-3,7-dioxabicyclo[3,3,0]octane	7747-35-5	II / 6, 11, 12, 13	BIOC-132N	100 mg
Ethyl butylacetetylaminopropionate	52304-36-6	III / 18	BIOC-217S 100 µg/mL in Methanol	1 mL
Ethylene oxide	75-21-8	I, IV / 2, 20	BIOC-056S-TP 5 mg/mL in Isooctane	1 mL
Etofenprox	80844-07-1	I, II, III / 2, 3, 8, 18	BIOC-106N-10MG	10 mg
Fenitrothion	122-14-5	III / 18	BIOC-191S 100 µg/mL in Methanol	1 mL
Fenoxycarb	72490-01-8	II / 8	BIOC-157N-10MG	10 mg
Fenpropimorph	67564-91-4	II / 6, 7, 8, 9, 10, 12, 13	BIOC-139N-10MG	10 mg
Fipronil	120068-37-3	III / 18	BIOC-229N-10MG	10 mg
Flocoumafen	90035-08-8	III / 14	BIOC-181S 100 µg/mL in Methanol	1 mL
Flufenoxuron	101463-69-8	II, III / 8, 18	BIOC-158N-10MG	10 mg
Fluometuron	2164-17-2	II / 6, 7, 9, 10, 11, 12, 13	BIOC-127N-10MG	10 mg
Folpet	133-07-3	II / 6, 7, 9, 10	BIOC-123N-10MG	10 mg
Formic acid	64-18-6	I, II / 1, 2, 3, 4, 5, 6, 9, 11, 12, 13	BIOC-005N-25MG	25 mg
Geraniol	106-24-1	III / 18, 19	BIOC-188N	100 mg
Glutaraldehyde	111-30-8	I, II, IV / 1, 2, 3, 4, 5, 6, 7, 9, 10, 11, 12, 13, 22	BIOC-016S-W 50% wt. in Water	1 mL
Glycolic acid	79-14-1	I, II / 2, 3, 4, 12	BIOC-058N	100 mg
Guazatine acetate (Tech)	115044-19-4	I / 2	BIOC-108N-10MG	10 mg
Hexaflumuron	86479-06-3	III / 18	BIOC-224N-10MG	10 mg
Hexahydro-1,3,5-tris(hydroxyethyl)triazine	4719-04-4	I, II / 2, 3, 4, 6, 9, 11, 12, 13	BIOC-086N	100 mg
Hydramethylnon	67485-29-4	III / 18	BIOC-226S 100 µg/mL in Methanol	1 mL
2-Hydroxy-4-isopropyl-2,4,6-cycloheptatrien-1-one	499-44-5	II / 10	BIOC-167N	100 mg
tris(Hydroxymethyl)nitromethane	126-11-4	I, II / 2, 3, 6, 11, 12, 13	BIOC-068N	100 mg
N,N'-bis(Hydroxymethyl)urea (MFG)	140-95-4	I, II / 2, 6, 9, 11, 12, 13	BIOC-074N	100 mg
Icaridin	119515-38-7	III / 19	BIOC-228S-CN 100 µg/mL in Acetonitrile	1 mL
Imazalil	35554-44-0	I, II, IV / 2, 3, 4, 13, 20	BIOC-099N-10MG	10 mg
Imidacloprid	138261-41-3	III / 18	BIOC-230N-10MG	10 mg
Imiprothrin	72963-72-5	III / 18	BIOC-231S-CN 100 µg/mL in Acetonitrile	1 mL
Iodine	7553-56-2	I, II, IV / 1, 2, 3, 4, 5, 6, 7, 9, 10, 11, 22	BIOC-033N	100 mg
3-Iodo-2-propynyl butylcarbamate	55406-53-6	II / 6, 7, 8, 9, 10, 11, 13	BIOC-138N	100 mg
Irgarol	28159-98-0	II / 7, 9, 10	BIOC-148N-10MG	10 mg
Isopropanol	67-63-0	I, II / 1, 2, 3, 4, 5, 6, 9, 10, 11, 12	BIOC-007N-25MG	25 mg
Isoproturon	34123-59-6	II / 6, 7, 9, 10, 11, 12, 13	BIOC-135N-10MG	10 mg
L-(+)-Lactic acid	79-33-4	I, II, IV / 2, 3, 4, 6, 20	BIOC-059N-50MG	50 mg
Lauric acid	143-07-7	III / 19	BIOC-199N	100 mg
Lauryl dimethylamine oxide	70592-80-2	I / 1, 2	BIOC-053N	100 mg
Lignin (Alkaline)	9005-53-2	I, II / 1, 2, 3, 4, 6, 7, 9, 10, 11, 12, 13	BIOC-043N-1G	1 gram
Linalool	78-70-6	III / 19	BIOC-186N	100 mg
Magnesium bis(monoperoxyphthalate) hexahydrate	84665-66-7	I / 2, 3, 4	BIOC-104N	100 mg
Margosa extract	84696-25-3	III / 18, 19	BIOC-223N	100 mg
(R)-p-Mentha-1,8-diene	5989-27-5	II / 12	BIOC-170N	100 mg
(+)-cis-p-Menthane-3,8-diol	42822-86-6	I, III / 1, 2, 19	BIOC-050S-CN 100 µg/mL in Acetonitrile	1 mL
2-Mercaptobenzothiazole	149-30-4	I, II / 2, 7, 9, 11, 12, 13	BIOC-077N-10MG	10 mg
Metam-sodium dihydrate	6734-80-1	I, II, IV / 2, 4, 6, 9, 11, 12, 13, 20	BIOC-073N-10MG	10 mg
S-Methoprene	65733-16-6	III / 18	BIOC-234S 100 µg/mL in Methanol	1 mL
Methyl anthranilate	134-20-3	III / 19	BIOC-195N	100 mg
N,N'-Methylenebismorpholine	5625-90-1	II / 6, 9, 11, 13	BIOC-129S 100 µg/mL in Methanol	1 mL
Methylene dithiocyanate	6317-18-6	II, IV / 6, 7, 9, 10, 11, 12, 13, 22	BIOC-130N	100 mg
2-Methyl-2H-isothiazol-3-one	2682-20-4	I, II, IV / 2, 4, 6, 7, 9, 10, 11, 12, 13, 22	BIOC-083N-10MG	10 mg
Monolinuron	1746-81-2	I / 2	BIOC-080N-10MG	10 mg
Myristyltrimethylammonium bromide	1119-97-7	I / 1	BIOC-024N	100 mg
Nabam	142-59-6	I, II / 2, 4, 6, 9, 10, 11, 12, 13	BIOC-075N-10MG	10 mg
Naled	300-76-5	III / 18	BIOC-200N-10MG	10 mg
Naphthalene	91-20-3	III / 19	BIOC-187N	100 mg
Nonanoic acid	112-05-0	I, II, III / 2, 10, 19	BIOC-065N	100 mg
Octanoic acid	124-07-2	I, III / 4, 18	BIOC-115N	100 mg
Oct-1-ene-3-ol	3391-86-4	III / 19	BIOC-205N	100 mg
2-Octyl-2H-isothiazol-3-one	26530-20-1	I, II / 4, 6, 7, 9, 10, 11, 12, 13	BIOC-119N-10MG	10 mg
Orthophosphoric acid	7664-38-2	I / 4	BIOC-117N-1G	1 gram
Oxazolidine	121776-33-8	I, II / 2, 6, 10, 11, 12, 13	BIOC-102S 100 µg/mL in Methanol	1 mL
Peracetic acid	79-21-0	I, II / 1, 2, 3, 4, 5, 6, 11, 12	BIOC-011N	100 mg

Biocide Standards continued on next page



Biocides

Biocide Standards

Compound	CAS No.	Group / Uses	Cat. No.	Unit
Permethrin	52645-53-1	I, II, III, IV / 2, 3, 5, 8, 9, 18, 22	BIOC-100N-10MG	10 mg
2-Phenoxyethanol	122-99-6	I, II / 1, 2, 3, 4, 6, 7, 10, 11, 13	BIOC-019N-25MG	25 mg
o-Phenylphenol	90-43-7	I, II / 1, 2, 3, 4, 6, 7, 9, 10, 13	BIOC-013N-25MG	25 mg
Piperonyl butoxide	51-03-6	III / 18, 19	BIOC-184N-10MG	10 mg
Poly(vinylpyrrolidone) Iodine complex	25655-41-8	I, II, III, IV / 1, 2, 3, 4, 5, 6, 7, 9, 10, 11, 22	BIOC-055N	100 mg
Potassium dimethyl dithiocarbamate	128-03-0	I, II / 2, 4, 6, 9, 10, 11, 12, 13	BIOC-069N-50MG	50 mg
Potassium monopersulfate triple salt	70693-62-8	I, II / 1, 2, 3, 4, 5, 11, 12	BIOC-054N-500MG	500 mg
Potassium permanganate	7722-64-7	I / 5	BIOC-121N	100 mg
Potassium sorbate	24634-61-5	I, II / 1, 2, 3, 4, 5, 6, 7, 8, 9, 10	BIOC-049N	100 mg
Potassium sulfite	10117-38-1	I, II, IV / 1, 2, 4, 5, 6, 9, 11, 12, 13, 20, 22	BIOC-045N	100 mg
Prallethrin	23031-36-9	III / 18	BIOC-212S	1 mL
Prometryne	7287-19-6	II / 6, 7, 9, 10, 11, 12, 13	BIOC-131N-10MG	10 mg
1-Propanol	71-23-8	I / 1, 2, 3, 4	BIOC-009N-25MG	25 mg
Propiconazole	60207-90-1	I, II, IV / 1, 2, 4, 7, 8, 9, 10, 12, 13, 20	BIOC-051N-10MG	10 mg
Propoxur	114-26-1	III / 18	BIOC-190N-10MG	10 mg
Pyrethrins (Tech Mix)	8003-34-7	III / 18, 19	BIOC-209N-10MG	10 mg
Pyridine-2-thiol-1-oxide, sodium salt	3811-73-2	I, II / 2, 3, 4, 6, 7, 9, 10, 11, 12, 13	BIOC-085N-10MG	10 mg
Pyriproxyfen	95737-68-1	III / 18	BIOC-232N-10MG	10 mg
Quaternium-15	51229-78-8	II / 6, 9, 12, 13	BIOC-141N	100 mg
Rotenone	83-79-4	III / 17	BIOC-183N-10MG	10 mg
Salicylic acid	69-72-7	I, II / 1, 2, 3, 4, 6	BIOC-008N-25MG	25 mg
Silicium dioxide	61790-53-2	III / 18	BIOC-233N	100 mg
Silicon dioxide	7631-86-9	I, III, IV / 3, 18, 20	BIOC-111N	100 mg
Silver	7440-22-4	I, II / 2, 4, 5, 9, 11	BIOC-088S	100 mL
Silver chloride	7783-90-6	I, II / 1, 2, 3, 4, 5, 6, 7, 9, 10, 11, 13	BIOC-042N	100 mg
Silver nitrate	7761-88-8	I / 1	BIOC-040N	100 mg
Sodium benzoate	532-32-1	I, II, IV / 1, 2, 6, 11, 20	BIOC-023N	100 mg
Sodium bisulfite	7631-90-5	I, II, IV / 1, 2, 4, 5, 6, 9, 11, 12, 13, 20, 22	BIOC-034N-1G	1 gram
Sodium bromide	7647-15-6	I, II / 2, 4, 6, 7, 9, 11, 12, 13	BIOC-091N	100 mg
Sodium chlorate	7775-09-9	I, II / 2, 5, 11, 12	BIOC-093N	100 mg
Sodium chloride	7647-14-5	I / 5	BIOC-120N	100 mg
Sodium chlorite	7758-19-2	I, II, IV / 2, 3, 4, 5, 11, 12, 20	BIOC-092N	100 mg
Sodium dichloroisocyanurate dihydrate	51580-86-0	I, II / 1, 2, 3, 4, 5, 6, 9, 11, 12	BIOC-028N	100 mg
Sodium dimethylarsinate	124-65-2	III / 18	BIOC-194N-10MG	10 mg
Sodium dimethyldithiocarbamate hydrate	207233-95-2	I, II / 2, 3, 4, 5, 6, 9, 10, 11, 12, 13	BIOC-070N	100 mg
Sodium lignosulfonate (Tech)	8061-51-6	II / 12	BIOC-171N	100 mg
Sodium metabisulfite	7681-57-4	I, II, IV / 1, 2, 4, 5, 6, 9, 11, 12, 13, 20, 22	BIOC-036N-1G	1 gram
Sodium persulfate	7775-27-1	I / 4	BIOC-118N	100 mg
Sodium sulphite	7757-83-7	I, II, IV / 1, 2, 4, 5, 6, 9, 11, 12, 13, 20, 22	BIOC-038N-1G	1 gram
Sodium tetraborate	1330-43-4	I, II / 1, 2, 7, 8, 9, 10, 11, 13	BIOC-025N	100 mg
Sorbic acid	110-44-1	I, II / 1, 2, 3, 4, 5, 6, 7, 8, 9, 10	BIOC-015N	100 mg
Spinosad (Tech)	168316-95-8	I, III / 3, 18	BIOC-113N-10MG	10 mg
Sumithrin	26002-80-2	III / 18	BIOC-238N-10MG	10 mg
Symclosene	87-90-1	I, II / 2, 3, 4, 5, 6, 7, 9, 11, 12	BIOC-060N	100 mg
Tebuconazol	107534-96-3	II / 7, 8, 9, 10	BIOC-149N-10MG	10 mg
Terbutylazine	5915-41-3	I, II / 2, 11, 12	BIOC-087N-10MG	10 mg
Terbutryn	886-50-0	II / 7, 9, 10	BIOC-145N-10MG	10 mg
Tetramethrin	7696-12-0	III / 18	BIOC-207N-10MG	10 mg
Thiabendazole	148-79-8	I, II, IV / 2, 6, 7, 8, 9, 10, 11, 12, 13, 20	BIOC-076N-10MG	10 mg
Thiamethoxam	153719-23-4	II, III / 8, 9, 18	BIOC-159N-10MG	10 mg
Thiram	137-26-8	I, II / 2, 6, 7, 9, 10, 11, 12	BIOC-071N	100 mg
THPS (Tech Grade)	55566-30-8	I, II / 2, 6, 9, 11, 12	BIOC-101N	100 mg
Tolnaftate	2398-96-1	II / 9	BIOC-164N-25MG	25 mg
Tolyfluanide	731-27-1	II, IV / 7, 8, 10, 21	BIOC-144N-10MG	10 mg
Transfluthrin	118712-89-3	III / 18	BIOC-225N-10MG	10 mg
Tributyltetradecylphosphonium chloride	81741-28-8	I, II / 2, 4, 9, 11, 12	BIOC-105N	100 mg
bis(Trichloromethyl)sulphone	3064-70-8	II, IV / 6, 9, 10, 11, 12, 22	BIOC-128N-10MG	10 mg
2,4,6-Trichlorophenol sodium salt	3784-03-0	I, II / 2, 3, 6, 9	BIOC-084N	100 mg
Triclocarban	101-20-2	I / 1, 2, 4	BIOC-014N-25MG	25 mg
Triclosan	3380-34-5	I, II / 1, 2, 3, 7, 9	BIOC-029N	100 mg
cis-Tricos-9-ene	27519-02-4	III / 18, 19	BIOC-213N	100 mg
Triflumuron	64628-44-0	III / 18	BIOC-220N-10MG	10 mg
Undecan-2-one (Methyl-nonyl-ketone)	112-12-9	III / 19	BIOC-189S-CN	1 mL
Warfarin	81-81-2	III / 14	BIOC-172N-10MG	10 mg
Warfarin sodium	129-06-6	III / 14	BIOC-174N	100 mg
Zinc borate (Tech)	12767-90-7	II / 9	BIOC-166N	100 mg
Zinc pyriithione	13463-41-7	I, II, IV / 2, 6, 7, 9, 10, 13, 21	BIOC-096N	100 mg
Zinc sulfide	1314-98-3	II / 7, 9, 10	BIOC-147N	100 mg
Zineb	12122-67-7	IV / 21	BIOC-210N-10MG	10 mg
Ziram	137-30-4	I, II / 2, 6, 7, 9, 10, 11, 12	BIOC-072N-10MG	10 mg

Methods Other Than EPA

Halobenzoquinone, Nonylphenol, Octylphenol Ethoxylates, F-List

Halobenzoquinones (disinfectant by-products)

Halobenzoquinones (HBQs) are disinfection by-products formed by reactions between disinfectants and organic matter in water. HBQs likely exhibit carcinogenic properties due to their structural similarities with benzoquinone and related compounds.

Each at 10 µg/mL in AcCN, 1 mL			Each at 10 µg/mL in AcCN, 1 mL		
Compound	CAS	Cat. No.	Compound	CAS	Cat. No.
2,3-Dibromo-5,6-dimethyl-1,4-benzoquinone	38969-08-3	HBQ-001S	3,4,5,6-Tetrabromo-1,2-benzoquinone	2435-54-3	HBQ-005S
2,6-Dichloro-1,4-benzoquinone	697-91-6	HBQ-002S	2,6-Dibromo-3,5-dimethyl-1,4-benzoquinone	87405-27-4	HBQ-006S
2,5-Dibromo-1,4-benzoquinone	1633-14-3	HBQ-003S	2,6-Dibromo-3-chloro-5-methyl-1,4-benzoquinone		HBQ-007S
2,3,5,6-Tetrabromo-1,4-benzoquinone	488-48-2	HBQ-004S			

ASTM D7065-06 4-tert-Octylphenol, 4-Nonylphenol and their Tech Equivalents, Mono and Multi-Ethoxylates

Nonylphenol Calibration Standard Solution

M-1626				1 x 1 mL
At stated conc. (µg/mL) in CH ₂ Cl ₂				7 comps.
Nonylphenol	160	Bisphenol A (BPA)		32
Nonylphenol monoethoxylate	320	4-Nonylphenol		32
Nonylphenol diethoxylate	640	4-Nonylphenol monoethoxylate		32
4-tert-Octylphenol	32			

Nonylphenol Internal Standard

M-1626-IS			1 x 1 mL
2000 µg/mL each in CH ₂ Cl ₂			2 comps.
Acenaphthene-d ₁₀		Phenanthrene-d ₁₀	

Nonylphenol Target Component Spike Standard

M-1626-S				1 x 1 mL
At stated conc. (µg/mL) in MeOH				5 comps.
Nonylphenol	160	4-tert-Octylphenol		32
Nonylphenol monoethoxylate	320	Bisphenol A		32
Nonylphenol diethoxylate	640			

Nonylphenol Surrogate Component Spike Standard

M-1626-SS			1 x 1 mL
32 µg/mL each in MeOH			2 comps.
4-Nonylphenol		4-Nonylphenol monoethoxylate	

Bisphenol A (BPA)

M-1626-01S		1 x 1 mL
1000 µg/mL in MeOH		

ASTM D7485 Nonylphenols

Nonylphenols in Environmental Water Set

D-7485-SET			5 x 1 mL
2500 µg/mL each in AcCN:MeOH (90:10), * except (50:50)			7 comps.
Nonylphenol	D-7485-01 *		1 mL
Nonylphenol monoethoxylate	D-7485-02		1 mL
Nonylphenol diethoxylate	D-7485-03		1 mL
Octylphenol	D-7485-04		1 mL
2-Bromo-4-(1,1,3,3-tetramethylbutyl)phenol	D-7485-SS		1 mL

Alkyl-Phenol-Metabolites

Each at 100 µg/mL in MeOH, 1 mL		
Compound	CAS No.	Cat. No.
Nonylphenol (tech)	84852-15-3	PEO-002S
Nonylphenol monoethoxylate (tech)	27986-36-3	PEO-005S
Nonylphenol diethoxylate (tech)		PEO-006S
Nonylphenol triethoxylate (tech)		PEO-008S
Nonylphenoxy acetic acid (tech)	3115-49-9	PEO-009S
Nonylphenoxyethoxyacetic acid (tech)		PEO-012S
4-n-Nonylphenol	104-40-5	PEO-004S
4-n-Nonylphenol monoethoxylate	104-35-8	PEO-007S
4-n-Nonylphenol diethoxylate	20427-84-3	PEO-014S
4-tert-Nonylphenol diethoxylate	156609-10-8	PEO-020S
4-tert-Octylphenol	140-66-9	PEO-003S
4-tert-Octylphenol monoethoxylate		PEO-010S
4-tert-Octylphenol diethoxylate		PEO-011S
4-tert-Octylphenol triethoxylate		PEO-013S
4-n-Octylphenol	1806-26-4	PEO-001S
4-n-Octylphenol monoethoxylate	51437-89-9	PEO-016S
4-n-Octylphenol diethoxylate	51437-90-2	PEO-017S
4-n-Octylphenol triethoxylate		PEO-018S
2-Bromo-4-tert-octylphenol diethoxylate		PEO-019S
2-Bromo-4-tert-octylphenol (Internal Standard)		PEO-015S-IS

F-List Hazardous Waste from Non-Specific Sources

F001 & F002 Solvent List Components

FL-0102			1 x 1 mL
2.0 mg/mL each in MeOH			10 comps.
Carbon tetrachloride	1,1,1-Trichloroethane		
Chlorobenzene	1,1,2-Trichloroethane		
1,2-Dichlorobenzene	Trichloroethene		
Methylene chloride	1,1,2-Trichloro-1,2,2-trifluoroethane		
Tetrachloroethene	Trichlorofluoromethane		

F003 List Components (excluding MeOH as analyte)

FL-0003			1 x 1 mL
2.0 mg/mL in MeOH			10 comps.
Acetone	Ethylbenzene	m-Xylene	
n-Butanol	Ethyl ether	o-Xylene	
Cyclohexanone	Methyl isbutyl ketone	p-Xylene	
Ethyl acetate			

Additional Alcohol Solvents

FL-OADD			1 x 1 mL
2.0 mg/mL each in Water			3 comps.
Ethanol	Isopropanol	Methanol	

F004 List Component Mixes

FL-0004-CR			1 x 1 mL
2.0 mg/mL in MeOH			3 comps.
m-Cresol	o-Cresol	p-Cresol	

FL-0004-CA		1 x 1 mL
2.0 mg/mL in MeOH		
Cresylic acid (technical mixture of phenol, cresols & xylenes)		

F005 List Components (includes Nitrobenzene)

FL-0005-NB			1 x 1 mL
2.0 mg/mL each in MeOH			9 comps.
Benzene	Isobutanol	2-Nitropropane	
Carbon disulfide	Methyl ethyl ketone	Pyridine	
2-Ethoxyethanol	Nitrobenzene	Toluene	

Methods Other Than EPA

ASTM and USP 467

D7598 Analysis for Thiodiglycol

ASTM Thiodiglycol Standard

D-7598 1 x 1 mL
4.0 mg/mL in MeOH

Thiodiglycol

ASTM Thiodiglycol Surrogate Standard

D-7598-SS 1 x 1 mL
4.0 mg/mL in MeOH

3,3'-Thiodipropanol

D7599 Analysis for Ethanolamines

ASTM Ethanolamine Standard

D-7599 1 x 1 mL
50 µg/mL each in MeOH
5 comps.

Diethanolamine	N-Ethyldiethanolamine
Triethanolamine	Diethanolamine-d ₈
N-Methyldiethanolamine	

ASTM Ethanolamine Surrogate Standard

D-7599-SS 1 x 1 mL
200 µg/mL in MeOH

Diethanolamine-d₈

D7600 Analysis for Carbamates

ASTM Carbamate Standard

D-7600 1 x 1 mL
At stated conc. (µg/mL) in MeOH
5 comps.

Ardicarb	200	Methomyl	200
Carbofuran	200	BDMC	400
Oxamyl	200		

ASTM Carbamate Surrogate Std.

D-7600-SS 1 x 1 mL
400 µg/mL in MeOH

BDMC

D7645 Analysis for Carbamates

ASTM Carbamate Standard

D-7645 1 x 1 mL
100 µg/mL each in MeOH
8 comps.

Ardicarb	Oxamyl
Aldicarb sulfone	Methomyl
Aldicarb sulfoxide	Thiofanox
Carbofuran	Carbofuran-d ₃

ASTM Carbamate Matrix Spike Standard

D-7645-MS 1 x 1 mL
50 µg/mL each in MeOH
7 comps.

Ardicarb	Oxamyl
Aldicarb sulfone	Methomyl
Aldicarb sulfoxide	Thiofanox
Carbofuran	

ASTM Carbamate Surrogate Std.

D-7645-SS 1 x 1 mL
D-7645-SS-PAK SAVE 5 x 1 mL
100 µg/mL in MeOH

Carbofuran-d₃

ASTM D5837 Furanic Compound Extraction in Electrical Insulating Liquids by HPLC

Furanic Compound Extraction Standard

D-5837-01 1 x 1 mL
1000 µg/mL each in AcCN
5 comps.

2-Acetylfuran	5-(Hydroxymethyl)-2-furaldehyde
2-Furaldehyde	5-Methylfurfural
Furfuryl alcohol	

Furanic Compound Calibration Standard

D-5837-02 1 x 1 mL
1000 µg/mL each in Toluene
5 comps.

2-Acetylfuran	5-(Hydroxymethyl)-2-furaldehyde
2-Furaldehyde	5-Methylfurfural
Furfuryl alcohol	

USP / National Formulary 467 Residual Solvent Standards

Residual Solvent Standard

Class 1

NF-467-CLASS1 1 x 1 mL
At stated conc. (mg/mL) in DMSO
5 comps.

Benzene	10
Carbon tetrachloride	20
1,2-Dichloroethane	25
1,1-Dichloroethene	40
1,1,1-Trichloroethane	50

Residual Solvent Standard

Class 2 Mix A

NF-467-CLASS2-A 1 x 1 mL
At stated conc. (mg/mL) in DMSO
15 comps.

Acetonitrile	2.1
Chlorobenzene	1.8
Cyclohexane	19.4
cis-1,2-Dichloroethene	4.7
trans-1,2-Dichloroethene	4.7
1,4-Dioxane	1.9
Methanol	15
Methylcyclohexane	5.9
Methylene chloride	3.0
Tetrahydrofuran	3.6
Toluene	4.5
Ethylbenzene	1.8
m-Xylene	6.5
o-Xylene	1.0
p-Xylene	1.5

Residual Solvent Standard

Class 2 Mix B

NF-467-CLASS2-B 1 x 1 mL
At stated conc. (mg/mL) in DMSO
8 comps.

Chloroform	60
1,2-Dimethoxyethane	100
Hexane	290
Methyl butyl ketone	50
Nitromethane	50
Pyridine	200
Tetralin	100
Trichloroethylene	80

Residual Solvent Standard

Class 2 Mix C

NF-467-CLASS2-C 1 x 1 mL
At stated conc. (mg/mL) in DMSO
8 comps.

N,N-Dimethylacetamide	5.5
N,N-Dimethylformamide	4.4
2-Ethoxyethanol	0.8
Ethylene glycol	3.1
Formamide	1.1
2-Methoxyethanol	0.25
N-Methyl-2-pyrrolidone	2.6
Sulfolane	0.8

Residual Solvent Standard

Class 3 Mix A

NF-467-CLASS3-A 1 x 1 mL
5.0 mg/mL each in DMF
24 comps.

Acetone	Isobutyl acetate
Anisole	Isopropyl acetate
1-Butanol	Methyl acetate
2-Butanol	3-Methyl-1-butanol
Butyl acetate	Methyl ethyl ketone
MtBE	Methyl isobutyl ketone
Dimethyl sulfoxide	2-Methyl-1-propanol
Ethanol	Pentane
Ethyl acetate	1-Pentanol
Ethyl ether	1-Propanol
Ethyl formate	2-Propanol
Heptane	Propyl acetate

Residual Solvent Standard

Class 3 Mix B

NF-467-CLASS3-B 1 x 1 mL
5.0 mg/mL each in DMF

Acetic acid
Formic acid

USP 467 Cumene Standard

NF-467-CUMENE 1 x 1 mL
5.0 mg/mL in DMF

Cumene

Petrochemical Standards

Over 100
ASTM Methods



Cross references to ISO, DIN, IP, JIS and AFNOR methods.

Our selection of Biofuel reference standards include FAMEs, FAEEs (from popular biomasses), sulfurs, physical standards, wear metals and free and total glycerin.

Reference standards to meet the most common UOP LLC (a Honeywell company) methods.

Table of Contents

ASTM Listing and Cross References	266-267
Physical Properties	268-269
Sulfur Standards	270-271
PIANO	272-273
Detailed Hydrocarbon Analysis and SIM DIS	274-275
ASTM Reference Standards	276-303
Diisocyanates	298
UOP Standards	304
Miscellaneous: Biocides in Fracking Fluids Skinner List, Fire Debris	305
Biofuels	306-309
TPH, Fuels and Hydrocarbons	310-313
Brownfield Regulation and ISO/DIS 9337	313
LUFT/LUST (UST) Methods: State Specific, GRH, DRH - TPH	314-327
Oil, Grease & TPH - EPA Methods 1664, 413.2/418.1 & 8440	327
Wear Metals (Organometallics) and Lubricating Oils	367-373



ASTM Table of Contents

ASTM Methods

ASTM #	Related Method Description	Page	ASTM #	Related Method Description	Page
	Cross Reference Tables (ASTM,IP,ISO,DIN,JIS,AFNOR)	267	D5442	Petroleum Waxes by GC	283
	PIANO, PONA, PNA by GC	272-273	D5443	PNA Analysis by Multidimensional GC	283
D56	Flash Point by TAG Closed Cup	268	D5453	Sulfur by Ultra Violet Fluorescence	270-271, 283, 303
D86	Synthetic Distillation Standard	268	D5482	Vapor Pressure Standards	281, 284
D92	Flash Point Standards (COC)	268	D5501	Ethanol Analysis by GC	284
D93	Flash Point Standards (PMCC)	268	D5580	Aromatics by GC	285
D445	Viscosity Calibration Standard	268	D5599	Oxygenates by OFID	286-287
D611	Aniline Point Standard	268	D5622	Oxygenates by Reductive Pyrolysis	289
D1015	Freezing Point Standards	269	D5623	Sulfur Compounds by Sulfur Selective Detection	289
D1319	Olefin Analysis by FIA	269	D5708	Trace Metals by ICP	289, 370
D1744	Water in Liquid Petroleum Products	269	D5762	Nitrogen by Chemiluminescence	289
D2386	Freezing Point Calibration Standards	269	D5769	Aromatics by GC/MS	290-297
D2500	Cloud Point Calibration Standards	269	D5771	Cloud Point of Petro Products	269
D2622	Sulfur by XRF	270-271	D5772	Cloud Point of Petro Products (Linear Cooling Rate)	269
D2789	Hydrocarbon Analysis in Gasoline by GC/MS	274	D5773	Cloud Point of Petro Products (Constant Cooling Rate)	269
D2887	Boiling Range by GC	274, 277	D5836	Diisocyanates	298
	Simulated Distillation (SIM DIS) by GC		D5837	Furanic Compounds in Electrical Insulation (HPLC)	298
D3120	Sulfur by Oxidative Microcoulometry	270-271	D5863	Ni, V, Fe & Na in Crude Oils and Residual Fuels by AA	298, 371
D3230	Salts in Crude Oil	275, 363	D5972	Freezing Point Aviation Fuels	269
D3231	Phosphorus in Gasoline	368	D5986	Oxygenates and Aromatics by GC/FTIR	298
D3237	Lead in Gasoline by AA	275, 363	D6042	Plastic Packaging Testing	94
D3246	Sulfur in Petroleum Gas by Oxidative Microcoulometry	270-271, 275	D6160	PCBs by GC	299
			D6258	Solvent Red 164 Dye Concentration in Diesel Fuels	299
D3524	Diesel Fuel Diluent in Used Diesel Engine Oils by GC	275	D6293	Oxygenates (O-PONA) in Engine Fuels by GC	299
D3605	Trace Metal in Gas Turbine Fuels by AA	374	D6296	Total Olefins in Spark Ignition Engine Fuels by GC	300
D3606	Benzene & Toluene in Finished Motor & Aviation Gas by GC	276	D6304	Water in Liquid Petro Products	269, 300
D3710	Boiling Range by GC	277	D6334	Sulfur in Gasoline by Wavelength WD-XRF	270-271, 300
D3798	p-Xylene Analysis by GC	277	D6352	Boiling Range Distribution of Petroleum	300
D3831	Manganese in Gasoline by AA	277, 374	D6378	Vapor Pressure	301
D4059	PCB Analysis by GC	277	D6379	Aromatic Hydrocarbon by HPLC	301
D4291	Ethylene Glycol by GC	278	D6417	Engine Oil by GC	301
D4294	Sulfur by ED-XRF	270-271, 278	D6428	Sulfur by ECD	301
D4377	Water in Liquid Petroleum Products	269, 278	D6443	Metals in Oil	301, 371-374
D4420	Aromatics in Gasoline by GC	278	D6445	Sulfur in Gasoline by ED-XRF	270-271, 301
D4628	Wear Metals in Lube Oil	278, 370, 373	D6481	Lube Oils by ED-XRF	301, 371-374
D4629	Nitrogen by Chemiluminescence	278	D6550	Olefin Content of Gasoline by SFC	301
D4815	Oxygenates in Gasoline by GC	279	D6584	(EN14105) Free and Total Glycerin	302
D4927	Wear Metals and Additives by WD-XRF	279, 371-374	D6591	(IP 391) Aromatic Hydrocarbon by HPLC	302
D4928	Water in Liquid Petroleum Products	269, 279	D6751	Sulfur in Biodiesel	303
D4929	Organic Chloride Content in Crude Oil	279	D7065	Nonylphenol and Octylphenol	263
D4951	Wear Metals and Additives by ICP	279, 371-374	D7751	Lube Oils by ED-XRF	274
D5056	Trace Metals in Petroleum Coke by AA	279, 367	D7485	Nonylphenol and Octylphenol	263
D5059	Lead in Gasoline by X-Ray Spectroscopy	280	D7598	Thiodiglycol by LC/MS/MS	264
D5134	Petroleum Naphthas through n-Nonane by GC	280	D7599	Ethanolamines by LC/MS/MS	264
D5184	Al and Si by ICP-AES and AA	280, 348	D7600	Carbamates by LC/MS/MS	264
D5185	Wear Metals and Additives by ICP	280, 369	D7645	Carbamates by LC/MS/MS	264
D5186	Aromatics by SFC	280	D8083	Nitrogen in Water	343
D5188	Vapor - Liquid Ratio Temperature	281			
D5191	Vapor Pressure Standards	281, 284	E1064	Water in Petroleum	269
D5307	Boiling Range Distribution of Crude Petroleum by GC	281	E1387	Fire Debris Analysis	305
D5441	MtBE Analysis by GC	282	E1618	Fire Debris Analysis	305

Sulfur Standards Group

D2622	Sulfur by XRF
D3120	Sulfur by Oxidative Microcoulometry
D3246	Sulfur in Petro Gas by Oxidative Microcoulometry
D4294	Sulfur by ED-XRF
D5453	Sulfur by Ultra Violet Fluorescence
D5623	Sulfur Compounds by Sulfur Selective Detection
D6334	Sulfur in Gasoline by Wavelength WD-XRF
D6445	Sulfur in Gasoline by ED-XRF

Wear Metals Group

D3605	Trace Metals in Gas Turbine Fuel by AA
D4628	Wear Metals in Lube Oil
D4927	Wear Metals and Additives by WDXRF
D4951	Wear Metals and Additives by ICP
D5185	Wear Metals and Additives by ICP
D5708	Trace Metals by ICP
D5863	Trace Metals by AA
D6443	Metals in Oil
D6481	Lube Oils by ED-XRF

MEMBER



Additional Methods

Motor Oil Standards	311
Chlorine in Lube Oil	279
Method 1664, Oil, Grease and TPH	327
Method 413.2, 418.1 and TPH Analysis	327
Method 8440 TPH Analysis	327
Method 1004 Alcohol Oxidation Products in Engine Exhaust	315



ASTM Committee D02 has jurisdiction over 580 published methods pertaining to petroleum products and lubricants. AccuStandard is a member of this technical committee, as well as ASTM Committee D16 on Aromatic Hydrocarbons. Working with fellow committee members has given us the opportunity to formulate products to meet the requirements of many of these methods.

In addition, AccuStandard can prepare, package and ship products for both ASTM PTP's (proficiency testing programs) and Interlaboratory studies. Please contact our Technical Service Department for more information.

Use this Cross-reference Table to match other Methods for known Petrochemical analysis.

ANALYSIS	ASTM	IP	ISO	DIN	JIS	AFNOR
Tag Flash Point	D56			51411	K 2580	M07-003
Distillation	D86	123	3405	51751	K 2254	M07-002
COC Flash Point	D92	36	2592	51376	K 2265	T60-118
PMCC Flash Point	D93	34	2719	51758	K 2265	M07-019
Kinematic Viscosity	D445	71-1	3104	51562	K 2283	T60-100
Aniline Point	D611	2	2977	51775		M07-021
Hydrocarbon Types by FID	D1319	156	3837	51791	K 2536	M07-024
Water (Karl Fischer)	D1744		6296			T60-154
Freezing Point	D2386	16	3013	51421	K 2276	M07-048
Cloud Point	D2500	219	3015	51597	K 2269	T60-105
Sulfur by XRF	D2622			51400T6	K 2541	
Boiling Range By GC	D2887		3924			
Sulfur by Oxidative Microcoulometry	D3120		16591			
Lead by AAS	D3237	428				
Sulfur by Oxidative Microcoulometry	D3246	373				M07-052
Metals by AA	D3605	413	8691	51790T3		
Benzene by GC	D3606	425				
Sulfur by ED-XRF	D4294	336	8754			M07-053
Water (Karl Fischer)	D4377	356	10336			
Metals by AA	D4628	308		51391T1		
Nitrogen by Chemiluminescence Detection	D4629	379				M07-058
Metals by WD-XRF	D4927	407		51391T2		
Water (Karl Fischer)	D4928	386	10337			
Lead in Gas By X-Ray	D5059	228				
Vapor Pressure	D5191	394				M07-079
Oxygenates	D5599	408				
Cloud Point	D5771	444				
Cloud Point	D5772	445				
Cloud Point	D5773	446				
Freezing Point	D5901	434				
Auto-Freeze Point	D5972	435				
Hydrocarbons Automatic	D6379	436				
Hydrocarbons Automatic	D6591	391				
Metals			14597			

This is a partial list of Standards available for ASTM Methods.

Tables Generated from

- (a) R.A. Nadkarni, "Guide to ASTM Test Methods for the Analysis of Petroleum Products and Lubricants," Manual 44 (200), ASTM West Conshohocken, PA
- (b) Annual Book of ASTM Standards 2000, Volumes 05.01 to 05.05



Viscosity testing



ASTM D56, D92, D93 Flash Point Standards

The reference material is a stable, pure hydrocarbon with a method specific flash point determined by using the ASTM Method # referenced.

ASTM #	Nominal Flash Point	Cat. No.	Unit
PMCC D93	60 °C	ASTM-P-132-01	250 mL
PMCC D93	93 °C	ASTM-P-132-02	250 mL
COC D92	200 °C	ASTM-P-132-03	250 mL
COC D92	230 °C	ASTM-P-132-04	250 mL
PMCC D93	65 °C	ASTM-P-133-01	250 mL
PMCC D93	134 °C	ASTM-P-133-02	250 mL
COC D92	138 °C	ASTM-P-133-03	250 mL
TCC D56	67 °C	ASTM-P-133-04	250 mL

ASTM D86 Distillation Standards

The automatic distillation apparatus duplicates the distillation conditions of the manual method. The increased reliance on electronic control requires an independent standard to verify that the apparatus is performing correctly. This synthetic blend of hydrocarbons boil in the temperature range specified in ASTM D86 distillation Groups 1 and 2, and a fuel oil that meets the group 4 criteria.

The Group 1 and 2 standards cover the boiling range 129-368°F (54-187°C). The Group 4 standard covers the range from 410-670°F (210-355°C).

Group	Description	Cat. No.	Unit
1, 2	Synthetic Distillation Standard	ASTM-P-126-01 ▲	500 mL
4	Distillation Standard	ASTM-P-127-01 ▲	250 mL
		ASTM-P-127-02 ▲	500 mL

▲ Hazardous fee required for air shipments.



Distillation apparatus

ASTM D445 Viscosity Calibration Standards

Viscosity @ 40°C	Cat. No.	Unit
4 Cst	ASTM-P-128-01	500 mL
7 Cst	ASTM-P-128-02	500 mL
19 Cst	ASTM-P-128-03	500 mL
61 Cst	ASTM-P-128-04	500 mL
180 Cst	ASTM-P-128-05	500 mL
520 Cst	ASTM-P-128-06	500 mL

ASTM D611 Aniline Point Standards

The accuracy of the automated aniline point apparatus can be verified using a range of standards whose aniline points are determined using ASTM D611 (Method A) and ASTM D611 (Method E). Standards are packaged in 20 mL ampules in an inert atmosphere.

Aniline Point Verification Method 611(A)

Set include 5 Standards listed below

Nominal Aniline Point	Cat. No.	Unit
	D-611-SET	5 x 20 mL
0°C	D-611-01	20 mL
30°C	D-611-02	20 mL
55°C	D-611-03	20 mL
68°C	D-611-04	20 mL
94°C	D-611-05	20 mL

Aniline Point Verification Method 611(E)

Set include 3 Standards listed below

Nominal Aniline Point	Cat. No.	Unit
	D-611E-SET	3 x 20 mL
43 °C	D-611E-01	20 mL
62 °C	D-611E-02	20 mL
77 °C	D-611E-03	20 mL
Pure Aniline	ASTM-P-134-PAK	5 x 15 mL



ASTM D1015, D2386, D5972 Freezing Points of High Purity Hydrocarbons

Nominal Freezing Point	Cat. No.	Unit
- 50 °C	ASTM-P-129-01 ▲	250 mL
- 45 °C	ASTM-P-129-02 ▲	250 mL

ASTM D1319 Calibration Standards by Fluorescent Indicator Adsorption FIA

Olefin FIA Calibration Curve

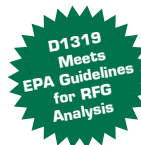
FIA-CAL-SET

	Std. 1 Target Vol.%	Std. 2 Vol.%	Std. 3 Vol.%	Std. 4 Vol.%	Std. 5 Vol.%	Std. 6 Vol.%	Std. 7 Vol.%
Total Olefins	2.0	4.0	5.0	6.0	8.0	10.0	12.0
Total Paraffins	57.0	55.0	52.0	51.0	45.0	45.0	40.0
Total Aromatics	23.0	24.0	25.0	26.0	29.0	28.0	30.0
Total Oxygenate	18.0	17.0	18.0	17.0	18.0	17.0	18.0

	Cat. No.	1 mL
Standard 1	FIA-CAL-01	
Standard 2	FIA-CAL-02	
Standard 3	FIA-CAL-03	
Standard 4	FIA-CAL-04	
Standard 5	FIA-CAL-05	
Standard 6	FIA-CAL-06	
Standard 7	FIA-CAL-07	

FIA Olefin Standard

FIA-OLE	1 x 1 mL
FIA-OLE-5ML	1 x 5 mL
At stated Vol. %	3 comps.
1-Pentene	33.3
2,3-Dimethyl-2-butene	33.3
1-Heptene	33.3



Technical Note

These standards have been prepared for the determination of aromatics, olefins, oxygenates and saturates in petroleum fractions by Fluorescent Indicator Adsorption (FIA) IP designation 156/95.

The certificate for the FIA calibration curve lists both the volume percents for the hydrocarbon types and the individual volume percents for each analyte in the functional group.

The weight fraction for each hydrocarbon type and individual analyte is also listed on the certificate.

FIA Paraffin Standard

FIA-PAR	1 x 1 mL
FIA-PAR-5ML	1 x 5 mL
At stated Vol. %	8 comps.
<i>n</i> -Pentane	8
<i>n</i> -Hexane	9
Cyclohexane	15
<i>n</i> -Heptane	14
2,3-Dimethylpentane	14
Isooctane	19
<i>n</i> -Octane	14
<i>n</i> -Decane	7

FIA Aromatic Standard

FIA-ARO	1 x 1 mL
FIA-ARO-5ML	1 x 5 mL
At stated Vol. %	10 comps.
Benzene	4
Toluene	32
Ethylbenzene	8
<i>p</i> -Xylene	8
<i>o</i> -Xylene	8
<i>m</i> -Xylene	16
1,2,4-Trimethylbenzene	8
1,3,5-Trimethylbenzene	8
1,2,4,5-Tetramethylbenzene	4
Naphthalene	4

ASTM D1744, E1064, D4377, D4928, D6304 Water in Liquid Petroleum Products by Karl Fischer

Standards are available for coulometric Karl Fischer titrations and are packaged in 2 mL, 5 mL, and 20 mL ampoules in sets of 5 and 10. The following concentrations are available:

Description	Cat. No.	Unit
Water content 60 µg/g	KF-0.6X-5ML-VAP	10 x 5 mL
Water content 100 µg/g	KF-1X-2ML-VAP	10 x 2 mL
	KF-1X-5ML-VAP	10 x 5 mL
	KF-1X-20ML-PAK	5 x 20 mL
Water content 1000 µg/g	KF-10X-2ML-VAP	10 x 2 mL
	KF-10X-5ML-VAP	10 x 5 mL
	KF-10X-20ML-PAK	5 x 20 mL
Water content 5000 µg/g	KF-50X-2ML-VAP	10 x 2 mL
	KF-50X-5ML-VAP	10 x 5 mL
	KF-50X-20ML-PAK	5 x 20 mL

Value Added PAK
Packaged in ready to use quantities.



Karl Fischer titrator

Value Added Paks (Cat. No.'s ending in -VAP) provide multiple single units packaged together for both greater stability and cost savings.

ASTM D2500, D5771, D5772, D5773 Cloud Point Calibration Standards

Cloud Point, Approx. Value	Cat. No.	Unit
+ 5 °C	ASTM-P-131-01 ▲	250 mL
- 2 °C	ASTM-P-131-02 ▲	250 mL
- 10 °C	ASTM-P-131-03 ▲	250 mL
- 15 °C	ASTM-P-131-04 ▲	250 mL
- 20 °C	ASTM-P-131-05 ▲	250 mL

▲ Hazardous fee required for air shipments.



Cloud Point



ASTM Sulfur

D2622, D3120, D3246, D4294, D5453, D6334, D6445 & Proposed ASTM Sulfur Methods

These calibration standards are designed for the analysis of sulfur in a wide variety of matrices such as #2 diesel fuel, white mineral oil, kerosene, gasoline, crude oil and residual oil. Sulfur standards are manufactured from the highest quality raw materials, including well characterized starting materials and the lowest sulfur matrices available. These standards are manufactured on a weight/weight basis using balances that are calibrated and verified daily against reference mass standards directly traceable to NIST. The concentration of these working level Sulfur standards have established traceability links to NIST SRM's where available.

Sulfur Standards for ASTM D2622, D3120, D3246, D4294, D5453, D6334, D6445 & Proposed ASTM Sulfur Methods

Sulfur in Heavy Weight Mineral Oil (75 cSt) Ready-to-Use

Concentration		Cat. No. (100 mL)	Cat. No. (5 x 20 mL)
µg/g	Wt.%		
Blank	0.000	SWMO-BL-100ML	SWMO-BL-20ML-PAK
100	0.010	SWMO-1X-100ML	SWMO-1X-20ML-PAK
200	0.020	SWMO-2X-100ML	SWMO-2X-20ML-PAK
300	0.030	SWMO-3X-100ML	SWMO-3X-20ML-PAK
400	0.040	SWMO-4X-100ML	SWMO-4X-20ML-PAK
500	0.050	SWMO-5X-100ML	SWMO-5X-20ML-PAK
750	0.075	SWMO-7.5X-100ML	SWMO-7.5X-20ML-PAK
1,000	0.10	SWMO-10X-100ML	SWMO-10X-20ML-PAK
1,500	0.15	SWMO-15X-100ML	SWMO-15X-20ML-PAK
3,000	0.30	SWMO-30X-100ML	SWMO-30X-20ML-PAK
5,000	0.50	SWMO-50X-100ML	SWMO-50X-20ML-PAK
7,000	0.70	SWMO-70X-100ML	SWMO-70X-20ML-PAK
10,000	1.00	SWMO-100X-100ML	SWMO-100X-20ML-PAK
15,000	1.50	SWMO-150X-100ML	SWMO-150X-20ML-PAK
20,000	2.00	SWMO-200X-100ML	SWMO-200X-20ML-PAK
30,000	3.00	SWMO-300X-100ML	SWMO-300X-20ML-PAK
40,000	4.00	SWMO-400X-100ML	SWMO-400X-20ML-PAK
50,000	5.00	SWMO-500X-100ML	SWMO-500X-20ML-PAK
60,000	6.00	SWMO-600X-100ML	SWMO-600X-20ML-PAK

Individual bottles 100 mL 5 x 20 mL
SWMO-CAL-100ML-SET 19 x 100 mL

Sulfur in Light Weight Mineral Oil (20 cSt) Ready-to-Use

Concentration		Cat. No. (100 mL)	Cat. No. (5 x 20 mL)
µg/g	Wt.%		
Blank	0.000	SWMO-LT-BL-100ML	SWMO-LT-BL-20ML-PAK
100	0.010	SWMO-LT-1X-100ML	SWMO-LT-1X-20ML-PAK
200	0.020	SWMO-LT-2X-100ML	SWMO-LT-2X-20ML-PAK
300	0.030	SWMO-LT-3X-100ML	SWMO-LT-3X-20ML-PAK
400	0.040	SWMO-LT-4X-100ML	SWMO-LT-4X-20ML-PAK
500	0.050	SWMO-LT-5X-100ML	SWMO-LT-5X-20ML-PAK
750	0.075	SWMO-LT-7.5X-100ML	SWMO-LT-7.5X-20ML-PAK
1,000	0.10	SWMO-LT-10X-100ML	SWMO-LT-10X-20ML-PAK
1,500	0.15	SWMO-LT-15X-100ML	SWMO-LT-15X-20ML-PAK
3,000	0.30	SWMO-LT-30X-100ML	SWMO-LT-30X-20ML-PAK
5,000	0.50	SWMO-LT-50X-100ML	SWMO-LT-50X-20ML-PAK
7,000	0.70	SWMO-LT-70X-100ML	SWMO-LT-70X-20ML-PAK
10,000	1.00	SWMO-LT-100X-100ML	SWMO-LT-100X-20ML-PAK
15,000	1.50	SWMO-LT-150X-100ML	SWMO-LT-150X-20ML-PAK
20,000	2.00	SWMO-LT-200X-100ML	SWMO-LT-200X-20ML-PAK
30,000	3.00	SWMO-LT-300X-100ML	SWMO-LT-300X-20ML-PAK
40,000	4.00	SWMO-LT-400X-100ML	SWMO-LT-400X-20ML-PAK
50,000	5.00	SWMO-LT-500X-100ML	SWMO-LT-500X-20ML-PAK
60,000	6.00	SWMO-LT-600X-100ML	SWMO-LT-600X-20ML-PAK

Individual bottles 100 mL 5 x 20 mL
SWMO-LT-CAL-100ML-SET 19 x 100 mL

Sulfur in #2 Diesel Fuel Ready-to-Use

Concentration		Cat. No. (100 mL)	Cat. No. (5 x 20 mL)
µg/g	Wt.%		
Blank	0.000	SDF-BL-100ML ▲	SDF-BL-20ML-PAK
100	0.010	SDF-1X-100ML ▲	SDF-1X-20ML-PAK
200	0.020	SDF-2X-100ML ▲	SDF-2X-20ML-PAK
300	0.030	SDF-3X-100ML ▲	SDF-3X-20ML-PAK
400	0.040	SDF-4X-100ML ▲	SDF-4X-20ML-PAK
500	0.050	SDF-5X-100ML ▲	SDF-5X-20ML-PAK
750	0.075	SDF-7.5X-100ML ▲	SDF-7.5X-20ML-PAK
1,000	0.10	SDF-10X-100ML ▲	SDF-10X-20ML-PAK
1,500	0.15	SDF-15X-100ML ▲	SDF-15X-20ML-PAK
3,000	0.30	SDF-30X-100ML ▲	SDF-30X-20ML-PAK
5,000	0.50	SDF-50X-100ML ▲	SDF-50X-20ML-PAK
7,000	0.70	SDF-70X-100ML ▲	SDF-70X-20ML-PAK
10,000	1.00	SDF-100X-100ML ▲	SDF-100X-20ML-PAK
15,000	1.50	SDF-150X-100ML ▲	SDF-150X-20ML-PAK
20,000	2.00	SDF-200X-100ML ▲	SDF-200X-20ML-PAK
30,000	3.00	SDF-300X-100ML ▲	SDF-300X-20ML-PAK
40,000	4.00	SDF-400X-100ML ▲	SDF-400X-20ML-PAK
50,000	5.00	SDF-500X-100ML ▲	SDF-500X-20ML-PAK
60,000	6.00	SDF-600X-100ML ▲	SDF-600X-20ML-PAK

Individual bottles 100 mL 5 x 20 mL
Sets SDF-CAL-100ML-SET ▲ 19 x 100 mL
SDF-CAL-20ML-SET 19 x (5 x 20 mL)

Sulfur in Light Distillate Kerosene Ready-to-Use

Concentration		Cat. No. (100 mL)	Cat. No. (5 x 20 mL)
µg/g	Wt.%		
Blank	0.000	SK-BL-100ML ▲	SK-BL-20ML-PAK
100	0.010	SK-1X-100ML ▲	SK-1X-20ML-PAK
300	0.030	SK-3X-100ML ▲	SK-3X-20ML-PAK
500	0.050	SK-5X-100ML ▲	SK-5X-20ML-PAK
750	0.075	SK-7.5X-100ML ▲	SK-7.5X-20ML-PAK
1,000	0.10	SK-10X-100ML ▲	SK-10X-20ML-PAK
2,000	0.20	SK-20X-100ML ▲	SK-20X-20ML-PAK
3,000	0.30	SK-30X-100ML ▲	SK-30X-20ML-PAK
4,000	0.40	SK-40X-100ML ▲	SK-40X-20ML-PAK
5,000	0.50	SK-50X-100ML ▲	SK-50X-20ML-PAK
10,000	1.00	SK-100X-100ML ▲	SK-100X-20ML-PAK
20,000	2.00	SK-200X-100ML ▲	SK-200X-20ML-PAK

Individual bottles 100 mL 5 x 20 mL
SK-CAL-100ML-SET ▲ 12 x 100 mL

Sulfur in Heavy Distillate Kerosene

Concentration			Concentration		
µg/g	Wt.%	Cat. No.	µg/g	Wt.%	Cat. No.
Blank	0.000	SK-HD-BL-100ML ▲	4,000	0.40	SK-HD-40X-100ML ▲
100	0.010	SK-HD-1X-100ML ▲	5,000	0.50	SK-HD-50X-100ML ▲
200	0.020	SK-HD-2X-100ML ▲	7,000	0.70	SK-HD-70X-100ML ▲
300	0.030	SK-HD-3X-100ML ▲	10,000	1.00	SK-HD-100X-100ML ▲
400	0.040	SK-HD-4X-100ML ▲	15,000	1.50	SK-HD-150X-100ML ▲
500	0.050	SK-HD-5X-100ML ▲	20,000	2.00	SK-HD-200X-100ML ▲
750	0.075	SK-HD-7.5X-100ML ▲	30,000	3.00	SK-HD-300X-100ML ▲
1,000	0.10	SK-HD-10X-100ML ▲	40,000	4.00	SK-HD-400X-100ML ▲
1,500	0.15	SK-HD-15X-100ML ▲	50,000	5.00	SK-HD-500X-100ML ▲
2,000	0.20	SK-HD-20X-100ML ▲	60,000	6.00	SK-HD-600X-100ML ▲
3,000	0.30	SK-HD-30X-100ML ▲			

Individual bottles 100 mL
SK-HD-CAL-100ML-SET ▲ 21 x 100 mL

Technical Note
Sulfur introduced using di-n-butyl sulfide

Technical Note
Standards are prepared by adding well characterized sulfur compounds gravimetrically to the matrix. Since the matrix may contain some native sulfur, a blank must be used for background correction and should be purchased with the standard.

▲ Hazardous fee required for air shipments.



Sulfur Standards for ASTM D2622, D3120, D3246, D4294, D5453, D6334, D6445 & Proposed ASTM Sulfur Methods (continued)

ASTM D2622, D4294 Sulfur Calibration

Sulfur Calibration Stds. for Gasoline & Reformulated Gasoline Analysis

Sulfur Conc.	Sulfur Wt.%	Cat. No.
Blank	0.0	STP-BL-100ML ▲
10 µg/g	0.001	STP-1X-100ML ▲
20 µg/g	0.002	STP-2X-100ML ▲
30 µg/g	0.003	STP-3X-100ML ▲
50 µg/g	0.005	STP-5X-100ML ▲
100 µg/g	0.010	STP-10X-100ML ▲
200 µg/g	0.020	STP-20X-100ML ▲
300 µg/g	0.030	STP-30X-100ML ▲
400 µg/g	0.040	STP-40X-100ML ▲
600 µg/g	0.060	STP-60X-100ML ▲
1000 µg/g	0.10	STP-100X-100ML ▲
2000 µg/g	0.20	STP-200X-100ML ▲
3000 µg/g	0.30	STP-300X-100ML ▲

Individual Bottles 100 mL
Each in Isooctane

STP-CAL-100ML-SET ▲ 13 x 100 mL

Technical Note

Di-n-butyl sulfide starting material is used with a low sulfur Isooctane matrix for RFG/gasoline sulfur standards.

ASTM D3120, D3246 Sulfur Calibration

Sulfur Calibration Set

Sulfur Conc.	Sulfur Wt.%	Cat. No.
Blank	0.0	D-3120-92-BL
1 µg/g	0.0001	D-3120-92-1X
3 µg/g	0.0003	D-3120-92-3X
10 µg/g	0.0010	D-3120-92-10X
30 µg/g	0.0030	D-3120-92-30X
50 µg/g	0.0050	D-3120-92-50X
75 µg/g	0.0075	D-3120-92-75X
100 µg/g	0.010	D-3120-92-100X

D-3120-92-CAL-SET 8 x 1 mL
Each in Isooctane

ASTM D2622, D4294 Sulfur Petroleum Products

Sulfur in Crude Oil Standards

µg/g	Wt.%	Cat. No. (100 mL)
1,000	0.10	SCO-10X-100ML ▲
2,500	0.25	SCO-25X-100ML ▲
5,000	0.50	SCO-50X-100ML ▲
10,000	1.00	SCO-100X-100ML ▲
20,000	2.00	SCO-200X-100ML ▲
30,000	3.00	SCO-300X-100ML ▲
40,000	4.00	SCO-400X-100ML ▲
50,000	5.00	SCO-500X-100ML ▲

SCO-CAL-100ML-SET ▲ 8 x 100 mL
Each at stated conc. in Crude oil

ASTM Methods - Sulfur in Aromatic Hydrocarbons

Total Sulfur in Aromatic Compounds by Hydrogenolysis & Rateometric Colorimetry

ASTM-P-0010-PAK 5 x 1 mL
1000 µg/mL in Toluene

Sulfur (as Thiophene)

Trace Quantities of Sulfur in Liquid Aromatic Hydrocarbons by Oxidative Microcoulometry

ASTM-P-0020-PAK 5 x 1 mL
1000 µg/mL in Xylenes

Sulfur (as Dibenzothiophene)

ASTM D2622, D6334, D6445 Sulfur Calibration

Sulfur Calibration Stds. used on XRF Energy Dispersive or Wavelength Instruments

Low Level

Sulfur Conc.	Sulfur Wt.%	Cat. No.
Blank	0.0	D-2622-LL-BL-100ML ▲
5 µg/g	0.0005	D-2622-LL-5X-100ML ▲
10 µg/g	0.0010	D-2622-LL-10X-100ML ▲
30 µg/g	0.0030	D-2622-LL-30X-100ML ▲
50 µg/g	0.0050	D-2622-LL-50X-100ML ▲
75 µg/g	0.0075	D-2622-LL-75X-100ML ▲
100 µg/g	0.010	D-2622-LL-100X-100ML ▲
300 µg/g	0.030	D-2622-LL-300X-100ML ▲
500 µg/g	0.050	D-2622-LL-500X-100ML ▲
1000 µg/g	0.100	D-2622-LL-1000X-100ML ▲

Individual bottles 100 mL
Each in Isooctane:Toluene (75:25)

D-2622-LL-CAL-100ML-SET ▲ 10 x 100 mL

Mid Level Additions

200 µg/g	0.020	D-2622-LL-200X-100ML ▲
400 µg/g	0.040	D-2622-LL-400X-100ML ▲
600 µg/g	0.060	D-2622-LL-600X-100ML ▲
700 µg/g	0.070	D-2622-LL-700X-100ML ▲
800 µg/g	0.080	D-2622-LL-800X-100ML ▲
900 µg/g	0.090	D-2622-LL-900X-100ML ▲
1100 µg/g	0.110	D-2622-LL-1100X-100ML ▲
1200 µg/g	0.120	D-2622-LL-1200X-100ML ▲

Individual bottles 100 mL
Each in Isooctane:Toluene (75:25)

Technical Note

Thiophene and 2-Methylthiophene are used as starting material in these products.

Sulfur in Residual Oil Standards

µg/g	Wt.%	Cat. No. (100 mL)
3,500	0.35	SRO-35X-100ML
7,000	0.70	SRO-70X-100ML
10,000	1.00	SRO-100X-100ML
15,000	1.50	SRO-150X-100ML
20,000	2.00	SRO-200X-100ML
30,000	3.00	SRO-300X-100ML
40,000	4.00	SRO-400X-100ML

SRO-CAL-100ML-SET 7 x 100 mL
Each at stated conc. in Residual oil

ASTM-SSTDA/B-SET 10 x 2 mL
At stated conc. in Isooctane

Sulfur	Cat. No. (2 mL)
Sulfur Blank	ASTM-SSTDA-BL
Sulfur @ 0.5 µg/g in Isooctane	ASTM-SSTDA-01
Sulfur @ 1.0 µg/g in Isooctane	ASTM-SSTDA-02
Sulfur @ 2.5 µg/g in Isooctane	ASTM-SSTDA-03
Sulfur @ 5.0 µg/g in Isooctane	ASTM-SSTDA-04
Sulfur Blank	ASTM-SSTDB-BL
Sulfur @ 5.0 µg/g in Isooctane	ASTM-SSTDB-04
Sulfur @ 10.0 µg/g in Isooctane	ASTM-SSTDB-05
Sulfur @ 25.0 µg/g in Isooctane	ASTM-SSTDB-06
Sulfur @ 50.0 µg/g in Isooctane	ASTM-SSTDB-07



ASTM D6729-04, D6730-01, D6733-01, D8071-17 PIANO

AccuStandard now offers a petroleum naphtha-based PIANO mix (acronym for Paraffins, Isoparaffins, Aromatics, Napthenes and Olefins). This mix is used to determine hydrocarbon components in spark-ignition engine fuels, including oxygenated blends of ethanol and *tert*-butyl methyl ether, with boiling ranges to 225°C in accordance with ASTM Methods D6729-04, D6730-01, D6733-01 and D8071-17.

Two hundred and ten (210) individual hydrocarbons have been identified with a total of 263 compounds separated into the appropriate chemical class within the PIANO designation. These compounds comprise the master list. Each entry contains the Total Ion Chromatogram peak number, retention time, percent of the total and compound name.

To simplify component identification, all compounds have been grouped into chemical classes with the paraffin and isoparaffin classes combined to optimize the format. Each entry contains the same information as the master list. The identified components in each chemical class include:

- 62 paraffins/isoparaffins
- 54 aromatics
- 51 naphthenes
- 43 olefins

The master list is further categorized via extracted ion plots utilizing key ions for each chemical class. The retention time of each component in the extracted ion plot can be compared to the master list for identification.

The analysis of the mix was performed on a 100 meter methyl siloxane phase capillary column with a 1.0 µm film (QuadRex Corporation, Bethany, CT.) in an attempt to improve low boiling range component separation.

As in other published analyses, the complexity of the petroleum product resulted in a number of co-elutions and chromatographic peaks that cannot be identified with an acceptable degree of certainty. Consequently, the analysis and data are subject to the same disclaimers enumerated in ASTM Method D 6729-04 regarding the estimation of bulk hydrocarbon group-type composition. The chromatograms provided have been integrated to optimize the usefulness of the analysis and reduce the number of unidentified components present on the chromatogram.

The identification of each hydrocarbon was based on the following:

1. Mass spectrum library search of NIST08 and Wiley WN08 libraries
2. Mass spectrum library search of an in-house generated library
3. Comparison of elution data from ASTM Methods 6729-04 and 6730-01
4. Analysis of individual standards
5. Interpretation of mass spectra target ions

PIANO Gasoline

PIANO		1 x 0.5 mL
PIANO-PAK	SAVE	5 x 0.5 mL

PIANO Gasoline (with Ethanol)

PIANO-ETOH		1 x 0.5 mL
PIANO-ETOH-PAK	SAVE	5 x 0.5 mL

PIANO Gasoline (with MtBE)

PIANO-MTBE		1 x 0.5 mL
PIANO-MTBE-PAK	SAVE	5 x 0.5 mL





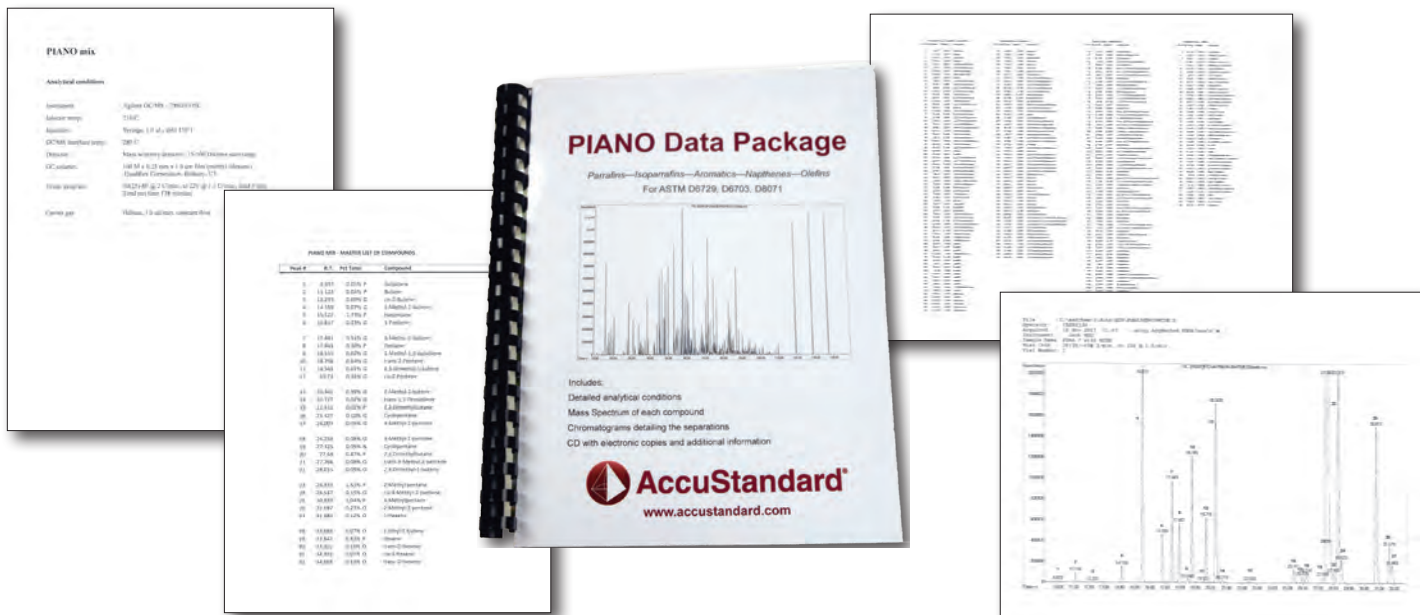
ASTM D6729-04, D6730-01, D6733-01, D8071-17 PIANO (continued) - Contents of Information Packet

A complete data package of the PIANO Mix is provided with each order.

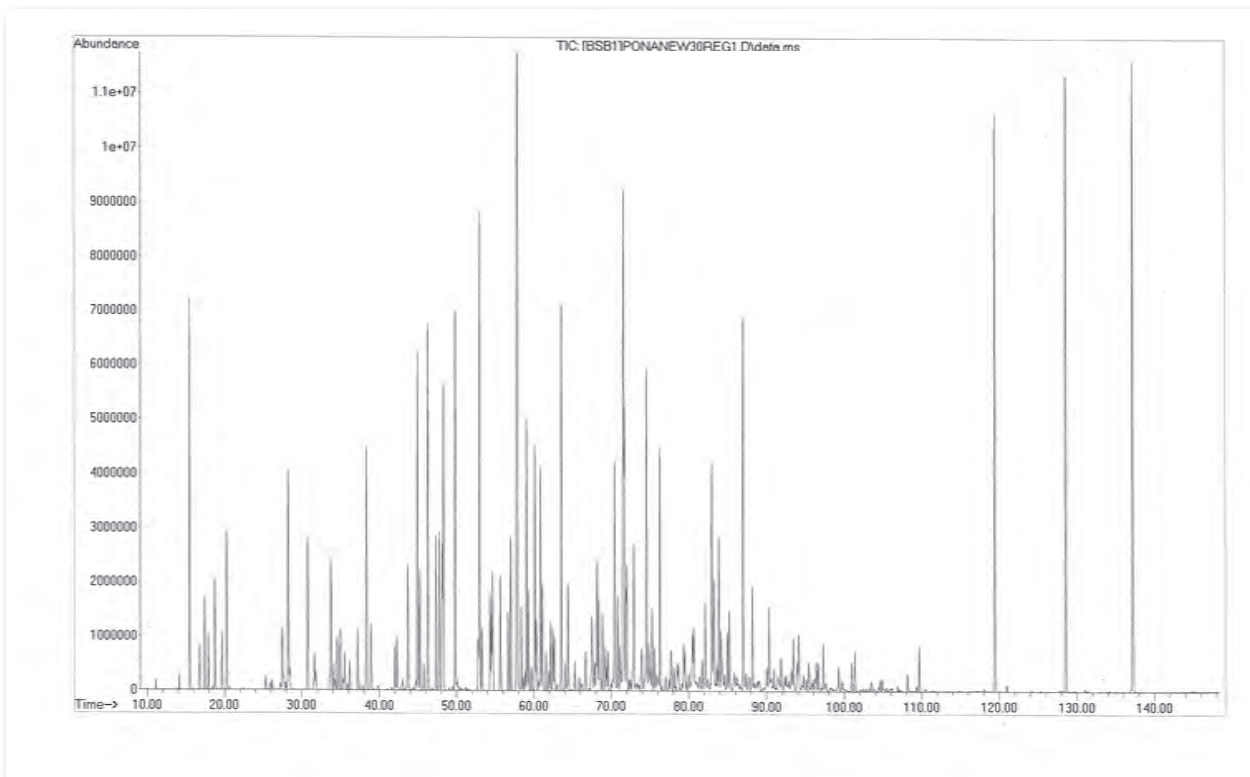
The data package includes:

- Detailed analytical conditions
- Mass Spectrum of each compound
- Chromatograms detailing separations

PIANO Mix Documentation Sample



Total Ion Chromatogram of the PIANO mix



ASTM PIANO



ASTM

Detailed Hydrocarbon Analysis

ASTM D2789 Hydrocarbon Types in Low Olefinic Gas by MS

Hydrocarbon Mixture

D-2789-CTM			1 x 1 mL
D-2789-CTM-PAK		SAVE	5 x 1 mL
At stated Vol. %			9 comps.
2-Methylpentane	7.2	<i>cis</i> -1,2-Dimethylcyclohexane	15.5
2,4-Dimethylpentane	9.4	Benzene	7.7
<i>n</i> -Octane	16.6	Toluene	10
Methylcyclopentane	7.1	<i>p</i> -Xylene	16.5
Methylcyclohexane	10		

ASTM D2887 Boiling Range Distribution of Petroleum Fractions by GC

Calibration Mixture

DRH-002N		100 mg	
DRH-002N-10X		1 gm	
At stated Wt. %		17 comps.	
<i>n</i> -Hexane	6	<i>n</i> -Octadecane	5
<i>n</i> -Heptane	6	<i>n</i> -Eicosane	2
<i>n</i> -Octane	8	<i>n</i> -Tetracosane	2
<i>n</i> -Nonane	8	<i>n</i> -Octacosane	1
<i>n</i> -Decane	12	<i>n</i> -Dotriacontane	1
<i>n</i> -Undecane	12	<i>n</i> -Hexatriacontane	1
<i>n</i> -Dodecane	12	<i>n</i> -Tetracontane	1
<i>n</i> -Tetradecane	12	<i>n</i> -Tetratetracontane	1
<i>n</i> -Hexadecane	10		

Column Test Mixture

D-2887		1 x 1 mL
10 mg/mL in <i>n</i> -Octane		2 comps.
<i>n</i> -Hexadecane	<i>n</i> -Octadecane	

Reference Gas Oil Sample Lot #2

D-2887-REFOIL 1 x 1 mL

Hydrocarbon Window Defining Standard

DRH-008S-R2		1 x 1 mL
DRH-008S-R2-PAK	SAVE	5 x 1 mL
500 µg/mL each in Chloroform		35 comps.
<i>n</i> -Octane	<i>n</i> -Tetracosane	
<i>n</i> -Nonane	<i>n</i> -Pentacosane	
<i>n</i> -Decane	<i>n</i> -Hexacosane	
<i>n</i> -Undecane	<i>n</i> -Heptacosane	
<i>n</i> -Dodecane	<i>n</i> -Octacosane	
<i>n</i> -Tridecane	<i>n</i> -Nonacosane	
<i>n</i> -Tetradecane	<i>n</i> -Triacontane	
<i>n</i> -Pentadecane	<i>n</i> -Hentriacontane	
<i>n</i> -Hexadecane	<i>n</i> -Dotriacontane	
<i>n</i> -Heptadecane	<i>n</i> -Tritriacontane	
<i>n</i> -Octadecane	<i>n</i> -Tetracontane	
Pristane	<i>n</i> -Pentatriacontane	
<i>n</i> -Nonadecane	<i>n</i> -Hexatriacontane	
Phytane	<i>n</i> -Heptatriacontane	
<i>n</i> -Eicosane	<i>n</i> -Octatriacontane	
<i>n</i> -Heneicosane	<i>n</i> -Nonatriacontane	
<i>n</i> -Docosane	<i>n</i> -Tetracontane	
<i>n</i> -Tricosane		

Fuel Oil Degradation/Retention Time Mix for Quantification of C₁₇/Pristane & C₁₈/Phytane ratios

DRH-005S-10X	1 x 1 mL
2.0 mg/mL each in CH ₂ Cl ₂ :CS ₂ (1:1)	
	4 comps.
DRH-005S-R1-10X	1 x 1 mL
DRH-005S-R1-10X-PAK	5 x 1 mL
2.0 mg/mL each in Chloroform	
	4 comps.
Heptadecane	
Octadecane	
Phytane (2,6,10,14-Tetramethylhexadecane)	
Pristane (2,6,10,14-Tetramethylpentadecane)	

Technical Note

Pristane and phytane are included in the hydrocarbon window defining standard with C₈ to C₄₀ odd and even alkanes. Measuring the C₁₇/pristane and C₁₈/phytane ratios can be used to estimate fuel oil degradation.

A fuel oil degradation mix containing just the four required analytes to determine the C₁₇/pristane and C₈/phytane ratio (DRH-005S-10X).

Calibration Solutions

DRH-002S-R1		1 x 1 mL	DRH-002S-R2		1 x 1 gm
DRH-002S-R1-PAK	SAVE	5 x 1 mL	DRH-002S-R2-PAK	SAVE	5 x 1 gm
At stated conc. (µg/mL) in Chloroform		17 comps.	0.1 Wt. % each in Chloroform		20 comps.
<i>n</i> -Hexane	600	<i>n</i> -Octadecane	500	<i>n</i> -Tetradecane	<i>n</i> -Octadecane
<i>n</i> -Heptane	600	<i>n</i> -Eicosane	200	<i>n</i> -Tetracontane	<i>n</i> -Hexadecane
<i>n</i> -Octane	800	<i>n</i> -Tetracosane	200	<i>n</i> -Hexatriacontane	<i>n</i> -Tetradecane
<i>n</i> -Nonane	800	<i>n</i> -Octacosane	100	<i>n</i> -Dotriacontane	<i>n</i> -Dodecane
<i>n</i> -Decane	1200	<i>n</i> -Dotriacontane	100	<i>n</i> -Octacosane	<i>n</i> -Undecane
<i>n</i> -Undecane	1200	<i>n</i> -Hexatriacontane	100	<i>n</i> -Tetracosane	<i>n</i> -Decane
<i>n</i> -Dodecane	1200	<i>n</i> -Tetracontane	100	<i>n</i> -Eicosane	<i>n</i> -Nonane
<i>n</i> -Tetradecane	1200	<i>n</i> -Tetratetracontane	100		
<i>n</i> -Hexadecane	1000				

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ASTM Simulated Distillation (SIM DIS)



Simulated Distillation (SIM DIS) and Proposed Motor Oil Volatility Method

AccuStandard has developed an extensive line of SIM DIS standards for normal and high temperature analytical requirements when generating boiling point versus retention time calibration curves. Since normal paraffins above Alkane C60 are not readily available, Polywax 500, 655, 850 and 1000 standards have been incorporated to perform SIM DIS analysis of heavy petroleum fractions with boiling points up to 1350°F.

SIM DIS Simulated Distillation Standards

Stock SIM DIS Paraffin Solution

ASTM-P-0050		1 x 5 mL	
At stated Wt. %			
<i>n</i> -Pentane	6.66	<i>n</i> -Dodecane	13.33
<i>n</i> -Hexane	6.66	<i>n</i> -Tetradecane	6.66
<i>n</i> -Heptane	6.66	<i>n</i> -Pentadecane	6.66
<i>n</i> -Octane	6.66	<i>n</i> -Hexadecane	6.66
<i>n</i> -Nonane	6.66	<i>n</i> -Heptadecane	6.66
<i>n</i> -Decane	6.66	<i>n</i> -Octadecane	6.66
<i>n</i> -Undecane	6.66	<i>n</i> -Eicosane	6.66

Working Level SIM DIS Paraffin Solution with Polywax 500

ASTM-P-0052		1 x 1 mL	
ASTM-P-0052-PAK SAVE		5 x 1 mL	
At stated Wt. % in Carbon disulfide			
<i>n</i> -Pentane	0.0333	<i>n</i> -Tetradecane	0.0333
<i>n</i> -Hexane	0.0333	<i>n</i> -Pentadecane	0.0333
<i>n</i> -Heptane	0.0333	<i>n</i> -Hexadecane	0.0333
<i>n</i> -Octane	0.0333	<i>n</i> -Heptadecane	0.0333
<i>n</i> -Nonane	0.0333	<i>n</i> -Octadecane	0.0333
<i>n</i> -Decane	0.0333	<i>n</i> -Eicosane	0.0333
<i>n</i> -Undecane	0.0333	Polywax 500	0.5
<i>n</i> -Dodecane	0.0666		

Polywax 850®

ASTM-P-0137N-2G	2 grams
Polywax 850	

Polywax 1000®

ASTM-P-0138N-2G	2 grams
Polywax 1000	

Polywax 500®

ASTM-P-0051N-2G	2 grams
Polywax 500	

Polywax 655®

ASTM-P-0053N-2G	2 grams
Polywax 655	



Carbon disulfide can not ship by air.
When possible alternate solvents can be used.
Contact our Technical Service Department for other options.

Standards of Interest

See ASTM Methods D3710, D5307, D5442, D6352 for additional calibration standards for hydrocarbon analysis.

ASTM D3120 & D3246 Trace Quantities of Sulfur in Light Liquid Petroleum Hydrocarbons by Oxidative Microcoulometry

Sulfur Calibration Set

D-3120-92-CAL-SET 8 x 1 mL
In Isooctane

Sulfur Conc.	Sulfur Wt. %	Cat. No.	Sulfur Conc.	Sulfur Wt. %	Cat. No.
Blank	—	D-3120-92-BL	30 µg/g	0.0030	D-3120-92-30X
1 µg/g	0.0001	D-3120-92-1X	50 µg/g	0.0050	D-3120-92-50X
3 µg/g	0.0003	D-3120-92-3X	75 µg/g	0.0075	D-3120-92-75X
10 µg/g	0.0010	D-3120-92-10X	100 µg/g	0.010	D-3120-92-100X

Technical Note

Standards are prepared by adding well characterized sulfur compounds gravimetrically to the matrix. Since the matrix may contain some native sulfur, a blank must be used for background correction and should be purchased with the standard.

ASTM D3230 Determination of Salts in Crude Oil

see page 363

ASTM D3237 Lead in Gasoline by AA Spectroscopy

see page 363

ASTM D3246 Sulfur in Petroleum Gas by Oxidative Microcoulometry

see pages 270-271

ASTM D3524 Diesel Fuel Diluent in Used Diesel Engine Oils by GC

Calibration Curve

D-3524-CAL-5ML-SET 6 x 5 mL
D-3524-CAL-10ML-SET 6 x 10 mL

Analyte	Std. 1 Target Wt. %	Std. 2 Target Wt. %	Std. 3 Target Wt. %	Std. 4 Target Wt. %	Std. 5 Target Wt. %	Std. 6 Target Wt. %
# 2 Diesel	10	7.5	5.0	2.5	1.0	0
SAE 30W Motor oil	90	92.5	95	97.5	99	100

Internal Standard

D-3524-IS-10ML 1 x 10 mL
D-3524-IS-10ML-PAK SAVE 5 x 10 mL
At stated Wt. % in *n*-Heptane 2 comps.

<i>n</i> -Decane	1.0
<i>n</i> -Octadecane	0.2

Mid Level Daily QC Solution

D-3524-QC-10ML 1 x 10 mL
At stated Wt. % 2 comps.

# 2 Diesel	5.0
SAE 30W Motor oil	95.0

Column Resolution Mix

D-3524-CR 1 x 1 mL
D-3524-CR-PAK SAVE 5 x 1 mL
At stated Wt. % in *n*-Heptane 2 comps.

<i>n</i> -Hexadecane	1.0
<i>n</i> -Octadecane	1.0

ASTM D3605 Trace Metals in Gas Turbine Fuels by AA & Flame Emission & Spectroscopy

see page 363



ASTM D3606 Benzene & Toluene in Finished Motor & Aviation Gasoline by GC

Aromatics Quantitative Calibration Standards

Without Internal Standards

D-3606-25ML-SET

7 x 25 mL

Analyte	Calibration Range	Std. 1 Target Vol. %	Std. 2 Vol. %	Std. 3 Vol. %	Std. 4 Vol. %	Std. 5 Vol. %	Std. 6 Vol. %	Std. 7 Vol. %
Benzene	0.06 - 5.0	5.00	2.50	1.25	0.67	0.33	0.12	0.06
Toluene	0.5 - 20	20.00	15.00	10.00	5.00	2.50	1.00	0.50
Isooctane		75.00	82.50	88.75	94.33	97.17	98.88	99.44



With Internal Standard: MEK

D-3606/IS-SET

7 x 1 mL

D-3606/IS-2ML-SET

7 x 2 mL

D-3606/IS-2ML-SET-PAK

5 x (7 x 2) mL

Analyte	Calibration Range	Std. 1 Target Vol. %	Std. 2 Vol. %	Std. 3 Vol. %	Std. 4 Vol. %	Std. 5 Vol. %	Std. 6 Vol. %	Std. 7 Vol. %
Benzene	0.06 - 5.0	4.8	2.4	1.2	0.6432	0.3168	0.1152	0.0576
Toluene	0.5 - 20	19.2	14.4	9.6	4.8000	2.4000	0.9600	0.4800
Isooctane		72.0	79.2	85.2	90.5568	93.2832	94.9248	95.4624
Methyl ethyl ketone (Internal Std.)		4.0	4.0	4.0	4.0	4.0	4.0	4.0

Aromatics Quantitative Calibration Standard

With Internal Standard: sec Butanol

D-3606/IS2-SET

7 x 1 mL

D-3606/IS2-SET-PAK

5 x (7 x 1) mL

Analyte	Calibration Range	Std. 1 Target Vol. %	Std. 2 Vol. %	Std. 3 Vol. %	Std. 4 Vol. %	Std. 5 Vol. %	Std. 6 Vol. %	Std. 7 Vol. %
Benzene	0.06 - 5.0	4.8	2.4	1.2	0.6432	0.3168	0.1152	0.0576
Toluene	0.5 - 20	19.2	14.4	9.6	4.8000	2.4000	0.9600	0.4800
Isooctane		72.0	79.2	85.2	90.5568	93.2832	94.9248	95.4624
sec-Butanol (Internal Std.)		4.0	4.0	4.0	4.0	4.0	4.0	4.0

Aromatics Quantitative Calibration Curve

D-3606/IS2-R1-SET

7 x 1 mL

Analyte	Calibration Range	Std. 1 Target Vol. %	Std. 2 Vol. %	Std. 3 Vol. %	Std. 4 Vol. %	Std. 5 Vol. %	Std. 6 Vol. %	Std. 7 Vol. %
Benzene	0.06 - 5.0	5	4.2	3.4	2.6	1.7	0.9	0.1
Toluene	0.5 - 20	20	17	14	11	8	5	2
Isooctane		75	78.8	82.6	86.4	90.3	94.1	97.9
sec-Butanol (Internal Std.)		4	4	4	4	4	4	4

Daily Gasoline Refinery Quality Control Standards

With Internal Standard: sec-Butanol

D-3606-QC-IS2-25ML

1 x 25 mL

D-3606-QC-IS2-25ML-PAK

5 x 25 mL

Each at stated Vol. %

4 comps.

Benzene	0.6432
Toluene	4.8000
Isooctane	90.5568
sec-Butanol (Internal Std.)	4.0

100

With Internal Standard: MEK

D-3606-QC/IS-10ML

1 x 10 mL

D-3606-QC/IS-10ML-PAK

5 x 10 mL

Each at stated Vol. %

4 comps.

Benzene	0.6432
Toluene	4.8000
Isooctane	90.5568
Methyl ethyl ketone (Internal Std.)	4.0

100

Without Internal Standard

D-3606-QC-25ML

1 x 25 mL

D-3606-QC-25ML-PAK

5 x 25 mL

Each at stated Vol. %

3 comps.

Benzene	0.67
Toluene	5.00
Isooctane	94.33

100

Technical Note

Due to the possible use of other oxygenates (i.e. ethanol) in gasoline, a calibration curve using sec-Butanol as an internal standard has been formulated. The use of this internal standard minimizes coelution caused by the oxygenate(s) and pre-column - standard column configuration in the GC system.



ASTM D3710 Boiling Range Distribution of Gasoline & Gasoline Fractions by GC

This **SIM DIS** (Simulated Distillation or GCD) Method is used to determine the boiling range distribution of gasoline and gasoline components. ASTM Method D3710 is used for petroleum products and fractions with a final boiling point of 500°F (260°C) or lower. By having an insight into the composition of the gasoline blend, essential data for the calculation of vapor pressure and a prediction of the D86 distillation curve can be made.

Qualitative Calibration Standard

D-3710-QUAL D-3710-QUAL-PAK	SAVE	1 x 1 mL 5 x 1 mL	19 comps.
<i>n</i> -Butane	4.5	<i>n</i> -Octane	5.4
<i>n</i> -Butylbenzene	3.2	<i>n</i> -Pentadecane	2.2
<i>n</i> -Decane	3.2	<i>n</i> -Pentane	7.6
2,4-Dimethylpentane	5.4	<i>n</i> -Propane	1.5
<i>n</i> -Dodecane	3.2	<i>n</i> -Propylbenzene	4.3
<i>n</i> -Heptane	9.7	<i>n</i> -Tetradecane	2.2
<i>n</i> -Hexane	5.4	Toluene	10.8
2-Methylbutane	9.7	<i>n</i> -Tridecane	2.2
2-Methylpentane	5.4	<i>p</i> -Xylene	13
2-Methylpropane	1.5		

Quantitative Calibration Standard

D-3710 D-3710-PAK	SAVE	1 x 1 mL 5 x 1 mL	16 comps.
<i>n</i> -Butylbenzene	3.5	<i>n</i> -Octane	5.8
<i>n</i> -Decane	3.5	<i>n</i> -Pentadecane	2.3
2,4-Dimethylpentane	5.8	<i>n</i> -Pentane	8.1
<i>n</i> -Dodecane	3.5	<i>n</i> -Propylbenzene	4.7
<i>n</i> -Heptane	10.5	<i>n</i> -Tetradecane	2.3
<i>n</i> -Hexane	5.8	Toluene	11.6
2-Methylbutane	10.5	<i>n</i> -Tridecane	2.3
2-Methylpentane	5.8	<i>p</i> -Xylene	14.0

ASTM D2887 Boiling Range Distribution of Petroleum Fractions by GC

Calibration Solution

DRH-002S-R1

DRH-002S-R1-PAK

At stated conc. (µg/mL) in Chloroform

SAVE

1 x 1 mL

5 x 1 mL

17 comps.



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<i>n</i> -Hexane	600	<i>n</i> -Undecane	1200	<i>n</i> -Octadecane	500	<i>n</i> -Dotriacontane	100
<i>n</i> -Heptane	600	<i>n</i> -Dodecane	1200	<i>n</i> -Eicosane	200	<i>n</i> -Hexatriacontane	100
<i>n</i> -Octane	800	<i>n</i> -Tetradecane	1200	<i>n</i> -Tetracosane	200	<i>n</i> -Tetracontane	100
<i>n</i> -Nonane	800	<i>n</i> -Hexadecane	1000	<i>n</i> -Octacosane	100	<i>n</i> -Tetratetracontane	100
<i>n</i> -Decane	1200						

ASTM D3798 Analysis of *p*-Xylene by GC

p-Xylene Impurity Standards

With Internal Standard

D-3798-IS D-3798-IS-PAK	SAVE	1 x 1 mL 5 x 1 mL	11 comps.
<i>n</i> -Pentane	0.15	<i>o</i> -Xylene	0.15
<i>n</i> -Octane	0.15	Cumene	0.15
Benzene	0.15	Propylbenzene	0.15
Toluene	0.15		
Ethylbenzene	0.15	Total Analytes	100
<i>p</i> -Xylene	98.65	plus <i>n</i> -Undecane* (ISTD)	0.500
<i>m</i> -Xylene	0.15		

Without Internal Standard

D-3798-10ML D-3798-10ML-PAK	SAVE	1 x 10 mL 5 x 10 mL	10 comps.
<i>n</i> -Pentane	0.15	<i>p</i> -Xylene	98.65
<i>n</i> -Octane	0.15	<i>m</i> -Xylene	0.15
Benzene	0.15	<i>o</i> -Xylene	0.15
Toluene	0.15	Cumene	0.15
Ethylbenzene	0.15	Propylbenzene	0.15

Technical Note

Other internal standards can be used in conjunction with the bulk packaged D-3798 (1 x 10 mL) to meet your specific application. If you prefer to eliminate making standards, contact our Technical Service Department with your unique formulation for a custom quotation. See back of catalog for details.

ASTM D3831 Manganese in Gasoline by AA Spectroscopy

see page 363

ASTM D4059 Polychlorinated Biphenyls in Insulating Liquids by GC

Solutions in PCB-Free Transformer Oil (Individuals, 2 Concentrations)

Aroclor # CAS No.	Conc. ppm w/w	Individual Cat. No.	1 mL	PAK SAVE Cat. No.	5 x 1 mL	Aroclor # CAS No.	Conc. ppm w/w	Individual Cat. No.	1 mL	PAK SAVE Cat. No.	5 x 1 mL
Aroclor 1016	50	C-216-ST-1		C-216-ST-1-PAK		Aroclor 1262	50	C-262-ST-1		C-262-ST-1-PAK	
12674-11-2	500	C-216-ST-2		C-216-ST-2-PAK		37324-23-5	500	C-262-ST-2		C-262-ST-2-PAK	
Aroclor 1221	50	C-221-ST-1		C-221-ST-1-PAK		Aroclor 1268	50	C-268-ST-1		C-268-ST-1-PAK	
11104-28-2	500	C-221-ST-2		C-221-ST-2-PAK		11100-14-4	500	C-268-ST-2		C-268-ST-2-PAK	
Aroclor 1232	50	C-232-ST-1		C-232-ST-1-PAK							
11141-16-5	500	C-232-ST-2		C-232-ST-2-PAK							
Aroclor 1242	50	C-242-ST-1		C-242-ST-1-PAK							
53469-21-9	500	C-242-ST-2		C-242-ST-2-PAK							
Aroclor 1248	50	C-248-ST-1		C-248-ST-1-PAK							
12672-29-6	500	C-248-ST-2		C-248-ST-2-PAK							
Aroclor 1254	50	C-254-ST-1		C-254-ST-1-PAK							
11097-69-1	500	C-254-ST-2		C-254-ST-2-PAK							
Aroclor 1260	50	C-260-ST-1		C-260-ST-1-PAK							
11096-82-5	500	C-260-ST-2		C-260-ST-2-PAK							

Neats (Individuals)

Aroclor #	Cat. No.	Unit
Aroclor 1016	C-216N	100 mg
Aroclor 1221	C-221N-50MG	50 mg
Aroclor 1242	C-242N-50MG	50 mg
Aroclor 1248	C-248N-50MG	50 mg
Aroclor 1254	C-254N-50MG	50 mg
Aroclor 1260	C-260N-50MG	50 mg
Aroclor 1262	C-262N-50MG	50 mg

Aroclor-free Transformer Oil

T-W130 1 x 1 mL



ASTM D4291 Trace Ethylene Glycol in Used Engine Oil

D-4291-93 1 x 1 mL
 D-4291-93-PAK 5 x 1 mL
 2000 µg/mL in water
 Ethylene glycol

SAVE

ASTM D4294 Sulfur in Petroleum Products by ED-XRF Spectroscopy

see pages 270-271

ASTM D4377 Water in Crude oils by Potentiometric Karl Fischer Titration

see page 269

ASTM D4420 Aromatics in Finished Gasoline by GC

Aromatics in Gasoline by GC/TC

Analyte	D-4420-CAL-SET							D-4420-94		
	Std. 1 Target Vol. %	Std. 2 Target Vol. %	Std. 3 Target Vol. %	Std. 4 Target Vol. %	Std. 5 Target Vol. %	Std. 6 Target Vol. %	Std. 7 Target Vol. %	7 x 1 mL Std. 7 Target Vol. %	D-4420-94-PAK At stated Vol. %	1 x 1 mL 5 x 1 mL 5 comps.
Benzene	0.05	0.10	0.25	0.75	1.25	2.50	5.00		Benzene	3.00
Toluene	0.5	1.00	2.50	5.00	10.00	15.00	25.00		Toluene	10.00
Total Xylenes (C ₈ aromatics)	5	10.00	15.00	20.00	25.00	1.00	3.00		Total Xylenes (C ₈ aromatics)	15.00
n-Butylbenzene (C ₉ + aromatics)	30.00	25.00	20.00	10.00	5.00	15.00	2.50		n-Butylbenzene (C ₉ + aromatics)	15.00
Isooctane	64.45	63.90	62.25	64.25	58.75	66.50	64.50		Isooctane	57.00

ASTM D4628 Barium, Calcium, Magnesium & Zinc in Unused Lubricating Oil

see page 370, 373

ASTM D4629 Trace Nitrogen in Liquid Petroleum Hydrocarbons by Syringe/Inlet Oxidative Combustion and Chemiluminescence Detection. IP 379/88

D4629 is used to determine trace total nitrogen naturally found in liquid hydrocarbons boiling from 50 to 400°C with viscosities 0.2 - 10 cSt. This method monitors feed stocks for nitrogen to prevent the poisoning of some process catalysts when trace nitrogenous materials are present.

Nitrogen Calibration Set - Low Boiling Solvents

D-4629-LB-CAL-R1-SET

Nitrogen introduced using Pyridine

8 x 1 mL

Each in Isooctane	Cat. No.	1 mL	Each in Isooctane	Cat. No.	1 mL
Blank	D-4629-91-LB-BL		Nitrogen @ 25 µg/mL	D-4629-91-LB-25X	
Nitrogen @ 0.3 µg/mL	D-4629-91-LB-0.3X		Nitrogen @ 50 µg/mL	D-4629-91-LB-50X	
Nitrogen @ 1 µg/mL	D-4629-91-LB-1X		Nitrogen @ 75 µg/mL	D-4629-91-LB-75X	
Nitrogen @ 10 µg/mL	D-4629-91-LB-10X		Nitrogen @ 100 µg/mL	D-4629-91-LB-100X	

Stock Nitrogen Solution Low Boiling Solvents

D-4629-91-LB-CON

D-4629-91-LB-CON-PAK

1000 µg/mL in Isooctane

1 x 1 mL

5 x 1 mL

Nitrogen introduced using Pyridine

Nitrogen Calibration Set - High Boiling Solvents

D-4629-HB-CAL-R1-SET

Nitrogen introduced using Carbazole

8 x 1 mL

Each in Toluene	Cat. No.	1 mL	Each in Toluene	Cat. No.	1 mL
Blank	D-4629-91-HB-BL		Nitrogen @ 25 µg/mL	D-4629-91-HB-25X	
Nitrogen @ 0.3 µg/mL	D-4629-91-HB-0.3X		Nitrogen @ 50 µg/mL	D-4629-91-HB-50X	
Nitrogen @ 1 µg/mL	D-4629-91-HB-1X		Nitrogen @ 75 µg/mL	D-4629-91-HB-75X	
Nitrogen @ 10 µg/mL	D-4629-91-HB-10X		Nitrogen @ 100 µg/mL	D-4629-91-HB-100X	

Stock Nitrogen Solution High Boiling Solvents

D-4629-91-HB-CON

D-4629-91-HB-CON-PAK

1000 µg/mL in Toluene:Acetone (9:1)

1 x 1 mL

5 x 1 mL

Nitrogen introduced using Carbazole

Nitrogen Calibration Set - Low Level

ASTM-P-0070-SET

Nitrogen introduced using Aniline

6 x 1 mL

Each in Isooctane	Cat. No.	Unit	Each in Isooctane	Cat. No.	Unit
Isooctane Blank	ASTM-P-0070-BL	1 mL	Nitrogen @ 2.0 µg/g	ASTM-P-0070-4X	1 mL
Nitrogen @ 0.5 µg/g	ASTM-P-0070-1X	1 mL	Nitrogen @ 5.0 µg/g	ASTM-P-0070-10X	1 mL
Nitrogen @ 1.0 µg/g	ASTM-P-0070-2X	1 mL	Nitrogen @ 10.0 µg/g	ASTM-P-0070-20X	1 mL

Low Level Nitrogen & Sulfur Calibration Set

ASTM-P-0071-SET

The Nitrogen is introduced using Aniline and the Sulfur is introduced using di-n-butyl sulfide

4 x 1 mL

Concentration in Benzene	Cat. No.	Unit
Benzene Blank	ASTM-P-0071-BL	1 mL
Nitrogen @ 0.25 µg/g & Sulfur @ 0.25 µg/g	ASTM-P-0071-01	1 mL
Nitrogen @ 0.50 µg/g & Sulfur @ 0.50 µg/g	ASTM-P-0071-02	1 mL
Nitrogen @ 1.00 µg/g & Sulfur @ 1.00 µg/g	ASTM-P-0071-03	1 mL

Technical Note

Standards are prepared by adding well characterized nitrogen compounds gravimetrically to the matrix. Since the matrix may contain some native nitrogen, a blank must be used for background correction and should be purchased with the standard.



ASTM D4815 MtBE, EtBE, TAME, DIPE, Tertiary-amyl & C1 to C4 Alcohols in Gasoline by GC

Oxygenate Quantitative Calibration Mixtures Without Internal Standard

D-4815-10ML-SET

5 x 10 mL

Analyte	Target Concentrations				
	Std. 1 Wt. %	Std. 2 Wt. %	Std. 3 Wt. %	Std. 4 Wt. %	Std. 5 Wt. %
Ethanol	3.00	0.10	6.00	9.00	12.00
<i>t</i> -Butanol	0.10	3.00	6.00	8.00	12.00
Methyl <i>t</i> -butyl ether (MtBE)	20.0	15.00	10.00	5.00	0.10
<i>t</i> -Pentanol	1.25	5.00	2.50	3.75	0.10
Isooctane/Xylene (65:35)	75.65	76.90	75.50	74.25	75.80

With Internal Standard

D-4815/IS-SET

D-4815/IS-SET-PAK

SAVE

5 x 1 mL

5 x (5 x 1 mL)

Analyte	Calibration Range	Target Concentrations				
		Std. 1 Wt. %	Std. 2 Wt. %	Std. 3 Wt. %	Std. 4 Wt. %	Std. 5 Wt. %
Ethanol	0.1 - 11.40	2.85	0.095	5.70	8.55	11.40
<i>t</i> -Butanol	0.1 - 11.40	0.095	2.85	5.70	7.60	11.40
Methyl <i>t</i> -butyl ether (MtBE)	0.1 - 19.0	19.00	14.25	9.50	4.75	0.095
<i>t</i> -Pentanol	0.1 - 4.79	1.19	4.75	2.38	3.56	0.095
1,2-Dimethoxyethane (DME) (Internal Standard)		5.00	5.00	5.00	5.00	5.00
Isooctane/Xylene (65:35)		71.87	73.06	71.73	70.54	72.01
Total Oxygenates & Internal Standard		28.14	26.95	28.28	29.46	28.00

Oxygenate Internal Standard

M-GRO-IS-5ML

1 x 5 mL

M-GRO-IS-5ML-PAK

SAVE

5 x 5 mL

1,2-Dimethoxyethane (neat)

Oxygenate Free Refinery Gasoline Blank

RFA-BLNK-10ML

1 x 10 mL

RFA-BLNK-10ML-PAK

SAVE

5 x 10 mL

RFA Gasoline (neat)

Quantitative Peak ID and Retention Time Mixture (Core Mix)

D-4815-RT

1 x 1 mL

D-4815-RT-PAK

SAVE

5 x 1 mL

At stated Wt. %

16 comps.

Methylcyclopentane	4.00
Methanol	7.30
Ethanol	7.30
Isopropanol	7.30
<i>tert</i> -Butanol	7.30
<i>n</i> -Propanol	7.30
Methyl <i>tert</i> -butyl ether (MtBE)	4.00
<i>sec</i> -Butanol	7.30
Diisopropyl ether (DIPE)	4.00
Isobutanol	7.30
Ethyl <i>tert</i> -butyl ether (EtBE)	4.00
<i>tert</i> -Pentanol	7.30
1,2-Dimethoxyethane (ISTD)	6.00
<i>n</i> -Butanol	7.30
Benzene	5.00
<i>tert</i> -Amyl methyl ether (TAME)	7.30

100

Valve Timing Mixture

D-4815-VT

1 x 1 mL

D-4815-VT-PAK

SAVE

5 x 1 mL

At stated Wt. %

5 comps.

Methylcyclopentane	10.00
Diisopropyl ether (DIPE)	10.00
Ethyl <i>tert</i> -butyl ether (EtBE)	10.00
Methyl <i>tert</i> -butyl ether (MtBE)	10.00
<i>n</i> -Hexane	60.00

ASTM D4927 Elemental Analysis of Lubricant and Additive Components - Ba, Ca, P, S, and Zn by WD-XRF Spectroscopy

see page 370-374

ASTM D4928 Water in Crude Oils by Potentiometric Karl Fischer Titration

see page 269

ASTM D4929 Organic Chloride Content in Crude Oil - Test Method B Combustion and Microcoulometry

Working Level Chlorine Standard

D-4929-94

1 x 5 mL

D-4929-94-PAK

SAVE

5 x 5 mL

10 µg/mL in Isooctane

Chlorine

Stock Chlorine Standard

D-4929-94-100X

1 x 5 mL

D-4929-94-100X-PAK

SAVE

5 x 5 mL

1000 µg/mL in Isooctane

Chlorine

Chlorine in Lube Oils

ASTM-P-0092-100ML-SET

7 x 100 mL

Each in 75 cSt Mineral oil

Cat. No.	Chlorine	Chlorine	Unit
	Wt. %	µg/g	
ASTM-P-0092-BL-100ML	Blank	Blank	100 mL
ASTM-P-0092-0.1X-100ML	0.001	10	100 mL
ASTM-P-0092-1X-100ML	0.01	100	100 mL
ASTM-P-0092-5X-100ML	0.05	500	100 mL
ASTM-P-0092-10X-100ML	0.1	1,000	100 mL
ASTM-P-0092-100X-100ML	1	10,000	100 mL
ASTM-P-0092-500X-100ML	5	50,000	100 mL

ASTM D4951 Additive Elements in Lubricating Oils by Inductively Coupled Plasma Atomic Emission Spectrometry

see page 370-373

ASTM D5056 Trace Metals in Petroleum Coke by AA

see pages 370



ASTM D5059 Lead in Gasoline by X-Ray Spectroscopy IP Designation 228/79

Part A - Lead in Gasoline Standards

D-5059-A-CAL-100ML-SET ▲

7 x 100 mL

At stated conc. (g/gal) in Isooctane

Lead Concentration			Cat. No.	100 mL
g Pb/US gal	g Pb/ UK gal	mg Pb/mL		
0.0000	0.000	0.000	D-5059-A-01-100ML ▲	
0.1000	0.120	0.026	D-5059-A-02-100ML ▲	
1.0000	1.200	0.264	D-5059-A-03-100ML ▲	
2.0000	2.400	0.528	D-5059-A-04-100ML ▲	
3.0000	3.600	0.793	D-5059-A-05-100ML ▲	
4.0000	4.800	1.057	D-5059-A-06-100ML ▲	
5.0000	6.000	1.321	D-5059-A-07-100ML ▲	

Internal Standard

D-5059-IS-100ML

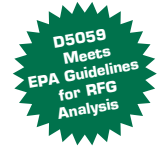
1 x 100 mL

D-5059-IS-10ML-PAK

5 x 10 mL

0.793 mg/mL in Mineral Oil

Bismuth



Part C - Lead in Gasoline Standards

D-5059-C-CAL-100ML-SET ▲

7 x 100 mL

At stated conc. (g/gal) in Isooctane

Lead Concentration			Cat. No.	100 mL
g Pb/US gal	g Pb/ UK gal	µg Pb/mL		
0.0000	0.000	0.000	D-5059-C-01-100ML ▲	\$ 10
0.0010	0.001	0.264	D-5059-C-02-100ML ▲	80
0.0050	0.006	1.321	D-5059-C-03-100ML ▲	80
0.0100	0.012	2.642	D-5059-C-04-100ML ▲	80
0.0500	0.060	13.209	D-5059-C-05-100ML ▲	80
0.1000	0.120	26.417	D-5059-C-06-100ML ▲	80
0.3000	0.360	79.252	D-5059-C-07-100ML ▲	8

Technical Note

AccuStandard has formulated D5059 standards to measure the lead content in gasoline for both high and low concentrations using bismuth as an internal standard. The 100 mL quantities are designed for laboratories analyzing many samples while the 10 mL ampules are for laboratories that have limited requests for the test method. Should you require bulk quantities of the internal standard packaged in single-use ampules, contact our Technical Service Department for a quotation.

ASTM D5134 Petroleum Naphthas through n-Nonane by Capillary GC

Qualitative Reference Petroleum Set

D-5134-92-SET

3 x 1 mL

Qualitative Reference Standards	Cat. No.	1 mL
Alkylate Standard neat fraction approx. 30 comps. identified	D-5134-92-ALK	
Naphtha Standard neat fraction approx. 70 comps. identified	D-5134-92-NAP	
Reformate Standard neat fraction approx. 100 comps. identified	D-5134-92-REF	

Column Evaluation Mix

D-5134-92-CEM

1 x 1 mL

At stated Wt. %

7 comps.

Toluene	0.5	4-Methylheptane	1.0
n-Heptane	1.0	n-Octane	1.0
2,3,3-Trimethylpentane	1.0	2-Methylpentane	94.5
2-Methylheptane	1.0		

Linearity Check Mix

D-5134-92-LCM-PAK

5 x 50 mg

10 Wt. % each

10 comps.

Benzene	2-Methylheptane
2,4-Dimethylheptane	2-Methylhexane
2,4-Dimethylhexane	n-Nonane
n-Heptane	n-Octane
n-Hexane	Toluene

ASTM D5184 Aluminum and Silicon in Fuel Oils by Ashing, Fusion, ICP-AES Spectrometry & AA Spectrometry

Tartaric Acid / Hydrochloric Acid Solution

D-5184-91-TA-5 ▲

1 x 500 mL

Tartaric acid @ 0.5% w/v in 4% HCl

Aluminum Standard Solution

D-5184-91-AL-1 ▲

1 x 100 mL

D-5184-91-AL-5 ▲

1 x 500 mL

Aluminum @ 1000 µg/mL in 5 % HCl tr. HNO₃

Silicon Standard Solution

D-5184-91-SI-1

1 x 100 mL

D-5184-91-SI-5

1 x 500 mL

Silicon @ 1000 µg/mL in water tr. NaOH tr. HF

ASTM D5185 Additive Elements, Wear Metals & Contaminants in Used Lubricating Oils by ICP-AES

see page 369

ASTM D5186 Aromatic Content & Polynuclear Aromatic Content of Diesel Fuels & Aviation Turbine Fuels by SFC

Performance Solution

D-5186-96-PM

D-5186-96-PM-PAK SAVE

At stated Wt. %

1 x 1 mL

5 x 1 mL

4 comps.

n-Hexadecane	75	Tetralin	3.0
Naphthalene	2.0	Toluene	20

Detector Linearity

Check Solution Set

D-5186-96-DLC-SET

2 x 1 mL

#2 Diesel Fuel in n-Hexadecane

25% Wt. %

D-5186-96-DLC-25X

50% Wt. %

D-5186-96-DLC-50X

Docosane

D-5186-91-PM-0.4X

1 x 1 mL

20 Wt. % in Toluene

▲ Hazardous fee required for air shipments.



ASTM D5188 Vapor - Liquid Ratio Temperature Standards

Performance Check Samples

Daily monitoring of instrument performance

Volume / Liquid Temp	Cat. No.	Set
36.1°C (96.9°F)	ASTM-P-125-01-VAP	5 x 20 mL
68.0°C (155.7°F)	ASTM-P-125-02-VAP	5 x 20 mL

ASTM D5191 & D5482 Vapor Pressure Standards

Vapor Pressure Quality Control Samples

Vapor Pressure	Cat. No.	Set
68.3kPa (9.91 psi)	ASTM-P-124-01-VAP	10 x 10 mL
51.1kPa (7.41 psi)	ASTM-P-124-03-VAP	10 x 10 mL
46.7kPa (6.77 psi)	ASTM-P-124-04-VAP	10 x 10 mL
22.5kPa (3.26 psi)	ASTM-P-124-05-VAP	10 x 10 mL
7.1kPa (1.03 psi)	ASTM-P-124-06-VAP	10 x 10 mL

Value Added PAK
Packaged in ready to use quantities.

Technical Note
Consists of pure solvents with known vapor pressures.

ASTM D5307 Boiling Range Distribution of Crude Petroleum by GC

Quantitative Paraffins Standard

D-5307-QUANT	1 x 2 mL
D-5307-QUANT-PAK <i>SAVE</i>	5 x 2 mL
Equal Wt. %	16 comps.

<i>n</i> -Decane	<i>n</i> -Octadecane
<i>n</i> -Undecane	<i>n</i> -Eicosane
<i>n</i> -Dodecane	<i>n</i> -Tetracosane
<i>n</i> -Tridecane	<i>n</i> -Octacosane
<i>n</i> -Tetradecane	<i>n</i> -Dotriacontane
<i>n</i> -Pentadecane	<i>n</i> -Hexatriacontane
<i>n</i> -Hexadecane	<i>n</i> -Tetracontane
<i>n</i> -Heptadecane	<i>n</i> -Tetratetracontane

Qualitative Paraffins Standard

D-5307-QUAL	1 x 1 mL
D-5307-QUAL-PAK <i>SAVE</i>	5 x 1 mL
At stated Wt. %	7 comps.

<i>n</i> -Propane	3	<i>n</i> -Heptane	18
<i>n</i> -Butane	5	<i>n</i> -Octane	19
<i>n</i> -Pentane	18	<i>n</i> -Nonane	19
<i>n</i> -Hexane	18		

Internal Standard

D-5307-IS-10ML	1 x 10 mL
D-5307-IS-10ML-PAK <i>SAVE</i>	5 x 10 mL
At stated Wt. %	4 comps.

<i>n</i> -Tetradecane	25	<i>n</i> -Hexadecane	25
<i>n</i> -Pentadecane	25	<i>n</i> -Heptadecane	25

Column Resolution Mix

D-5307-CR	1 x 1 mL
D-5307-CR-PAK <i>SAVE</i>	5 x 1 mL
At stated Wt. %	3 comps.

<i>n</i> -Hexadecane	1.0	<i>n</i> -Octane	98.0
<i>n</i> -Octadecane	1.0		

ASTM D5188-D5307





ASTM D5441 Analysis of Methyl tert-butyl ether (MtBE) by GC

ASTM Committee D02 on Petroleum Products and Lubricants has issued the Standard Method D5441 for the determination of the purity of methyl tert-butyl ether (MtBE) by Gas Chromatography. This method provides a procedure to measure impurities in MtBE such as C₄ to C₁₂ olefins, methyl, isopropyl and tert-butyl alcohols, methyl sec-butyl and methyl tert-amyl ethers, acetone, and methyl ethyl ketones. The presence of these impurities in MtBE can have a direct effect upon the value of the MtBE as a gasoline additive. The following reference standards have been formulated to meet the method specifications. Different packaging sizes are available to meet various sample testing capacities.

MtBE Contaminant Standard

Low Concentration

D-5441		1 x 1 mL
D-5441-PAK	SAVE	5 x 1 mL
D-5441-5ML		1 x 5 mL
D-5441-5ML-PAK	SAVE	5 x 5 mL
0.1 Wt.% each in MtBE		12 comps.

TAME
 t-Butanol
 EtBE
 4,4-Dimethyl-2-neopentyl-1-pentene
 Methanol
 2-Methylbutane
 2-Methyl-2-butene
 2,2',4,6,6'-Pentamethyl-3-heptene
 n-Pentane
 cis-2-Pentene
 trans-2-Pentene
 2,4,4-Trimethyl-1-pentene

MtBE Contaminant Standard

High Concentration

D-5441-10X		1 x 1 mL
D-5441-10X-PAK	SAVE	5 x 1 mL
D-5441-10X-5ML		1 x 5 mL
D-5441-10X-5ML-PAK	SAVE	5 x 5 mL
1 Wt.% each in MtBE		12 comps.

TAME
 t-Butanol
 EtBE
 4,4-Dimethyl-2-neopentyl-1-pentene
 Methanol
 2-Methylbutane
 2-Methyl-2-butene
 2,2',4,6,6'-Pentamethyl-3-heptene
 n-Pentane
 cis-2-Pentene
 trans-2-Pentene
 2,4,4-Trimethyl-1-pentene

Qualitative Standard

D-5441-QUAL		1 x 1 mL
0.1 Wt.% each in n-Dodecane		33 comps.

Methanol	MtBE
Isobutylene	2,3-Dimethyl-1-butene
n-Butane	4-Methyl-cis-2-pentene
trans-2-Butene	2-Methylpentane
cis-2-Butene	Methyl ethyl ketone
3-Methyl-1-butene	3-Methylpentane
Acetone	sec-Butyl methyl ether
Isopentane	EtBE
Isopropanol	TAME
1-Pentene	3,5-Dimethyl-1-hexene
2-Methyl-1-butene	2,4,4-Trimethyl-1-pentene
n-Pentane	2,4,4-Trimethyl-2-pentene
trans-2-Pentene	3,4,4-Trimethyl-trans-2-pentene
t-Butanol	2,3,4-Trimethyl-2-pentene
cis-2-Pentene	4,4-Dimethyl-2-neopentyl-1-pentene
2-Methyl-2-butene	2,2',4,6,6'-Pentamethyl-3-heptene
Cyclopentene	

Quantitative Standard

D-5441-QUANT-R1		1 x 1 mL
0.1 Wt.% each in n-Dodecane		29 comps.

Methanol (0.04 Wt.%)	2-Methylpentane
3-Methyl-1-butene	Methyl ethyl ketone
Acetone	3-Methylpentane
Isopentane	sec-Butyl methyl ether
Isopropanol	EtBE
1-Pentene	TAME
2-Methyl-1-butene	3,5-Dimethyl-1-hexene
n-Pentane	2,4,4-Trimethyl-1-pentene
trans-2-Pentene	2,4,4-Trimethyl-2-pentene
t-Butanol	3,4,4-Trimethyl-trans-2-pentene
cis-2-Pentene	2,3,4-Trimethyl-2-pentene
2-Methyl-2-butene	4,4-Dimethyl-2-neopentyl-1-pentene
Cyclopentene	2,2',4,6,6'-Pentamethyl-3-heptene
MtBE	
2,3-Dimethyl-1-butene	
4-Methyl-cis-2-pentene	

MtBE Resolution Test Mix

D-5441-RES		1 x 1 mL
D-5441-RES-PAK	SAVE	5 x 1 mL
D-5441-RES-5ML		1 x 5 mL
D-5441-RES-5ML-PAK	SAVE	5 x 5 mL
1 Wt.% each in MtBE		3 comps.

trans-2-Pentene	cis-Pentene
t-Butanol	

Buy AccuPAKS
Save 20-40% 5 x 1 mL





ASTM D5442 Analysis of Petroleum Waxes by GC

Quantitative Wax Standard

D-5442			1 x 1 mL
D-5442-PAK	SAVE		5 x 1 mL
<i>At stated Wt.% in Cyclohexane</i>			
<i>n</i> -Dodecane	0.02	<i>n</i> -Octacosane	0.12
<i>n</i> -Tetradecane	0.03	<i>n</i> -Triacontane	0.10
<i>n</i> -Hexadecane	0.04	<i>n</i> -Dotriacontane	0.08
<i>n</i> -Octadecane	0.05	<i>n</i> -Hexatriacontane	0.06
<i>n</i> -Eicosane	0.06	<i>n</i> -Tetracontane	0.05
<i>n</i> -Docosane	0.08	<i>n</i> -Tetratetracontane	0.04
<i>n</i> -Tetracosane	0.10	<i>n</i> -Pentacontane	0.03
<i>n</i> -Hexacosane	0.12	<i>n</i> -Hexacontane	0.02

Column Resolution Standard

D-5442-CR-PAK		5 x 1 mL
<i>At stated Wt.% in Cyclohexane</i>		
<i>n</i> -Eicosane	0.05	
<i>n</i> -Tetracontane	0.05	

Hydrocarbon Standard Brownfield Regulation

D-5442-R1		1 x 1 mL
<i>100 µg/mL each in Cyclohexane</i>		
<i>n</i> -Decane		<i>n</i> -Octacosane
<i>n</i> -Dodecane		<i>n</i> -Triacontane
<i>n</i> -Tetradecane		<i>n</i> -Dotriacontane
<i>n</i> -Hexadecane		<i>n</i> -Tetracontane
<i>n</i> -Octadecane		<i>n</i> -Hexatriacontane
<i>n</i> -Eicosane		<i>n</i> -Octatriacontane
<i>n</i> -Docosane		<i>n</i> -Tetracontane
<i>n</i> -Tetracosane		<i>n</i> -Tetratetracontane
<i>n</i> -Hexacosane		<i>n</i> -Pentacontane

Retention Time Standard Mix 1

D-5442-RT1		500 mg
<i>Equal Wt.%</i>		
<i>n</i> -Hexadecane (c16)		<i>n</i> -Octacosane (c28)
<i>n</i> -Octadecane (c18)		<i>n</i> -Triacontane (c30)
<i>n</i> -Eicosane (c20)		<i>n</i> -Dotriacontane (c32)
<i>n</i> -Docosane(c22)		<i>n</i> -Hexatriacontane (c36)
<i>n</i> -Tetracosane (c24)		<i>n</i> -Tetracontane (c40)
<i>n</i> -Hexacosane (c26)		<i>n</i> -Tetratetracontane (c44)

Retention Time Standard Mix 2

D-5442-RT2		500 mg
<i>Equal Wt.%</i>		
<i>n</i> -Dodecane (c12)		<i>n</i> -Octacosane (c28)
<i>n</i> -Tetradecane (c14)		<i>n</i> -Triacontane (c30)
<i>n</i> -Hexadecane (c16)		<i>n</i> -Dotriacontane (c32)
<i>n</i> -Octadecane (c18)		<i>n</i> -Hexatriacontane (c36)
<i>n</i> -Eicosane (c20)		<i>n</i> -Tetracontane (c40)
<i>n</i> -Docosane (c22)		<i>n</i> -Tetratetracontane (c44)
<i>n</i> -Tetracosane (c24)		<i>n</i> -Pentacontane (c50)
<i>n</i> -Hexacosane (c26)		<i>n</i> -Hexacontane (c60)

Standards of Interest

See ASTM Methods D3710, D5307, and D6352 for additional calibration standards for hydrocarbon analysis.

ASTM D5443 Paraffin, Naphthene and Aromatic Hydrocarbon Type Analysis in Petroleum Distillates through 200°C by Multi-dimensional GC

Hydrocarbon Test Mixture

D-5443-93-HTM				1 x 1 mL	
<i>At stated Wt.%</i>					
Cyclopentane	1.00	1,2-Dimethylcyclohexane	5.00	<i>trans</i> -Decahydronaphthelene	4.25
<i>n</i> -Pentane	1.00	Isooctane	5.00	<i>n</i> -Tetradecane	4.50
Cyclohexane	2.00	<i>n</i> -Octane	5.00	Ethylbenzene	4.50
2,3-Dimethylbutane	2.00	1,2,4-Trimethylcyclohexane	4.25	<i>o</i> -Xylene	4.25
<i>n</i> -Hexane	2.00	<i>n</i> -Nonane	4.50	<i>n</i> -Propylbenzene	5.00
<i>n</i> -Hexene	1.50	<i>n</i> -Decane	4.25	1,2,4-Trimethylbenzene	4.50
Methylcyclohexane	4.25	<i>n</i> -Undecane	3.50	1,2,3-Trimethylbenzene	5.00
4-Methyl-1-hexene	1.50	<i>n</i> -Dodecane	3.25	1,2,4,5-Tetramethylbenzene	5.00
<i>n</i> -Heptane	3.50	Benzene	2.25	Pentamethylbenzene	5.00
		Toluene	2.25		

ASTM D5453 Total Sulfur in Light Hydrocarbons, Motor Fuels and Oils by Ultraviolet Fluorescence

Low Level Sulfur Set

D-5453-LL-SET		5 x 2 mL
<i>At stated in Isooctane</i>		
Sulfur Blank		2 mL
Sulfur @ 0.5 ng/µL		2 mL
Sulfur @ 2.5 ng/µL		2 mL
Sulfur @ 5.0 ng/µL		2 mL
Sulfur @ 10.0 ng/µL		2 mL

Mid Level Sulfur Set

D-5453-ML-SET		6 x 2 mL
<i>At stated in Isooctane</i>		
Sulfur Blank		2 mL
Sulfur @ 5.0 ng/µL		2 mL
Sulfur @ 25 ng/µL		2 mL
Sulfur @ 50 ng/µL		2 mL
Sulfur @ 100 ng/µL		2 mL
Sulfur @ 200 ng/µL		2 mL

High Level Sulfur Set

D-5453-HL-SET		5 x 2 mL
<i>At stated in Isooctane</i>		
Sulfur Blank		2 mL
Sulfur @ 100 ng/µL		2 mL
Sulfur @ 250 ng/µL		2 mL
Sulfur @ 500 ng/µL		2 mL
Sulfur @ 1000 ng/µL		2 mL

As the matrix may contain some native sulfur, AccuStandard encourages purchasing sulfur blanks for calibration analysis



ASTM D5501 Ethanol Content of Denatured Fuel Ethanol by GC

Denatured Fuel Ethanol Calibration Set

D-5501-94-SET

Analyte	7 x 1 mL						
	LEVEL 1 Wt.%	LEVEL 2 Wt.%	LEVEL 3 Wt.%	LEVEL 4 Wt.%	LEVEL 5 Wt.%	LEVEL 6 Wt.%	LEVEL 7 Wt.%
Ethanol	92	93	94	95	96	97	98
Methanol	0.6	0.5	0.4	0.3	0.2	0.1	0.05
Heptane	7.4	6.5	5.6	4.7	3.8	2.9	1.95

ASTM Method D5501-12

D-5501-12-SET

Analyte	5 x 1 mL				
	D-5501-12-01 1 mL	D-5501-12-02 1 mL	D-5501-12-03 1 mL	D-5501-12-04 1 mL	D-5501-12-05 1 mL
	LEVEL 1 Wt.%	LEVEL 2 Wt.%	LEVEL 3 Wt.%	LEVEL 4 Wt.%	LEVEL 5 Wt.%
Ethanol	20	50	75	90	99.4
Methanol	0.6	0.5	0.3	0.2	0.1
Heptane	10	10	10	4	0.5
Isooctane	69.4	39.5	14.8	5.8	0

Technical Note

Additional oxygenate calibration, check standards, and independent reference standards can be found in ASTM method D4815 or D5622. The required QA/QC procedures in EPA methods stipulate a calibration check standard be used once per analytical batch or per 10 sample set. AccuStandard has bulk packaged check standards to meet this increased usage.





ASTM D5580 Benzene, Toluene, Ethylbenzene, m/p-Xylene, o-Xylene, C9 & Heavier Aromatics & Total Aromatics in Finished Gasoline by GC

Aromatics Quantitative Calibration Mixes

Without Internal Standard

D-5580-95-CAL-10ML-SET

5 x 10 mL

Analyte	Calibration range	Std. 1 Wt. %	Std. 2 Wt. %	Std. 3 Wt. %	Std. 4 Wt. %	Std. 5 Wt. %
Benzene	0.10 - 5.00	0.10	0.50	1.00	2.00	5.00
Toluene	1.00 - 15.00	15.00	10.00	5.00	2.50	1.00
Ethylbenzene	0.50 - 10.00	0.50	1.00	2.50	5.00	10.00
o-Xylene	0.50 - 10.00	1.00	2.50	10.00	5.00	0.50
1,2,4-Trimethylbenzene	0.50 - 10.00	1.00	10.00	0.50	5.00	2.50
Isooctane		82.40	76.00	81.00	80.50	81.00

With Internal Standard

D-5580-95-CAL-IS-SET

5 x 1 mL

Analyte	Calibration range	Std. 1 Wt. %	Std. 2 Wt. %	Std. 3 Wt. %	Std. 4 Wt. %	Std. 5 Wt. %
Benzene	0.09 - 4.50	0.09	0.45	0.90	1.80	4.50
Toluene	0.90 - 13.50	13.50	9.00	4.50	2.25	0.90
Ethylbenzene	0.45 - 9.00	0.45	0.90	2.25	4.50	9.00
o-Xylene	0.45 - 9.00	0.90	2.25	9.00	4.50	0.45
1,2,4-Trimethylbenzene	0.45 - 9.00	0.90	9.00	0.45	4.50	2.25
2-Hexanone (Internal Standard)		10.00	10.00	10.00	10.00	10.00
Isooctane		74.16	68.40	72.90	72.45	72.90

Standard 2 D-5580-95-CAL-IS-2 1 mL

Technical Note

The configuration of the instrument valve time switching and the pre-column incorporated determines which QA/QC standard provides optimum performance when analyzing gasolines samples by Method D5580. Use of the D5580 standards in conjunction with the real world gasoline standards can provide added assurance that the analytical results generated are reproducible and the analytical system is performing to method specifications.

Valve Timing Calibration Mixes

With Internal Standard

M-GRA-VT/IS-AS

M-GRA-VT/IS-AS-PAK

SAVE

1 x 1 mL

5 x 1 mL

At stated Wt. %

6 comps.

Benzene	4.5
Toluene	4.5
Ethylbenzene	9.0
o-Xylene	9.0
2-Hexanone (Internal Standard)	10.0
Isooctane	63.0

Internal Standard

M-GRA-IS-AS-5ML

M-GRA-IS-AS-5ML-PAK

SAVE

1 x 5 mL

5 x 5 mL

2-Hexanone (neat)

Selectivity Check Standard

M-GRA-SCS-AS

M-GRA-SCS-AS-PAK

SAVE

1 x 1 mL

5 x 1 mL

At stated Wt. %

2 comps.

n-Dodecane	1.5
Isooctane	98.5

Without Internal Standard

M-GRA-VT-AS-10ML

M-GRA-VT-AS-10ML-PAK

SAVE

1 x 10 mL

5 x 10 mL

At stated Wt. %

5 comps.

Benzene	5.0
Toluene	5.0
Ethylbenzene	10.0
o-Xylene	10.0
Isooctane	70.0

Daily Quality Control Standard

Without Internal Standard

D-5580-QC-R1-10ML

D-5580-QC-R1-10ML-PAK

SAVE

1 x 10 mL

5 x 10 mL

At stated Wt. %

14 comps.

n-Hexane	12	Toluene	9
n-Heptane	20	Ethylbenzene	2
n-Octane	15	p-Xylene	3
n-Decane	10	o-Xylene	2
n-Dodecane	1	1,2,4-Trimethylbenzene	3
Isooctane	20	1,2,4,5-Tetramethylbenzene	1
Benzene	1	Naphthalene	1

Daily Quality Control Standard

Without Internal Standard

D-5580-QC-10ML

D-5580-QC-10ML-PAK

SAVE

1 x 10 mL

5 x 10 mL

At stated Wt. %

14 comps.

n-Hexane	12	Toluene	9
n-Heptane	20	Ethylbenzene	2
n-Octane	15	p-Xylene	3
n-Decane	10	o-Xylene	2
n-Tridecane	1	1,2,4-Trimethylbenzene	3
Isooctane	20	1,2,4,5-Tetramethylbenzene	1
Benzene	1	Naphthalene	1



ASTM D5599 Oxygenates in Gas by GC & O-FID

Oxygenates Calibration Curves

With Internal Standard

M-GRO-CAL/IS-SET

M-GRO-CAL/IS-SET-PAK

SAVE

8 x 1 mL
5 x (8 x 1 mL)

Analyte	Calibration Range	Std. 1 Wt.%	Std. 2 Wt.%	Std. 3 Wt.%	Std. 4 Wt.%	Std. 5 Wt.%	Std. 6 Wt.%	Std. 7 Wt.%	Std. 8 Wt.%
Methanol	0.1 - 5.0	---	0.1	2.5	---	5	0.5	1	---
Ethanol	1.0 - 12.0	12	---	3	---	8	5	1	---
Isopropanol	0.1 - 2.0	2	1	---	0.1	0.3	---	0.5	---
t-Butanol	0.1 - 2.0	0.5	0.1	1	---	2	0.3	---	---
Propanol	0.2 - 2.0	2	---	0.7	0.2	1	---	0.4	---
MtBE	1.0 - 17.0	5	17	---	---	1	2.5	10	---
sec-Butanol	0.1 - 2.5	1	---	0.5	0.1	---	2.5	0.7	---
Diisopropyl ether	0.1 - 2.0	---	0.5	0.3	0.1	2	1	---	---
Isobutanol	0.1 - 2.0	2	0.5	---	1	0.1	0.3	---	---
EtBE	1.0 - 18.0	---	3.5	18	7.5	---	1	12	---
t-Pentanol	0.1 - 2.0	0.3	1	---	0.5	0.1	2	---	---
Butanol	0.1 - 2.0	1	---	0.3	---	0.5	0.1	2	---
TAME	1.0 - 18.0	---	3.5	1	18	7.5	12	---	---
1,2-Dimethoxyethane (ISTD)		4	4	4	4	4	4	4	---
RFA Gasoline		70.2	68.8	68.7	68.5	68.5	68.8	68.4	100
Total oxygenates and ISTD		29.8	31.2	31.3	31.5	31.5	31.2	31.6	0

With Internal Standard

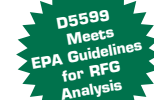
M-GRO-CAL/IS-R1-SET

8 x 1 mL

Analyte	Calibration Range	Std. 1 Wt.%	Std. 2 Wt.%	Std. 3 Wt.%	Std. 4 Wt.%	Std. 5 Wt.%	Std. 6 Wt.%	Std. 7 Wt.%	Std. 8 Wt.%
Methanol	0.1 - 5.0	---	0.1	2.5	---	5	0.5	1	---
Ethanol	1.0 - 12.0	12	---	3	---	8	5	1	---
Isopropanol	0.1 - 2.0	2	1	---	0.1	0.3	---	0.5	---
t-Butanol	0.1 - 2.0	0.5	0.1	1	---	2	0.3	---	---
Propanol	0.2 - 2.0	2	---	0.7	0.2	1	---	0.4	---
MtBE	1.0 - 17.0	5	17	---	---	1	2.5	10	---
sec-Butanol	0.1 - 2.5	1	---	0.5	0.1	---	2.5	0.7	---
Diisopropyl ether	0.1 - 2.0	---	0.5	0.3	0.1	2	1	---	---
Isobutanol	0.1 - 2.0	2	0.5	---	1	0.1	0.3	---	---
EtBE	1.0 - 18.0	---	3.5	18	7.5	---	1	12	---
t-Pentanol	0.1 - 2.0	0.3	1	---	0.5	0.1	2	---	---
Butanol	0.1 - 2.0	1	---	0.3	---	0.5	0.1	2	---
TAME	1.0 - 18.0	---	3.5	1	18	7.5	12	---	---
1,2-Dimethoxyethane (ISTD)		4	4	4	4	4	4	4	---
RFA Gasoline		74.2	72.8	72.7	72.5	72.5	72.8	72.4	100
Total oxygenates and ISTD		28.6	30.0	30.1	30.3	30.3	30.0	30.4	0

Technical Note

The revised set formulates the product components and gasoline and then adds the Internal Standard.



Without Internal Standard

M-GRO-CAL-SET

8 x 10 mL

Analyte	Calibration Range	Std. 1 Wt.%	Std. 2 Wt.%	Std. 3 Wt.%	Std. 4 Wt.%	Std. 5 Wt.%	Std. 6 Wt.%	Std. 7 Wt.%	Std. 8 Wt.%
Methanol	0.1 - 5.0	---	0.1	2.5	---	5	0.5	1	---
Ethanol	1.0 - 12.0	12	---	3	---	8	5	1	---
Isopropanol	0.1 - 2.0	2	1	---	0.1	0.3	---	0.5	---
t-Butanol	0.1 - 2.0	0.5	0.1	1	---	2	0.3	---	---
Propanol	0.2 - 2.0	2	---	0.7	0.2	1	---	0.4	---
MtBE	1.0 - 17.0	5	17	---	---	1	2.5	10	---
sec-Butanol	0.1 - 2.5	1	---	0.5	0.1	---	2.5	0.7	---
Diisopropyl ether	0.1 - 2.0	---	0.5	0.3	0.1	2	1	---	---
Isobutanol	0.1 - 2.0	2	0.5	---	1	0.1	0.3	---	---
EtBE	1.0 - 18.0	---	3.5	18	7.5	---	1	12	---
t-Pentanol	0.1 - 2.0	0.3	1	---	0.5	0.1	2	---	---
Butanol	0.1 - 2.0	1	---	0.3	---	0.5	0.1	2	---
TAME	1.0 - 18.0	---	3.5	1	18	7.5	12	---	---
RFA Gasoline		74.2	72.8	72.7	72.5	72.5	72.8	72.4	100
Total oxygenates		25.8	27.2	27.3	27.5	27.5	27.2	27.6	0

Technical Note

This certified oxygenate calibration curve can be used in combination with other aromatic standards for combined oxygenate/aromatic analysis to change the amount of internal standard added, or to incorporate alternative internal standard analytes.



ASTM D5599 (Continued) Oxygenates in Gas by GC & O-FID

Daily QC Standard

Without Internal Standard

M-GRO-QC-10ML 1 x 10 mL
 M-GRO-QC-10ML-PAK **SAVE** 5 x 10 mL
 At stated Wt.% 14 comps.

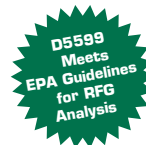
Methanol	1	Diisopropyl ether	3
Ethanol	1	Isobutanol	1
Isopropanol	1	EtBE	3
<i>t</i> -Butanol	1	<i>t</i> -Pentanol	1
<i>n</i> -Propanol	1	<i>n</i> -Butanol	1
MtBE	3	TAME	3
<i>sec</i> -Butanol	1	RFA Gasoline	79

Revised Daily QC Standard

Without Internal Standard

M-GRO-QC-R-10ML 1 x 10 mL
 M-GRO-QC-R-10ML-PAK **SAVE** 5 x 10 mL
 At stated Wt.% 14 comps.

Methanol	1	Diisopropyl ether	1
Ethanol	1	Isobutanol	1
Isopropanol	1	EtBE	3
<i>t</i> -Butanol	1	<i>t</i> -Pentanol	1
<i>n</i> -Propanol	1	<i>n</i> -Butanol	1
MtBE	3	TAME	3
<i>sec</i> -Butanol	1	RFA Gasoline	81



Technical Note

Additional oxygenate calibration, check standards, and independent reference standards can be found in ASTM method D4815 or D5622. The required QA/QC procedures in EPA methods stipulate a calibration check standard be used once per analytical batch or per 10 sample set. AccuStandard has bulk packaged check standards to meet this increased usage.

Daily QC Standard

With Internal Standard

M-GRO-QC/IS-5ML 1 x 5 mL
 M-GRO-QC/IS-5ML-PAK **SAVE** 5 x 5 mL
 At stated Wt.% 15 comps.

Methanol	1	Diisopropyl ether	3
Ethanol	1	Isobutanol	1
Isopropanol	1	EtBE	3
<i>t</i> -Butanol	1	<i>t</i> -Pentanol	1
<i>n</i> -Propanol	1	<i>n</i> -Butanol	1
MtBE	3	TAME	3
<i>sec</i> -Butanol	1	RFA Gasoline	79

1,2-Dimethoxyethane (Internal Std.) is combined in a 4 to 100 Wt. ratio

Revised Daily QC Standard

With Internal Standard

M-GRO-QC-R/IS-5ML 1 x 5 mL
 M-GRO-QC-R/IS-5ML-PAK **SAVE** 5 x 5 mL
 At stated Wt.% 15 comps.

Methanol	1	Diisopropyl ether	1
Ethanol	1	Isobutanol	1
Isopropanol	1	EtBE	3
<i>t</i> -Butanol	1	<i>t</i> -Pentanol	1
<i>n</i> -Propanol	1	<i>n</i> -Butanol	1
MtBE	3	TAME	3
<i>sec</i> -Butanol	1	RFA Gasoline	81

1,2-Dimethoxyethane (Internal Std.) is combined in a 4 to 100 Wt. ratio

Gasoline Refinery Blank

With Internal Standard

M-GRO-BLNK/IS-10ML 1 x 10 mL
 M-GRO-BLNK/IS-10ML-PAK **SAVE** 5 x 10 mL
 At stated Wt.% 2 comps.

1,2-Dimethoxyethane (ISTD)	4
RFA Gasoline	96

O-FID/EPA Gasoline Refinery

Internal Standard

M-GRO-IS-5ML 1 x 5 mL
 M-GRO-IS-5ML-PAK **SAVE** 5 x 5 mL

1,2-Dimethoxyethane (neat)

O-FID Gasoline Refinery Blank

RFA-BLNK-10ML 1 x 10 mL
 RFA-BLNK-10ML-PAK **SAVE** 5 x 10 mL

RFA Gasoline (neat)

Cross Reference Table

ASTM IP ISO DIN JIS AFNOR

see page 267



ASTM D5599 Oxygenates in Gas by GC & O-FID

EPA O-FID Quantitative Calibration Mixes

Without Internal Standard

M-GRO-CAL-EPA-10ML-SET

5 x 10 mL

	Calibration Range	Std. 1 Wt. %	Std. 2 Wt. %	Std. 3 Wt. %	Std. 4 Wt. %	Std. 5 Wt. %
Methanol	0.30 - 12.00	6.00	12.00	3.00	0.30	9.00
Ethanol	0.30 - 12.00	0.30	3.00	6.00	9.00	12.00
t-Butanol	0.30 - 12.00	0.30	6.00	9.00	12.00	3.00
MtBE	0.30 - 15.00	15.00	7.50	11.25	3.75	0.30
RFA Gasoline		78.40	71.50	70.75	74.95	75.70

Technical Note

EPA O-FID Oxygenate Petrochemical Standards

This second oxygenate version has been formulated to meet the specific analyte requirements of the EPA methodology.

With Internal Standard

M-GRO-CAL-IS/EPA-SET

5 x 1 mL

	Calibration Range	Std. 1 Wt. %	Std. 2 Wt. %	Std. 3 Wt. %	Std. 4 Wt. %	Std. 5 Wt. %
Methanol	0.29 - 11.40	5.70	11.40	2.85	0.29	8.55
Ethanol	0.29 - 11.40	0.29	2.85	5.70	8.55	11.40
t-Butanol	0.29 - 11.40	0.29	5.70	8.55	11.40	2.85
MtBE	0.29 - 14.29	14.25	7.13	10.69	3.56	0.29
1,2-Dimethoxyethane (ISTD)		5.00	5.00	5.00	5.00	5.00
RFA Gasoline		74.48	67.93	67.31	71.20	71.92

EPA O-FID Quantitative Calibration Check Standard

Without Internal Standard

M-GRO-EPA-CC-10ML

1 x 10 mL

M-GRO-EPA-CC-10ML-PAK **SAVE**

5 x 10 mL

At stated Wt. %

5 comps.

Methanol	4.0	MtBE	12.0
Ethanol	8.0	RFA gasoline	71.0
t-Butanol	5.0		

EPA O-FID Quantitative Calibration Check Standard

With Internal Standard

M-GRO-EPACC/IS-5ML

1 x 5 mL

M-GRO-EPACC/IS-5ML-PAK **SAVE**

5 x 5 mL

At stated Wt. %

6 comps.

Methanol	3.80	RFA gasoline	67.45
Ethanol	7.60	1,2-Dimethoxyethane	5.0
tert-Butanol	4.75	(Internal Standard)	
MtBE	11.40		

Technical Note

Additional Oxygenate calibration, check standards, and independent reference standards can be found in ASTM method D4815 or D5622. The required QA/QC procedures in EPA methods stipulate a calibration check standard be used once per analytical batch or per 10 sample set. AccuStandard has bulk packaged check standards to meet this increased usage.

EPA O-FID Spiking Solution

M-GRO-EPA-SP-5ML

1 x 5 mL

M-GRO-EPA-SP-5ML-PAK **SAVE**

5 x 5 mL

At stated Wt. %

4 comps.

Methanol	14.3	t-Butanol	14.3
Ethanol	28.6	MtBE	42.8

Oxygenate Free Gasoline Refinery Blank

RFA-BLNK-10ML

1 x 10 mL

RFA-BLNK-10ML-PAK **SAVE**

5 x 10 mL

RFA Gasoline (neat)

Internal Standard

M-GRO-IS-5ML

1 x 10 mL

M-GRO-IS-5ML-PAK **SAVE**

5 x 10 mL

1,2-Dimethoxyethane (neat)



Custom Quotation Requests

Custom formulations can be requested by contacting Technical Service: techservice@accustandard.com or using our website AccuStandard.com.

See back of the catalog for detailed information



ASTM D5622 Total Oxygen in Gasoline & MeOH Fuels by Reductive Pyrolysis

Description (2 x 10 mL, plus an RFA gasoline blank)	Oxygenate Wt. %	Cat. No.	Unit
Ethanol in Oxygenate free RFA gasoline	5.0	ASTM-P-0061-SET	3 x 10 mL
Ethanol in Oxygenate free RFA gasoline	10.0	ASTM-P-0062-SET	3 x 10 mL
TAME in Oxygenate free RFA gasoline	10.0	ASTM-P-0063-SET	3 x 10 mL
TAME in Oxygenate free RFA gasoline	15.0	ASTM-P-0064-SET	3 x 10 mL
EtBE in Oxygenate free RFA gasoline	10.0	ASTM-P-0065-SET	3 x 10 mL
EtBE in Oxygenate free RFA gasoline	15.0	ASTM-P-0066-SET	3 x 10 mL
MtBE in Oxygenate free RFA gasoline	10.0	ASTM-P-0067-SET	3 x 10 mL
MtBE in Oxygenate free RFA gasoline	15.0	ASTM-P-0068-SET	3 x 10 mL
Methanol & t-Butanol in Oxygenate free RFA gasoline	10.0 & 5.0	ASTM-P-0069-SET	3 x 10 mL

Technical Note

All oxygenate blends come with a certificate to maintain traceability links to NIST SRMs (when available). The 10 mL size eliminates the need for special packaging and hazardous material fees.

Oxygenate Free Gasoline Refinery Blank

RFA-BLNK-10ML

1 x 10 mL

RFA Gasoline (neat)

ASTM D5623 Sulfur Compounds in Light Petroleum Liquids by GC & Sulfur Selective Detection

ASTM-P-0091-10X-SET

22 x 1 mL

Approx. 2.0 mg/mL each in Toluene

Compound	Cat. No.	1 mL
Hydrogen sulfide	ASTM-P-0091-01-10X	
Carbonyl sulfide (Carbon oxysulfide)	ASTM-P-0091-02-10X	
Methyl mercaptan (Methanethiol)	ASTM-P-0091-03-10X	
Ethyl mercaptan (Ethanethiol)	ASTM-P-0091-04-10X	
Methyl sulfide (Dimethyl sulfide)	ASTM-P-0091-05-10X	
Carbon disulfide	ASTM-P-0091-06-10X	
2-Propanethiol (Isopropyl mercaptan)	ASTM-P-0091-07-10X	
2-Methyl-2-propanethiol (t-butyl mercaptan)	ASTM-P-0091-08-10X	
1-Propanethiol (Propyl mercaptan)	ASTM-P-0091-09-10X	
Ethyl methyl sulfide	ASTM-P-0091-10-10X	
1-Methyl-1-propanethiol (2-butanethiol)	ASTM-P-0091-11-10X	
Thiophene	ASTM-P-0091-12-10X	
2-Methyl-1-propanethiol (Isobutyl mercaptan)	ASTM-P-0091-13-10X	
Diethyl sulfide	ASTM-P-0091-14-10X	
1-Butanethiol (Butyl mercaptan)	ASTM-P-0091-15-10X	
Methyl disulfide (Dimethyl disulfide)	ASTM-P-0091-16-10X	
2-Methylthiophene	ASTM-P-0091-17-10X	
3-Methylthiophene	ASTM-P-0091-18-10X	
Diethyl disulfide (Ethyl disulfide)	ASTM-P-0091-19-10X	
3-Methylbenzo[b]thiophene	ASTM-P-0091-20-10X	
5-Methylbenzo[b]thiophene	ASTM-P-0091-21-10X	
Diphenyl sulfide	ASTM-P-0091-22-10X	

Technical Note

This set of qualitative Sulfur Standards is formulated for research evaluation of the presence of the sulfur analytes or their breakdown products.

ASTM D5708 Nickel, Vanadium, & Iron in Crude Oils & Residual Fuels by ICP-AES

see page 371

ASTM D5762 Nitrogen in Petroleum & Petroleum Products by Boat-Inlet Chemiluminescence

Nitrogen Calibration Set

D-5762-95-CAL-SET

6 x 1 mL

Nitrogen introduced using Acridine

Description	Cat. No.	1 mL
Xylene Blank	D-5762-95-BL	
Nitrogen @ 1.0 µg/mL in Xylene	D-5762-95-1X	
Nitrogen @ 5.0 µg/mL in Xylene	D-5762-95-5X	
Nitrogen @ 10 µg/mL in Xylene	D-5762-95-10X	
Nitrogen @ 50 µg/mL in Xylene	D-5762-95-50X	
Nitrogen @ 100 µg/mL in Xylene	D-5762-95-100X	

Low Level Nitrogen & Sulfur Calibration Set

ASTM-P-0071-SET

4 x 1 mL

The Nitrogen is introduced using Aniline, the Sulfur is introduced using di-n-butyl sulfide

Description	Cat. No. (1 mL)
Benzene Blank	ASTM-P-0071-BL
Nitrogen @ 0.25 µg/g & Sulfur @ 0.25 µg/g in Benzene	ASTM-P-0071-01
Nitrogen @ 0.50 µg/g & Sulfur @ 0.50 µg/g in Benzene	ASTM-P-0071-02
Nitrogen @ 1.00 µg/g & Sulfur @ 1.00 µg/g in Benzene	ASTM-P-0071-03

Nitrogen Calibration Set - Low Level

ASTM-P-0070-SET

6 x 1 mL

Nitrogen introduced using Aniline

Description	Cat. No. (1 mL)
Isooctane Blank	ASTM-P-0070-BL
Nitrogen @ 0.5 µg/g in Isooctane	ASTM-P-0070-1X
Nitrogen @ 1.0 µg/g in Isooctane	ASTM-P-0070-2X
Nitrogen @ 2.0 µg/g in Isooctane	ASTM-P-0070-4X
Nitrogen @ 5.0 µg/g in Isooctane	ASTM-P-0070-10X
Nitrogen @ 10.0 µg/g in Isooctane	ASTM-P-0070-20X

Stock Nitrogen Standard

D-5762-95-500X-PAK

5 x 1 mL

Nitrogen @ 500 µg/mL in Xylene (Acridine @ 6397 µg/mL)

Technical Note

Standards are prepared by adding well characterized nitrogen and/or sulfur compounds gravimetrically to the matrix. Since the matrix may contain some native nitrogen and/or sulfur, a blank must be used for background correction and should be purchased with the standard.



ASTM D5769 Benzene, Toluene & Total Aromatics in Finished Gasoline by GC/MS

These standards and methods are used in the monitoring of total aromatics according to the methods and amendments to the US Clean Air Act. Amendments containing more stringent specifications are in effect and can be found listed under this method. Standards for Method D5769 are listed on pages 301-309.

Calibration Curve with 3 Component Deuterated Internal Standard Added

Aromatics Calibration Standards Kit

Internal Standard Version

M-GRA-CAL/IS-SET

5 x 1 mL

Core Calibration Mix 24 Comps.	Std. 1 Target Vol. %	Std. 2 Vol. %	Std. 3 Vol. %	Std. 4 Vol. %	Std. 5 Vol. %
Benzene	3	1.50	0.75	0.375	0.1875
Toluene	19	9.50	4.75	2.375	1.1875
Ethylbenzene	5	2.50	1.25	0.625	0.3125
<i>m</i> -Xylene	6	3.00	1.50	0.750	0.3750
<i>p</i> -Xylene	6	3.00	1.50	0.750	0.3750
<i>o</i> -Xylene	6	3.00	1.50	0.750	0.3750
Isopropylbenzene	3	1.50	0.75	0.375	0.1875
<i>n</i> -Propylbenzene	3	1.50	0.75	0.375	0.1875
3-Ethyltoluene	3	1.50	0.75	0.375	0.1875
4-Ethyltoluene	3	1.50	0.75	0.375	0.1875
1,3,5-Trimethylbenzene	3	1.50	0.75	0.375	0.1875
2-Ethyltoluene	3	1.50	0.75	0.375	0.1875
1,2,4-Trimethylbenzene	5	2.50	1.25	0.625	0.3125
1,2,3-Trimethylbenzene	3	1.50	0.75	0.375	0.1875
Indan	3	1.50	0.75	0.375	0.1875
1,4-Diethylbenzene	3	1.50	0.75	0.375	0.1875
<i>n</i> -Butylbenzene	3	1.50	0.75	0.375	0.1875
1,2-Diethylbenzene	3	1.50	0.75	0.375	0.1875
1,2,4,5-Tetramethylbenzene	2	1.00	0.50	0.250	0.1250
1,2,3,5-Tetramethylbenzene	2	1.00	0.50	0.250	0.1250
Naphthalene	2	1.00	0.50	0.250	0.1250
Pentamethylbenzene	2	1.00	0.50	0.250	0.1250
1-Methylnaphthalene	2	1.00	0.50	0.250	0.1250
2-Methylnaphthalene	2	1.00	0.50	0.250	0.1250
Isooctane	--	47.5	71.25	83.15	89.05

M-GRA-IS (Internal Standard)

Benzene-d ₆	2	2	2	2	2
Ethylbenzene-d ₁₀	2	2	2	2	2
Naphthalene-d ₈	1	1	1	1	1

Optional Sixth Standard

Internal Standard Added

M-GRA-ADD/IS

1 x 1 mL

Core Calibr. Mix 24 Comps.	Optional Std. 6 Target Vol. %
Benzene	2.25
Toluene	15
Ethylbenzene	3.75
<i>m</i> -Xylene	4.50
<i>p</i> -Xylene	4.50
<i>o</i> -Xylene	4.50
Isopropylbenzene	2.25
<i>n</i> -Propylbenzene	2.25
3-Ethyltoluene	2.25
4-Ethyltoluene	2.25
1,3,5-Trimethylbenzene	2.25
2-Ethyltoluene	2.25
1,2,4-Trimethylbenzene	3.75
1,2,3-Trimethylbenzene	2.25
Indan	2.25
1,4-Diethylbenzene	2.25
<i>n</i> -Butylbenzene	2.25
1,2-Diethylbenzene	2.25
1,2,4,5-Tetramethylbenzene	4.0
1,2,3,5-Tetramethylbenzene	1.5
Naphthalene	1.5
Pentamethylbenzene	1.5
1-Methylnaphthalene	1.5
2-Methylnaphthalene	1.5
Isooctane	20.5

M-GRA-IS (Internal Standard)

Benzene-d ₆	2
Ethylbenzene-d ₁₀	2
Naphthalene-d ₈	1

CD Provided

CALAMTS

Contains Calibration Amounts

Each analyte is individually weighed. Actual weights and weight percents are provided.

Daily Quality Control Standard

Without Internal Standard

M-GRA-QC-10ML

1 x 10 mL

M-GRA-QC-10ML-PAK

SAVE

5 x 10 mL

At stated Wt. %

13 comps.

<i>n</i> -Hexane	12	Toluene	9
<i>n</i> -Heptane	17	Ethylbenzene	3
<i>n</i> -Octane	17	<i>m</i> -Xylene	3
<i>n</i> -Decane	12	<i>o</i> -Xylene	3
<i>n</i> -Dodecane	5	1,2,4-Trimethylbenzene	3
Isooctane	12	1,2,4,5-Tetramethylbenzene	3
Benzene	1		

Daily Quality Control Standard

With Internal Standard

M-GRA-QC/IS-5ML

1 x 5 mL

M-GRA-QC/IS-5ML-PAK

SAVE

5 x 5 mL

At stated Wt. %

16 comps.

<i>n</i> -Hexane	12	Toluene	9
<i>n</i> -Heptane	17	Ethylbenzene	3
<i>n</i> -Octane	17	<i>m</i> -Xylene	3
<i>n</i> -Decane	12	<i>o</i> -Xylene	3
<i>n</i> -Dodecane	5	1,2,4-Trimethylbenzene	3
Isooctane	12	1,2,4,5-Tetramethylbenzene	3
Benzene	1		
		13 comp. Core Mix	100

Includes M-GRA-IS (3 comp. Internal Standards mix) combined with the above 13 comp. Core Mix in a 5 to 100 weight ratio.

ASTM/EPA Sensitivity Test Solution

M-GRA-ST

1 x 1 mL

M-GRA-ST-PAK

SAVE

5 x 1 mL

100 µg/mL in Isooctane

1,4-Diethylbenzene

3 Comp. Deuterated Internal Std. Mix

M-GRA-IS-5ML

1 x 5 mL

M-GRA-IS-5ML-PAK

SAVE

5 x 5 mL

At stated Wt. %

3 comps.

Benzene-d ₆	40	Naphthalene-d ₈	20
Ethylbenzene-d ₁₀	40		



ASTM D5769 Benzene, Toluene & Total Aromatics in Finished Gasoline by GC/MS

Calibration Curve with 4 Component Deuterated Internal Standard Added

Aromatics Calibration Standards Kit

With Internal Standard

M-GRA-CAL-R/IS-R-SET

5 x 1 mL

Core Calibration Mix 24 comps.	Std. 1 Target Wt.%	Std. 2 Wt.%	Std. 3 Wt.%	Std. 4 Wt.%	Std. 5 Wt.%
Benzene	3.13	1.78	0.95	0.490	0.2490
Toluene	19.65	11.11	5.90	3.058	1.5547
Ethylbenzene	5.12	2.92	1.55	0.805	0.4090
<i>m</i> -Xylene	6.27	3.50	1.86	0.962	0.4891
<i>p</i> -Xylene	6.33	3.50	1.86	0.962	0.4891
<i>o</i> -Xylene	6.51	3.56	1.89	0.980	0.4891
Isopropylbenzene	3.06	1.74	0.93	0.480	0.2439
<i>n</i> -Propylbenzene	3.04	1.74	0.93	0.480	0.2440
3-Ethyltoluene	3.08	1.75	0.93	0.481	0.2446
4-Ethyltoluene	3.05	1.74	0.93	0.479	0.2437
1,3,5-Trimethylbenzene	3.07	1.75	0.93	0.481	0.2448
2-Ethyltoluene	3.14	1.78	0.95	0.490	0.2492
1,2,4-Trimethylbenzene	5.18	2.95	1.57	0.812	0.4130
1,2,3-Trimethylbenzene	3.19	1.81	0.96	0.498	0.2530
Indan	3.46	1.95	1.04	0.536	0.2726
1,4-Diethylbenzene	3.04	1.74	0.93	0.480	0.2439
<i>n</i> -Butylbenzene	3.05	1.74	0.92	0.479	0.2434
1,2-Diethylbenzene	3.22	1.78	0.95	0.490	0.2489
1,2,4,5-Tetramethylbenzene	2.10	1.20	0.64	0.329	0.1674
1,2,3,5-Tetramethylbenzene	2.09	1.20	0.64	0.330	0.1679
Naphthalene	2.35	1.34	0.71	0.369	0.1877
Pentamethylbenzene	2.16	1.23	0.66	0.340	0.1727
1-Methylnaphthalene	2.23	1.34	0.71	0.369	0.1877
2-Methylnaphthalene	2.41	1.37	0.73	0.378	0.1922
Isooctane	-----	43.47	69.96	84.441	92.0905
M-GRA-IS-R (Internal Standard)			At stated Wt. %		
Benzene-d ₆	16.57	16.57	16.57	16.57	16.57
Ethylbenzene-d ₁₀	16.76	16.76	16.76	16.76	16.76
Naphthalene-d ₈	8.78	8.78	8.78	8.78	8.78
Toluene-d ₈	57.88	57.88	57.88	57.88	57.88

Optional Sixth Standard

With Internal Standard

M-GRA-ADD/IS-R

1 x 1 mL

Core Calibr. Mix 24 comps.	Optional Std. 6 Target Wt. %
Benzene	2.48
Toluene	16.29
Ethylbenzene	4.07
<i>m</i> -Xylene	4.87
<i>p</i> -Xylene	4.87
<i>o</i> -Xylene	4.96
Isopropylbenzene	2.43
<i>n</i> -Propylbenzene	2.43
3-Ethyltoluene	2.44
4-Ethyltoluene	2.43
1,3,5-Trimethylbenzene	2.44
2-Ethyltoluene	2.48
1,2,4-Trimethylbenzene	4.11
1,2,3-Trimethylbenzene	2.52
Indan	2.71
1,4-Diethylbenzene	2.43
<i>n</i> -Butylbenzene	2.42
1,2-Diethylbenzene	2.48
1,2,4,5-Tetramethylbenzene	4.44
1,2,3,5-Tetramethylbenzene	1.67
Naphthalene	1.87
Pentamethylbenzene	1.72
1-Methylnaphthalene	1.87
2-Methylnaphthalene	1.91
Isooctane	17.67
M-GRA-IS-R (ISTD) At stated Wt. %	
Benzene-d ₆	16.57
Ethylbenzene-d ₁₀	16.76
Naphthalene-d ₈	8.78
Toluene-d ₈	57.88

Technical Note

A sixth standard has been formulated to improve the linearity at the high end of the calibration curve. This can be helpful in the quantification of gasoline containing high levels of toluene.

Technical Note

This set of calibration solutions was formulated to improve the quantification of toluene by using toluene-d₈ as an additional ISTD.

M-GRA-IS-R Internal Standard Mix (4 comps.) is combined with the Core Calibration Curve Mixes (25 comps.) in a 12 to 100 weight ratio to formulate a complete calibration solution containing 29 components.

Daily Quality Control Standard

Without Internal Standard

M-GRA-QC-10ML

1 x 10 mL

M-GRA-QC-10ML-PAK **SAVE**

5 x 10 mL

At stated Wt. %

13 comps.

<i>n</i> -Hexane	12	Toluene	9
<i>n</i> -Heptane	17	Ethylbenzene	3
<i>n</i> -Octane	17	<i>m</i> -Xylene	3
<i>n</i> -Decane	12	<i>o</i> -Xylene	3
<i>n</i> -Dodecane	5	1,2,4-Trimethylbenzene	3
Isooctane	12	1,2,4,5-Tetramethylbenzene	3
Benzene	1		

Daily Quality Control Standard

With Internal Standard

M-GRA-QC/IS-R-5ML

1 x 5 mL

M-GRA-QC/IS-R-5ML-PAK **SAVE**

5 x 5 mL

At stated Wt. %

17 comps.

<i>n</i> -Hexane	12	Toluene	9	
<i>n</i> -Heptane	17	Ethylbenzene	3	
<i>n</i> -Octane	17	<i>m</i> -Xylene	3	
<i>n</i> -Decane	12	<i>o</i> -Xylene	3	
<i>n</i> -Dodecane	5	1,2,4-Trimethylbenzene	3	
Isooctane	12	1,2,4,5-Tetramethylbenzene	3	
Benzene	1			
			Core Mix (13 comps.)	100

Deuterated Internal Standard Mix

M-GRA-IS-R-10ML

1 x 10 mL

M-GRA-IS-R-10ML-PAK **SAVE**

5 x 10 mL

At stated Wt. %

4 comps.

Benzene-d ₆	16.67	Naphthalene-d ₈	8.77
Ethylbenzene-d ₁₀	16.65	Toluene-d ₈	57.91

Includes Internal Standard

M-GRA-IS-R (4 comp.) combined with the above Core Mix (13 comps.) in a 12 to 100 weight ratio.

ASTM/EPA Sensitivity Test Solution

M-GRA-ST

1 x 1 mL

M-GRA-ST-PAK

SAVE

5 x 1 mL

100 µg/mL in Isooctane

1,4-Diethylbenzene



ASTM D5769 Benzene, Toluene & Total Aromatics in Finished Gasoline by GC/MS

Calibration Curve with No Internal Standard

Calibration Curve

Without Internal Standard

D-5769-CAL-5ML-SET
D-5769-CAL-10ML-SET

5 x 5 mL
5 x 10 mL

Core Calibration Mix 24 comps.	Std. 1 Target Wt.%	Std. 2 Wt.%	Std. 3 Wt.%	Std. 4 Wt.%	Std. 5 Wt.%
Benzene	5.25	2.95	1.575	0.8144	0.4143
Toluene	19.67	11.06	5.898	3.0505	1.5519
Ethylbenzene	5.18	2.91	1.552	0.8026	0.4083
<i>m</i> -Xylene	6.19	3.48	1.856	0.9598	0.4883
<i>p</i> -Xylene	6.19	3.48	1.856	0.9598	0.4883
<i>o</i> -Xylene	6.30	3.54	1.890	0.9776	0.4973
Isopropylbenzene	3.09	1.74	0.925	0.4786	0.2435
<i>n</i> -Propylbenzene	3.09	1.74	0.926	0.4787	0.2435
3-Ethyltoluene	3.10	1.74	0.928	0.4801	0.2442
4-Ethyltoluene	3.08	1.73	0.925	0.4782	0.2433
1,3,5-Trimethylbenzene	3.10	1.74	0.929	0.4804	0.2444
2-Ethyltoluene	3.15	1.77	0.945	0.4890	0.2488
1,2,4-Trimethylbenzene	5.23	2.94	1.567	0.8104	0.4123
1,2,3-Trimethylbenzene	3.20	1.80	0.960	0.4965	0.2526
Indan	3.45	1.94	1.034	0.5350	0.2722
1,4-Diethylbenzene	3.09	1.74	0.925	0.4786	0.2435
<i>n</i> -Butylbenzene	3.08	1.73	0.923	0.4776	0.2430
1,2-Diethylbenzene	3.15	1.77	0.945	0.4885	0.2485
1,2,4,5-Tetramethylbenzene	2.12	1.19	0.635	0.3284	0.1671
1,2,3,5-Tetramethylbenzene	2.12	1.19	0.637	0.3295	0.1676
Naphthalene	2.37	1.34	0.712	0.3683	0.1874
1-Methylnaphthalene	2.37	1.34	0.712	0.3683	0.1874
2-Methylnaphthalene	2.43	1.37	0.730	0.3773	0.1919
Isooctane	-----	43.77	70.015	84.4922	92.1105

Optional Sixth Standard

Without Internal Standard

D-5769-ADD-5ML 1 x 5 mL
D-5769-ADD-10ML 1 x 10 mL

Core Calibration Mix 24 comps.	Target Wt.%
Benzene	4.16
Toluene	16.41
Ethylbenzene	4.10
<i>m</i> -Xylene	4.91
<i>p</i> -Xylene	4.91
<i>o</i> -Xylene	5.00
Isopropylbenzene	2.45
<i>n</i> -Propylbenzene	2.45
3-Ethyltoluene	2.45
4-Ethyltoluene	2.44
1,3,5-Trimethylbenzene	2.46
2-Ethyltoluene	2.50
1,2,4-Trimethylbenzene	4.14
1,2,3-Trimethylbenzene	2.54
Indan	2.73
1,4-Diethylbenzene	2.45
<i>n</i> -Butylbenzene	2.44
1,2-Diethylbenzene	2.50
1,2,4,5-Tetramethylbenzene	1.68
1,2,3,5-Tetramethylbenzene	1.68
Naphthalene	1.88
1-Methylnaphthalene	1.88
2-Methylnaphthalene	1.93
Isooctane	19.92

CD Provided

CALAMTS
Contains Calibration Amounts

Each analyte is individually weighed. Actual weights and weight percents are provided.

Daily Quality Control Standard

Without Internal Standard

D-5769-QC-10ML 1 x 10 mL
D-5769-QC-10ML-PAK **SAVE** 5 x 10 mL
At stated Wt.% 14 comps.

<i>n</i> -Hexane	12	Toluene	9
<i>n</i> -Heptane	17	Ethylbenzene	3
<i>n</i> -Octane	17	<i>m</i> -Xylene	3
<i>n</i> -Decane	12	<i>o</i> -Xylene	3
<i>n</i> -Dodecane	5	1,2,4-Trimethylbenzene	3
Isooctane	12	1,2,4,5-Tetramethylbenzene	2
Benzene	1	Naphthalene	1

4 comp. Deuterated Internal Std. Mix

M-GRA-IS-R-10ML 1 x 10 mL
M-GRA-IS-R-10ML-PAK **SAVE** 5 x 10 mL
At stated Wt.% 4 comps.

Benzene-d ₆	16.67	Naphthalene-d ₈	8.77
Ethylbenzene-d ₁₀	16.65	Toluene-d ₈	57.91

3 comp. Deuterated Internal Std. Mix

M-GRA-IS-5ML 1 x 5 mL
M-GRA-IS-5ML-PAK **SAVE** 5 x 5 mL
At stated Wt.% 3 comps.

Benzene-d ₆	40	Naphthalene-d ₈	20
Ethylbenzene-d ₁₀	40		



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ASTM D5769 Benzene, Toluene & Total Aromatics in Finished Gasoline by GC/MS

Calibration Curve with 3 Component Internal Standard

Calibration Curve With Internal Standard D-5769-CAL/IS-SET

Core Calibr. Mix 24 Comps.	5 x 1 mL				
	Std. 1 Target Wt. %	Std. 2 Wt. %	Std. 3 Wt. %	Std. 4 Wt. %	Std. 5 Wt. %
Benzene	5.25	2.95	1.575	0.8144	0.4143
Toluene	19.67	11.06	5.898	3.0505	1.5519
Ethylbenzene	5.18	2.91	1.552	0.8026	0.4083
<i>m</i> -Xylene	6.19	3.48	1.856	0.9598	0.4883
<i>p</i> -Xylene	6.19	3.48	1.856	0.9598	0.4883
<i>o</i> -Xylene	6.30	3.54	1.890	0.9776	0.4973
Isopropylbenzene	3.09	1.74	0.925	0.4786	0.2435
<i>n</i> -Propylbenzene	3.09	1.74	0.926	0.4787	0.2435
3-Ethyltoluene	3.10	1.74	0.928	0.4801	0.2442
4-Ethyltoluene	3.08	1.73	0.925	0.4782	0.2433
1,3,5-Trimethylbenzene	3.10	1.74	0.929	0.4804	0.2444
2-Ethyltoluene	3.15	1.77	0.945	0.4890	0.2488
1,2,4-Trimethylbenzene	5.23	2.94	1.567	0.8104	0.4123
1,2,3-Trimethylbenzene	3.20	1.80	0.960	0.4965	0.2526
Indan	3.45	1.94	1.034	0.5350	0.2722
1,4-Diethylbenzene	3.09	1.74	0.925	0.4786	0.2435
<i>n</i> -Butylbenzene	3.08	1.73	0.923	0.4776	0.2430
1,2-Diethylbenzene	3.15	1.77	0.945	0.4885	0.2485
1,2,4,5-Tetramethylbenzene	2.12	1.19	0.635	0.3284	0.1671
1,2,3,5-Tetramethylbenzene	2.12	1.19	0.637	0.3295	0.1676
Naphthalene	2.37	1.34	0.712	0.3683	0.1874
1-Methylnaphthalene	2.37	1.34	0.712	0.3683	0.1874
2-Methylnaphthalene	2.43	1.37	0.730	0.3773	0.1919
Isooctane	-----	43.77	70.015	84.4922	92.1105

Optional Sixth Standard With Internal Standard D-5769-ADD/IS

Core Calibration Mix 24 Comps.	1 x 1 mL
	Target Wt. %
Benzene	4.16
Toluene	16.41
Ethylbenzene	4.10
<i>m</i> -Xylene	4.91
<i>p</i> -Xylene	4.91
<i>o</i> -Xylene	5.00
Isopropylbenzene	2.45
<i>n</i> -Propylbenzene	2.45
3-Ethyltoluene	2.45
4-Ethyltoluene	2.44
1,3,5-Trimethylbenzene	2.46
2-Ethyltoluene	2.50
1,2,4-Trimethylbenzene	4.14
1,2,3-Trimethylbenzene	2.54
Indan	2.73
1,4-Diethylbenzene	2.45
<i>n</i> -Butylbenzene	2.44
1,2-Diethylbenzene	2.50
1,2,4,5-Tetramethylbenzene	1.68
1,2,3,5-Tetramethylbenzene	1.68
Naphthalene	1.88
1-Methylnaphthalene	1.88
2-Methylnaphthalene	1.93
Isooctane	19.92

Technical Note

A sixth standard has been formulated to improve the linearity at the high end of the calibration curve. This can be especially helpful in the quantification of gasoline containing high levels of toluene.

Internal Standard

M-GRA-IS

At stated Wt. % 3 comps.

Benzene-d ₆	40
Ethylbenzene-d ₁₀	40
Naphthalene-d ₈	20

Includes Internal Standard

M-GRA-IS (3 comp.) combined with the Core Calibration Curve Mixes (24 comps.) above in a 5 to 100 weight ratio to formulate these calibration solutions (27 comp).

Daily Quality Control Standard

With Internal Standard

D-5769-QC/IS-5ML

D-5769-QC/IS-5ML-PAK **SAVE** 1 x 5 mL
5 x 5 mL
At stated Wt. % 17 comps.

<i>n</i> -Hexane	12	Toluene	9
<i>n</i> -Heptane	17	Ethylbenzene	3
<i>n</i> -Octane	17	<i>m</i> -Xylene	3
<i>n</i> -Decane	12	<i>o</i> -Xylene	3
<i>n</i> -Dodecane	5	1,2,4-Trimethylbenzene	3
Isooctane	12	1,2,4,5-Tetramethylbenzene	2
Benzene	1	Naphthalene	1

Includes

M-GRA-IS (3 comp. mix) added in 5 to 100 weight ratio

Resolution Standard

M-GRA-RES

M-GRA-RES-PAK **SAVE** 1 x 1 mL
5 x 1 mL
At stated Wt. % 3 comps.

1,3,5-Trimethylbenzene	3.0
1-Methyl-2-ethylbenzene	3.0
Isooctane	94.0

Deuterated Internal Standard Mix

M-GRA-IS-5ML

M-GRA-IS-5ML-PAK **SAVE** 1 x 5 mL
5 x 5 mL
At stated Wt. % 3 comps.

Benzene-d ₆	40	Naphthalene-d ₈	20
Ethylbenzene-d ₁₀	40		

Sensitivity Test Solution

M-GRA-ST

M-GRA-ST-PAK **SAVE** 1 x 1 mL
5 x 1 mL
100 µg/mL in Isooctane

1,4-Diethylbenzene

Fragmentation Pattern Standard

M-GRA-FP

M-GRA-FP-PAK **SAVE** 1 x 1 mL
5 x 1 mL
3.0 Wt. % in Isooctane

1,2,3-Trimethylbenzene

Mass Scan Range Standard

M-GRA-MSR

M-GRA-MSR-PAK **SAVE** 1 x 1 mL
5 x 1 mL
3.0 Wt. % in Isooctane

Toluene



ASTM D5769 Benzene, Toluene & Total Aromatics in Finished Gasoline by GC/MS

With 4 Component Internal Standard (includes Toluene-d₈)

Calibration Curve with Deuterated Toluene

With Internal Standard

D-5769-CAL/IS-R-SET

5 x 1 mL

Core Calibration Mix 24 Comps.	Std. 1 Target Wt.%	Std. 2 Wt.%	Std. 3 Wt.%	Std. 4 Wt.%	Std. 5 Wt.%
Benzene	5.25	2.95	1.575	0.8144	0.4143
Toluene	19.67	11.06	5.898	3.0505	1.5519
Ethylbenzene	5.18	2.91	1.552	0.8026	0.4083
<i>m</i> -Xylene	6.19	3.48	1.856	0.9598	0.4883
<i>p</i> -Xylene	6.19	3.48	1.856	0.9598	0.4883
<i>o</i> -Xylene	6.30	3.54	1.890	0.9776	0.4973
Isopropylbenzene	3.09	1.74	0.925	0.4786	0.2435
<i>n</i> -Propylbenzene	3.09	1.74	0.926	0.4787	0.2435
3-Ethyltoluene	3.10	1.74	0.928	0.4801	0.2442
4-Ethyltoluene	3.08	1.73	0.925	0.4782	0.2433
1,3,5-Trimethylbenzene	3.10	1.74	0.929	0.4804	0.2444
2-Ethyltoluene	3.15	1.77	0.945	0.4890	0.2488
1,2,4-Trimethylbenzene	5.23	2.94	1.567	0.8104	0.4123
1,2,3-Trimethylbenzene	3.20	1.80	0.960	0.4965	0.2526
Indan	3.45	1.94	1.034	0.5350	0.2722
1,4-Diethylbenzene	3.09	1.74	0.925	0.4786	0.2435
<i>n</i> -Butylbenzene	3.08	1.73	0.923	0.4776	0.2430
1,2-Diethylbenzene	3.15	1.77	0.945	0.4885	0.2485
1,2,4,5-Tetramethylbenzene	2.12	1.19	0.635	0.3284	0.1671
1,2,3,5-Tetramethylbenzene	2.12	1.19	0.637	0.3295	0.1676
Naphthalene	2.37	1.34	0.712	0.3683	0.1874
1-Methylnaphthalene	2.37	1.34	0.712	0.3683	0.1874
2-Methylnaphthalene	2.43	1.37	0.730	0.3773	0.1919
Isooctane	----	43.77	70.015	84.4922	92.1105

Optional Sixth Standard

With Internal Standard

D-5769-ADD/IS-R

1 x 1 mL

Core Calibration Mix 24 Comp.	Target Wt.%
Benzene	4.16
Toluene	16.41
Ethylbenzene	4.10
<i>m</i> -Xylene	4.91
<i>p</i> -Xylene	4.91
<i>o</i> -Xylene	5.00
Isopropylbenzene	2.45
<i>n</i> -Propylbenzene	2.45
3-Ethyltoluene	2.45
4-Ethyltoluene	2.44
1,3,5-Trimethylbenzene	2.46
2-Ethyltoluene	2.50
1,2,4-Trimethylbenzene	4.14
1,2,3-Trimethylbenzene	2.54
Indan	2.73
1,4-Diethylbenzene	2.45
<i>n</i> -Butylbenzene	2.44
1,2-Diethylbenzene	2.50
1,2,4,5-Tetramethylbenzene	1.68
1,2,3,5-Tetramethylbenzene	1.68
Naphthalene	1.88
1-Methylnaphthalene	1.88
2-Methylnaphthalene	1.93
Isooctane	19.92

Internal Standard

M-GRA-IS-R

At stated Wt.% 4 comps.

Benzene-d ₆	16.67
Ethylbenzene-d ₁₀	16.65
Naphthalene-d ₈	8.77
Toluene-d ₈	57.91

M-GRA-IS-R Internal Standard (4 comp.) is combined with the Core Calibration Curve Mixes (24 comp.) above in a 12 to 100 weight ratio to formulate these Calibration Solutions (28 comps.)

Daily Quality Control Standard

With Internal Standard

D-5769-QC/IS-R-5ML

1 x 5 mL

D-5769-QC/IS-R-5ML-PAK **SAVE**

5 x 5 mL

At stated Wt.%

18 comps.

<i>n</i> -Hexane	12	Toluene	9
<i>n</i> -Heptane	17	Ethylbenzene	3
<i>n</i> -Octane	17	<i>m</i> -Xylene	3
<i>n</i> -Decane	12	<i>o</i> -Xylene	3
<i>n</i> -Dodecane	5	1,2,4-Trimethylbenzene	3
Isooctane	12	1,2,4,5-Tetramethylbenzene	2
Benzene	1	Naphthalene	1

Includes M-GRA-IS-R (4 comp.) added in 12 to 100 weight ratio

Sensitivity Test Solution

M-GRA-ST

1 x 1 mL

M-GRA-ST-PAK

SAVE

5 x 1 mL

100 µg/mL in Isooctane

1,4-Diethylbenzene

Resolution Standard

M-GRA-RES

1 x 1 mL

M-GRA-RES-PAK

SAVE

5 x 1 mL

At stated Wt.%

3 comps.

1,3,5-Trimethylbenzene	3.0
1-Methyl-2-ethylbenzene	3.0
Isooctane	94.0

Deuterated Internal Standard Mix

M-GRA-IS-R-10ML

1 x 10 mL

M-GRA-IS-R-10ML-PAK **SAVE**

5 x 10 mL

At stated Wt.%

4 comps.

Benzene-d ₆	16.67	Naphthalene-d ₈	8.77
Ethylbenzene-d ₁₀	16.65	Toluene-d ₈	57.91

Fragmentation Pattern Standard

M-GRA-FP

1 x 1 mL

M-GRA-FP-PAK

SAVE

5 x 1 mL

3.0 Wt.% in Isooctane

1,2,3-Trimethylbenzene



ASTM D5769 Benzene, Toluene & Total Aromatics in Finished Gasoline by GC/MS

Proposed / Promulgated Method Modifications

Calibration Curve

With Chlorinated Internal Standard

D-5769-CAL/IS-R2-SET

Core Calibr. Mix 24 Comps.	5 x 1 mL				
	Std. 1 Target Wt.%	Std. 2 Wt.%	Std. 3 Wt.%	Std. 4 Wt.%	Std. 5 Wt.%
Benzene	5.25	2.95	1.575	0.8144	0.4143
Toluene	19.67	11.06	5.898	3.0505	1.5519
Ethylbenzene	5.18	2.91	1.552	0.8026	0.4083
<i>m</i> -Xylene	6.19	3.48	1.856	0.9598	0.4883
<i>p</i> -Xylene	6.19	3.48	1.856	0.9598	0.4883
<i>o</i> -Xylene	6.30	3.54	1.890	0.9776	0.4973
Isopropylbenzene	3.09	1.74	0.925	0.4786	0.2435
<i>n</i> -Propylbenzene	3.09	1.74	0.926	0.4787	0.2435
3-Ethyltoluene	3.10	1.74	0.928	0.4801	0.2442
4-Ethyltoluene	3.08	1.73	0.925	0.4782	0.2433
1,3,5-Trimethylbenzene	3.10	1.74	0.929	0.4804	0.2444
2-Ethyltoluene	3.15	1.77	0.945	0.4890	0.2488
1,2,4-Trimethylbenzene	5.23	2.94	1.567	0.8104	0.4123
1,2,3-Trimethylbenzene	3.20	1.80	0.960	0.4965	0.2526
Indan	3.45	1.94	1.034	0.5350	0.2722
1,4-Diethylbenzene	3.09	1.74	0.925	0.4786	0.2435
<i>n</i> -Butylbenzene	3.08	1.73	0.923	0.4776	0.2430
1,2-Diethylbenzene	3.15	1.77	0.945	0.4885	0.2485
1,2,4,5-Tetramethylbenzene	2.12	1.19	0.635	0.3284	0.1671
1,2,3,5-Tetramethylbenzene	2.12	1.19	0.637	0.3295	0.1676
Naphthalene	2.37	1.34	0.712	0.3683	0.1874
1-Methylnaphthalene	2.37	1.34	0.712	0.3683	0.1874
2-Methylnaphthalene	2.43	1.37	0.730	0.3773	0.1919
Isooctane	-----	43.77	70.015	84.4922	92.1105

Optional Sixth Standard

With Internal Standard

D-5769-ADD/IS-R2

1 x 1 mL

Core Calibration Mix 24 Components	Target Wt.%
Benzene	4.16
Toluene	16.41
Ethylbenzene	4.10
<i>m</i> -Xylene	4.91
<i>p</i> -Xylene	4.91
<i>o</i> -Xylene	5.00
Isopropylbenzene	2.45
<i>n</i> -Propylbenzene	2.45
3-Ethyltoluene	2.45
4-Ethyltoluene	2.44
1,3,5-Trimethylbenzene	2.46
2-Ethyltoluene	2.50
1,2,4-Trimethylbenzene	4.14
1,2,3-Trimethylbenzene	2.54
Indan	2.73
1,4-Diethylbenzene	2.45
<i>n</i> -Butylbenzene	2.44
1,2-Diethylbenzene	2.50
1,2,4,5-Tetramethylbenzene	1.68
1,2,3,5-Tetramethylbenzene	1.68
Naphthalene	1.88
1-Methylnaphthalene	1.88
2-Methylnaphthalene	1.93
Isooctane	19.92

CD Provided

CALAMTS

Contains Calibration Amounts

Each analyte is individually weighed. Actual weights and weight percents are provided.

Internal Standard

M-GRA-IS-R2

At stated Wt. % 3 comps.

Chlorobenzene	35.35
1,2-Dichlorobenzene	41.4
1,2,4-Trichlorobenzene	23.25

M-GRA-IS-R2 Internal Standard (3 comp.) is combined with the Core Calibration Curve Mixes (24 comp.) above in a 5 to 100 weight ratio to formulate these Calibration Solutions (27 comp.)

Daily QC Standard

With Internal Standard

D-5769-QC/IS-R2-5ML

D-5769-QC/IS-R2-5ML-PAK **SAVE**

At stated Wt. %

1 x 5 mL

5 x 5 mL

17 comps.

<i>n</i> -Hexane	12	Toluene	9
<i>n</i> -Heptane	17	Ethylbenzene	3
<i>n</i> -Octane	17	<i>m</i> -Xylene	3
<i>n</i> -Decane	12	<i>o</i> -Xylene	3
<i>n</i> -Dodecane	5	1,2,4-Trimethylbenzene	3
Isooctane	12	1,2,4,5-Tetramethylbenzene	2
Benzene	1	Naphthalene	1

Includes M-GRA-IS-R2 added in 5 to 100 weight ratio.

Sensitivity Test Solution

M-GRA-ST

1 x 1 mL

M-GRA-ST-PAK

SAVE

5 x 1 mL

100 µg/mL in Isooctane

1,4-Diethylbenzene

Fragmentation Pattern Standard

M-GRA-FP

1 x 1 mL

M-GRA-FP-PAK

SAVE

\$

5 x 1 mL

3.0 Wt. % in Isooctane

1,2,3-Trimethylbenzene

Resolution Standard

M-GRA-RES

1 x 1 mL

M-GRA-RES-PAK

SAVE

5 x 1 mL

At stated Wt. %

3 comps.

1,3,5-Trimethylbenzene	3.0
1-Methyl-2-ethylbenzene	3.0
Isooctane	94

Chlorinated Internal Standards

M-GRA-IS-R2-VAP

25 x 1 mL

M-GRA-IS-R2-25ML

1 x 25 mL

At stated Wt. %

3 comps.

Chlorobenzene	35.35
1,2-Dichlorobenzene	41.40
1,2,4-Trichlorobenzene	23.25



ASTM D5769 Benzene, Toluene & Total Aromatics in Finished Gasoline by GC/MS

Special QA/QC Formulations

Daily QC Standard

Without Internal Standard

M-GRA-QC-R-10ML	1 x 10 mL
M-GRA-QC-R-10ML-PAK SAVE	5 x 10 mL
At stated Wt. %	15 comps.

<i>n</i> -Hexane	12	Ethylbenzene	3
<i>n</i> -Heptane	17	<i>m</i> -Xylene	3
<i>n</i> -Octane	17	<i>o</i> -Xylene	3
<i>n</i> -Decane	12	1,2,4-Trimethylbenzene	3
<i>n</i> -Dodecane	5	1,2,4,5-Tetramethylbenzene	1
Isooctane	12	Pentamethylbenzene	1
Benzene	1	1-Methylnaphthalene	1
Toluene	9		

For use with any M-GRA Calibration Curve

Daily QC Standard

With Internal Standard M-GRA-IS

M-GRA-QC-R/IS-5ML	1 x 5 mL
M-GRA-QC-R/IS-5ML-PAK SAVE	5 x 5 mL
At stated Wt. %	18 comps.

<i>n</i> -Hexane	12	Ethylbenzene	3
<i>n</i> -Heptane	17	<i>m</i> -Xylene	3
<i>n</i> -Octane	17	<i>o</i> -Xylene	3
<i>n</i> -Decane	12	1,2,4-Trimethylbenzene	3
<i>n</i> -Dodecane	5	1,2,4,5-Tetramethylbenzene	1
Isooctane	12	Pentamethylbenzene	1
Benzene	1	1-Methylnaphthalene	1
Toluene	9		

Includes M-GRA-IS (3 comp.) combined with the above Core Mix (15 comp.) in a 5 to 100 weight ratio.

Daily QC Standard

With Internal Standard M-GRA-IS-R

M-GRA-QCR/IS-R-5ML	1 x 5 mL
M-GRA-QCR/IS-R-5ML-PAK SAVE	5 x 5 mL
At stated Wt. %	19 comps.

<i>n</i> -Hexane	12	Ethylbenzene	3
<i>n</i> -Heptane	17	<i>m</i> -Xylene	3
<i>n</i> -Octane	17	<i>o</i> -Xylene	3
<i>n</i> -Decane	12	1,2,4-Trimethylbenzene	3
<i>n</i> -Dodecane	5	1,2,4,5-Tetramethylbenzene	1
Isooctane	12	Pentamethylbenzene	1
Benzene	1	1-Methylnaphthalene	1
Toluene	9		

Includes M-GRA-IS-R (4 comp.) combined with the above Core Mix (15 comp.) in a 12 to 100 weight ratio.



Deuterated Internal Standard

M-GRA-IS-5ML	1 x 5 mL
M-GRA-IS-5ML-PAK SAVE	5 x 5 mL
At stated Wt. %	3 comps.

Benzene-d ₆	40
Ethylbenzene-d ₁₀	20
Naphthalene-d ₈	20

Deuterated Internal Standard

M-GRA-IS-R-10ML	1 x 10 mL
M-GRA-IS-R-10ML-PAK SAVE	5 x 10 mL
At stated Wt. %	4 comps.

Benzene-d ₆	16.67
Ethylbenzene-d ₁₀	16.65
Naphthalene-d ₈	8.77
Toluene-d ₈	57.91

Aromatics for Analysis by GC/MS (Daily QC Standards) Set

Original Formulations

M-GRA-K1-SET	Set	
Set includes:	Units	Function
M-GRA-CAL/IS-SET	5 x 1 mL	5 Point Curve with 3 Internal Standards
M-GRA-QC/IS-5ML	1 x 5 mL	Daily QC with 3 Internal Standards
M-GRA-IS-5ML	1 x 5 mL	3 Component Internal Standard
M-GRA-ST	1 x 1 mL	Sensitivity Test Solution

Revision 5 F

M-GRA-K2-SET	Set	
Set includes:	Units	Function
M-GRA-CAL/IS-SET	5 x 1 mL	5 Point Curve with 3 Internal Standards
M-GRA-ADD/IS	1 x 1 mL	6th Standard for Revision 5 F
M-GRA-QC/IS-5ML	1 x 5 mL	Daily QC with 3 Internal Standards
M-GRA-IS-5ML	1 x 5 mL	3 Component Internal Standard
M-GRA-ST	1 x 1 mL	Sensitivity Test Solution

4 Component Internal Standard Formulations

M-GRA-K4-SET	Set	
Set includes:	Units	Function
M-GRA-CAL-R/IS-R-SET	5 x 1 mL	5 Point Curve with 4 Internal Standards
M-GRA-ADD/IS-R	1 x 1 mL	6th Standard for Revision 5 F
M-GRA-QC-R/IS-R-5ML	1 x 5 mL	Daily QC with 4 Internal Standards
M-GRA-IS-R-10ML	1 x 10 mL	4 Component Internal Standard
M-GRA-ST	1 x 1 mL	Sensitivity Test Solution



ASTM D5769 Additional Internal, Deuterated and Quality Control Standards

Deuterated Internal Standard

ASTM-P-0140-IS			1 x 10 mL
ASTM-P-0140-IS-PAK	SAVE		5 x 10 mL
At stated Wt. %			4 comps.
Benzene-d ₆	2	Naphthalene-d ₈	1
Ethylbenzene-d ₁₀	2	Isooctane	balance

Deuterated Internal Standard

ASTM-P-0140-IS2			1 x 10 mL
ASTM-P-0140-IS2-PAK	SAVE		5 x 10 mL
At stated Wt. %			5 comps.
Benzene-d ₆	2	Toluene-d ₈	7
Ethylbenzene-d ₁₀	2	Isooctane	balance
Naphthalene-d ₈	1		

Performance Evaluation Standard

ASTM-P-0140-PES			1 x 1 mL
ASTM-P-0140-PES-PAK	SAVE		5 x 1 mL
At stated Wt. %			11 comps.
Benzene			1
1,2-Diethylbenzene		0.005	
1,3,5-Trimethylbenzene			1
1-Methyl-2-ethylbenzene			1
Styrene		0.1	
Indene		0.1	
Biphenyl		0.1	
1,2,4,5-Tetramethylbenzene			1
1,2,3,5-Tetramethylbenzene			1
Hexadecane			1
Isooctane:Toluene (50:50)			balance

Composition of Daily QC Standard

ASTM-P-0140-QC			1 x 10 mL
ASTM-P-0140-QC-PAK	SAVE		5 x 10 mL
At stated Wt. %			9 comps.
Benzene			1
Toluene			10
Ethylbenzene			3
1,3-Dimethylbenzene			6
1,2-Dimethylbenzene			3
1,2,4-Trimethylbenzene			3
1,2-Diethylbenzene		0.02	
Naphthalene			1
Isooctane			balance

Certificate will reflect actual weight of each component in the 100 gm batch including the solvent.





ASTM D5836 Determination of Diisocyanates (1,2-PP Method)

Underivatized Diisocyanates

Compound	Unit	Cat. No.
2,4-Toluene diisocyanate	100 mg	D-5836-01N
2,6-Toluene diisocyanate	100 mg	D-5836-02N
Hexamethylene diisocyanate	100 mg	D-5836-03N
4,4'-Methylenebis(phenyl isocyanate)	100 mg	D-5836-04N

Diisocyanate Storage - Refrig 0-5° C

Diisocyanate Set

D-5836-SET		9 x 1 mL
D-5836-01N	D-5836-04N	D-5836-03-DER
D-5836-02N	D-5836-01-DER	D-5836-04-DER
D-5836-03N	D-5836-02-DER	D-5836-03-ML-VAP

Derivatized Diisocyanates (Weight Compensated to 1000 µg/mL of each Diisocyanate)

Compound	Cat. No.	1 mL
N,N'-(4-Methyl-1,3-phenylene)bis[4-(2-pyridinyl)-1-piperazinecarboxamide] 72375-21-4 (2,4-TDIP)	D-5836-01-DER	2840 µg/mL in DMSO
N,N'-(2-Methyl-1,3-phenylene)bis[4-(2-pyridinyl)-1-piperazinecarboxamide] (2,6-TDIP)	D-5836-02-DER	2840 µg/mL in DMSO
N,N'-1,6-Hexanediybis[4-(2-pyridinyl)-1-piperazinecarboxamide] 72375-27-0 (1,6-HDIP)	D-5836-03-DER	2900 µg/mL in DMSO
N,N'-(Methylenediphenylene)bis[4-(2-pyridinyl)-1-piperazinecarboxamide] 72375-24-7 (4,4'-MDIP)	D-5836-04-DER	2280 µg/mL in DMSO

Derivatizing Agents

1-(2-Pyridyl)piperazine 34803-66-2	D-5836-03-ML-VAP	2 mg/mL in CH ₂ Cl ₂	4 x 5 mL
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Individual Derivatized Diisocyanates

N,N'-(4-Methyl-1,3-phenylene)bis[4-(2-pyridinyl)-1-piperazinecarboxamide] 72375-21-4 (2,4-TDIP)	D-5836-01A-DER	1000 µg/mL in DMSO
N,N'-(2-Methyl-1,3-phenylene)bis[4-(2-pyridinyl)-1-piperazinecarboxamide] (2,6-TDIP)	D-5836-02A-DER	1000 µg/mL in DMSO
N,N'-1,6-Hexanediybis[4-(2-pyridinyl)-1-piperazinecarboxamide] 72375-27-0 (1,6-HDIP)	D-5836-03A-DER	1000 µg/mL in DMSO
N,N'-(Methylenediphenylene)bis[4-(2-pyridinyl)-1-piperazinecarboxamide] 72375-24-7 (4,4'-MDIP)	D-5836-04A-DER	1000 µg/mL in DMSO

ASTM D5837 Furanic Compounds in Electrical Insulating Liquids by High-Performance Liquid Chromatography (HPLC)

Furanic Compound Extraction Standard

D-5837-01 1 x 1 mL
1000 µg/mL each in Acetonitrile

2-Acetylfuran
2-Furaldehyde
Furfuryl alcohol
5-(Hydroxymethyl)-2-furaldehyde
5-Methylfurfural

Furanic Compound Calibration Standard

D-5837-02 1 x 1 mL
1000 µg/mL each in Toluene

2-Acetylfuran
2-Furaldehyde
Furfuryl alcohol
5-(Hydroxymethyl)-2-furaldehyde
5-Methylfurfural

ASTM D5863 Ni, V, Fe, & Na in Crude Oils & Residual Fuels by Flame AA Spectrometry

see page 371

ASTM D5986 Oxygenates, Benzene, Toluene, C8-C12, Aromatics & Total Aromatics in Finished Gasolines by GC/FTIR

Daily QC Standard

Without Internal Standard

M-GRA-QC-10ML		1 x 10 mL
M-GRA-QC-10ML-PAK	SAVE	5 x 10 mL
At stated Wt. %		13 comps.

n-Hexane	12	Toluene	9
n-Heptane	17	Ethylbenzene	3
n-Octane	17	m-Xylene	3
n-Decane	12	o-Xylene	3
n-Dodecane	5	1,2,4-Trimethylbenzene	3
Isooctane	12	1,2,4,5-Tetramethylbenzene	3
Benzene	1		

Technical Note

This quality control standard was formulated to meet Section 11 of ASTM D-5986 specification which stipulates "analyze the quality control reference material before every batch of samples. Bracket the samples with the reference materials".



ASTM D6160 Polychlorinated Biphenyls (PCBs in Waste Materials by GC)

Aroclor Standards

Aroclor #	35 µg/mL in Isooctane Cat. No.	1 mL	35 µg/mL in MeOH Cat. No.	1 mL	1000 µg/mL in Hexane Cat. No.	1 mL
Aroclor 1016	C-216S		C-216S-M		C-216S-H-10X	
Aroclor 1221	C-221S		C-221S-M		C-221S-H-10X	
Aroclor 1232	C-232S		C-232S-M		C-232S-H-10X	
Aroclor 1242	C-242S		C-242S-M		C-242S-H-10X	
Aroclor 1248	C-248S		C-248S-M		C-248S-H-10X	
Aroclor 1254	C-254S		C-254S-M		C-254S-H-10X	
Aroclor 1260	C-260S		C-260S-M		C-260S-H-10X	
Aroclor 1262	C-262S		C-262S-M		C-262S-H-10X	
Aroclor 1268	C-268S		C-268S-M		C-268S-H-10X	

ASTM D6258 Solvent Red 164 Dye Concentration in Diesel Fuels

Stock Solvent Red 26 Standard

D-6258-CONC-5ML

1 x 5 mL

Solvent Red 26 @ 300 µg/mL in Xylene

Technical Note

Although Solvent Red 164 is the dye used in fuel, Solvent Red 26 has an identical spectrum profile.

D-6258 Calibration Curve

D-6258-5ML-SET

6 x 5 mL

	Cat. No.	Unit
Xylene Blank	D-6258-BL	1 x 5 mL
Solvent Red 26 Dye @ 3 µg/mL in Xylene	D-6258-01	1 x 5 mL
Solvent Red 26 Dye @ 6 µg/mL in Xylene	D-6258-02	1 x 5 mL
Solvent Red 26 Dye @ 9 µg/mL in Xylene	D-6258-03	1 x 5 mL
Solvent Red 26 Dye @ 12 µg/mL in Xylene	D-6258-04	1 x 5 mL
Solvent Red 26 Dye @ 15 µg/mL in Xylene	D-6258-05	1 x 5 mL

ASTM D6293 Oxygenates & Paraffin, Olefin, Naphthene, Aromatics (O-PONA) Hydrocarbon types in Low-Olefin Spark-Ignition Engine Fuels by GC

O-PONA System Validation Mixture

ASTM-P-0080

ASTM-P-0080-PAK

At stated Wt. %

SAVE

1 x 1 mL

5 x 1 mL

33 comps.

Cyclopentane	1.5	Benzene	2.5
<i>n</i> -Pentane	1.5	Toluene	2.5
Cyclohexane	2.0	<i>trans</i> -Decahydronaphthelene	3.5
2,3-Dimethylbutane	2.0	<i>n</i> -Tetradecane	2.0
<i>n</i> -Hexane	2.0	Ethylbenzene	3.5
1-Hexene	1.5	<i>o</i> -Xylene	3.0
Methylcyclohexane	3.5	<i>n</i> -Propylbenzene	3.5
4-Methyl-1-hexene	1.5	1,2,4-Trimethylbenzene	3.0
<i>n</i> -Heptane	3.0	1,2,3-Trimethylbenzene	2.0
1,2-Dimethylcyclohexane	4.5	1,2,4,5-Tetramethylbenzene	2.0
Isooctane	4.0	Pentamethylbenzene	2.5
<i>n</i> -Octane	4.0	Ethanol	5.0
1,2,4-Trimethylcyclohexane	3.5	<i>t</i> -Butanol	4.0
<i>n</i> -Nonane	3.0	MtBE	8.0
<i>n</i> -Decane	3.5	ETBE	3.0
<i>n</i> -Undecane	2.0	TAME	5.0
<i>n</i> -Dodecane	2.0		

O-PONA Olefin Mix

ASTM-P-0081

ASTM-P-0081-PAK

At stated Wt. % in Hexane:Heptane (50:50)

1 x 1 mL

5 x 1 mL

5 comps.

1-Pentene	5.0	1-Octene	2.0
1-Hexene	2.0	1-Nonene	3.0
1-Heptene	2.0		

O-PONA Paraffin Mixes

ASTM-P-0082

ASTM-P-0082-PAK

At stated Wt. % in Hexane:Heptane (50:50)

1 x 1 mL

5 x 1 mL

2 comps.

<i>n</i> -Nonane	5.0
<i>n</i> -Decane	2.0

ASTM-P-0082-R1

ASTM-P-0082-R1-PAK

At stated Wt. % in Hexane:Heptane (50:50)

1 x 1 mL

5 x 1 mL

2 comps.

<i>n</i> -Nonane	3.0
<i>n</i> -Decane	3.0



ASTM D6296 Total Olefins in Spark-Ignition Engine Fuels by Multidimensional GC

System Setup & Verification Standard Set

D-6296-VER-SET		2 x 1 mL
D-6296-VER-SET-PAK	SAVE	5 x (2 x 1 mL)
D-6296-VER1, D-6296-VER2		

System Setup and Verification 1

D-6296-VER1	1 x 1 mL
At stated Wt. %	2 comps.

MtBE	5
Isooctane	95

System Setup and Verification 2

D-6296-VER2	1 x 1 mL
At stated Wt. %	2 comps.

EtBE	5
Isooctane	95

Calibration Standard with MtBE

D-6296-CAL1			1 x 1 mL
D-6296-CAL1-PAK	SAVE		5 x 1 mL
At stated Wt. %			
1-Pentene	1.0	1-Decene	1.0
1-Hexene	1.0	<i>n</i> -Undecane	1.0
1-Heptene	1.0	<i>n</i> -Dodecane	1.0
1-Octene	1.0	Isooctane	87.0
1-Nonene	1.0	MtBE	5.0

Isooctane Blank Compensation Std.

D-6296-BL	1 x 5 mL
Isooctane (neat)	

Calibration Standard with EtBE

D-6296-CAL2			1 x 1 mL
D-6296-CAL2-PAK	SAVE		5 x 1 mL
At stated Wt. %			
1-Pentene	1.0	<i>n</i> -Decane	1.0
1-Hexene	1.0	<i>n</i> -Undecane	1.0
1-Heptene	1.0	<i>n</i> -Dodecane	1.0
1-Octene	1.0	Isooctane	86.0
1-Nonene	1.0	EtBE	5.0
1-Decene	1.0		

ASTM D6304 Determination of Water in Petroleum Products Lubricating oil and additives by Coulometric Karl Fischer Titration

see page 269

ASTM D6334 Sulfur in Gasoline by Wavelength Dispersive X-Ray Fluorescence

see pages 270-271

ASTM D6352 Boiling Range Distribution of Petroleum Distillates from 174 to 700°C by GC

Polywax 500®

ASTM-P-0051N-2G	2 grams
Polywax 500	

Polywax 850®

ASTM-P-0137N-2G	2 grams
Polywax 850	

Polywax 655®

ASTM-P-0053N-2G	2 grams
Polywax 655	

Polywax 1000®

ASTM-P-0138N-2G	2 grams
Polywax 1000	

Hydrocarbon Window Defining Std.

DRH-008S-R2	1 x 1 mL
DRH-008S-R2-PAK	SAVE
500 µg/mL each in Chloroform	
	35 comps.

<i>n</i> -Octane	<i>n</i> -Tetracosane
<i>n</i> -Nonane	<i>n</i> -Pentacosane
<i>n</i> -Decane	<i>n</i> -Hexacosane
<i>n</i> -Undecane	<i>n</i> -Heptacosane
<i>n</i> -Dodecane	<i>n</i> -Octacosane
<i>n</i> -Tridecane	<i>n</i> -Nonacosane
<i>n</i> -Tetradecane	<i>n</i> -Triacontane
<i>n</i> -Pentadecane	<i>n</i> -Hentriacontane
<i>n</i> -Hexadecane	<i>n</i> -Dotriacontane
<i>n</i> -Heptadecane	<i>n</i> -Tritriacontane
<i>n</i> -Octadecane	<i>n</i> -Tetracontane
Pristane	<i>n</i> -Pentatriacontane
<i>n</i> -Nonadecane	<i>n</i> -Hexatriacontane
Phytane	<i>n</i> -Heptatriacontane
<i>n</i> -Eicosane	<i>n</i> -Octatriacontane
<i>n</i> -Heneicosane	<i>n</i> -Nonatriacontane
<i>n</i> -Docosane	<i>n</i> -Tetracontane
<i>n</i> -Tricosane	

Calibration Mix

DRH-002N	100 mg
DRH-002N-10X	1 gm
At stated Wt. %	
	17 comps.

<i>n</i> -Hexane	6	<i>n</i> -Octadecane	5
<i>n</i> -Heptane	6	<i>n</i> -Eicosane	2
<i>n</i> -Octane	8	<i>n</i> -Tetracosane	2
<i>n</i> -Nonane	8	<i>n</i> -Octacosane	1
<i>n</i> -Decane	12	<i>n</i> -Dotriacontane	1
<i>n</i> -Undecane	12	<i>n</i> -Hexatriacontane	1
<i>n</i> -Dodecane	12	<i>n</i> -Tetracontane	1
<i>n</i> -Tetradecane	12	<i>n</i> -Tetracontane	1
<i>n</i> -Hexadecane	10		

Column Test Mixture

D-2887	1 x 1 mL
10 mg/mL in <i>n</i> -Octane	
<i>n</i> -Hexadecane	<i>n</i> -Octadecane
	2 comps.



ASTM D6378 Vapor Pressure (VPx) of Petroleum Products, Hydrocarbons and Hydrocarbon-Oxygenate Mixtures (Triple Expansion Method)

see page 281

ASTM D6379 Aromatic Hydrocarbon Types in Aviation Fuels & Petroleum Distillates - HPLC method with Refractive Index

System Resolution Standards

D-6379-SRS 1 x 1 mL
D-6379-SRS-PAK *SAVE* 5 x 1 mL
 At stated conc. (mg/mL) in *n*-Heptane 3 comps.

Cyclohexane	10
<i>o</i> -Xylene	0.5
1-Methyl naphthalene	0.05

D-6379-SRS-R1 1 x 1 mL
D-6379-SRS-R1-PAK *SAVE* 5 x 1 mL
 At stated conc. (mg/mL) in *n*-Heptane 3 comps.

Cyclohexane	10
<i>o</i> -Xylene	5
1-Methyl naphthalene	0.5

Calibration Curves

D-6379-SET 4 x 1 mL
D-6379-SET-PAK *SAVE* 5 x (4 x 1 mL)
 At stated conc. (mg/mL) in *n*-Heptane

Analyte	Std. 1	Std. 2	Std. 3	Std. 4
Cyclohexane	5	2	0.5	0.1
<i>o</i> -Xylene	15	5	1.0	0.1
1-Methyl naphthalene	5	1.0	0.2	0.05

D-6379-10X-SET 4 x 1 mL
D-6379-10X-SET-PAK 5 x (4 x 1 mL)
 At stated conc. (mg/mL) in *n*-Heptane

Analyte	Std. 1	Std. 2	Std. 3	Std. 4
Cyclohexane	50	20	5	1
<i>o</i> -Xylene	150	50	10	1
1-Methyl naphthalene	50	10	2	0.5

ASTM D6417 Estimation of Engine Oil Volatility by Capillary GC

see page 300

ASTM D6428 Sulfur by Combustion and Electrochemical Detection

D-6428-R1-100ML-SET 7 x 100 mL

D-6428-R1-SET 7 x 1 mL

Each in Isooctane

	D-6428-R1-100ML-SET 100 mL	D-6428-R1-SET 1 mL
Sulfur Blank	D-6428-BL-100ML	D-6428-BL
Sulfur @ 0.1 µg/g	D-6428-0.1X-100ML	D-6428-0.1X
Sulfur @ 0.5 µg/g	D-6428-0.5X-100ML	D-6428-0.5X
Sulfur @ 1.0 µg/g	D-6428-1X-100ML	D-6428-1X
Sulfur @ 2.5 µg/g	D-6428-2.5X-100ML	D-6428-2.5X
Sulfur @ 5.0 µg/g	D-6428-5X-100ML	D-6428-5X
Sulfur @ 10 µg/g	D-6428-10X-100ML	D-6428-10X

D-6428-R2-100ML-SET 6 x 100 mL

D-6428-R2-SET 6 x 1 mL

Each in Isooctane

	D-6428-R2-100ML-SET 100 mL	D-6428-R2-SET 1 mL
Sulfur Blank	D-6428-BL-100ML	D-6428-BL
Sulfur @ 10 µg/g	D-6428-10X-100ML	D-6428-10X
Sulfur @ 25 µg/g	D-6428-25X-100ML	D-6428-25X
Sulfur @ 50 µg/g	D-6428-50X-100ML	D-6428-50X
Sulfur @ 75 µg/g	D-6428-75X-100ML	D-6428-75X
Sulfur @ 100 µg/g	D-6428-100X-100ML	D-6428-100X

Technical Note

Sulfur introduced using *di-n*-butyl sulfide

Technical Note

Standards are prepared by adding well characterized sulfur compounds gravimetrically to the matrix. Since the matrix may contain some native sulfur, a blank must be used for background correction and should be purchased with the standard.

ASTM D6443 Ca, Cl, Cu, Mg, P, S, Zn in Unused Lubricating Oils & Additives by Wave-length Dispersive X-ray Fluorescence & Spectrometry

see pages 370-374

ASTM D6445 Sulfur in Gasoline by ED - XRF

see pages 270-271

ASTM D6481 P, S, Ca and Zn in Lube Oils by ED-XRF

see pages 370-374

ASTM D6550 Olefin Content of Gasolines by SFC

Stock Olefin Calibration Standard

D-6550-CONC 1 x 1 mL
D-6550-CONC-5ML 1 x 5 mL
 At stated Wt. % 15 comps.

1-Nonene	2.5	2-Methyl-1,3-butadiene	5	2-Methyl-2-pentene	10
Cyclohexene	5	4-Methyl-1-pentene	5	1-Heptene	10
1-Hexene	5	1,5-Hexadiene	3	2-Methyl-1-octene	2.5
1-Octene	5	3-Methyl-1,3-pentadiene	2	2-Methyl-1-heptene	5
1-Decene	5	2-Methyl-1-butene	25	5-Methyl-1-hexene	10



ASTM D6584 Free and Total Glycerin in Biodiesel by GC

Compound	Conc.	Matrix	Cat. No.	Unit
Glycerin	0.5 mg/mL	Pyridine	BF-D-6584-01	2 mL
Monoolein	5 mg/mL	Pyridine	BF-D-6584-02	2 mL
1,3-Diolein	5 mg/mL	Pyridine	BF-D-6584-03	2 mL
Triolein	5 mg/mL	Pyridine	BF-D-6584-04	2 mL
(S)-(-)-1,2,4-Butanetriol	1 mg/mL	Pyridine	BF-D-6584-05-IS	5 mL
Tricaprin	8 mg/mL	Pyridine	BF-D-6584-06	5 mL
MSTFA	5 mL	Neat	BF-D-6584-07N	5 mL
			BF-D-6584-SET	7 units

Mix of above compounds, on right (MSTFA separate)

Biofuel 20	0.5 mg/mL	CH ₂ Cl ₂	BF-FU-030-D	2 mL
	20 mg/mL	CH ₂ Cl ₂	BF-FU-030-D-40X	2 mL
Biofuel 100 (Consumer grade)	0.5 mg/mL	CH ₂ Cl ₂	BF-FU-029-D	2 mL
	20 mg/mL	CH ₂ Cl ₂	BF-FU-029-40X	2 mL
Biofuel 100 (Refinery grade)	0.5 mg/mL	CH ₂ Cl ₂	BF-FU-032-D	2 mL
	20 mg/mL	CH ₂ Cl ₂	BF-FU-032-D-40X	2 mL

ASTM D6584 Mixture

BF-D-6584-MIX	1 x 5 mL
At stated conc.(mg/mL) in Pyridine 6 comps.	
Glycerol	0.5
Monoolein	5
1,3-Diolein	5
Trioctadecenoin (Olein)	5
(S)-(-)-1,2,4-Butanetriol	1
Tricaprin	8

Note: MSTFA (BF-D-6584-07N) can be ordered separately.

EN 14105 Free and Total Glycerin in Biodiesel by GC

EN 14105 Biofuel Glyceride Solution I

EN-14105-01 1 x 1 mL
At stated conc. (µg/mL) in Pyridine
6 comps.

(S)-(-)-1,2,4-Butanetriol	80
Monoolein	250
Diolein	50
Triolein	50
Glycerol	5
Tricaprin	800

EN 14105 Biofuel Glyceride Solution II

EN-14105-02 1 x 1 mL
At stated conc. (µg/mL) in Pyridine
6 comps.

(S)-(-)-1,2,4-Butanetriol	80
Monoolein	600
Diolein	200
Triolein	150
Glycerol	20
Tricaprin	800

EN 14105 Biofuel Glyceride Solution III

EN-14105-03 1 x 1 mL
At stated conc. (µg/mL) in Pyridine
6 comps.

S)-(-)-1,2,4-Butanetriol	80
Monoolein	950
Diolein	350
Triolein	300
Glycerol	35
Tricaprin	800

EN 14105 Biofuel Glyceride Solution IV

EN-14105-04 1 x 1 mL
At stated conc. (µg/mL) in Pyridine
6 comps.

(S)-(-)-1,2,4-Butanetriol	80
Monoolein	1250
Diolein	500
Triolein	400
Glycerol	50
Tricaprin	800

ASTM D6591-11 (IP 391) Aromatic Hydrocarbon Types in Middle Distillates - HPLC method with Refractive Index Detection

System Performance Standard

ASTM-P-0135 1 x 5 mL
ASTM-P-0135-PAK SAVE 5 x 5 mL
At stated conc. (mg/mL) in n-Heptane 4 comps.

Cyclohexane	10
o-Xylene	5.0
Dibenzothiophene	0.5
9-Methylantracene	0.5

IP 391-95 Calibration Curve

ASTM-P-0136-SET 4 x 1 mL
At stated conc.(mg/mL) in n-Heptane

Analyte	Std. 1	Std. 2	Std. 3	Std. 4
Cyclohexane	50	20	5	1
o-Xylene	40	10	2.5	0.5
1-Methyl naphthalene	40	10	2.5	0.2
Phenanthrene	4	2	0.5	0.1



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ASTM D6751 & ASTM D5453 Sulfur as Di-n-butyl sulfide in Biodiesel

Sulfur in Biodiesel 5%

ppm (µg/g)	% Wt.	Cat. No.	100 mL
0	0	BF-5453-B5-BL	
5	0.0005	BF-5453-B5-5X-SET	2 x 100 mL
10	0.001	BF-5453-B5-10X-SET	2 x 100 mL
15	0.0015	BF-5453-B5-15X-SET	2 x 100 mL
30	0.003	BF-5453-B5-30X	
50	0.005	BF-5453-B5-50X	
75	0.0075	BF-5453-B5-75X	
100	0.01	BF-5453-B5-100X	
200	0.02	BF-5453-B5-200X	
500	0.05	BF-5453-B5-500X	

Sulfur in Biodiesel 100%

ppm (µg/g)	% Wt.	Cat. No.	100 mL
0	0	BF-5453-B100-BL	
5	0.0005	BF-5453-B100-5X-SET	2 x 100 mL
10	0.001	BF-5453-B100-10X-SET	2 x 100 mL
15	0.0015	BF-5453-B100-15X-SET	2 x 100 mL
30	0.003	BF-5453-B100-30X	
50	0.005	BF-5453-B100-50X	
75	0.0075	BF-5453-B100-75X	
100	0.01	BF-5453-B100-100X	
200	0.02	BF-5453-B100-200X	
500	0.05	BF-5453-B100-500X	

Sulfur in Biodiesel 20%

ppm (µg/g)	% Wt.	Cat. No.	100 mL
0	0	BF-5453-B20-BL	
5	0.0005	BF-5453-B20-5X-SET	2 x 100 mL
10	0.001	BF-5453-B20-10X-SET	2 x 100 mL
15	0.0015	BF-5453-B20-15X-SET	2 x 100 mL
30	0.003	BF-5453-B20-30X	
50	0.005	BF-5453-B20-50X	
75	0.0075	BF-5453-B20-75X	
100	0.01	BF-5453-B20-100X	
200	0.02	BF-5453-B20-200X	
500	0.05	BF-5453-B20-500X	

Technical Note

All products are refinery grade stock, unless specifically marked consumer grade.

Technical Note

The 5, 10 and 15 ppm sulfurs are supplied as a set including a blank. We suggest using the blank for analysis to compensate for matrix interferences, such as low levels of native sulfur.

Note: 10,000 ppm = 1% Wt.

Technical Note

Standards are prepared by adding well characterized sulfur compounds gravimetrically to the matrix. Since the matrix may contain some native sulfur, a blank must be used for background correction and should be purchased with the standard.

ASTM D7576 Total Aromatics in Denatured Ethanol

D-7576-SET

5 x 1 mL

Compounds	D-7576-01	D-7576-02	D-7576-03	D-7576-04	D-7576-05
Benzene	0.02	0.04	0.06	0.08	0.1
Toluene	0.05	0.1	0.2	0.4	0.6
Ethylbenzene	0.02	0.05	0.1	0.15	0.2
o-Xylene	0.02	0.05	0.1	0.15	0.2
1,2,4-Trimethylbenzene	0.05	0.1	0.2	0.4	0.6
2-Hexanone	1.0	1.0	1.0	1.0	1.0
Ethanol	98.8	98.7	98.3	97.8	97.3

Technical Note

This standard covers the determination of benzene and total aromatics in finished denatured fuel ethanol by gas chromatography.

Physical Standards

Compound	Conc.	Matrix	Cat. No.	Unit
ASTM D2500				
Cloud Point	-16 °C *	B5	BF-D-2500-B5-250ML	250 mL
	-14 °C *	B20	BF-D-2500-B20-250ML	250 mL
	-1 °C *	B100	BF-D-2500-B100-250ML	250 mL
ASTM D93 / EN-ISO 3679				
Flash Point	60 °C *		BF-D-93-60C-250ML	250 mL
	65 °C *		BF-D-93-65C-250ML	250 mL
	140 °C *		BF-D-93-140C-250ML	250 mL
ASTM D4951 / EN 14107				
Phosphorus Content	0.001 % Wt.	B100	BF-D-4951-B100	100 g
ASTM D6304 / EN ISO 12937 (KF) Water Content				
	60 µg/g *		BF-KF-0.6X-5ML-VAP	10 x 5 mL
	100 µg/g *		BF-KF-1X-5ML-VAP	10 x 5 mL
	1000 µg/g *		BF-KF-10X-5ML-VAP	10 x 5 mL
	5000 µg/g *		BF-KF-50X-5ML-VAP	10 x 5 mL
ASTM D6751 / UOP 391 / EN 14108 / EN 14109				
Sodium / Potassium	100 ppm *	B100	BF-UOP-391-B100	100 g
EN 14538				
Calcium / Magnesium	100 ppm *	B100	BF-14538-B100	100 g



Cloud Point

* These are nominal values and the actual value will be recorded on the certificate.

ASTM D7751 Additive Elements in Lubricating Oil by ED-XRF

see pages 373

UOP (Universal Oil Products) methods were developed to facilitate the refining industry in analyzing refinery feeds, products and process streams for composition, purity and physical and chemical properties. In addition to the products listed below, AccuStandard can custom formulate products to fit your exact needs. Please contact our Technical Service Department for additional information.

Method 543 Standard

Non-Aromatic Hydrocarbons in High-Purity Aromatics by GC.

UOP-M-543-PAK 5 x 1 mL
At stated Wt.% 2 comps.

<i>n</i> -Dodecane	70	Toluene	30
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Method 551 Standard

Hexanes and Lower-Boiling Hydrocarbons in Olefin-Free Gasolines by GC. May also be used for UOP Method 690 - Octanes and Lower Boiling Hydrocarbons in Olefin-Free Gasolines by GC.

UOP-M-551-PAK 5 x 1 mL
Equal Wt.% 7 comps.

<i>n</i> -Hexane	<i>o</i> -Xylene
Benzene	<i>m</i> -Xylene
Toluene	<i>p</i> -Xylene
Ethylbenzene	

Method 660 Standard

UOP-M-660-PAK 5 x 1 mL
1% in Water

UOP-M-660-10X-PAK 5 x 1 mL
10% in Water

UOP-M-660-0.1X-PAK 5 x 1 mL
1000 ppm in Water

Tetramethylene sulfone

Method 720 Standard

Impurities in High Purity *p*-Xylene by GC.

UOP-M-720-PAK 5 x 1 mL
At stated Wt.% 5 comps.

<i>o</i> -Xylene	0.1	<i>n</i> -Undecane	1.0
<i>m</i> -Xylene	0.1	<i>p</i> -Xylene	98.7
Ethylbenzene	0.1		

Method 744 Standard

Aromatics in Hydrocarbons by GC.

UOP-M-744-PAK 5 x 1 mL
At stated Wt.% 8 comps.

<i>n</i> -Heptane	25	<i>o</i> -Xylene	6.6
Benzene	15	<i>p</i> -Xylene	6.7
Toluene	20	<i>o</i> -Ethyltoluene	10
<i>m</i> -Xylene	6.7	1,2,3,4-Tetramethylbenzene	10

Method 831 Standard

UOP-M-831-PAK 5 x 1 mL
10 µg/g each in Sulfolane 5 comps.

Benzene	Isopropylbenzene
Toluene	<i>n</i> -Nonane
Ethylbenzene	

Method 868 Standard

Trace Saturates in High Purity Aromatics by GC.

UOP-M-868-PAK 5 x 1 mL
Stated conc. (µg/g) in Toluene 10 comps.

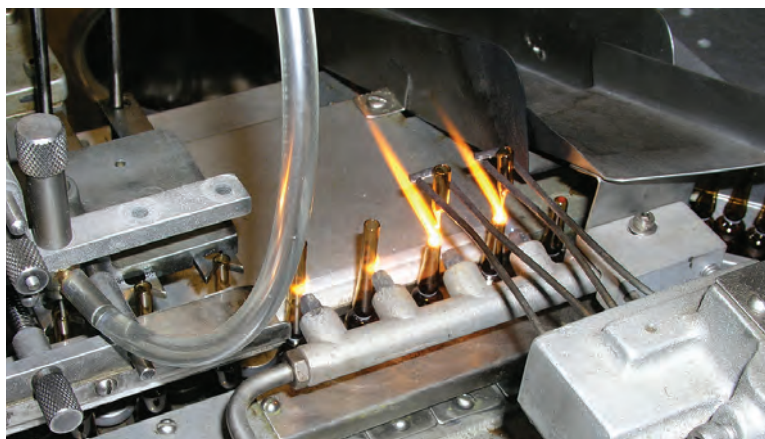
<i>n</i> -Butylcyclohexane	500
<i>n</i> -Propylcyclohexane	400
<i>n</i> -Decane	500
<i>n</i> -Nonane	500
<i>n</i> -Octane	300
<i>n</i> -Hexane	100
Ethylcyclohexane	300
Cyclohexane	100
<i>n</i> -Heptane	200
Methylcyclohexane	200

Method 931 Standard

Trace Impurities in Mixed Xylenes by GC.

UOP-M-931-PAK 5 x 1 mL
At stated Wt.% 5 comps.

Benzene	2.0	<i>n</i> -Undecane	2.0
Toluene	2.0	<i>n</i> -Heptane	92.0
<i>o</i> -Ethyltoluene	2.0		



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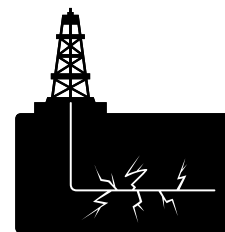


Biocides in Fracking Fluids

The underground gas and petroleum production enhancement process of fracking has generated much attention. There is concern about potential short and long-term adverse health effects and environmental contamination associated with the process.

Biocides are important fracking fluid additives used to kill microbes that might produce corrosive acids or form well-clogging biofilms. Since biocides are inherently toxic, there is a growing concern over the environmental fate and impact on groundwater contamination.

These biocides are part of our 217 biocide product line that was developed for the EU Biocides Regulation 528/2012. This legislation classifies biocides into 22 product types grouped into four main areas.



Compound	CAS	Cat. No.	Unit
Glutaraldehyde Solution (~50% Water)	111-30-8	FRACK-001N	1 mL
2,2-Dibromo-2-cyanoacetamide	10222-01-2	FRACK-002N	100 mg
Tetrakis(hydroxymethyl)phosphonium sulfate	55566-30-8	FRACK-003N	100 mg
Didecyltrimethylammonium chloride	7173-51-5	FRACK-004N-10MG	10 mg
Tributyltetradecylphosphonium chloride	81741-28-8	FRACK-005N	100 mg
2-Methyl-2H-isothiazol-3-one	2682-20-4	FRACK-006N-10MG	10 mg
Dazomet	533-74-4	FRACK-007N-10MG	10 mg
4,4-Dimethyloxazolidine	51200-87-4	FRACK-008N-10MG	10 mg
2-Bromo-2-nitropropane-1,3-diol	52-51-7	FRACK-009N-25MG	25 mg
Peracetic acid	79-21-0	FRACK-010N	100 mg
N-Bromosuccinimide	128-08-5	FRACK-011N	100 mg
		FRACK-SET	\$ 11 units

Skinner List for Refinery Waste

Semi-Volatiles

Base/Neutral Extractables

M-005B		1 x 1 mL
M-005B-PAK	SAVE	5 x 1 mL
0.2 mg/mL each in CH ₂ Cl ₂		
M-005B-10X		1 x 1 mL
M-005B-10X-PAK	SAVE	5 x 1 mL
2.0 mg/mL each in CH ₂ Cl ₂		

Anthracene	7,12-Dimethylbenz[a]anthracene
Benz[a]anthracene	Dimethyl phthalate
Benzo[b]fluoranthene	Di- <i>n</i> -butyl phthalate
Benzo[k]fluoranthene	Di- <i>n</i> -octyl phthalate
Benz[a]pyrene	Indene
bis(2-Ethylhexyl)phthalate	Fluoranthene
Butyl benzyl phthalate	6-Methylchrysene
Chrysene	1-Methylnaphthalene
Dibenz[a,h]acridine	Naphthalene
Dibenz[a,h]anthracene	Phenanthrene
<i>o</i> -Dichlorobenzene	Pyrene
<i>m</i> -Dichlorobenzene	Pyridine
<i>p</i> -Dichlorobenzene	Quinoline
Diethyl phthalate	

Acid Extractables

M-005A		1 x 1 mL
M-005A-PAK	SAVE	5 x 1 mL
0.2 mg/mL each in CH ₂ Cl ₂		
M-005A-10X		1 x 1 mL
M-005A-10X-PAK	SAVE	5 x 1 mL
2.0 mg/mL each in CH ₂ Cl ₂		
<i>o</i> -Cresol	2,4-Dinitrophenol	
<i>m</i> -Cresol	4-Nitrophenol	
<i>p</i> -Cresol	Phenol	
2,4-Dimethylphenol	Thiophenol	

Volatiles

M-005V		1 x 1 mL
M-005V-PAK	SAVE	5 x 1 mL
0.2 mg/mL each in MeOH		
M-005V-10X		1 x 1 mL
M-005V-10X-PAK	SAVE	5 x 1 mL
2.0 mg/mL each in MeOH		
Benzene	Ethylene dibromide	
Carbon disulfide	Methyl ethyl ketone	
Chlorobenzene	Styrene	
Chloroform	Toluene	
1,2-Dichloroethane	<i>o</i> -Xylene	
1,4-Dioxane	<i>m</i> -Xylene	
Ethyl benzene	<i>p</i> -Xylene	

Resolution Check for Fire Debris Analysis

ASTM E1387 Resolution Check Mix

ASTM-E1387		1 x 1 mL
ASTM-E1387-PAK	SAVE	5 x 1 mL
2.0 mg/mL each in CH ₂ Cl ₂		
Decane	Hexadecane	Tetradecane
Dodecane	Hexane	Toluene
Eicosane	Octadecane	1,2,4-Trimethylbenzene
2-Ethyltoluene	Octane	<i>p</i> -Xylene
3-Ethyltoluene		

ASTM E1618 Test Mix for Fire Debris Analysis

ASTM-E1618		1 x 1 mL
ASTM-E1618-PAK	SAVE	5 x 1 mL
0.05 Vol.% each in CH ₂ Cl ₂		
<i>n</i> -Decane	<i>n</i> -Hexadecane	<i>n</i> -Tetradecane
<i>n</i> -Dodecane	<i>n</i> -Hexane	Toluene
<i>n</i> -Eicosane	<i>n</i> -Octadecane	1,2,4-Trimethylbenzene
<i>o</i> -Ethyltoluene	<i>n</i> -Octane	<i>p</i> -Xylene
<i>m</i> -Ethyltoluene		



Biofuel Standards

ASTM, EN and IP standard test methods have been developed to monitor the properties of chemical impurities and physical properties for the application of testing biofuels and biofuel blends.

The source materials that are used to produce these fuels include plant oils, ethyl alcohol (usually from corn) and vegetable waste products.



Product Highlights:

- Physical properties such as viscosity and flash point
- Chemical classes such as Glycerins, FAMES and the Hydrocarbon fraction
- All products are derived from ASTM, EN and IP Standard Methods
- New standard methods include, EN15779, EN12916, IP391/07 and IP585

Refinery and Consumer Grade Biofuels

Compound	Qty. / Conc.	Matrix	Cat. No.	Unit
Biofuel 20	0.5 mg/mL	Dichloromethane	BF-FU-030-D	2 mL
	20 mg/mL	Dichloromethane	BF-FU-030-D-40X	2 mL
Biofuel 100 (Consumer grade)	0.5 mg/mL	Dichloromethane	BF-FU-029-D	2 mL
	20 mg/mL	Dichloromethane	BF-FU-029-40X	2 mL
Biofuel 100 (Refinery grade)	0.5 mg/mL	Dichloromethane	BF-FU-032-D	2 mL
	20 mg/mL	Dichloromethane	BF-FU-032-D-40X	2 mL

ASTM D6584 / EN14105 Free and Total Glycerin in Biodiesel by GC

Compound	Qty. / Conc.	Matrix	Cat. No.	Unit
Glycerin	0.5 mg/mL	Pyridine	BF-D-6584-01	2 mL
Monoolein	5 mg/mL	Pyridine	BF-D-6584-02	2 mL
1,3-Diolein	5 mg/mL	Pyridine	BF-D-6584-03	2 mL
Triolein	5 mg/mL	Pyridine	BF-D-6584-04	2 mL
(S)-(-)-1,2,4-Butanetriol	1 mg/mL	Pyridine	BF-D-6584-05-IS	5 mL
Tricaprin	8 mg/mL	Pyridine	BF-D-6584-06	5 mL
MSTFA	5 mL	Neat	BF-D-6584-07N	5 mL
			BF-D-6584-SET	\$ 7 units

ASTM D6584 Mixture

BF-D-6584-MIX 1 mL

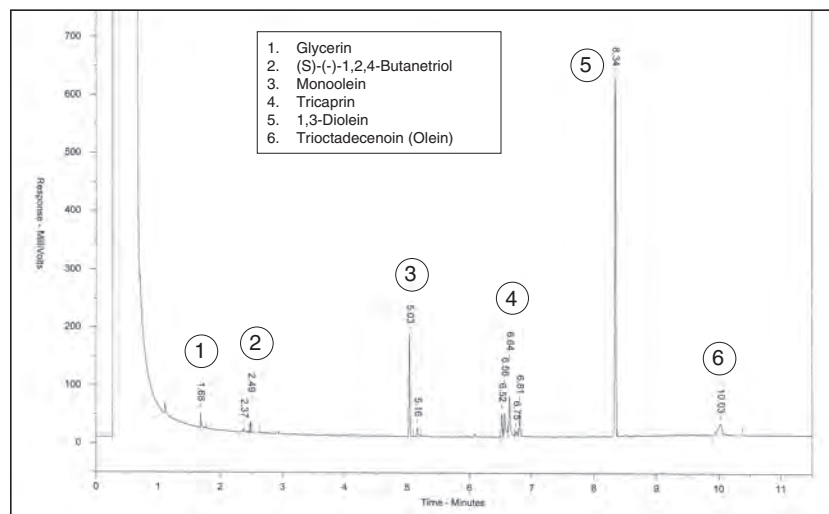
At stated conc. (mg/mL) in Pyridine

6 comps.

Glycerol	0.5
Monoolein	5
1,3-Diolein	5
Trioctadecenoin (Olein)	5
(S)-(-)-1,2,4-Butanetriol	1
Tricaprin	8

Note: MSTFA (**BF-D-6584-07N**) can be ordered separately.

Mix of above compounds, on right (MSTFA separate)



Solution I

EN-14105-01

1 mL

At stated conc. (µg/mL) in Pyridine

6 comps.

(s)-(-)-1,2,4-Butanetriol	80
Monoolein	250
Diolein	50
Triolein	50
Glycerol	5
Tricaprin	800

Solution II

EN-14105-02

1 mL

At stated conc. (µg/mL) in Pyridine

6 comps.

(s)-(-)-1,2,4-Butanetriol	80
Monoolein	600
Diolein	200
Triolein	150
Glycerol	20
Tricaprin	800

Solution III

EN-14105-03

1 mL

At stated conc. (µg/mL) in Pyridine

6 comps.

(s)-(-)-1,2,4-Butanetriol	80
Monoolein	950
Diolein	350
Triolein	300
Glycerol	35
Tricaprin	800

Solution IV

EN-14105-04

1 mL

At stated conc. (µg/mL) in Pyridine

6 comps.

(s)-(-)-1,2,4-Butanetriol	80
Monoolein	1250
Diolein	500
Triolein	400
Glycerol	50
Tricaprin	800



EN14103 Fatty Acid Methyl Esters (FAMES)

The methyl esters in the mixture are those derived from typical glycerides present in biomass sources.

Soy and Corn

BF-SOY-ME	100 mg
At stated Wt. %	6 comps.
16:0 Methyl palmitate	6
18:0 Methyl stearate	3
20:0 Methyl arachidate	3
18:1 Methyl oleate	35
18:2 Methyl linoleate	50
18:3 Methyl linolenate	3

Palm Kernel

BF-PALM-ME	100 mg
At stated Wt. %	8 comps.
8:0 Methyl caprylate	7
10:0 Methyl caprate	5
12:0 Methyl laurate	48
14:0 Methyl myristate	15
16:0 Methyl palmitate	7
18:0 Methyl stearate	3
18:1 Methyl oleate	12
18:2 Methyl linoleate	3

Rapeseed Oil

BF-RAP-ME	100 mg
At stated Wt. %	11 comps.
14:0 Methyl myristate	1
16:0 Methyl palmitate	4
18:0 Methyl stearate	3
20:0 Methyl arachidate	3
22:0 Methyl behenate	3
24:0 Methyl lignocerate	3
18:1 Methyl oleate	60
22:1 Methyl erucate	5
18:2 Methyl linoleate	12
18:3 Methyl linolenate	5
20:1 Methyl eicosenoate	1

Beef Tallow and Palm Oil

BF-BT-ME	100 mg
At stated Wt. %	7 comps.
14:0 Methyl myristate	2
16:0 Methyl palmitate	30
16:1 Methyl palmitoleate	3
18:0 Methyl stearate	14
18:1 Methyl oleate	41
18:2 Methyl linoleate	7
18:3 Methyl linolenate	3

Percent Methanol Calibration Standard Set (EN14110)

BF-MEOH-SET	5 x 1 mL
At stated conc. (µg/g)	
BF-MEOH-1X 100	BF-MEOH-25X 2500
BF-MEOH-5X 500	BF-MEOH-50X 5000
BF-MEOH-10X 1000	
Methanol in water	

Technical Note

Individual mixes packaged under nitrogen for stability.

IP585 Fatty Acid Methyl Esters (FAMES) in Aviation Turbine Fuel

FAME in Aviation Turbine Fuel

IP-585-BCS	1 mL
1000 µg/g each in <i>n</i> -Dodecane	6 comps.
Methyl palmitate	
Methyl heptadecanoate	
Methyl stearate	
Methyl oleate	
Methyl linoleate	
Methyl linolenate	

Internal Standard

IP-585-BCS-IS	1 mL
1000 µg/g in <i>n</i> -Dodecane	
Methyl heptadecanoate-d ₃₃	

EN15779 Polyunsaturated Fatty Acid Methyl Esters (PUFAMES)

PUFAMES

EN-15779	1 mL
250 mg/mL in Heptane	4 comps.
Methyl docosahexaenoate	
Methyl <i>cis</i> -7,10,13,16,19-docosapentaenoate	
Methyl arachidonate	
Eicosapentaenoic acid	

Internal Standard

EN-15779-IS	1 mL
1.0 mg/mL in Heptane	4 comps.
Methyl tricosanoate	





Biofuel Standards

Fatty Acid Ethyl Esters (FAEEs)

Ethyl Esters in Soy & Corn

BF-SOY-EE	100 mg
At stated Wt. %	6 comps.
16:0 Ethyl palmitate	6
18:0 Ethyl stearate	3
20:0 Ethyl arachidate	3
18:1 Ethyl oleate	35
18:2 Ethyl linoleate	50
18:3 Ethyl linolenate	3

Ethyl Esters in Rapeseed Oil

BF-RAP-EE	100 mg
At stated Wt. %	10 comps.
14:0 Ethyl myristate	1
16:0 Ethyl palmitate	4
18:0 Ethyl stearate	3
20:0 Ethyl arachidate	3
22:0 Ethyl behenate	3
24:0 Ethyl lignocerate	3
18:1 Ethyl oleate	45
22:1 Ethyl erucate	20
18:2 Ethyl linoleate	15
18:3 Ethyl linolenate	3

Ethyl Esters in Palm Kernel Oil

BF-PALM-EE	100 mg
At stated Wt. %	8 comps.
8:0 Ethyl caprylate	7
10:0 Ethyl caprate	5
12:0 Ethyl laurate	48
14:0 Ethyl myristate	15
16:0 Ethyl palmitate	7
18:0 Ethyl stearate	3
18:1 Ethyl oleate	12
18:2 Ethyl linoleate	3

Ethyl Esters in Beef Tallow

BF-BT-EE	100 mg
At stated Wt. %	7 comps.
14:0 Ethyl myristate	2
16:0 Ethyl palmitate	30
16:1 Ethyl palmitoleate	3
18:0 Ethyl stearate	14
18:1 Ethyl oleate	41
18:2 Ethyl linoleate	7
18:3 Ethyl linolenate	3

FAEEs Compounds

Compound	Cat. No.	Unit
Neats (100 mg)	FAEE-006N	100 mg
	FAEE-006S	1 mL
Solutions (10 mg/mL conc. in Hexane)	FAEE-007N	100 mg
	FAEE-007S	1 mL
Ethyl palmitate (16:0)	FAEE-008N	100 mg
	FAEE-008S	1 mL
Ethyl stearate (18:0)	FAEE-014N	100 mg
	FAEE-014S	1 mL
Ethyl arachidate (20:0)	FAEE-012N	100 mg
	FAEE-012S	1 mL
Ethyl oleate (18:1)	FAEE-016N	100 mg
	FAEE-016S	1 mL
Ethyl linoleate (18:2)	FAEE-005N	100 mg
	FAEE-005S	1 mL
Ethyl linolenate (18:3)	FAEE-009N	100 mg
	FAEE-009S	1 mL
Ethyl myristate (14:0)	FAEE-010N	100 mg
	FAEE-010S	1 mL
Ethyl behenate (22:0)	FAEE-011N	100 mg
	FAEE-011S	1 mL
Ethyl lignocerate (24:0)	FAEE-002N	100 mg
	FAEE-002S	1 mL
Ethyl erucate (22:1)	FAEE-003N	100 mg
	FAEE-003S	1 mL
Ethyl caprylate (8:0)	FAEE-004N	100 mg
	FAEE-004S	1 mL
Ethyl caprate (10:0)	FAEE-001N	100 mg
	FAEE-001S	1 mL
Ethyl laurate (12:0)	FAEE-013N	100 mg
	FAEE-013S	1 mL
Ethyl palmitoleate (16:1)	FAEE-015N	100 mg
	FAEE-015S	1 mL
Ethyl nervonate (24:1)	FAEE-020N	100 mg
	FAEE-020S	1 mL
Ethyl heptadecanoate (17:0)		
Ethyl linolenate (gamma) (18:3)		



Biofuels

EN15721 Ethanol Impurities

Ethanol Impurities Solution A

EN-15721-A	1 mL
1 Wt. % each in Ethanol	10 comps.
Methanol	sec-Butanol
Acetaldehyde	n-Butanol
3-Methyl-1-butanol	n-Propanol
2-Methyl-1-butanol	Ethyl acetate
2-Methyl-1-propanol	Acetal

Internal Standard Solution A

EN-15721-A-IS	1 mL
1 Wt. % in Ethanol	
3-Propanol	

EN15721 Solution A Set

EN-15721-A-SET	2 x 1 mL
EN-15721-A	
EN-15721-A-IS	



IP391/07 Aromatic Hydrocarbon/FAME Test Method for Diesel and Petro/Biodiesel

IP-391/07-01	5 mL
At stated conc. (µg/mL) in n-Heptane	7 comps.
Cyclohexane	10,000
Dodecylbenzene	1,000
o-Xylene	5,000
Hexamethylbenzene	1,000
Naphthalene	1,000
Dibenzothiophene	500
9-Methylanthracene	500

IP-391/07-02	5 mL
At stated conc. (µg/mL) in n-Heptane	6 comps.
Methyl palmitate	800
Methyl stearate	800
Methyl cis-9-octadecenoate	800
Methyl linoleate	800
Chrysene	400
Methyl linolenate	800

IP391/07 Test Method Set

IP-391/07-SET	2 x 5 mL
IP-391/07-01	
IP-391/07-02	

EN12916 Hydrocarbons in Biofuel

EN-12916-SET	4 x 1 mL			
At stated conc. (mg/mL) in Heptane	3 comps.			
	EN-12916-01	EN-12916-02	EN-12916-03	EN-12916-04
o-Xylene (1,2-Dimethylbenzene)	40	10	2.5	0.5
Fluorene	20	10	2.5	0.2
Phenanthrene	4.0	2.0	0.5	0.1



Physical Standards

Compound	Conc.	Matrix	Cat. No.	Unit
ASTM D2500				
Cloud Point	-16 °C *	B5	BF-D-2500-B5-250ML	250 mL
	-14 °C *	B20	BF-D-2500-B20-250ML	250 mL
	-1 °C *	B100	BF-D-2500-B100-250ML	250 mL
ASTM D93 / EN ISO 3679				
Flash Point	60 °C *		BF-D-93-60C-250ML	250 mL
	65 °C *		BF-D-93-65C-250ML	250 mL
	140 °C *		BF-D-93-140C-250ML	250 mL
ASTM D4951 / EN 14107				
Phosphorus Content	10 µg/g *	B100	BF-D-4951-B100	100 g
ASTM D6304 / EN ISO 12937				
(KF) Water Content	60 µg/g *	Anisole	BF-KF-0.6X-5ML-VAP	10 x 5 mL
	100 µg/g *	Anisole	BF-KF-1X-5ML-VAP	10 x 5 mL
	1000 µg/g *	Anisole	BF-KF-10X-5ML-VAP	10 x 5 mL
	5000 µg/g *	Anisole	BF-KF-50X-5ML-VAP	10 x 5 mL
ASTM D6751 / UOP 391 / EN14108 / EN14109				
Sodium / Potassium	100 µg/g *	B100	BF-UOP-391-B100	100 g
EN 14538				
Calcium / Magnesium	100 µg/g *	B100	BF-14538-B100	100 g



Cloud Point

* These are nominal values and the actual value will be recorded on the certificate.

ASTM D6751 & ASTM D5453 Sulfur as Di-n-butyl sulfide in Biodiesel

Sulfur in Biodiesel 5%

ppm (µg/g)	Wt.%	Cat. No.	Unit
0	0	BF-5453-B5-BL	100 mL
5	0.0005	BF-5453-B5-5X-SET	2 x 100 mL
10	0.001	BF-5453-B5-10X-SET	2 x 100 mL
15	0.0015	BF-5453-B5-15X-SET	2 x 100 mL
30	0.003	BF-5453-B5-30X	100 mL
50	0.005	BF-5453-B5-50X	100 mL
75	0.0075	BF-5453-B5-75X	100 mL
100	0.01	BF-5453-B5-100X	100 mL
200	0.02	BF-5453-B5-200X	100 mL
500	0.05	BF-5453-B5-500X	100 mL

Sulfur in Biodiesel 100%

ppm (µg/g)	Wt.%	Cat. No.	Unit
0	0	BF-5453-B100-BL	100 mL
5	0.0005	BF-5453-B100-5X-SET	2 x 100 mL
10	0.001	BF-5453-B100-10X-SET	2 x 100 mL
15	0.0015	BF-5453-B100-15X-SET	2 x 100 mL
30	0.003	BF-5453-B100-30X	100 mL
50	0.005	BF-5453-B100-50X	100 mL
75	0.0075	BF-5453-B100-75X	100 mL
100	0.01	BF-5453-B100-100X	100 mL
200	0.02	BF-5453-B100-200X	100 mL
500	0.05	BF-5453-B100-500X	100 mL

Sulfur in Biodiesel 20%

ppm (µg/g)	Wt.%	Cat. No.	Unit
0	0	BF-5453-B20-BL	100 mL
5	0.0005	BF-5453-B20-5X-SET	2 x 100 mL
10	0.001	BF-5453-B20-10X-SET	2 x 100 mL
15	0.0015	BF-5453-B20-15X-SET	2 x 100 mL
30	0.003	BF-5453-B20-30X	100 mL
50	0.005	BF-5453-B20-50X	100 mL
75	0.0075	BF-5453-B20-75X	100 mL
100	0.01	BF-5453-B20-100X	100 mL
200	0.02	BF-5453-B20-200X	100 mL
500	0.05	BF-5453-B20-500X	100 mL

Note: 10,000 ppm = 1% Wt.

Biofuel Blank

B100	
BF-WM-B100-BL-1	100 g
BF-WM-B100-BL-5	500 g

Technical Note

The 5, 10 and 15 ppm sulfurs are supplied as a set including a blank. We suggest using the blank for analysis to compensate for matrix interferences, such as low levels of native sulfur.

EN14214 Wear Metals

Each is 100 grams at 500 µg/g concentration.

Compound	Matrix	Cat. No.	100 grams
Aluminum (Al)	B100	BF-WM-B100-01-0.5X	
Calcium (Ca)	B100	BF-WM-B100-09-0.5X	
Chromium (Cr)	B100	BF-WM-B100-13-0.5X	
Copper (Cu)	B100	BF-WM-B100-15-0.5X	
Iron (Fe)	B100	BF-WM-B100-27-0.5X	
Lead (Pb)	B100	BF-WM-B100-29-0.5X	
Magnesium (Mg)	B100	BF-WM-B100-32-0.5X	
Phosphorus (P)	B100	BF-WM-B100-41-0.5X	
Potassium (K)	B100	BF-WM-B100-43-0.5X	
Sodium (Na)	B100	BF-WM-B100-54-0.5X	
Zinc (Zn)	B100	BF-WM-B100-70-0.5X	

Biofuel Metals Mix

Multi-Element Biofuel Standard	100 g
BF-WM-B100-MIX	5 comps.
200 µg/g each in B100	
Calcium (Ca)	Sodium (Na)
Potassium (K)	Phosphorus (P)
Magnesium (Mg)	



TPH, Fuel and Hydrocarbons

Petroleum is a broadly defined class of liquid hydrocarbon mixtures that are used in a large variety of products for many different uses. In general, they are oil-based products that can be obtained by distillation and are normally used outside the refining industry. Petroleum products include aviation gasoline, motor gasoline, jet fuels, kerosene, gas/diesel oil, heavy fuel oil, naphtha, and lubricants among others.

Most analytical methods for petroleum products focus on the level of benzene, toluene, ethyl benzene and xylene (BTEX), the total petroleum hydrocarbon number (TPH) and the finger print of the petroleum product.

Individual Fuel and Hydrocarbons

Compound	Conc.	Matrix	Cat. No.	1 mL	Compound	Conc.	Matrix	Cat. No.	1 mL								
5-alpha Androstane 438-22-2	1 mg/mL	CH ₂ Cl ₂	GRH-IS		Gasoline Regular, unleaded	0.5 mg/mL	MeOH	GA-001									
	10 mg/mL	CH ₂ Cl ₂	GRH-IS-10X			5 mg/mL	MeOH	GA-001-10X									
Aviation (gas) (grade 100-LL)	0.5 mg/mL	MeOH	GA-004	20 mg/mL		MeOH	GA-001-40X	20 mg/mL		CH ₂ Cl ₂	GA-001-D-40X						
	20 mg/mL	MeOH	GA-004-40X	Gasoline Premium	0.5 mg/mL	MeOH	GA-003	20 mg/mL	MeOH	GA-003-40X							
	20 mg/mL	CH ₂ Cl ₂	GA-004-D-40X		20 mg/mL	CH ₂ Cl ₂	GA-003-D-40X	20 mg/mL	CH ₂ Cl ₂	FU-020-D-40X							
Biodiesel 20	0.5 mg/mL	CH ₂ Cl ₂	FU-030-D		Hydraulic Fluid 64742-54-7	0.5 mg/mL	Hexane	FU-020-H									
	20 mg/mL	CH ₂ Cl ₂	FU-030-D-40X			20 mg/mL	Hexane	FU-020-H-40X									
Biodiesel 100	0.5 mg/mL	CH ₂ Cl ₂	FU-029-D	20 mg/mL		CH ₂ Cl ₂	FU-020-D-40X	Jet Reference Fuel Type I		0.5 mg/mL	MeOH	FU-011					
	20 mg/mL	CH ₂ Cl ₂	FU-029-D-40X	JP-4 Jet Fuel 50815-00-4	20 mg/mL	Hexane	FU-011-40X		20 mg/mL	CH ₂ Cl ₂	FU-011-D-40X						
Biodiesel 100 (refinery grade)	0.5 mg/mL	CH ₂ Cl ₂	FU-032-D		0.5 mg/mL	MeOH	FU-010		20 mg/mL	MeOH	FU-010-40X						
	20 mg/mL	CH ₂ Cl ₂	FU-032-D-40X		JP-5 Fuel	20 mg/mL	CH ₂ Cl ₂		FU-010-D-40X	0.5 mg/mL	MeOH	FU-012					
p-Bromofluorobenzene 460-00-4	2.5 mg/mL	Acetone	GARH-SS	20 mg/mL		MeOH	FU-012-40X	JP-7 Fuel	0.5 mg/mL	MeOH	FU-014						
	1-Chloro-4-fluorobenzene 352-33-0	2 mg/mL	MeOH	AK-101-IS-10X		20 mg/mL	CH ₂ Cl ₂		FU-014-D-40X	JP-8 Fuel	0.5 mg/mL	MeOH	FU-015				
		1-Chlorooctadecane 3386-33-2	1 mg/mL	Hexane	DRH-007-SS	20 mg/mL	MeOH		FU-015-40X		20 mg/mL	CH ₂ Cl ₂	FU-015-D-40X				
1-Chloro-4-fluorobenzene 352-33-0	1 mg/mL		CH ₂ Cl ₂	GARH-IS	JP-TS Aviation Fuel 64742-47-8	0.5 mg/mL	MeOH	FU-016	JP-10 Aviation Fuel		0.5 mg/mL	MeOH	FU-022				
	2,5-Dibromotoluene 615-59-8	50 µg/mL	MeOH	GRH-004-SS		20 mg/mL	MeOH	FU-016-40X		20 mg/mL	CH ₂ Cl ₂	FU-022-40X					
		500 µg/mL	MeOH	GRH-004-SS-10X		20 mg/mL	CH ₂ Cl ₂	FU-016-D-40X		Kerosene 25% Weathered	5 mg/mL	CH ₂ Cl ₂	FK-W25-10X				
Diesel	5 mg/mL	MeOH	GRH-004-SS-100X	JP-8 Fuel	0.5 mg/mL	MeOH	FU-017	Kerosene 50% Weathered	5 mg/mL		CH ₂ Cl ₂	FK-W75-10X					
	0.5 mg/mL	MeOH	FU-009		JP-10 Aviation Fuel	20 mg/mL	MeOH			FU-022			Kerosene 75% Weathered				
	5 mg/mL	CH ₂ Cl ₂	FU-009-D-10X			20 mg/mL	MeOH			FU-022-40X							
20 mg/mL	MeOH	FU-009-40X	Kerosene 8008-20-6	0.5 mg/mL		MeOH	FU-005		20 mg/mL	MeOH	FU-005-40X						
20 mg/mL	CH ₂ Cl ₂	FU-009-D-40X		JP-TS Aviation Fuel 64742-47-8	5 mg/mL	CH ₂ Cl ₂	FU-005-D-10X		Lacquer Thinner	20 mg/mL	CH ₂ Cl ₂	FU-005-D-40X					
#1 Diesel - Low Sulfur	0.5 mg/mL	MeOH	FU-013		JP-10 Aviation Fuel	20 mg/mL	MeOH	FU-016			1 gram	Neat	HS-001N				
	20 mg/mL	MeOH	FU-013-40X			20 mg/mL	MeOH	FU-016-40X			0.5 mg/mL	MeOH	HS-001S				
	20 mg/mL	CH ₂ Cl ₂	FU-013-D-40X	20 mg/mL		CH ₂ Cl ₂	FU-016-D-40X	20 mg/mL	MeOH		HS-001S-40X						
#2 Diesel 68334-30-5	50 mg/mL	Acetone	DRO-AK-102-LCS-10X-R1	JP-10 Aviation Fuel	0.5 mg/mL	MeOH	FU-022	Mineral Spirits 8030-30-6	1 gram	Neat	HS-002N						
	0.5 mg/mL	MeOH	FU-017		20 mg/mL	MeOH	HS-002S		0.5 mg/mL	MeOH	HS-002S						
	5 mg/mL	CH ₂ Cl ₂	FU-017-D-10X		20 mg/mL	MeOH	HS-002S-40X		20 mg/mL	CH ₂ Cl ₂	HS-002S-D-40X						
#2 Diesel (Extra Low Sulfur) 68476-43-6	5 mg/mL	Acetone	DRO-AK-102-LCS	Kerosene 50% Weathered	5 mg/mL	CH ₂ Cl ₂	FK-W50-10X	n-Pentadecane 629-62-9	5 mg/mL	MeOH	AS-E0241						
	50 mg/mL	Acetone	DRO-AK-102-LCS-10X		Kerosene 75% Weathered	0.5 mg/mL	MeOH		FU-005	RFA Gasoline (oxygenate-free)	0.5 mg/mL	MeOH	GA-005				
	20 mg/mL	MeOH	FU-017-40X			Kerosene 8008-20-6	20 mg/mL		MeOH		FU-005-40X	20 mg/mL	MeOH	GA-005-40X			
20 mg/mL	CH ₂ Cl ₂	FU-017-D-40X	Lacquer Thinner	20 mg/mL			CH ₂ Cl ₂	FU-016	20 mg/mL		CH ₂ Cl ₂	GA-005-D-40X					
#2 Diesel (Low Sulfur) 25% Weathered	5 mg/mL	CH ₂ Cl ₂		FD2-W25-10X	JP-TS Aviation Fuel 64742-47-8		20 mg/mL	CH ₂ Cl ₂	FU-016-D-40X	Regular Leaded Gasoline	0.5 mg/mL	MeOH	GA-002				
	#2 Diesel (Low Sulfur) 50% Weathered	5 mg/mL		CH ₂ Cl ₂		FD2-W50-10X	JP-10 Aviation Fuel	20 mg/mL	MeOH		FU-022	20 mg/mL	MeOH	GA-002-40X			
		5 mg/mL	CH ₂ Cl ₂	FD2-W75-10X		20 mg/mL		CH ₂ Cl ₂	FU-022-40X		20 mg/mL	CH ₂ Cl ₂	GA-002-D-40X				
#2 Diesel (Low Sulfur) 75% Weathered	5 mg/mL	CH ₂ Cl ₂	FD2-W25-R1-10X	JP-10 Aviation Fuel	0.5 mg/mL	MeOH		FU-022									
	#2 Diesel 25% Weathered	5 mg/mL	CH ₂ Cl ₂		FD2-W50-R1-10X	JP-10 Aviation Fuel	20 mg/mL	MeOH				FU-022					
		5 mg/mL	CH ₂ Cl ₂		FD2-W75-R1-10X		JP-10 Aviation Fuel	20 mg/mL				CH ₂ Cl ₂	FU-022-D-40X				
#2 Diesel 50% Weathered	5 mg/mL	CH ₂ Cl ₂	FD2-W75-R1-10X	JP-10 Aviation Fuel	20 mg/mL			CH ₂ Cl ₂	FU-022-D-40X	n-Pentadecane 629-62-9	RFA Gasoline (oxygenate-free)	0.5 mg/mL	MeOH	GA-005			
	#2 Diesel 75% Weathered	20 Wt. %	Toluene		D-5186-91-PM-0.4X	JP-10 Aviation Fuel		20 mg/mL	MeOH						FU-022		
		Docosane 629-97-0	5 mg/mL		MeOH		AS-E0238	JP-10 Aviation Fuel	20 mg/mL						MeOH		
1.5 Wt. %	Isocetane		M-GRA-SCS-AS	JP-10 Aviation Fuel	20 mg/mL		MeOH		FU-022								
n-Dodecane 112-40-3	0.5 mg/mL	MeOH	FU-001		JP-10 Aviation Fuel	20 mg/mL	CH ₂ Cl ₂		FU-022	Nonatriacontane 7194-86-7	750 µg/mL	Chloroform	DRH-FL-SS-R1				
	20 mg/mL	MeOH	FU-001-40X			JP-10 Aviation Fuel	1 mg/mL	CS ₂	DRH-FL-SS								
	20 mg/mL	CH ₂ Cl ₂	FU-001-D-40X	JP-10 Aviation Fuel			3 mg/mL	CS ₂	DRH-FL-SS-3X								
#1 Fuel oil 70892-10-3	0.5 mg/mL	MeOH	FU-002		JP-10 Aviation Fuel		5 mg/mL	MeOH	AS-E0241	n-Pentadecane 629-62-9				RFA Gasoline (oxygenate-free)	0.5 mg/mL	MeOH	GA-005
	20 mg/mL	MeOH	FU-002-40X			JP-10 Aviation Fuel	20 mg/mL	MeOH	FU-002								
	20 mg/mL	CH ₂ Cl ₂	FU-002-D-40X	JP-10 Aviation Fuel			20 mg/mL	CH ₂ Cl ₂	FU-002								
#2 Fuel oil 68476-30-2	0.5 mg/mL	Hexane	FU-003		JP-10 Aviation Fuel		20 mg/mL	Hexane	FU-003	Regular Leaded Gasoline				0.5 mg/mL	MeOH	GA-002	
	20 mg/mL	Hexane	FU-003-40X			JP-10 Aviation Fuel	20 mg/mL	Hexane	FU-003								
	20 mg/mL	CH ₂ Cl ₂	FU-003-D-40X	JP-10 Aviation Fuel			20 mg/mL	CH ₂ Cl ₂	FU-003-D-40X								
#3 Fuel oil	0.5 mg/mL	Hexane	FU-004		JP-10 Aviation Fuel		20 mg/mL	Hexane	FU-004	Regular Leaded Gasoline				20 mg/mL	MeOH	GA-002-40X	
	20 mg/mL	Hexane	FU-004-40X			JP-10 Aviation Fuel	20 mg/mL	Hexane	FU-004								
	20 mg/mL	CH ₂ Cl ₂	FU-004-D-40X	JP-10 Aviation Fuel			20 mg/mL	CH ₂ Cl ₂	FU-004-D-40X								
#4 Fuel oil 68476-31-3	0.5 mg/mL	Hexane	FU-008		JP-10 Aviation Fuel		0.5 mg/mL	Hexane	FU-008	Regular Leaded Gasoline				20 mg/mL	MeOH	GA-002-40X	
	20 mg/mL	Hexane	FU-008-40X			JP-10 Aviation Fuel	20 mg/mL	Hexane	FU-008								
	20 mg/mL	CH ₂ Cl ₂	FU-008-D-40X	JP-10 Aviation Fuel			20 mg/mL	CH ₂ Cl ₂	FU-008-D-40X								
#6 Fuel oil 68553-00-4	0.5 mg/mL	Hexane	FU-008		JP-10 Aviation Fuel		0.5 mg/mL	Hexane	FU-008	Regular Leaded Gasoline				20 mg/mL	MeOH	GA-002-40X	
	20 mg/mL	Hexane	FU-008-40X			JP-10 Aviation Fuel	20 mg/mL	Hexane	FU-008								
	20 mg/mL	CH ₂ Cl ₂	FU-008-D-40X	JP-10 Aviation Fuel			20 mg/mL	CH ₂ Cl ₂	FU-008-D-40X								

Individual Fuels and Hydrocarbons continued on next page



Individual Fuel and Hydrocarbons

Compound	Conc.	Matrix	Cat. No.	1 mL	Compound	Conc.	Matrix	Cat. No.	1 mL		
SAE 5W30 Motor oil	0.5 mg/mL	Hexane	FU-025-H		o-Terphenyl 84-15-1	200 µg/mL	Acetone	DRO-AK-102-SS			
	20 mg/mL	Hexane	FU-025-H-40X			1 mg/mL	CH ₂ Cl ₂	DRH-006-SS			
	20 mg/mL	CH ₂ Cl ₂	FU-025-D-40X			2 mg/mL	Acetone	DRO-AK-102-SS-10X			
SAE 10W30 Motor oil	0.5 mg/mL	Hexane	FU-026-H		n-Tetradecane 629-59-4	2 mg/mL	Acetone	GRH-SS			
	20 mg/mL	Hexane	FU-026-H-40X			5 mg/mL	MeOH	AS-E0240			
	20 mg/mL	CH ₂ Cl ₂	FU-026-D-40X								
SAE 10W40 Motor oil	0.5 mg/mL	Hexane	FU-027-H		Tetracosane (5 mL) 646-31-1	500 µg/mL	CS ₂	D-5480-C40-5ML			
	20 mg/mL	Hexane	FU-027-H-40X			500 µg/mL	Chloroform	D-5480-C40-R1-5ML			
	20 mg/mL	CH ₂ Cl ₂	FU-027-D-40X			5 mg/mL	MeOH	AS-E0239			
SAE 20W50 Motor oil	0.5 mg/mL	Hexane	FU-028-H		n-Tridecane 629-50-5	1 mg/mL	CH ₂ Cl ₂	V-028S-D-10X			
	20 mg/mL	Hexane	FU-028-H-40X								
	20 mg/mL	CH ₂ Cl ₂	FU-028-D-40X								
SAE 30W Motor oil	0.5 mg/mL	Hexane	FU-018-H		n-Triacontane-d ₆₂ 93952-07-9	500 µg/mL	Acetone:THFRRO-AK-103-SS				
	20 mg/mL	Hexane	FU-018-H-40X			5 mg/mL	Acetone:THFRRO-AK-103-SS2				
	20 mg/mL	CH ₂ Cl ₂	FU-018-D-40X			5 mg/mL	THF	DRH-SS			
SAE 40W Motor oil	0.5 mg/mL	Hexane	FU-019-H		Turbine (Jet) fuel	0.5 mg/mL	MeOH	FU-006			
	5 mg/mL	Acetone:CH ₂ Cl ₂	RRO-AK-103-LCS			20 mg/mL	MeOH	FU-006-40X			
	20 mg/mL	Hexane	FU-019-H-40X			20 mg/mL	CH ₂ Cl ₂	FU-006-D-40X			
	20 mg/mL	CH ₂ Cl ₂	FU-019-D-40X			1 gram	Neat	HS-004N			
	25 mg/mL	Acetone:CH ₂ Cl ₂	RRO-AK-103-LCS-5X			0.5 mg/mL	MeOH	HS-004S			
SAE 50W Motor oil	20 mg/mL	CH ₂ Cl ₂	FU-021-D-40X		Turpentine 8006-64-2	20 mg/mL	MeOH	HS-004S-40X			
	20 mg/mL	CH ₂ Cl ₂	FU-021-D-40X			20 mg/mL	CH ₂ Cl ₂	HS-004S-D-40X			
Stoddard solvent 8052-41-3	1 gram	Neat	HS-005N		Unleaded Gasoline 25% Weathered	5 mg/mL	MeOH	GA-W25-10X			
	0.5 mg/mL	MeOH	HS-005S			Unleaded Gasoline 50% Weathered	5 mg/mL	MeOH	GA-W50-10X		
	5 mg/mL	MeOH	HS-005S-10X				Unleaded Gasoline 75% Weathered	5 mg/mL	MeOH	GA-W75-10X	
	20 mg/mL	MeOH	HS-005S-40X								
	20 mg/mL	CH ₂ Cl ₂	HS-005S-D-40X								

Complete Set of Total Petroleum Hydrocarbon (TPH) Pattern Recognition Standards

AccuStandard has assembled the following sets to identify specific petroleum product types found during LUFT/LUST investigations. The sets can be purchased using one convenient Cat. No. or as individuals.

TPH-R3-SET

33 x 1 mL (TPH-001-R2-SET, TPH-002-R1-SET, TPH-003-SET, TPH-004-SET)

Motor Fuels & Lubricating Oils Set

TPH-001-R2-SET

12 x 1 mL

	mg/mL	Solv.	Cat. No.
Gasoline, regular unleaded	20	MeOH	GA-001-40X
Gasoline, regular leaded	20	MeOH	GA-002-40X
Gasoline, premium	20	MeOH	GA-003-40X
RFA Gasoline (Oxygenate free)	20	MeOH	GA-005-40X
#2 Diesel (Conventional)	20	CH ₂ Cl ₂	FU-009-D-40X
#1 Diesel (Low sulfur)	20	CH ₂ Cl ₂	FU-013-D-40X
#2 Diesel (Extra low sulfur)	20	CH ₂ Cl ₂	FU-017-D-40X
SAE 30W Motor oil	20	CH ₂ Cl ₂	FU-018-D-40X
SAE 40W Motor oil	20	CH ₂ Cl ₂	FU-019-D-40X
SAE 50W Motor oil	20	CH ₂ Cl ₂	FU-021-D-40X
Biodiesel 20	20	CH ₂ Cl ₂	FU-030-D-40X
Biodiesel 100 (consumer grade)	20	CH ₂ Cl ₂	FU-029-D-40X

Heating Fuel Oils Set

TPH-002-R1-SET

6 x 1 mL

	mg/mL	Solv.	Cat. No.
#1 Fuel oil	20	CH ₂ Cl ₂	FU-001-D-40X
#2 Fuel oil	20	CH ₂ Cl ₂	FU-002-D-40X
#3 Fuel oil	20	CH ₂ Cl ₂	FU-003-D-40X
#4 Fuel oil	20	CH ₂ Cl ₂	FU-004-D-40X
#6 Fuel oil	20	CH ₂ Cl ₂	FU-008-D-40X
Kerosene	20	CH ₂ Cl ₂	FU-005-D-40X

Aviation Fuels & Oils Set

TPH-003-SET

10 x 1 mL

	mg/mL	Solv.	Cat. No.
Aviation gasoline Grade 100 LL	20	CH ₂ Cl ₂	GA-004-D-40X
JP-4 Fuel	20	CH ₂ Cl ₂	FU-010-D-40X
JP-5 Fuel	20	CH ₂ Cl ₂	FU-012-D-40X
JP-7 Fuel	20	CH ₂ Cl ₂	FU-014-D-40X
JP-8 Fuel	20	CH ₂ Cl ₂	FU-015-D-40X
JP-10 Fuel	20	CH ₂ Cl ₂	FU-022-D-40X
JP-TS	20	CH ₂ Cl ₂	FU-016-D-40X
Jet Fuel (Type 1)	20	CH ₂ Cl ₂	FU-011-D-40X
Turbine (Jet A) Fuel	20	CH ₂ Cl ₂	FU-006-D-40X
Hydraulic oil	20	CH ₂ Cl ₂	FU-020-D-40X

Household & Industrial Solvent Set

TPH-004-SET

5 x 1 mL

	mg/mL	Solv.	Cat. No.
Lacquer Thinner	20	CH ₂ Cl ₂	HS-001S-D-40X
Mineral Spirits	20	CH ₂ Cl ₂	HS-002S-D-40X
Naphtha	20	CH ₂ Cl ₂	HS-003S-D-40X
Turpentine	20	CH ₂ Cl ₂	HS-004S-D-40X
Stoddard solvent	20	CH ₂ Cl ₂	HS-005S-D-40X

Motor Oil Standards

	mg/mL	Solv.	Cat. No.
SAE 5W30 Motor oil	0.5	Hexane	FU-025-H
	20.0	Hexane	FU-025-H-40X
	20.0	CH ₂ Cl ₂	FU-025-D-40X
SAE 10W30 Motor oil	0.5	Hexane	FU-026-H
	20.0	Hexane	FU-026-H-40X
	20.0	CH ₂ Cl ₂	FU-026-D-40X
SAE 10W40 Motor oil	0.5	Hexane	FU-027-H
	20.0	Hexane	FU-027-H-40X
	20.0	CH ₂ Cl ₂	FU-027-D-40X

	mg/mL	Solv.	Cat. No.
SAE 20W50 Motor oil	0.5	Hexane	FU-028-H
	20.0	Hexane	FU-028-H-40X
	20.0	CH ₂ Cl ₂	FU-028-D-40X
Composite Standard	20.0	CH ₂ Cl ₂	MO-COMP-D-40X



TPH, Fuel and Hydrocarbons

AccuStandard designed the weathered fuel line to mimic the weathering, evaporation, and migration process. Use of these standards can help in the identification of the fuel type if it has been present in the ground for some time, in a sandy type soil with possible evaporation loss, or has migrated from the plume point of origin.

Weathered LUFT/LUST Fuel Sets

Weathered Gasoline Set

WGA-SET	Each in 5.0 mg/mL in MeOH	Cat. No.	4 x 1 mL
Gasoline, regular unleaded		GA-001-10X	1 mL
Gasoline, regular unleaded (25% Weathered)		GA-W25-10X	1 mL
Gasoline, regular unleaded (50% Weathered)		GA-W50-10X	1 mL
Gasoline, regular unleaded (75% Weathered)		GA-W75-10X	1 mL

Weathered Kerosene Set

WFK-SET	Each in 5.0 mg/mL in CH ₂ Cl ₂		4 x 1 mL
Kerosene		FU-005-D-10X	1 mL
Kerosene (25% Weathered)		FK-W25-10X	1 mL
Kerosene (50% Weathered)		FK-W50-10X	1 mL
Kerosene (75% Weathered)		FK-W75-10X	1 mL

Weathered #2 Diesel (extra Low Sulfur Content) Set

WFD2-SET	Each in 5.0 mg/mL in CH ₂ Cl ₂		4 x 1 mL
#2 Diesel (Extra Low Sulfur)		FU-017-D-10X	1 mL
#2 Diesel (Extra Low Sulfur) (25% Weathered)		FD2-W25-10X	1 mL
#2 Diesel (Extra Low Sulfur) (50% Weathered)		FD2-W50-10X	1 mL
#2 Diesel (Extra Low Sulfur) (75% Weathered)		FD2-W75-10X	1 mL

Weathered #2 Diesel (Conventional) Set

WFD2-R1-SET	Each in 5.0 mg/mL in CH ₂ Cl ₂		4 x 1 mL
#2 Diesel (Conventional)		FU-009-D-10X	1 mL
#2 Diesel (Conventional) (25% Weathered)		FD2-W25-R1-10X	1 mL
#2 Diesel (Conventional) (50% Weathered)		FD2-W50-R1-10X	1 mL
#2 Diesel (Conventional) (75% Weathered)		FD2-W75-R1-10X	1 mL

Technical Note

Petroleum Products contain many different chemicals, plus synthetic product additives. Typically, these petroleum products are subdivided into two groups based on their volatility: [a] gasoline related products (more volatile) and [b] fuel related products (less volatile such as kerosene, aviation fuels, diesel fuels and heating oils).

Most analytical methods for petroleum products focus on several items: the level of BTEX, the total petroleum hydrocarbon number (TPH), and the fingerprint of the petroleum product. Depending on the volatility of the petroleum product spilled, the nature of the contaminated soil, and the age of the spill, analysis becomes even more difficult. Weathering, evaporation, and the migration of the lighter volatiles at the contamination site can affect the fingerprint identification portion of the fuel products analysis.

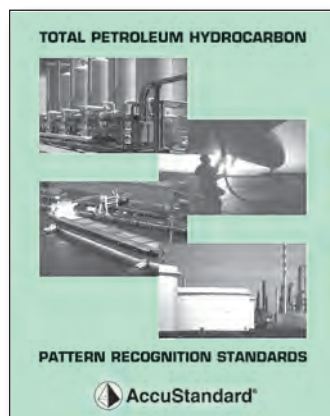
Total Petroleum Hydrocarbon Pattern Recognition Standards

This book contains chromatography for the various petroleum products typically found during LUFT/LUST site investigations. The chromatography shows each fuel pattern in a 25 minute analytical run for early eluting petroleum products like gasoline to late eluting products like motor oil. In addition, an n-alkane standard (DRH-008S) analyzed under identical conditions has been overlaid on each petroleum product chromatogram. Use of the book will assist the chemist's identification of the fuel for pattern recognition.

The n-alkane standard (DRH-008S) overlay provides n-alkane reference points between the standard and the unknown sample. These beginning and ending n-alkane reference points can be used to establish gross hydrocarbon concentrations. By comparing the specific n-alkane range of the closest identified petroleum standard to that of the unknown sample, a reproducible gross hydrocarbon number can be achieved.

To Order,

BOOK-TPH-001





Petroleum Brownfield Regulation

Brownfield Regulation that has been approved by the Canadian Ministry of the Environment as of October 1, 2004.

Light Petroleum Fraction

CCME-LPF-SET

At stated conc. ($\mu\text{g/mL}$) in MeOH

5 x 1 mL
8 comps.

	CCME-LPF-0.05X	CCME-LPF-0.1X	CCME-LPF-0.2X	CCME-LPF-0.5X	CCME-LPF
<i>n</i> -Decane	12.5	25	50	125	250
<i>n</i> -Hexane	12.5	25	50	125	250
Toluene	12.5	25	50	125	250
Benzene	12.5	25	50	125	250
<i>o</i> -Xylene	12.5	25	50	125	250
<i>m</i> -Xylene	6.25	12.5	25	62.5	125
<i>p</i> -Xylene	6.25	12.5	25	62.5	125
Ethylbenzene	12.5	25	50	125	250

Medium & Heavy Petroleum Fraction

CCME-MHPF-SET

At stated conc. ($\mu\text{g/mL}$) in *n*-Hexane

3 x 1 mL
3 comps.

	CCME-MHPF-0.1X	CCME-MHPF-0.5X	CCME-MHPF
<i>n</i> -Decane	40	200	400
<i>n</i> -Hexadecane	40	200	400
<i>n</i> -Tetracontane	40	200	400

Performance Check Standard

CCME-QC

1 x 1 mL

CCME-QC-PAK **SAVE**

5 x 1 mL

40 $\mu\text{g/mL}$ each in *n*-Hexane:Cyclohexane (50:50)
2 comps.

n-Pentacontane
n-Tetracontane

Hydrocarbon Standard

D-5442-R1

100 $\mu\text{g/mL}$ each in Cyclohexane

1 x 1 mL

18 comps.

n-Decane
n-Dodecane
n-Tetradecane
n-Hexadecane
n-Octadecane
n-Eicosane
n-Docosane
n-Tetracosane
n-Hexacosane

n-Octacosane
n-Triacontane
n-Dotriacontane
n-Tetracontane
n-Hexatriacontane
n-Octatriacontane
n-Tetracontane
n-Tetracontane
n-Pentacontane

Spike Standard

CCME-SPIKE

1 x 1 mL

2500 $\mu\text{g/mL}$ each in *n*-Hexane

2 comps.

SAE 30W Motor Oil - Non-Detergent Formula
#2 Diesel - 50% Weathered

Canadian Atlantic RBCA EPH Mix

CCME-EPH

1 x 1 mL

1000 $\mu\text{g/mL}$ each in Hexane: CH_2Cl_2 (85:15)

11 comps.

Acenaphthene
Anthracene
Benz[a]pyrene
Chrysene
n-Decane
n-Dodecane

n-Dotriacontane
n-Heneicosane
n-Hexadecane
n-Octacosane
Naphthalene

Surrogate Standard

CCME-EPH/SS

1 x 1 mL

1000 $\mu\text{g/mL}$ each in CH_2Cl_2

2 comps.

n-Dotriacontane
Isobutylbenzene

Canadian Atlantic RBCA VPH Mix

CCME-VPH

1 x 1 mL

1000 $\mu\text{g/mL}$ each in MeOH

12 comps.

Benzene
n-Decane
Ethylbenzene
n-Heptane
n-Hexane
1-Methyl-3-ethylbenzene

n-Octane
Toluene
1,2,4-Trimethylbenzene
1,3,5-Trimethylbenzene
o-Xylene
p-Xylene

Surrogate Standard

CCME-VPH/SS

1 x 1 mL

1000 $\mu\text{g/mL}$ in MeOH

Isobutylbenzene

ISO/DIS 9377 Hydrocarbon Oil Index

Diesel #2/Mineral Oil Standard

ENISO9377-2-1

1 x 1 mL

5000 $\mu\text{g/mL}$ each in Hexane

2 comps.

#2 Diesel
Mineral Oil

Extraction Solvent Stock Soln.

ENISO9377-2-3

1 x 5 mL

At stated conc. ($\mu\text{g/mL}$) in Hexane

2 comps.

n-Decane 14.5
n-Tetracontane 20

System Performance Standard of *n*-alkanes

ENISO9377-2-2

1 x 1 mL

50 $\mu\text{g/mL}$ each in Hexane

16 comps.

n-Decane
n-Dodecane
n-Tetradecane
n-Hexadecane
n-Octadecane
n-Eicosane
n-Docosane
n-Tetracosane

n-Hexacosane
n-Octacosane
n-Triacontane
n-Dotriacontane
n-Tetracontane
n-Hexatriacontane
n-Octatriacontane
n-Tetracontane

Quality Control Standard Mix

ISO/DIS9377-4-1

1 x 1 mL

500 $\mu\text{g/mL}$ each in Acetone

2 comps.

#2 Diesel
Mineral Oil

Stearyl Stearate Test Solution

ISO/DIS9377-4-2

1 x 10 mL

2000 $\mu\text{g/mL}$ in Cyclohexane

Stearyl stearate

Florisol Cartridge QC Std. Mix

ENISO9377-2-4

1 x 10 mL

1000 $\mu\text{g/mL}$ each in Hexane

2 comps.

#2 Diesel
Mineral Oil

ISO/DIS 9377-4 Standard Mixture Stock Solution

TPH-006-10X

1 x 1 mL

TPH-006-10X-PAK **SAVE**

5 x 1 mL

5000 $\mu\text{g/mL}$ each in Cyclohexane

2 comps.

#2 Diesel
Mineral oil



LUFT/LUST (UST) Standards

Multi-State

There are approximately 571,000 underground storage tanks nationwide that store petroleum or hazardous substances that can harm the environment and human health if their contents are released. Until the mid-1980s, most tanks were made of bare steel. Over time, these tanks would corrode and their contents would leak into the environment. Leaking could also occur due to faulty installation or inadequate maintenance procedures. The greatest potential hazard from a leaking underground storage tank is contaminated groundwater, the source of drinking water for nearly half of all Americans. Other health and environmental risks, including the potential for fire and explosion, also exist.

From 1988 through March of 2008 there have been 478,457 confirmed releases reported, 453,065 cleanups have been initiated, and 371,880 cleanups have been completed.

The standards listed in this section are designed to meet federal and state monitoring and testing regulations for underground storage tanks.

LUFT/LUST (UST) Standards

Leaking
Underground
Fuel
Tank

Leaking
Underground
Storage
Tank



Table of Contents

Multi-State Hydrocarbon Window Defining	314
Arizona Diesel Range	315
California Gasoline	315
Connecticut Extractable TPH	316
Mississippi DRO	316
New Jersey	316
Pennsylvania Storage Tank Monitoring Standards	316
Tennessee DRO	316
Wisconsin Gasoline Range Hydrocarbons	316
Alaska	317-318
GRO, DRO Hydrocarbons, RRO, DRO Hydrocarbons (Fuel), DRO Hydrocarbons (Standards)	
Florida FTRPH	319
Massachusetts EPH, VPH	320-321
Texas Method 1005 (PST)	322
Washington VPH, EPH	323-324
Gasoline Range Hydrocarbons (GRH)	325
Diesel Range Hydrocarbons (DRH)	326
Oil, Grease and TPH (Method 1664, 413.2/418.1 and 8440)	327

Additional LUFT/LUST

GRH

DRH, Oil, Grease and TPH
(Method 1664, 413.2/418.1 & 8440)

Automotive Engine Exhaust, Refinery Waste
(Method 1004, ASTM E1387, E1618, Skinner List)

Multi-State Method Hydrocarbon Window Defining

DRH-008S-R2
DRH-008S-R2-PAK

500 µg/mL each in Chloroform

SAVE

\$ 1 x 1 mL
5 x 1 mL
35 comps.

n-Octane
n-Nonane
n-Decane
n-Undecane
n-Dodecane
n-Tridecane
n-Tetradecane
n-Pentadecane
n-Hexadecane
n-Heptadecane
Pristane
n-Octadecane

Phytane
n-Nonadecane
n-Eicosane
n-Heneicosane
n-Docosane
n-Tricosane
n-Tetracosane
n-Pentacosane
n-Hexacosane
n-Heptacosane
n-Octacosane
n-Nonacosane

n-Triacontane
n-Hentriacontane
n-Dotriacontane
n-Tritriacontane
n-Tetracontane
n-Pentatriacontane
n-Hexatriacontane
n-Heptatriacontane
n-Octatriacontane
n-Nonatriacontane
n-Tetracontane

Technical Note

We offer a hydrocarbon window defining standard with the C₈ to C₄₀ odd and even alkanes. Use of this one standard should meet the numerous state-to-state variations for hydrocarbon validation and reporting. Since many LUFT/LUST programs require the use of the C₁₇ (Pristane) and C₁₈ (Phytane) ratio to estimate subsurface degradation of fuel oil spills, the compounds are also included in the formulation.

LUFT/LUST Standards

Arizona / California Methods



Arizona Method 8015 Determination of Diesel Range and Oil Range Organic (DRO & ORO) Hydrocarbons

Diesel & Oil Range Standard

DRO/ORO-AZ-8015		1 x 1 mL
DRO/ORO-AZ-8015-PAK	SAVE	5 x 1 mL
2000 µg/mL each in CH ₂ Cl ₂		12 comps.
<i>n</i> -Decane	<i>n</i> -Eicosane	<i>n</i> -Octadecane
<i>n</i> -Dodecane	<i>n</i> -Hexacosane	<i>n</i> -Tetracosane
<i>n</i> -Docosane	<i>n</i> -Hexadecane	<i>n</i> -Tetradecane
<i>n</i> -Dotriacontane	<i>n</i> -Octacosane	<i>n</i> -Triacontane

Surrogate Standards

DRO-AK-102-SS-10X		1 x 1 mL
DRO-AK-102-SS-10X-PAK	SAVE	5 x 1 mL
2.0 mg/mL in Acetone		
<i>o</i> -Terphenyl		

Retention Time Verification Standard

DRO/ORO-AZ-8015-RTV		1 x 1 mL
DRO/ORO-AZ-8015-RTV-PAK	SAVE	5 x 1 mL
1000 µg/mL each in CH ₂ Cl ₂		3 comps.
<i>n</i> -Decane	<i>n</i> -Dotriacontane	
<i>n</i> -Docosane		

Stock Calibration Standard

DRO/ORO-AZ-8015-SCS		1 x 1 mL
DRO/ORO-AZ-8015-SCS-PAK	SAVE	5 x 1 mL
10,000 µg/mL each in CH ₂ Cl ₂		2 comps.
#2 Diesel	SAE 10W30 Motor Oil	

California Method (including LA County)

California - Gasoline Range Hydrocarbons

S-603A-10X		1 x 1 mL
S-603A-10X-PAK	SAVE	5 x 1 mL
2.0 mg/mL each in MeOH		7 comps.
Benzene	Toluene	<i>m</i> -Xylene
Ethylbenzene	<i>o</i> -Xylene	<i>p</i> -Xylene
MtBE		

LA County Well Investigation & Monitoring Program

Purgeable Aromatics - Gasoline ID

M-602-GAS-10X		1 x 1 mL
2.0 mg/mL each in MeOH		11 comps.
Benzene	1,4-Dichlorobenzene	<i>p</i> -Xylene
Chlorobenzene	Ethylbenzene	<i>m</i> -Xylene
1,2-Dichlorobenzene	Toluene	MtBE
1,3-Dichlorobenzene	<i>o</i> -Xylene	

Oxygenate Gasoline Additive Standard

OGAD-001		1 x 1 mL	
OGAD-001-PAK	SAVE	5 x 1 mL	
At stated conc. (µg/mL) in MeOH		5 comps.	
MtBE	2000	TAME	2000
EtBE	2000	<i>t</i> -Butanol	10000
Isopropyl ether	2000		

Ethanol

M-8015B/5031-11		1 x 1 mL
10 mg/mL in Water		

Methanol

M-8015B/5031-17		1 x 1 mL
10 mg/mL in Water		

Method 1004 Carbonyl Compounds as DNPH

Derivatives by HPLC

M-1004		1 x 1 mL	
At stated conc. (µg/mL) in AcCN		13 comps.	
M-1004-10X		1 x 1 mL	
At 10 times the stated conc. in AcCN		13 comps.	
Acetaldehyde-DNPH	15.3	Formaldehyde-DNPH	21.0
Acetone-DNPH	12.3	Hexanal-DNPH	8.4
Acrolein-DNPH	12.7	Methacrolein-DNPH	10.7
Benzaldehyde-DNPH	8.1	Propionaldehyde-DNPH	12.3
2-Butanone-DNPH (MEK)	10.5	<i>m</i> -Tolualdehyde-DNPH	7.5
<i>n</i> -Butyraldehyde-DNPH	10.5	Valeraldehyde-DNPH	9.3
Crotonaldehyde-DNPH	10.7		

CAR-DNPH

At stated conc. (µg/mL) in AcCN		1 x 1 mL	
		7 comps.	
Acetaldehyde-DNPH	1000	Butyraldehyde-DNPH	500
Acetone-DNPH	500	Formaldehyde-DNPH	1500
Acrolein-DNPH	500	Propionaldehyde-DNPH	500
Benzaldehyde-DNPH	500		

Reference Gas Oil Sample

RGS-001		1 x 1 mL
Hydrocarbon Mixture (boiling point range 250-850°F)		

Technical Note

Alcohol Oxidation Products in Automotive Engine Exhaust by HPLC of DNPH Derivatives The California Air Resources Board, in conjunction with some of the larger automobile manufacturers, has developed an HPLC method in which the 2,4-Dinitrophenylhydrazine derivatives of the by-products are quantitated.

AZ, CA LUFT/LUST



LUFT/LUST Standards

Connecticut / Mississippi / New Jersey / Pennsylvania / Tennessee / Wisconsin Methods

Connecticut Method Extractable Total Petroleum Hydrocarbons

CT ETPH Alkane Standard

DRH-009S **SAVE** 1 x 1 mL
DRH-009S-PAK 5 x 1 mL
1000 µg/mL in CH₂Cl₂ 15 comps.

<i>n</i> -Nonane	<i>n</i> -Octadecane	<i>n</i> -Octacosane
<i>n</i> -Decane	<i>n</i> -Eicosane	<i>n</i> -Triacontane
<i>n</i> -Dodecane	<i>n</i> -Docosane	<i>n</i> -Dotriacontane
<i>n</i> -Tetradecane	<i>n</i> -Tetracosane	<i>n</i> -Tetratriacontane
<i>n</i> -Hexadecane	<i>n</i> -Hexacosane	<i>n</i> -Hexatriacontane

Internal Standard

GRH-IS **SAVE** 1 x 1 mL
GRH-IS-PAK 5 x 1 mL
1.0 mg/mL in CH₂Cl₂

5- α Androstane

Surrogate Standard

GRH-SS **SAVE** 1 x 1 mL
GRH-SS-PAK 5 x 1 mL
2.0 mg/mL in Acetone

o-Terphenyl (OTP)

Mississippi Method

DRO Defining Mix

DRO-AK-102-NAS-10X **SAVE** 1 x 1 mL
DRO-AK-102-NAS-10X-PAK 5 x 1 mL
2.0 mg/mL each in CH₂Cl₂ 16 comps.

<i>n</i> -Decane	<i>n</i> -Hexadecane	<i>n</i> -Heneicosane
<i>n</i> -Undecane	<i>n</i> -Heptadecane	<i>n</i> -Docosane
<i>n</i> -Dodecane	<i>n</i> -Octadecane	<i>n</i> -Tricosane
<i>n</i> -Tridecane	<i>n</i> -Nonadecane	<i>n</i> -Tetracosane
<i>n</i> -Tetradecane	<i>n</i> -Eicosane	<i>n</i> -Pentacosane
<i>n</i> -Pentadecane		

New Jersey Method

DEP (NJ) Aliphatic Hydrocarbon Standard

DRH-NJ-001S **SAVE** 1 x 1 mL
1.0 mg/mL each in Hexane 20 comps.

<i>n</i> -Nonane	<i>n</i> -Heneicosane	<i>n</i> -Tetracontane
<i>n</i> -Decane	<i>n</i> -Docosane	<i>n</i> -Hexatriacontane
<i>n</i> -Dodecane	<i>n</i> -Tetracosane	<i>n</i> -Octatriacontane
<i>n</i> -Tetradecane	<i>n</i> -Hexacosane	<i>n</i> -Tetracontane
<i>n</i> -Hexadecane	<i>n</i> -Octacosane	Naphthalene
<i>n</i> -Octadecane	<i>n</i> -Triacontane	2-Methylnaphthalene
<i>n</i> -Eicosane	<i>n</i> -Dotriacontane	

DEP (NJ) Aromatic Hydrocarbon Standard

DRH-NJ-002S **SAVE** 1 x 1 mL
2.0 mg/mL each in CH₂Cl₂ 18 comps.

Acenaphthene	Benzo[g,h,i]perylene	Indeno[1,2,3-cd]pyrene
Acenaphthylene	Benzo[k]fluoranthene	2-Methylnaphthalene
Anthracene	Chrysene	Naphthalene
Benzo[a]anthracene	Dibenz[a,h]anthracene	Phenanthrene
Benzo[a]pyrene	Fluoranthene	Pyrene
Benzo[b]fluoranthene	Fluorene	1,2,3-Trimethylbenzene

Pennsylvania Method Storage Tank Site Closure & Monitoring Petroleum Standards

PA Extractable PAH Standard

DRH-PA-001 **SAVE** 1 x 1 mL
DRH-PA-001-PAK 5 x 1 mL
2000 µg/mL each in CH₂Cl₂ 5 comps.

Benzo[a]anthracene	Fluorene	Phenanthrene
Benzo[a]pyrene	Naphthalene	

PA Volatile Petroleum Standard

GRH-PA-001 **SAVE** 1 x 1 mL
GRH-PA-001-PAK 5 x 1 mL
At stated conc. (µg/mL) in MeOH 9 comps.

Benzene	1000	<i>o</i> -Xylene	1000
Ethylbenzene	1000	<i>m</i> -Xylene	1000
MtBE	2000	<i>p</i> -Xylene	1000
Naphthalene	1000	Isopropylbenzene	1000
Toluene	1000		

Tennessee Method

DRO Defining Mix

DRO-AK-102-NAS-10X **SAVE** 1 x 1 mL
DRO-AK-102-NAS-10X-PAK 5 x 1 mL
2.0 mg/mL each in CH₂Cl₂ 16 comps.

<i>n</i> -Decane	<i>n</i> -Hexadecane	<i>n</i> -Heneicosane
<i>n</i> -Undecane	<i>n</i> -Heptadecane	<i>n</i> -Docosane
<i>n</i> -Dodecane	<i>n</i> -Octadecane	<i>n</i> -Tricosane
<i>n</i> -Tridecane	<i>n</i> -Nonadecane	<i>n</i> -Tetracosane
<i>n</i> -Tetradecane	<i>n</i> -Eicosane	<i>n</i> -Pentacosane
<i>n</i> -Pentadecane		

Wisconsin Method

Wisconsin DNR - Gasoline Range Hydrocarbons

GRH-003S **SAVE** 1 x 1 mL
GRH-003S-PAK 5 x 1 mL
2.0 mg/mL each in MeOH 10 comps.

Benzene	Toluene	<i>o</i> -Xylene
Ethylbenzene	1,2,4-Trimethylbenzene	<i>m</i> -Xylene
MtBE	1,3,5-Trimethylbenzene	<i>p</i> -Xylene
Naphthalene		

CT, MS, NJ, PA, TN, WI LUFT/LUST

LUFT/LUST Standards

Alaska GRO/DRO Methods



Alaska Method 101 Determination of Gasoline Range Organic (GRO) Hydrocarbons

Normal Alkane Standard - GRO Defining Mix

GRO-AK-101-NAS-10X		1 x 1 mL
GRO-AK-101-NAS-10X-PAK	SAVE	5 x 1 mL
2.0 mg/mL each in MeOH		
<i>n</i> -Hexane	<i>n</i> -Octane	<i>n</i> -Decane
<i>n</i> -Heptane	<i>n</i> -Nonane	

Laboratory Control Standard

GRO-AK-101-LCS		1 x 1 mL
GRO-AK-101-LCS-PAK	SAVE	5 x 1 mL
5.0 mg/mL in MeOH		
Gasoline-Regular, unleaded		

Internal Standard

GRO-AK-101-IS-10X		1 x 1 mL
GRO-AK-101-IS-10X-PAK	SAVE	5 x 1 mL
2.0 mg/mL in MeOH		
1-Chloro-4-fluorobenzene		

Surrogate Control Standard

GRO-AK-101-SS		1 x 1 mL
GRO-AK-101-SS-PAK	SAVE	5 x 1 mL
50 µg/mL each in MeOH		
GRO-AK-101-SS-10X		1 x 1 mL
GRO-AK-101-SS-10X-PAK	SAVE	5 x 1 mL
500 µg/mL each in MeOH		
GRO-AK-101-SS-100X		1 x 1 mL
GRO-AK-101-SS-100X-PAK	SAVE	5 x 1 mL
5,000 µg/mL each in MeOH		
<i>p</i> -Bromofluorobenzene	a,a,a-Trifluorotoluene	

Alaska Method Determination of Aromatic & Aliphatic Hydrocarbons in GRO

AK101AA Aromatics Mix

GRO-AK-101AA-ARO		1 x 1 mL
GRO-AK-101AA-ARO-PAK	SAVE	5 x 1 mL
2000 µg/mL each in MeOH		
Benzene	<i>o</i> -Xylene	<i>m</i> -Ethyltoluene
Toluene	1,2,3-Trimethylbenzene	<i>p</i> -Ethyltoluene
Ethylbenzene	1,2,4-Trimethylbenzene	<i>o</i> -Ethyltoluene
<i>m</i> -Xylene	1,3,5-Trimethylbenzene	<i>n</i> -Propylbenzene
<i>p</i> -Xylene	Isopropylbenzene	

Certified BTEX in Gasoline (Single Source)

GA-001-20X-BTEX		1 x 1 mL
10.0 mg/mL in MeOH		
Benzene	<i>m,p</i> -Xylene	
Ethylbenzene	<i>o</i> -Xylene	
Toluene	Gasoline-Regular, unleaded	

Technical Note

Laboratory Control Standard

The gasoline laboratory control standard was taken from an ASTM selected fuel set and a source independent of what is being used in the Gasoline Composite Mix.

Simultaneous BTEX / Gasoline QA/QC

Our QC Department has certified the benzene, toluene, ethyl benzene and xylene concentrations in the unleaded gasoline standard and (GRO-AK-101-GCS-BTEX).

This allows the use of a single injection to verify that the QA/QC requirements are being met for the BTEX analytes as well as for the gasoline.

We have added a multi source certified BTEX in gasoline composite mix (GRO-AK-101-GCS-BTEX). The BTEX values for this multi-source calibration standard have been determined through in-house analysis against a BTEX multi-level calibration curve listed on the certificate.

Certified BTEX in Gasoline Composite (Multi Source)

GRO-AK-101-GCS-BTEX		1 x 1 mL
At stated conc. (mg/mL) in MeOH		
Gasoline-Premium, unleaded	1.66	
Gasoline-Regular, leaded	1.67	
Gasoline-Regular, unleaded	1.67	3 comps.

Gasoline Calibration Composite Mix

GRO-AK-101-GCS		1 x 1 mL
GRO-AK-101-GCS-PAK	SAVE	5 x 1 mL
At stated conc. (mg/mL) in MeOH		
Gasoline-Premium, unleaded	1.66	
Gasoline-Regular, leaded	1.67	
Gasoline-Regular, unleaded	1.67	3 comps.

Gasoline Calibration Mix Version

GRO-AK-101-GSC-R1		1 x 1 mL
GRO-AK-101-GSC-R1-PAK	SAVE	5 x 1 mL
Equal Wt. %		
Gasoline-Regular, unleaded		
Gasoline-Plus, unleaded		
Gasoline-Premium, unleaded		

Technical Note

Laboratory Control Standards are prepared from an independent source.



LUFT/LUST Standards

Alaska DRO/RRRO Methods

Alaska Method 102 Determination of Diesel Range Organic (DRO) Hydrocarbons (Continued)

Laboratory Control Standard

DRO-AK-102-LCS-10X-R1		1 x 1 mL
DRO-AK-102-LCS-10X-R1-PAK	SAVE	5 x 1 mL
50.0 mg/mL in Acetone		
#2 Diesel (Conventional)		

Normal Alkane Standard - DRO Defining Mix

DRO-AK-102-NAS-10X		1 x 1 mL
DRO-AK-102-NAS-10X-PAK	SAVE	5 x 1 mL
2.0 mg/mL each in CH ₂ Cl ₂		
16 comps.		

<i>n</i> -Decane	<i>n</i> -Hexadecane	<i>n</i> -Heneicosane
<i>n</i> -Undecane	<i>n</i> -Heptadecane	<i>n</i> -Docosane
<i>n</i> -Dodecane	<i>n</i> -Octadecane	<i>n</i> -Tricosane
<i>n</i> -Tridecane	<i>n</i> -Nonadecane	<i>n</i> -Tetracosane
<i>n</i> -Tetradecane	<i>n</i> -Eicosane	<i>n</i> -Pentacosane
<i>n</i> -Pentadecane		

Surrogate Standards

DRO-AK-102-SS		1 x 1 mL
DRO-AK-102-SS-PAK	SAVE	5 x 1 mL
200 µg/mL in Acetone		
DRO-AK-102-SS-10X		1 x 1 mL
DRO-AK-102-SS-10X-PAK	SAVE	5 x 1 mL
2.0 mg/mL in Acetone		
o-Terphenyl		

Internal Standard

DRO-AK-102-IS		1 x 1 mL
DRO-AK-102-IS-PAK	SAVE	5 x 1 mL
1.0 mg/mL in CH ₂ Cl ₂		
5-alpha Androstane		

Alaska Method 102/103AA Determination of Aromatic & Aliphatic Hydrocarbons in Diesel Range Organic (DRO)

Diesel Range Standard

DRO-AK-102AA		1 x 1 mL
DRO-AK-102AA-PAK	SAVE	5 x 1 mL
2000 µg/mL each in CH ₂ Cl ₂		
10 comps.		

<i>n</i> -Undecane	<i>n</i> -Tetracosane	Fluorene
<i>n</i> -Pentadecane	Naphthalene	Pyrene
<i>n</i> -Heptadecane	Acenaphthene	Anthracene
<i>n</i> -Octadecane		

Surrogate Standard

DRO-AK-102/103AA-SS		1 x 1 mL
DRO-AK-102/103AA-SS-PAK	SAVE	5 x 1 mL
1000 µg/mL each in CH ₂ Cl ₂		
3 comps.		
Squalane	5,6,7,8-Tetrahydro-1-naphthol	
o-Terphenyl		

Retention Time Marker Standard

DRO-AK-102/103AA-RT		1 x 1 mL
DRO-AK-102/103AA-RT-PAK	SAVE	5 x 1 mL
50 µg/mL each in CH ₂ Cl ₂		
3 comps.		
<i>n</i> -Decane	<i>n</i> -Hexatriacontane	
<i>n</i> -Pentacosane		

Alaska Method 103 Determination of Residual Range Organic (RRO) Hydrocarbons

Residual Composite Mixtures

RRO-AK-103-RCS		1 x 1 mL
RRO-AK-103-RCS-PAK	SAVE	5 x 1 mL
At stated conc. (mg/mL) in CH ₂ Cl ₂		
3 comps.		

SAE 30W Motor oil	1.66
SAE 40W Motor oil	1.67
SAE 50W Motor Oil	1.67

RRO-AK-103-RCS-10X		1 x 1 mL
RRO-AK-103-RCS-10X-PAK	SAVE	5 x 1 mL
At stated conc. (mg/mL) in CH ₂ Cl ₂		
3 comps.		

SAE 30W Motor oil	16.6
SAE 40W Motor oil	16.7
SAE 50W Motor Oil	16.7

Laboratory Control Standard

RRO-AK-103-LCS		1 x 1 mL
RRO-AK-103-LCS-PAK	SAVE	5 x 1 mL
5.0 mg/mL in Acetone		
RRO-AK-103-LCS-5X		1 x 1 mL
RRO-AK-103-LCS-5X-PAK	SAVE	5 x 1 mL
25.0 mg/mL in Acetone:CH ₂ Cl ₂ (50:50)		
SAE 40W Motor oil		

Surrogate Control Standard

RRO-AK-103-SS		1 x 1 mL
RRO-AK-103-SS-PAK	SAVE	5 x 1 mL
500 µg/mL in Acetone:THF (90:10)		
RRO-AK-103-SS2		1 x 1 mL
RRO-AK-103-SS2-PAK	SAVE	5 x 1 mL
5.0 mg/mL in THF:Acetone (75:25)		
<i>n</i> -Triacontane-d ₆₂		

Alaska Method 103AA Determination of Aromatic & Aliphatic Hydrocarbons in Residual Range Organic

Residual Standard

RRO-AK-103AA		1 x 1 mL
RRO-AK-103AA-PAK	SAVE	5 x 1 mL
2000 µg/mL each in CH ₂ Cl ₂		
9 comps.		

<i>n</i> -Hexacosane	Benzo[b]fluoranthene
<i>n</i> -Octacosane	Benz[a]pyrene
<i>n</i> -Triacontane	Benzo[g,h,i]perylene
<i>n</i> -Dotriacontane	Dibenz[a,h]anthracene
<i>n</i> -Tetracontane	

Surrogate Standard

DRO-AK-102/103AA-SS		1 x 1 mL
DRO-AK-102/103AA-SS-PAK	SAVE	5 x 1 mL
1000 µg/mL each in CH ₂ Cl ₂		
3 comps.		
Squalane	5,6,7,8-Tetrahydro-1-naphthol	
o-Terphenyl		

Retention Time Marker Standard

DRO-AK-102/103AA-RT		1 x 1 mL
DRO-AK-102/103AA-RT-PAK	SAVE	5 x 1 mL
50 µg/mL each in CH ₂ Cl ₂		
3 comps.		
<i>n</i> -Decane	<i>n</i> -Hexatriacontane	
<i>n</i> -Pentacosane		



Florida Method Total Recoverable Petroleum Hydrocarbon (FTRPH) Standard & Surrogates

Calibration/Window Defining Hydrocarbon Standard

DRH-004S-R1-5X			1 x 1 mL
DRH-004S-R1-5X-PAK	SAVE		5 x 1 mL
1.0 mg/mL each in Chloroform			
<i>n</i> -Octane (C ₈)		<i>n</i> -Hexacosane (C ₂₆)	
<i>n</i> -Decane (C ₁₀)		<i>n</i> -Octacosane (C ₂₈)	
<i>n</i> -Dodecane (C ₁₂)		<i>n</i> -Triacosane (C ₃₀)	
<i>n</i> -Tetradecane (C ₁₄)		<i>n</i> -Dotriacontane (C ₃₂)	
<i>n</i> -Hexadecane (C ₁₆)		<i>n</i> -Tetraatriacontane (C ₃₄)	
<i>n</i> -Octadecane (C ₁₈)		<i>n</i> -Hexatriacontane (C ₃₆)	
<i>n</i> -Eicosane (C ₂₀)		<i>n</i> -Octatriacontane (C ₃₈)	
<i>n</i> -Docosane (C ₂₂)		<i>n</i> -Tetracontane (C ₄₀)	
<i>n</i> -Tetracosane (C ₂₄)			

FTRPH Calibration / Window Defining Standard

DRH-FTRPH			1 x 1 mL
DRH-FTRPH-PAK	SAVE		5 x 1 mL
500 µg/mL each in Hexane			
17 comps.			

DRH-FTRPH-0.1X			1 x 1 mL
50 µg/mL each in Hexane			

<i>n</i> -Octane	<i>n</i> -Hexacosane
<i>n</i> -Decane	<i>n</i> -Octacosane
<i>n</i> -Dodecane	<i>n</i> -Triacosane
<i>n</i> -Tetradecane	<i>n</i> -Dotriacontane
<i>n</i> -Hexadecane	<i>n</i> -Tetraatriacontane
<i>n</i> -Octadecane	<i>n</i> -Hexatriacontane
<i>n</i> -Eicosane	<i>n</i> -Octatriacontane
<i>n</i> -Docosane	<i>n</i> -Tetracontane
<i>n</i> -Tetracosane	

Technical Note

FTRPH Calibration/Window Defining Standard was formulated at a lower concentration to insure solubility of the analytes & eliminate the odor caused by the introduction of Carbon disulfide as a cosolvent.

Internal Standard

GRH-IS			1 x 1 mL
GRH-IS-PAK	SAVE		5 x 1 mL
1.0 mg/mL in CH ₂ Cl ₂			

GRH-IS-10X			1 x 1 mL
10 mg/mL in CH ₂ Cl ₂			
5-alpha Androstane			

Surrogate Standards

DRH-SS			1 x 1 mL
DRH-SS-PAK	SAVE		5 x 1 mL
5.0 mg/mL in THF			
<i>n</i> -Triacosane-d ₆₂			

GRH-SS			1 x 1 mL
GRH-SS-PAK	SAVE		5 x 1 mL
2.0 mg/mL in Acetone			
o-Terphenyl (OTP)			

FTRPH Surrogate Standard

DRH-FL-SS-3X			1 x 1 mL
DRH-FL-SS-3X-PAK	SAVE		5 x 1 mL
3.0 mg/mL in Carbon disulfide			

DRH-FL-SS			1 x 1 mL
DRH-FL-SS-PAK	SAVE		5 x 1 mL
1.0 mg/mL in Carbon disulfide			
<i>n</i> -Nonatriacontane			

FTRPH Combined Surrogate Standard

DRH/GRH-FL-SS			1 x 1 mL
DRH/GRH-FL-SS-PAK	SAVE		5 x 1 mL
5.0 mg/mL in Carbon disulfide			
2 comps.			
<i>n</i> -Nonatriacontane		o-Terphenyl (OTP)	

Technical Note

FTRPH Surrogate Standard was formulated at a higher concentration for combined DRH & GRH analysis. This standard has proven useful for those laboratories performing gasoline & diesel analysis simultaneously.

DRH/GRH-FL-SS-R2			1 x 1 mL
DRH/GRH-FL-SS-R2-PAK	SAVE		5 x 1 mL
At stated conc. (µg/mL) in Carbon disulfide			
<i>n</i> -Nonatriacontane	6000	o-Terphenyl (OTP)	1500
2 comps.			



Carbon disulfide can not ship by air. When possible alternate solvents can be used. Please contact our Technical Service Department for other options.





LUFT/LUST Standards

Massachusetts Methods - Ready-to-Inject Working Level EPH Standards

Massachusetts Method Determination of Extractable Petroleum Hydrocarbons (EPH)

Aromatic Hydrocarbons Calibration Set

DRH-006-CAL-SET

At stated conc. ($\mu\text{g/mL}$) in CH_2Cl_2

5 x 1 mL

18 comps.

Components	Level 1 (1X)	Level 2 (4X)	Level 3 (10X)	Level 4 (20X)	Level 5 (40X)
Acenaphthene	5	20	50	100	200
Acenaphthylene	5	20	50	100	200
Anthracene	5	20	50	100	200
Benz[a]anthracene	5	20	50	100	200
Benz[a]pyrene	5	20	50	100	200
Benzo[b]fluoranthene	5	20	50	100	200
Benzo[g,h,i]perylene	5	20	50	100	200
Benzo[k]fluoranthene	5	20	50	100	200
Chrysene	5	20	50	100	200
Dibenz[a,h]anthracene	5	20	50	100	200
Fluoranthene	5	20	50	100	200
Fluorene	5	20	50	100	200
Indeno[1,2,3-cd]pyrene	5	20	50	100	200
2-Methylnaphthalene	5	20	50	100	200
Naphthalene	5	20	50	100	200
Phenanthrene	5	20	50	100	200
Pyrene	5	20	50	100	200
o-Terphenyl (Surrogate)	5	20	50	100	200

Aliphatic Hydrocarbons Calibration Set

DRH-007-CAL-R1-SET

At stated conc. ($\mu\text{g/mL}$) in CH_2Cl_2 : *n*-Hexane (50:50)

5 x 1 mL

15 comps.

Components	Level 1 (1X)	Level 2 (4X)	Level 3 (10X)	Level 4 (20X)	Level 5 (40X)
<i>n</i> -Nonane	5	20	50	100	200
<i>n</i> -Decane	5	20	50	100	200
<i>n</i> -Dodecane	5	20	50	100	200
<i>n</i> -Tetradecane	5	20	50	100	200
<i>n</i> -Hexadecane	5	20	50	100	200
<i>n</i> -Octadecane	5	20	50	100	200
<i>n</i> -Nonadecane	5	20	50	100	200
<i>n</i> -Eicosane	5	20	50	100	200
<i>n</i> -Docosane	5	20	50	100	200
<i>n</i> -Tetracosane	5	20	50	100	200
<i>n</i> -Hexacosane	5	20	50	100	200
<i>n</i> -Octacosane	5	20	50	100	200
<i>n</i> -Triacontane	5	20	50	100	200
<i>n</i> -Hexatriacontane	5	20	50	100	200
1-Chlorooctadecane (Surrogate)	5	20	50	100	200

Combined Aromatic/Aliphatic Matrix Spike Standard

DRH-MS-ASL

DRH-MS-ASL-PAK

25 $\mu\text{g/mL}$ each in Hexane : CH_2Cl_2 (95:5)

SAVE

1 x 1 mL

5 x 1 mL

31 comps.

Acenaphthene	<i>n</i> -Docosane	Naphthalene
Acenaphthylene	<i>n</i> -Dodecane	<i>n</i> -Nonadecane
Anthracene	<i>n</i> -Eicosane	<i>n</i> -Nonane
Benz[a]anthracene	Fluoranthene	<i>n</i> -Octacosane
Benz[a]pyrene	Fluorene	<i>n</i> -Octadecane
Benzo[b]fluoranthene	<i>n</i> -Hexacosane	Phenanthrene
Benzo[g,h,i]perylene	<i>n</i> -Hexadecane	Pyrene
Benzo[k]fluoranthene	<i>n</i> -Hexatriacontane	<i>n</i> -Tetracosane
Chrysene	Indeno[1,2,3-cd]pyrene	<i>n</i> -Tetradecane
<i>n</i> -Decane	2-Methylnaphthalene	<i>n</i> -Triacontane
Dibenz[a,h]anthracene		

DEP (MA) - Fractionation Surrogate Spike

DRH-MA-FSS-10ML

DRH-MA-FSS-50X

DRH-MA-FSS-50X-PAK

40 $\mu\text{g/mL}$ in Hexane

2.0 mg/mL in Hexane

2.0 mg/mL in Hexane

SAVE

1 x 10 mL

1 x 1 mL

5 x 1 mL

2 comps.

2-Fluorobiphenyl

2-Bromonaphthalene

Aromatic Surrogate

DRH-006-SS

DRH-006-SS-PAK

1.0 mg/mL in CH_2Cl_2

SAVE

1 x 1 mL

5 x 1 mL

o-Terphenyl

DEP (MA) - Aromatic Hydrocarbons

DRH-006S

DRH-006S-PAK

1.0 mg/mL each in CH_2Cl_2

SAVE

1 x 1 mL

5 x 1 mL

17 comps.

Acenaphthene	Dibenz[a,h]anthracene
Acenaphthylene	Fluoranthene
Anthracene	Fluorene
Benz[a]anthracene	Indeno[1,2,3-cd]pyrene
Benz[a]pyrene	2-Methylnaphthalene
Benzo[b]fluoranthene	Naphthalene
Benzo[g,h,i]perylene	Phenanthrene
Benzo[k]fluoranthene	Pyrene
Chrysene	

Technical Note

Two high concentration EPH stocks for laboratories that prepare in-house working level solutions and Ready-to-Use working level aromatic and aliphatic calibration sets are available. Larger volumes of daily calibration solutions can be purchased by contacting our Technical Service Department.

DEP (MA) - Aliphatic Hydrocarbons

DRH-007S

DRH-007S-PAK

1.0 mg/mL each in CH_2Cl_2 : Hexane (50:50)

SAVE

1 x 1 mL

5 x 1 mL

14 comps.

<i>n</i> -Nonane	<i>n</i> -Octadecane	<i>n</i> -Hexacosane
<i>n</i> -Decane	<i>n</i> -Nonadecane	<i>n</i> -Octacosane
<i>n</i> -Dodecane	<i>n</i> -Eicosane	<i>n</i> -Triacontane
<i>n</i> -Tetradecane	<i>n</i> -Docosane	<i>n</i> -Hexatriacontane
<i>n</i> -Hexadecane	<i>n</i> -Tetracosane	

Aliphatic Surrogate

DRH-007-SS

DRH-007-SS-PAK

1.0 mg/mL in Hexane

SAVE

1 x 1 mL

5 x 1 mL

1-Chlorooctadecane

EPH Surrogate Spike

DRH-MA-SS

20 $\mu\text{g/mL}$ each in Acetone

1 x 1 mL

2 comps.

DRH-MA-SS-10X

200 $\mu\text{g/mL}$ each in Acetone

1 x 1 mL

2 comps.

DRH-MA-SS-100X

2,000 $\mu\text{g/mL}$ each in Acetone

1 x 1 mL

5 x 1 mL

2 comps.

1-Chlorooctadecane

o-Terphenyl

EPH Matrix Spike

DRH-MA-MS

DRH-MA-MS-PAK

25 $\mu\text{g/mL}$ in Acetone

SAVE

1 x 1 mL

5 x 1 mL

10 comps.

DRH-MA-MS-10X

DRH-MA-MS-10X-PAK

250 $\mu\text{g/mL}$ in Acetone

SAVE

1 x 1 mL

5 x 1 mL

10 comps.

DRH-MA-MS-40X

DRH-MA-MS-40X-PAK

1,000 $\mu\text{g/mL}$ in Acetone

SAVE

1 x 1 mL

5 x 1 mL

10 comps.

Acenaphthene	Naphthalene	<i>n</i> -Octacosane
Anthracene	<i>n</i> -Nonadecane	Pyrene
Chrysene	<i>n</i> -Nonane	<i>n</i> -Tetradecane
<i>n</i> -Eicosane		

Internal Standard

GRH-IS

GRH-IS-PAK

1,000 $\mu\text{g/mL}$ in CH_2Cl_2

SAVE

1 x 1 mL

5 x 1 mL

GRH-IS-10X

10.0 mg/mL in CH_2Cl_2

1 x 1 mL

5-alpha Androstane

LUFT/LUST Standards

Massachusetts Methods - Ready-to-Inject Working Level EPH Standards



Massachusetts Method Determination of Volatile Petroleum Hydrocarbons (VPH)

Stock Concentrate

Volatile Petroleum Hydrocarbon Mix

GRH-004S-10X			1 x 1 mL
GRH-004S-10X-PAK	SAVE		5 x 1 mL
<i>At stated conc. (mg/mL) in MeOH</i>			
Benzene	5.0	<i>n</i> -Pentane	10.0
Ethylbenzene	5.0	Toluene	15.0
Isooctane	15.0	1,2,4-Trimethylbenzene	10.0
2-Methylpentane	15.0	<i>o</i> -Xylene	10.0
MtBE	15.0	<i>m</i> -Xylene	10.0
Naphthalene	10.0	<i>p</i> -Xylene	10.0
<i>n</i> -Nonane	10.0		

DEP (MA)-VPH Surrogate Standard

GRH-004-SS		1 x 1 mL
GRH-004-SS-PAK	SAVE	5 x 1 mL
<i>50 µg/mL in MeOH</i>		
GRH-004-SS-10X		1 x 1 mL
GRH-004-SS-10X-PAK	SAVE	5 x 1 mL
<i>500 µg/mL in MeOH</i>		
GRH-004-SS-100X		1 x 1 mL
GRH-004-SS-100X-PAK	SAVE	5 x 1 mL
<i>5,000 µg/mL in MeOH</i>		
2,5-Dibromotoluene		

MA VPH Matrix Spike Mix with Surrogate

GRH-004-MS/SS		1 x 1 mL
<i>50 µg/mL each in MeOH</i>		
Benzene	Naphthalene	
<i>n</i> -Butylcyclohexane	<i>n</i> -Nonane	
<i>n</i> -Decane	<i>n</i> -Pentane	
2,5-Dibromotoluene	Toluene	
Ethylbenzene	1,2,4-Trimethylbenzene	
2-Methylpentane	Isooctane	
MtBE	<i>m</i> -Xylene	

VPH Matrix Spike

GRH-004-MS		1 x 1 mL
GRH-004-MS-PAK	SAVE	5 x 1 mL
<i>50 µg/mL each in MeOH</i>		
GRH-004-MS-10X		1 x 1 mL
GRH-004-MS-10X-PAK	SAVE	5 x 1 mL
<i>500 µg/mL each in MeOH</i>		
GRH-004-MS-100X		1 x 1 mL
GRH-004-MS-100X-PAK	SAVE	5 x 1 mL
<i>5,000 µg/mL each in MeOH</i>		

Benzene	Naphthalene	<i>m</i> -Xylene
Ethylbenzene	Toluene	<i>p</i> -Xylene
MtBE	<i>o</i> -Xylene	

Certified BTEX in Unleaded Gasoline

GA-001-20X-BTEX		1 x 1 mL
<i>10.0 mg/mL each in MeOH</i>		
Benzene	<i>m,p</i> -Xylene	
Ethylbenzene	<i>o</i> -Xylene	
Toluene	Gasoline-Regular, unleaded	

Technical Note

Calibration Curve

Analytical chemists can develop the VPH Calibration Curve using one primary dilution standard that includes the surrogate.

Simultaneous BTEX / Gasoline QA/QC

Our QC Dept. has certified the benzene, toluene, ethyl benzene and xylene concentrations in the unleaded gasoline standard (GA-001-20X-BTEX). This allows the use of a single injection to verify that the QA/QC requirements are being met for the BTEX analytes as well as for the gasoline.

Volatile Petroleum Hydrocarbons without Surrogate

GRH-004S-R1-10X		1 x 1 mL	
<i>At stated conc. (mg/mL) in MeOH</i>			
Benzene	5.0	Toluene	15.0
Ethylbenzene	5.0	1,2,4-Trimethylbenzene	10.0
Isooctane	15.0	<i>o</i> -Xylene	10.0
2-Methylpentane	15.0	<i>m</i> -Xylene	10.0
MtBE	15.0	<i>p</i> -Xylene	10.0
Naphthalene	10.0	<i>n</i> -Butylcyclohexane	10.0
<i>n</i> -Nonane	10.0	<i>n</i> -Decane	10.0
<i>n</i> -Pentane	10.0		

GRH-004S-R2		1 x 1 mL
<i>10 mg/mL each in MeOH</i>		

Benzene	Toluene
Ethylbenzene	1,2,4-Trimethylbenzene
Isooctane	<i>o</i> -Xylene
2-Methylpentane	<i>m</i> -Xylene
MtBE	<i>p</i> -Xylene
Naphthalene	<i>n</i> -Butylcyclohexane
<i>n</i> -Nonane	<i>n</i> -Decane
<i>n</i> -Pentane	

Volatile Petroleum Hydrocarbons with Surrogate

GRH-004S/SS		1 x 1 mL	
GRH-004S/SS-PAK	SAVE	5 x 1 mL	
<i>At stated conc. (µg/mL) in MeOH</i>			
Benzene	500	<i>n</i> -Nonane	1,000
2,5-Dibromotoluene (Surrogate)	1,000	<i>n</i> -Pentane	1,000
Ethylbenzene	500	Toluene	1,500
Isooctane	1,500	1,2,4-Trimethylbenzene	1,000
2-Methylpentane	1,500	<i>o</i> -Xylene	1,000
MtBE	1,500	<i>m</i> -Xylene	1,000
Naphthalene	1,000	<i>p</i> -Xylene	1,000

GRH-004S/SS-R1		1 x 1 mL
<i>At stated conc. (µg/mL) in MeOH</i>		

Benzene	500	<i>n</i> -Pentane	1,000
2,5-Dibromotoluene (Surrogate)	1,000	Toluene	1,500
Ethylbenzene	500	1,2,4-Trimethylbenzene	1,000
Isooctane	1,500	<i>o</i> -Xylene	1,000
2-Methylpentane	1,500	<i>m</i> -Xylene	1,000
MtBE	1,500	<i>p</i> -Xylene	1,000
Naphthalene	1,000	<i>n</i> -Butylcyclohexane	1,000
<i>n</i> -Nonane	1,000	<i>n</i> -Decane	1,000

GRH-004S/SS-R2		1 x 1 mL
<i>10.0 mg/mL each in MeOH</i>		

Benzene	<i>n</i> -Pentane
2,5-Dibromotoluene (Surrogate)	Toluene
Ethylbenzene	1,2,4-Trimethylbenzene
Isooctane	<i>o</i> -Xylene
2-Methylpentane	<i>m</i> -Xylene
MtBE	<i>p</i> -Xylene
Naphthalene	<i>n</i> -Butylcyclohexane
<i>n</i> -Nonane	<i>n</i> -Decane

MA LUFT/LUST



LUFT/LUST Standards

Texas Methods - PST Standards

Texas Method 1005 & 1006 Petroleum Storage Tanks (PST)

Stock Hydrocarbon Calibration Standard

DRH-TX-001-10X 1 x 1 mL
 DRH-TX-001-10X-PAK 5 x 1 mL
 2000 µg/mL each in *n*-Pentane 12 comps.

SAVE

<i>n</i> -Hexane	<i>n</i> -Tetradecane	<i>n</i> -Docosane
<i>n</i> -Octane	<i>n</i> -Hexadecane	<i>n</i> -Tetracosane
<i>n</i> -Decane	<i>n</i> -Octadecane	<i>n</i> -Hexacosane
<i>n</i> -Dodecane	<i>n</i> -Eicosane	<i>n</i> -Octacosane

Gasoline & Diesel Calibration Curve Set

DRH-TX-002-D-SET 8 x 1 mL
 Each at stated conc. in CH₂Cl₂ 2 comps.

Gasoline-Regular, unleaded #2 Diesel Fuel

Each set contains 8 concentrations:

5 µg/mL	50 µg/mL	200 µg/mL	1000 µg/mL
20 µg/mL	100 µg/mL	500 µg/mL	5000 µg/mL

Gasoline/Diesel Continuing Calibration Standard

DRH-TX-002-D-0.4X-10ML 1 x 10 mL
 200 µg/mL each in CH₂Cl₂ 2 comps.

Gasoline-Regular, unleaded #2 Diesel Fuel

Gasoline/Diesel Calibration/Matrix Spike Standard

DRH-TX-002-10X 1 x 1 mL
 DRH-TX-002-10X-PAK 5 x 1 mL
 5000 µg/mL each in MeOH 2 comps.

SAVE

Gasoline-Regular, unleaded #2 Diesel Fuel

Stock Gasoline/Diesel Calibration Standard

DRH-TX-002-D-40X 1 x 1 mL
 DRH-TX-002-D-40X-PAK 5 x 1 mL
 20,000 µg/mL each in CH₂Cl₂ 2 comps.

SAVE

Gasoline-Regular, unleaded #2 Diesel Fuel

Technical Note

TCEQ Methods 1005 and 1006

Texas Commission on Environmental Quality (TCEQ) has developed these methods in response to notifications of leaking petroleum storage tanks that have contaminated ground water. These methods govern the testing of Total Petroleum Hydrocarbon (TPH) concentrations.

Gasoline & Diesel Calibration Curve Set

DRH-TX-003-SET 8 x 1 mL
 Each at stated conc. in Pentane 2 comps.

Gasoline-Regular, unleaded #2 Diesel Fuel

Each set contains 8 concentrations:

20 µg/mL	250 µg/mL	750 µg/mL	5000 µg/mL
100 µg/mL	500 µg/mL	1000 µg/mL	10,000 µg/mL

Gasoline and Diesel Standard

DRH-TX-003-20X 1 x 5 mL
 DRH-TX-003-20X-PAK 5 x 5 mL
 10,000 µg/mL each in Pentane 2 comps.

SAVE

Gasoline-Regular, unleaded #2 Diesel Fuel

Surrogate Standard

DRH-TX-003-SS1 1 x 5 mL
 DRH-TX-003-SS1-PAK 5 x 5 mL
 10 mg/mL each in Pentane 2 comps.

SAVE

1-Chlorooctadecane 1-Chlorooctane

Carbon Number Distribution Maker

DRH-TX-003-CNM 1 x 1 mL
 DRH-TX-003-CNM-PAK 5 x 1 mL
 2000 µg/mL each in Pentane 9 comps.

SAVE

<i>n</i> -Decane	<i>n</i> -Heptane	<i>n</i> -Octacosane
<i>n</i> -Dodecane	<i>n</i> -Hexadecane	<i>n</i> -Octane
<i>n</i> -Heneicosane	<i>n</i> -Hexane	<i>n</i> -Pentatriacontane

Aromatic Fractionation Check Standard

DRH-TX-003-FCS 1 x 10 mL
 DRH-TX-003-FCS-PAK 5 x 10 mL
 20 µg/mL each in Pentane 24 comps.

SAVE

Acenaphthene	Benz[e]pyrene	Naphthalene
Acenaphthylene	Benzo[g,h,i]perylene	Phenanthrene
Anthracene	Chrysene	Pyrene
Benzene	Dibenz[a,h]anthracene	Toluene
Benz[a]anthracene	Ethylbenzene	1,2,3-Trimethylbenzene
Benzo[b]fluoranthene	Fluoranthene	<i>m</i> -Xylene
Benzo[k]fluoranthene	Fluorene	<i>p</i> -Xylene
Benz[a]pyrene	Indeno[1,2,3-cd]pyrene	<i>o</i> -Xylene

Buy AccuPAKs
Save 20-40% 5 x 1 mL



LUFT/LUST Standards

Washington Method



Washington Method Determination of Volatile Petroleum Hydrocarbons (VPH)

VPH Standard

VPH-WA			1 x 1 mL
VPH-WA-PAK			5 x 1 mL
200 µg/mL each in MeOH			15 comps.
Benzene	<i>p</i> -Xylene	<i>n</i> -Decane	
Ethylbenzene	MtBE	<i>n</i> -Dodecane	
Toluene	<i>n</i> -Pentane	1-Methylnaphthalene	
<i>o</i> -Xylene	<i>n</i> -Hexane	Naphthalene	
<i>m</i> -Xylene	<i>n</i> -Octane	1,2,3-Trimethylbenzene	

VPH Matrix Spike

VPH-WA-MS			1 x 1 mL
VPH-WA-MS-PAK			5 x 1 mL
At stated conc. (µg/mL) in MeOH			11 comps.
Benzene	60	Toluene	60
Ethylbenzene	60	1,2,3-Trimethylbenzene	60
MtBE	180	<i>m</i> -Xylene	60
Naphthalene	360	<i>p</i> -Xylene	60
<i>n</i> -Nonane	200	<i>o</i> -Xylene	60
<i>n</i> -Pentane	600		

VPH Primary Dilution Standard with Surrogate

VPH-WA-SS-10X			1 x 1 mL
VPH-WA-SS-10X-PAK			5 x 1 mL
2,000 µg/mL each in MeOH			16 comps.
Benzene	MtBE	<i>n</i> -Dodecane	
Ethylbenzene	<i>n</i> -Pentane	1-Methylnaphthalene	
Toluene	<i>n</i> -Hexane	Naphthalene	
<i>o</i> -Xylene	<i>n</i> -Octane	1,2,3-Trimethylbenzene	
<i>m</i> -Xylene	<i>n</i> -Decane	2,5-Dibromotoluene (surrogate)	
<i>p</i> -Xylene			

VPH Surrogate Standard

GRH-004-SS			1 x 1 mL
GRH-004-SS-PAK			5 x 1 mL
50 µg/mL in MeOH			
GRH-004-SS-10X			1 x 1 mL
GRH-004-SS-10X-PAK			5 x 1 mL
500 µg/mL in MeOH			
GRH-004-SS-100X			1 x 1 mL
GRH-004-SS-100X-PAK			5 x 1 mL
5,000 µg/mL in MeOH			
2,5-Dibromotoluene			

Stock Concentrate VPH Standards

VPH-WA-10X			1 x 1 mL
VPH-WA-10X-PAK			5 x 1 mL
2,000 µg/mL each in MeOH			15 comps.
VPH-WA-100X			1 x 1 mL
VPH-WA-100X-PAK			5 x 1 mL
20.0 mg/mL each in MeOH			15 comps.
Benzene	<i>p</i> -Xylene	<i>n</i> -Decane	
Ethylbenzene	MtBE	<i>n</i> -Dodecane	
Toluene	<i>n</i> -Pentane	1-Methylnaphthalene	
<i>o</i> -Xylene	<i>n</i> -Hexane	Naphthalene	
<i>m</i> -Xylene	<i>n</i> -Octane	1,2,3-Trimethylbenzene	

VPH Retention Time Marker

VPH-WA-RT			1 x 1 mL
VPH-WA-RT-PAK			5 x 1 mL
2,000 µg/mL each in MeOH			6 comps.
<i>n</i> -Pentane	<i>n</i> -Octane	<i>n</i> -Dodecane	
<i>n</i> -Hexane	<i>n</i> -Decane	<i>n</i> -Tridecane	

Certified BTEX in Unleaded Gasoline

GA-001-20X-BTEX			1 x 1 mL
10.0 mg/mL each in MeOH			6 comps.
Benzene	<i>m,p</i> -Xylene		
Ethylbenzene	<i>o</i> -Xylene		
Toluene	Gasoline-Regular, unleaded		

Certified BTEX in Gasoline Composite (Multi Source)

GRO-AK-101-GCS-BTEX			1 x 1 mL
At stated conc. (mg/mL) in MeOH			3 comps.
Gasoline-Premium, unleaded	1.66		
Gasoline-Regular, leaded	1.67		
Gasoline-Regular, unleaded	1.67		

1,2,3-Trimethylbenzene Standard

V-028S-D-10X			1 x 1 mL
V-028S-D-10X-PAK			5 x 1 mL
1000 µg/mL each in CH ₂ Cl ₂			
1,2,3-Trimethylbenzene			

Technical Note

Simultaneous BTEX / Gasoline QA/QC

We have certified the benzene, toluene, ethyl benzene and xylene concentrations in the unleaded gasoline standard GA-001-20X-BTEX and GRO-AK-101-GCS-BTEX. This allows the use of a single injection to verify that the QA/QC requirements are being met for the BTEX analytes as well as for the gasoline.

We have added a multi source certified BTEX in gasoline composite mix GRO-AK-101-GCS-BTEX. The BTEX values for this multi-source calibration standard have been determined through in-house analysis against a BTEX multi-level calibration curve listed on the certificate.



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WA LUFT/LUST



LUFT/LUST Standards

Washington Method

Washington Method Determination of Extractable Petroleum Hydrocarbons (EPH)

EPH Aromatic/PAH Standard

EPH-WA-10X			1 x 1 mL
EPH-WA-10X-PAK			5 x 1 mL
1.0 mg/mL each in CH ₂ Cl ₂			18 comps.
Acenaphthene	Benzo[g,h,i]perylene	Indeno[1,2,3-cd]pyrene	
Acenaphthylene	Benzo[k]fluoranthene	2-Methylnaphthalene	
Anthracene	Chrysene	Naphthalene	
Benz[a]anthracene	Dibenz[a,h]anthracene	Phenanthrene	
Benz[a]pyrene	Fluoranthene	Pyrene	
Benzo[b]fluoranthene	Fluorene	1,2,3-Trimethylbenzene	

Internal Standard

GRH-IS			1 x 1 mL
GRH-IS-PAK			5 x 1 mL
1000 µg/mL in CH ₂ Cl ₂			
GRH-IS-10X			1 x 1 mL
10.0 mg/mL in CH ₂ Cl ₂			
5-alpha Androstane			

EPH Surrogate Spike

DRH-MA-SS			1 x 1 mL
20 µg/mL each in Acetone			2 comps.
DRH-MA-SS-10X			1 x 1 mL
200 µg/mL each in Acetone			2 comps.
DRH-MA-SS-100X			1 x 1 mL
DRH-MA-SS-100X-PAK			5 x 1 mL
2,000 µg/mL each in Acetone			2 comps.
1-Chlorooctadecane		o-Terphenyl	

EPH Matrix Spike

EPH-WA-MS2-20ML			1 x 20 mL
EPH-WA-MS2-20ML-PAK			5 x 20 mL
25 µg/mL each in Acetone			10 comps.
Acenaphthene	n-Decane	n-Heneicosane	
Anthracene	n-Dodecane	Naphthalene	
Benzo[g,h,i]perylene	n-Hexadecane	Pyrene	
Benz[a]pyrene			

EPH Aliphatic Check Mix

EPH-WA-ALI			1 x 1 mL
EPH-WA-ALI-PAK			5 x 1 mL
1.0 mg/mL each in CH ₂ Cl ₂			5 comps.
n-Octane	n-Dodecane	n-Heneicosane	
n-Decane	n-Hexadecane		

EPH Aromatic Check Mix

EPH-WA-ARO			1 x 1 mL
EPH-WA-ARO-PAK			5 x 1 mL
1.0 mg/mL each in CH ₂ Cl ₂			5 comps.
Acenaphthene	Naphthalene	1,2,3-Trimethylbenzene	
Benzo[g,h,i]perylene	Pyrene		

Revised EPH Aliphatic Check Mix

EPH-WA-ALI-R1			1 x 1 mL
EPH-WA-ALI-R1-PAK			5 x 1 mL
1.0 mg/mL each in CH ₂ Cl ₂			6 comps.
n-Octane	n-Dodecane	n-Heneicosane	
n-Decane	n-Hexadecane	n-Tetracontane	

EPH Fractionation Check Standard

EPH-WA-FCS			1 x 1 mL
EPH-WA-FCS-PAK			5 x 1 mL
25 µg/mL each in Hexane			24 comps.
Acenaphthene	Chrysene	Pyrene	
Acenaphthylene	Dibenz[a,h]anthracene	n-Decane	
Anthracene	Fluoranthene	n-Dodecane	
Benz[a]anthracene	Fluorene	n-Tetradecane	
Benz[a]pyrene	Indeno[1,2,3-cd]pyrene	n-Hexadecane	
Benzo[b]fluoranthene	2-Methylnaphthalene	n-Octadecane	
Benzo[g,h,i]perylene	Naphthalene	n-Eicosane	
Benzo[k]fluoranthene	Phenanthrene	n-Heneicosane	

Revised EPH Fractionation Check Standard

EPH-WA-FCS-R1			1 x 1 mL
EPH-WA-FCS-R1-PAK			5 x 1 mL
25 µg/mL each in Hexane			23 comps.
Acenaphthene	Chrysene	Pyrene	
Acenaphthylene	Dibenz[a,h]anthracene	n-Octane	
Anthracene	Fluoranthene	n-Decane	
Benz[a]anthracene	Fluorene	n-Dodecane	
Benz[a]pyrene	Indeno[1,2,3-cd]pyrene	n-Hexadecane	
Benzo[b]fluoranthene	2-Methylnaphthalene	n-Heneicosane	
Benzo[g,h,i]perylene	Naphthalene	n-Tetracontane	
Benzo[k]fluoranthene	Phenanthrene		

1,2,3-Trimethylbenzene Standard

V-028S-D-10X			1 x 1 mL
V-028S-D-10X-PAK			5 x 1 mL
1000 µg/mL each in CH ₂ Cl ₂			
1,2,3-Trimethylbenzene			

Revised EPH Aromatic Check Mix

EPH-WA-ARO-R1			1 x 1 mL
EPH-WA-ARO-R1-PAK			5 x 1 mL
1.0 mg/mL each in CH ₂ Cl ₂			6 comps.
Acenaphthene	Naphthalene	1,2,3-Trimethylbenzene	
Benzo[g,h,i]perylene	Pyrene	Toluene	

Aliphatic Surrogate

DRH-007-SS			1 x 1 mL
DRH-007-SS-PAK			5 x 1 mL
1.0 mg/mL in Hexane			
1-Chlorooctadecane			

Aromatic Surrogate

DRH-006-SS			1 x 1 mL
DRH-006-SS-PAK			5 x 1 mL
1.0 mg/mL in CH ₂ Cl ₂			
o-Terphenyl			

LUFT/LUST Standards

Gasoline Range Hydrocarbon (GRH)



Gasoline Range Hydrocarbon Analysis

EPA Method - Gasoline Range Hydrocarbons

Gasoline Standard

GRH-002S 1 x 1 mL
 GRH-002S-10X 1 x 1 mL
 At stated conc. (mg/mL) in MeOH 10 comps.

	GRH-002S	GRH-002-10X
2-Methylpentane	1.5	15
2,2,4-Trimethylpentane	1.5	15
n-Heptane	0.5	5
Benzene	0.5	5
Toluene	1.5	15
Ethylbenzene	0.5	5
m-Xylene	1.0	10
p-Xylene	1.0	10
o-Xylene	1.0	10
1,2,4-Trimethylbenzene	1.0	10

Internal Standard

GARH-IS 1 x 1 mL

1.0 mg/mL in CH₂Cl₂
 Chloro-4-fluorobenzene

Surrogate Standard

GARH-SS 1 x 1 mL

2.5 mg/mL in Acetone
 4-Bromofluorobenzene

Gasoline Additives

GAD-001 1 x 1 mL

GAD-001-PAK SAVE 5 x 1 mL
 0.2 mg/mL each in MeOH 4 comps.

Dibromomethane	1,2-Dichloroethane
1,2-Dibromoethane	MtBE

Technical Note

Simultaneous BTEX / Gasoline QA/QC

We have certified the benzene, toluene, ethyl benzene and xylene concentrations in the unleaded gasoline standard (GA-001-20X-BTEX). This allows the use of a single injection to verify that the QA/QC requirements are being met for the BTEX analytes as well as for the gasoline.

Certified BTEX in Unleaded Gasoline

GA-001-20X-BTEX 1 x 1 mL

10.0 mg/mL each in MeOH 6 comps.

Benzene	m,p-Xylene
Ethylbenzene	o-Xylene
Toluene	Gasoline-Regular, unleaded

Hexadecane Extraction Volatiles

CLP-BTEX 1 x 1 mL

CLP-BTEX-PAK SAVE 5 x 1 mL

0.2 mg/mL each in MeOH 6 comps.

CLP-BTEX-10X 1 x 1 mL

CLP-BTEX-10X-PAK SAVE 5 x 1 mL

2.0 mg/mL each in MeOH 6 comps.

Benzene	o-Xylene
Ethyl benzene	m-Xylene
Toluene	p-Xylene

California - Gasoline Range Hydrocarbons

S-603A-10X 1 x 1 mL

S-603A-10X-PAK SAVE 5 x 1 mL

2.0 mg/mL each in MeOH 7 comps.

Benzene	Toluene	m-Xylene
Ethylbenzene	o-Xylene	p-Xylene
MtBE		

LA County Well Investigation & Monitoring Program

Purgeable Aromatics - Gasoline ID

M-602-GAS-10X 1 x 1 mL

2.0 mg/mL each in MeOH 11 comps.

Benzene	Toluene
Chlorobenzene	o-Xylene
1,2-Dichlorobenzene	p-Xylene
1,3-Dichlorobenzene	m-Xylene
1,4-Dichlorobenzene	MtBE
Ethylbenzene	

Oxygenate Gasoline Additive Standard

OGAD-001 1 x 1 mL

OGAD-001-PAK SAVE 5 x 1 mL

At stated conc. (µg/mL) in MeOH 5 comps.

MtBE	2000	TAME	2000
EtBE	2000	t-Butanol	10000
Isopropyl ether	2000		

Ethanol

M-8015B/5031-11 1 x 1 mL

10 mg/mL in Water

Methanol

M-8015B/5031-17 1 x 1 mL

10 mg/mL in Water

Pennsylvania DER - Gasoline Range Hydrocarbons

GRH-001S 1 x 1 mL

GRH-001S-PAK SAVE 5 x 1 mL

1.0 mg/mL each in MeOH 10 comps.

Benzene	1,2,4-Trimethylbenzene
Ethylbenzene	2,2,4-Trimethylpentane
n-Heptane	o-Xylene
2-Methyl pentane	m-Xylene
Toluene	p-Xylene

Wisconsin DNR - Gasoline Range Hydrocarbons

GRH-003S 1 x 1 mL

GRH-003S-PAK SAVE 5 x 1 mL

2.0 mg/mL each in MeOH 10 comps.

Benzene	1,2,4-Trimethylbenzene
Ethylbenzene	1,3,5-Trimethylbenzene
MtBE	o-Xylene
Naphthalene	m-Xylene
Toluene	p-Xylene

GRH LUFT/LUST



LUFT/LUST Standards

Diesel Range Hydrocarbons (DRH)

Diesel Range Hydrocarbon Analysis

EPA Method - Diesel Range Hydrocarbons

DRH-001S 1 x 1 mL
0.2 mg/mL each in CH₂Cl₂: Hexane (50:50) 10 comps.

DRH-001S-10X 1 x 1 mL
2.0 mg/mL each in CH₂Cl₂: Hexane (50:50) 10 comps.

<i>n</i> -Decane (C ₁₀)	<i>n</i> -Octadecane (C ₁₈)	<i>n</i> -Tetracosane (C ₂₄)
<i>n</i> -Dodecane (C ₁₂)	<i>n</i> -Eicosane (C ₂₀)	<i>n</i> -Hexacosane (C ₂₆)
<i>n</i> -Tetradecane (C ₁₄)	<i>n</i> -Docosane (C ₂₂)	<i>n</i> -Octacosane (C ₂₈)
<i>n</i> -Hexadecane (C ₁₆)		

Surrogate Standard

GRH-SS 1 x 1 mL
GRH-SS-PAK SAVE 5 x 1 mL
2.0 mg/mL in Acetone

o-Terphenyl (OTP)

Internal Standard

GRH-IS 1 x 1 mL
GRH-IS-PAK SAVE 5 x 1 mL
1.0 mg/mL in CH₂Cl₂

5-alpha Androstane

Calibration/Window Defining Hydrocarbon Standard

DRH-004S-R1-5X 1 x 1 mL
DRH-004S-R1-5X-PAK SAVE 5 x 1 mL
1.0 mg/mL each in Chloroform 17 comps.

<i>n</i> -Octane (C ₈)	<i>n</i> -Eicosane (C ₂₀)	<i>n</i> -Dotriacontane (C ₃₂)
<i>n</i> -Decane (C ₁₀)	<i>n</i> -Docosane (C ₂₂)	<i>n</i> -Tetraatriacontane (C ₃₄)
<i>n</i> -Dodecane (C ₁₂)	<i>n</i> -Tetracosane (C ₂₄)	<i>n</i> -Hexatriacontane (C ₃₆)
<i>n</i> -Tetradecane (C ₁₄)	<i>n</i> -Hexacosane (C ₂₆)	<i>n</i> -Octatriacontane (C ₃₈)
<i>n</i> -Hexadecane (C ₁₆)	<i>n</i> -Octacosane (C ₂₈)	<i>n</i> -Tetracontane (C ₄₀)
<i>n</i> -Octadecane (C ₁₈)	<i>n</i> -Triacontane (C ₃₀)	

Surrogate Standard

DRH-SS 1 x 1 mL
DRH-SS-PAK SAVE 5 x 1 mL
5.0 mg/mL in THF

n-Triacontane-d₆₂

D2887 Calibration Solution

Calibration Solution

DRH-002S 1 x 1 mL
At stated conc. (µg/mL) in Carbon disulfide 17 comps.

<i>n</i> -Hexane 600	<i>n</i> -Dodecane 1,200	<i>n</i> -Octacosane 100
<i>n</i> -Heptane 600	<i>n</i> -Tetradecane 1,200	<i>n</i> -Dotriacontane 100
<i>n</i> -Octane 800	<i>n</i> -Hexadecane 1,000	<i>n</i> -Hexatriacontane 100
<i>n</i> -Nonane 800	<i>n</i> -Octadecane 500	<i>n</i> -Tetracontane 100
<i>n</i> -Decane 1,200	<i>n</i> -Eicosane 200	<i>n</i> -Tetraatriacontane 100
<i>n</i> -Undecane 1,200	<i>n</i> -Tetracosane 200	

Column Test Mixture

D-2887 1 x 1 mL
10 mg/mL each in *n*-Octane 2 comps.

n-Hexadecane *n*-Octadecane

Wisconsin Diesel Range Hydrocarbons

DRH-003S 1 x 1 mL
0.2 mg/mL each in Hexane 11 comps.

<i>n</i> -Decane (C ₁₀)	<i>n</i> -Tetradecane (C ₁₄)	<i>n</i> -Octadecane (C ₁₈)
<i>n</i> -Undecane (C ₁₁)	<i>n</i> -Pentadecane (C ₁₅)	<i>n</i> -Nonadecane (C ₁₉)
<i>n</i> -Dodecane (C ₁₂)	<i>n</i> -Hexadecane (C ₁₆)	<i>n</i> -Eicosane (C ₂₀)
<i>n</i> -Tridecane (C ₁₃)	<i>n</i> -Heptadecane (C ₁₇)	

Complete Hydrocarbon Analysis

Multi-State Hydrocarbon Window Defining Standard

DRH-008S-R2 1 x 1 mL
DRH-008S-R2-PAK SAVE 5 x 1 mL
500 µg/mL each in Chloroform 35 comps.

<i>n</i> -Octane	Phytane	<i>n</i> -Triacontane
<i>n</i> -Nonane	<i>n</i> -Nonadecane	<i>n</i> -Hentriacontane
<i>n</i> -Decane	<i>n</i> -Eicosane	<i>n</i> -Dotriacontane
<i>n</i> -Undecane	<i>n</i> -Heneicosane	<i>n</i> -Triacontane
<i>n</i> -Dodecane	<i>n</i> -Docosane	<i>n</i> -Tetraatriacontane
<i>n</i> -Tridecane	<i>n</i> -Tricosane	<i>n</i> -Pentatriacontane
<i>n</i> -Tetradecane	<i>n</i> -Tetracosane	<i>n</i> -Hexatriacontane
<i>n</i> -Pentadecane	<i>n</i> -Pentacosane	<i>n</i> -Heptatriacontane
<i>n</i> -Hexadecane	<i>n</i> -Hexacosane	<i>n</i> -Octatriacontane
<i>n</i> -Heptadecane	<i>n</i> -Heptacosane	<i>n</i> -Nonatriacontane
Pristane	<i>n</i> -Octacosane	<i>n</i> -Tetracontane
<i>n</i> -Octadecane	<i>n</i> -Nonacosane	

Technical Note

We offer a hydrocarbon window defining standard with the C₈ - C₄₀ odd and even Alkanes. Use of this one standard should meet the numerous state to state variations for hydrocarbon validation and reporting. As an added benefit pristane and phytane are included in the formulation. This one standard can meet numerous LUFT/LUST programs requiring that the C₁₇ / Pristane and C₁₈ / Phytane ratio be used to estimate subsurface degradation of fuel oil spills.

Also available, a fuel oil degradation mix containing just 4 required analytes to determine the C₁₇ / Pristane and C₁₈ / Phytane ratio (DRH-005S-10X)

Fuel Oil Degradation/Retention Time Mixture for Quantification of C₁₇/Pristane & C₁₈/Phytane Ratios

DRH-005S-10X 1 x 1 mL
2.0 mg/mL each in CH₂Cl₂: CS₂ (50:50) 4 comps.

<i>n</i> -Heptadecane	Phytane	Pristane
<i>n</i> -Octadecane		

Hydrocarbon Window Defining Standard Sets

DRH-FTRPH-SET 2 x 1 mL
500 µg/mL each in Hexane
DRH-FTRPH-SET-PAK SAVE \$ 5 x (2 x 1 mL)
DRH-FTRPH, DRH-FTRPH2

FTRPH Calibration/Window Defining Standard

DRH-FTRPH 1 x 1 mL
DRH-FTRPH-PAK SAVE 5 x 1 mL
500 µg/mL each in Hexane 17 comps.

<i>n</i> -Octane	<i>n</i> -Eicosane	<i>n</i> -Dotriacontane
<i>n</i> -Decane	<i>n</i> -Docosane	<i>n</i> -Tetraatriacontane
<i>n</i> -Dodecane	<i>n</i> -Tetracosane	<i>n</i> -Hexatriacontane
<i>n</i> -Tetradecane	<i>n</i> -Hexacosane	<i>n</i> -Octatriacontane
<i>n</i> -Hexadecane	<i>n</i> -Octacosane	<i>n</i> -Tetracontane
<i>n</i> -Octadecane	<i>n</i> -Triacontane	

Hydrocarbon Window Defining Standard

DRH-FTRPH2 1 x 1 mL
DRH-FTRPH2-PAK SAVE 5 x 1 mL
500 µg/mL each in Hexane 18 comps.

<i>n</i> -Nonane	Phytane	<i>n</i> -Nonacosane
<i>n</i> -Undecane	<i>n</i> -Nonadecane	<i>n</i> -Hentriacontane
<i>n</i> -Tridecane	<i>n</i> -Heneicosane	<i>n</i> -Triacontane
<i>n</i> -Pentadecane	<i>n</i> -Tricosane	<i>n</i> -Pentatriacontane
<i>n</i> -Heptadecane	<i>n</i> -Pentacosane	<i>n</i> -Heptatriacontane
Pristane	<i>n</i> -Heptacosane	<i>n</i> -Nonatriacontane

LUFT/LUST Standards

Oil, Grease & TPH (Method 1664, 413.2/418.1 & 8440) & Biocides in Fracking Fluids



Method 1664 Oil, Grease & TPH Determination

Precision and Recovery (PAR) Spiking Solution

M-1664-5ML 1 x 5 mL
 M-1664-5ML-PAK SAVE 5 x 5 mL
 4.0 mg/mL each in Acetone

M-1664-20ML 1 x 20 mL
 M-1664-20ML-PAK SAVE 5 x 20 mL
 4.0 mg/mL each in Acetone 2 comps.

n-Hexadecane Stearic acid

Silica Gel Hexane Extraction Material

SGT-HEM 1 x 1 mL
 20 µg/mL each in Acetone 2 comps.

Stearic acid *n*-Hexadecane

Technical Note

Precision and Recovery (PAR) Spiking Solution was developed for Method 1664. This performance based method was developed to replace previous gravimetric procedures which incorporated Freon-113 as the extraction solvent for the determination of Oil and Grease and Total Petroleum Hydrocarbons. Each standard is packaged in a flame sealed ampule conveniently sized for quality control of the analytical batch.

Method 413.2 & 418.1 TPH Analysis by IR

Oil, Grease & Petroleum Hydrocarbon Concentrates Mix

M-418-CON 1 x 1 mL
 At stated Vol.% 3 comps.

Chlorobenzene 25.0 *n*-Hexadecane 37.5
 Isooctane 37.5

Oil, Grease and Petroleum Hydrocarbon Total Recoverable (IR Method)

M-418 1 x 1 mL
 M-418-PAK SAVE 5 x 1 mL
 At stated conc. (mg/mL) in Freon 113 3 comps.

Chlorobenzene 1.05 Isooctane 1.55
n-Hexadecane 1.55

Method 8440 Total Petroleum Hydrocarbon Analysis

Total Recoverable Petroleum Hydrocarbon Mix

M-8440 1 x 1 mL
 M-8440-PAK SAVE 5 x 1 mL
 At stated Wt.% in Tetrachloroethene 3 comps.

Chlorobenzene 0.10 Isooctane 0.15
n-Hexadecane 0.15

Silica Gel Cleanup Calibration Solution

M-8440-SGC 1 x 1 mL
 M-8440-SGC-PAK SAVE 5 x 1 mL
 10.0 mg/mL in Tetrachloroethene

Corn Oil

Total Petroleum Hydrocarbon Concentrate Mix

M-8440-CON 1 x 1 mL
 M-8440-CON-PAK SAVE 5 x 1 mL
 At stated Vol.% 3 comps.

Chlorobenzene 25.0 Isooctane 37.5
n-Hexadecane 37.5

Technical Note

Leaking Underground Storage Tank Retention Time Standard

This product can be used to screen a sample to determine what type of petroleum spill that may have caused the contamination.

Retention Time Standard

DRH-010S 1 x 1 mL
 DRH-010S-PAK SAVE 5 x 1 mL
 25 µg/mL each in CH₂Cl₂ 7 comps.

n-Hexane *n*-Tetracosane *n*-Triacontane
n-Decane *n*-Octacosane *n*-Tetracontane
n-Dodecane

Technical Note

A sample showing peaks in the C₆-C₁₀ range generally indicates a gasoline spill. Samples with the peaks in the C₁₂-C₂₄ range are indicative of a diesel spill while samples with the higher carbon numbers above C₂₄ are typically oils or lubricants. Once the initial screen is complete, more detailed work can be done to further identify the contaminant.

Oil, Grease TPH LUFT/LUST



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 using our website AccuStandard.com.

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Need it in a hurry? Just ask. Typical turn around time is approximately one week; however, we can often meet a shorter deadline when required, for no extra fee.

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- Order exactly what you need
- Fast turnaround time
- 18 month shelf life on most products
- Traceable to NIST SRMs wherever possible
- Produced under our ISO certified quality system
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Quality

Quality is defined as a measure of excellence or a state of being free from defects or deficiencies. At AccuStandard, we take that definition a step further and believe that quality results from the combination of perception and expectation. The feeling of high quality occurs when perception exceeds expectation. We strive to meet or exceed our customer's expectations from the initial contact with our Customer Service Department to the end use of our products.

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■ ICP-MS ■ ICP ■ Ion Chromatography

Inorganic Standards



- ✓ Traceability to NIST SRM by Wet Chemical / Gravimetric Assay
- ✓ Traceability to NIST SRM by Instrumental Analysis
- ✓ Reference to NIST Traceability during product preparation



Table of Contents

Single Element	331-337
ICP	331-334
ICP/MS	335-336
AA	337
Single and Multi-Element	338-344
Matrix Modifiers / GFAA Multi's	337
Ion Chromatography (include Multi's)	338-341
Wet Chemicals	342-343
TPH, Oil and Grease (EPA Methods)	344
ICP Multi-Element	345-362
Quality Control and Second Source QC	345
Instrument Check and Screening	346
SDWA Drinking Water	347
Groundwater & Wastewater	346
MISA Test Group 29 Analysis	348
Contract Laboratory Program (CLP)	349-350
Calibration Check Standards	349
Verification and Spiking	349
Interference Check	350
Detection Limit	350
SW-846, EPA Method 200.7	351-352
Calibration Standards	351
Instrument Performance Check Standards	351
LPCS and LFSS	351
Instrument Fortifying Standards	352
Spiking Standards	352
Interference Check Standards	352
EPA Method 6010	353-354
Alternate Source: Agilent/Varian, PE, Horiba/Jobin Yvon, Teledyne, Merck	356-362
ICP/MS Multi-Element	363-367
ASTM Methods	363
Calibration Standards and Blanks	364
Tuning Solutions	365
Interference Check	365
Memory Check	365
Spiking Standards for Water & Soil	366
Quality Control	366
Internal Standards	366
EPA Method 200.8	367
EPA Method 6020	367
Organometallic	368-374
Single Element Wear Metals	368
Metals Additives	368
Multi-Element Wear Metals	369
Sulfur-Free Single Element	370
Sulfur-Free Multi-Element	370
Sulfur and Metals in Oil	371
Vanadium and Nickel	371
Lube Oil Standards	372-374

3 Year Minimum Shelf Life on Single Element ICP, ICP/MS and AA Standards

Certificate of Analysis

Sample: Single Element ICP

125 Market Street
New Haven, CT 06513
USA



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CERTIFICATE OF ANALYSIS

AccuTrace™ Reference Standard

Directly traceable to NIST SRM's - where available

Most Single element standards have a minimum 3 Year expiration period.

GHS safety information

Catalog No: ICP-14N-1
Description: Cobalt ICP Standard
Element: Cobalt (Co)
SRM: 3113
Lot: 217015124
Matrix: 2-5% Nitric acid
Hazards: Refer to SDS for complete safety information

Date Certified: Feb 8, 2017
Expiration: Feb 8, 2022
Density: 1.015 g/mL
Sample Size: 100 mL
Components: 1
Storage Condition: Ambient (>5 °C)

Density included for easy conversion to weight/weight applications



Signal Word: Danger

Impurity Scan for 68 elements in final solution.

Certified Concentration: 1000 µg/mL

Trace Elements in µg/mL

Ag nd<0.02	Ce nd<0.2	Gd nd<0.02	Lu nd<0.02	Pb N/A	Sc nd<0.02	Ti nd<0.02
Al nd<0.02	Co *	Ge nd<0.2	Mg nd<0.02	Pd N/A	Se N/A	Tl N/A
As N/A	Cr N/A	Hf nd<0.02	Mn nd<0.02	Pr nd<0.2	Si nd<0.2	Tm N/A
Au N/A	Cs N/A	Hg N/A	Mo nd<0.02	Pt nd<0.2	Sm nd<0.2	U N/A
B nd<0.2	Cu nd<0.02	Ho nd<0.02	Na nd<0.02	Rb N/A	Sr N/A	V N/A
Ba nd<0.02	Dy nd<0.02	In nd<0.2	Nb nd<0.2	Re nd<0.2	Sr N/A	W nd<0.2
Be nd<0.02	Er nd<0.02	Ir nd<0.2	Nd nd<0.02	Rh nd<0.2	Ta N/A	Y N/A
Bi N/A	Eu nd<0.02	K nd<0.2	Ni N/A	Ru nd<0.02	Tb nd<0.02	Yb nd<0.02
Ca nd<0.02	Fe N/A	La nd<0.02	Os N/A	S N/A	Te N/A	Zn N/A
Cd nd<0.02	Ga nd<0.02	Li nd<0.02	P N/A	Sb N/A	Th nd<0.02	Zr nd<0.02

Concentration verified by two independent methods for added assurance.

Uncertainty reported for statistical confidence.

This solution was assayed titrimetrically, using EDTA which was standardized against NIST SRM #928 (lead nitrate).
The gravimetric uncertainty for this product is ±0.2%. See reverse side for details.
In order to verify the concentration(s), the final solution was checked by plasma emission spectroscopy (ICP) against material traceable to the above listed NIST SRM(s).
We use the highest purity raw materials available to minimize impurity levels in the final solution. Typically 99.999%+ pure starting materials are used as well as high purity acids and ASTM Type 1 18 megohm deionized water.
All trace level elemental impurities were determined via plasma emission spectroscopy on the concentrate.
All glassware used in preparation is Class A and calibrated regularly.
All weights are traceable through NIST, Test No. 822-275872-11
All bottles are acid leached and triple rinsed with deionized water prior to use.
Shake bottle prior to use and do not pipette directly out of the bottle. Use only cleaned Class A volumetric glassware.
We certify the accuracy of this standard to be ±0.5% of the stated value until its expiration date provided it is kept tightly capped and stored under the conditions stated above.

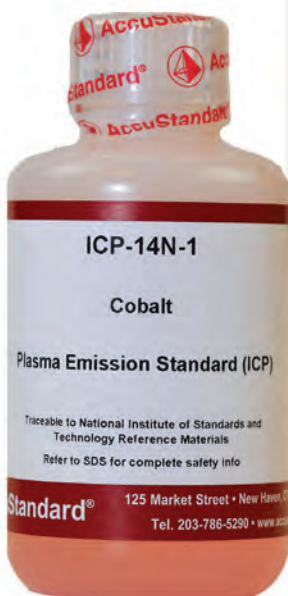
QC management approval

Certified By: *Meigan O'Leary*
Meigan O'Leary, Inorganic QC Manager

For use in routine laboratory analysis.

Page 1 of 1

QR-ORG/IND-001
Rev. 7/11



Highest purity starting materials & matrices used.

Inorganic products containing acid generally require a hazardous fee for air shipments.
Inorganic products in water generally do not.

ICP

Single Element



- Traceable to NIST Reference Materials
- Formulated from Ultra High Purity Starting Materials and Acids
- 18 Megohm de-ionized Water
- Concentration verified by Wet Chemical and Instrumental Analysis
- Packaged in specially prepared Acid leached bottles

3 Year Minimum Shelf Life on
Single Element ICP Standards

Single Element ICP						
Element	Starting Material	Matrix	Unit	Concentration		
				1000 µg/mL	10,000 µg/mL	
			Cat. No.	Cat. No.		
Aluminum (Al)	Al(NO ₃) ₃ • 9H ₂ O	2-5% Nitric acid	50 mL	-----	--	ICP-01N-10X-0.5
			100 mL	ICP-01N-1		ICP-01N-10X-1
			500 mL	ICP-01N-5		ICP-01N-10X-5
Antimony (Sb)	Sb	2-5% Nitric acid tr. Tartaric acid	50 mL	-----	--	ICP-02N-10X-0.5
			100 mL	ICP-02N-1		ICP-02N-10X-1
			500 mL	ICP-02N-5		ICP-02N-10X-5
Arsenic (As)	As	2-5% Nitric acid	50 mL	-----	--	ICP-03N-10X-0.5
			100 mL	ICP-03N-1		ICP-03N-10X-1
			500 mL	ICP-03N-5		ICP-03N-10X-5
Barium (Ba)	Ba(NO ₃) ₂	2-5% Nitric acid	50 mL	-----	--	ICP-04N-10X-0.5
			100 mL	ICP-04N-1		ICP-04N-10X-1
			500 mL	ICP-04N-5		ICP-04N-10X-5
Beryllium (Be)	BeO(C ₂ H ₃ O ₂) ₆	2-5% Nitric acid	50 mL	-----	--	ICP-05N-10X-0.5
			100 mL	ICP-05N-1		ICP-05N-10X-1
			500 mL	ICP-05N-5		ICP-05N-10X-5
Bismuth (Bi)	Bi	2-10% Nitric acid	50 mL	-----	--	ICP-06N-10X-0.5
			100 mL	ICP-06N-1		ICP-06N-10X-1
			500 mL	ICP-06N-5		ICP-06N-10X-5
Boron (B)	H ₃ BO ₃	Water tr. NH ₄ OH	50 mL	-----	--	ICP-07W-10X-0.5
			100 mL	ICP-07W-1		ICP-07W-10X-1
			500 mL	ICP-07W-5		ICP-07W-10X-5
Cadmium (Cd)	Cd	2-5% Nitric acid	50 mL	-----	--	ICP-08N-10X-0.5
			100 mL	ICP-08N-1		ICP-08N-10X-1
			500 mL	ICP-08N-5		ICP-08N-10X-5
Calcium (Ca)	CaCO ₃	2-5% Nitric acid	50 mL	-----	--	ICP-09N-10X-0.5
			100 mL	ICP-09N-1		ICP-09N-10X-1
			500 mL	ICP-09N-5		ICP-09N-10X-5
Cerium (Ce)	Ce(NO ₃) ₃	2-5% Nitric acid	50 mL	-----	--	ICP-11N-10X-0.5
			100 mL	ICP-11N-1		ICP-11N-10X-1
			500 mL	ICP-11N-5		ICP-11N-10X-5
Cesium (Cs)	CsNO ₃	2-5% Nitric acid	50 mL	-----	--	ICP-12N-10X-0.5
			100 mL	ICP-12N-1		ICP-12N-10X-1
			500 mL	ICP-12N-5		ICP-12N-10X-5
Chromium reduced to (+3) state	(NH ₄) ₂ Cr ₂ O ₇	2-5% Nitric acid	50 mL	-----	--	ICP-13N-10X-0.5
			100 mL	ICP-13N-1		ICP-13N-10X-1
			500 mL	ICP-13N-5		ICP-13N-10X-5
Cobalt (Co)	Co	2-5% Nitric acid	50 mL	-----	--	ICP-14N-10X-0.5
			100 mL	ICP-14N-1		ICP-14N-10X-1
			500 mL	ICP-14N-5		ICP-14N-10X-5
Copper (Cu)	Cu	2-5% Nitric acid	50 mL	-----	--	ICP-15N-10X-0.5
			100 mL	ICP-15N-1		ICP-15N-10X-1
			500 mL	ICP-15N-5		ICP-15N-10X-5
Dysprosium (Dy)	Dy ₂ O ₃	2-5% Nitric acid	50 mL	-----	--	ICP-16N-10X-0.5
			100 mL	ICP-16N-1		ICP-16N-10X-1
			500 mL	ICP-16N-5		ICP-16N-10X-5
Erbium (Er)	Er ₂ O ₃	2-5% Nitric acid	50 mL	-----	--	ICP-17N-10X-0.5
			100 mL	ICP-17N-1		ICP-17N-10X-1
			500 mL	ICP-17N-5		ICP-17N-10X-5
Europium (Eu)	Eu ₂ O ₃	2-5% Nitric acid	50 mL	-----	--	ICP-18N-10X-0.5
			100 mL	ICP-18N-1		ICP-18N-10X-1
			500 mL	ICP-18N-5		ICP-18N-10X-5
Gadolinium (Gd)	Gd ₂ O ₃	2-5% Nitric acid	50 mL	-----	--	ICP-19N-10X-0.5
			100 mL	ICP-19N-1		ICP-19N-10X-1
			500 mL	ICP-19N-5		ICP-19N-10X-5
Gallium (Ga)	Ga	2-5% Nitric acid	50 mL	-----	--	ICP-20N-10X-0.5
			100 mL	ICP-20N-1		ICP-20N-10X-1
			500 mL	ICP-20N-5		ICP-20N-10X-5

Single Element ICP continued on next page



ICP

Single Element

Single Element ICP

Element	Matrix	Unit	1000 µg/mL		10,000 µg/mL	
			Cat. No.		Cat. No.	
Germanium (Ge) (NH ₄) ₂ GeF ₆	Water tr. HF	50 mL	-----	--	ICP-21W-10X-0.5	
		100 mL	ICP-21W-1		ICP-21W-10X-1	
		500 mL	ICP-21W-5		ICP-21W-10X-5	
Gold (Au) Au	10% HCl	50 mL	-----	--	ICP-22H-10X-0.5	
		100 mL	ICP-22H-1		ICP-22H-10X-1	
		500 mL	ICP-22H-5		-----	--
Hafnium (Hf) HfO ₂	2-5% Nitric acid tr. HF	50 mL	-----	--	ICP-23N-10X-0.5	
		100 mL	ICP-23N-1		ICP-23N-10X-1	
		500 mL	ICP-23N-5		ICP-23N-10X-5	
Holmium (Ho) Ho ₂ O ₃	2-5% Nitric acid	50 mL	-----	--	ICP-24N-10X-0.5	
		100 mL	ICP-24N-1		ICP-24N-10X-1	
		500 mL	ICP-24N-5		ICP-24N-10X-5	
Indium (In) In	2-5% Nitric acid	50 mL	-----	--	ICP-25N-10X-0.5	
		100 mL	ICP-25N-1		ICP-25N-10X-1	
		500 mL	ICP-25N-5		ICP-25N-10X-5	
Iridium (Ir) IrCl ₃ • 3H ₂ O	10% HCl	50 mL	-----	--	ICP-26H-10X-0.5	
		100 mL	ICP-26H-1		ICP-26H-10X-1	
		500 mL	ICP-26H-5		-----	--
Iron (Fe) Fe	2-5% Nitric acid	50 mL	-----	--	ICP-27N-10X-0.5	
		100 mL	ICP-27N-1		ICP-27N-10X-1	
		500 mL	ICP-27N-5		ICP-27N-10X-5	
Lanthanum (La) La ₂ O ₃	2-5% Nitric acid	50 mL	-----	--	ICP-28N-10X-0.5	
		100 mL	ICP-28N-1		ICP-28N-10X-1	
		500 mL	ICP-28N-5		ICP-28N-10X-5	
Lead (Pb) Pb(NO ₃) ₂	2-5% Nitric acid	50 mL	-----	--	ICP-29N-10X-0.5	
		100 mL	ICP-29N-1		ICP-29N-10X-1	
		500 mL	ICP-29N-5		ICP-29N-10X-5	
Lithium (Li) Li ₂ CO ₃	2-5% Nitric acid	50 mL	-----	--	ICP-30N-10X-0.5	
		100 mL	ICP-30N-1		ICP-30N-10X-1	
		500 mL	ICP-30N-5		ICP-30N-10X-5	
Lutetium (Lu) Lu ₂ O ₃	2-5% Nitric acid	50 mL	-----	--	ICP-31N-10X-0.5	
		100 mL	ICP-31N-1		ICP-31N-10X-1	
		500 mL	ICP-31N-5		-----	--
Magnesium (Mg) Mg(NO ₃) ₂ •6H ₂ O	2-5% Nitric acid	50 mL	-----	--	ICP-32N-10X-0.5	
		100 mL	ICP-32N-1		ICP-32N-10X-1	
		500 mL	ICP-32N-5		ICP-32N-10X-5	
Manganese (Mn) Mn(C ₂ H ₃ O ₂) ₂	2-5% Nitric acid	50 mL	-----	--	ICP-33N-10X-0.5	
		100 mL	ICP-33N-1		ICP-33N-10X-1	
		500 mL	ICP-33N-5		ICP-33N-10X-5	
Mercury (Hg) Hg	10% Nitric acid	50 mL	-----	--	ICP-34N-10X-0.5	
		100 mL	ICP-34N-1		ICP-34N-10X-1	
		500 mL	ICP-34N-5		ICP-34N-10X-5	
Molybdenum (Mo) (NH ₄) ₂ MoO ₄	Water tr. NH ₄ OH	50 mL	-----	--	ICP-35W-10X-0.5	
		100 mL	ICP-35W-1		ICP-35W-10X-1	
		500 mL	ICP-35W-5		ICP-35W-10X-5	
Neodymium (Nd) Nd ₂ O ₃	2-5% Nitric acid	50 mL	-----	--	ICP-36N-10X-0.5	
		100 mL	ICP-36N-1		ICP-36N-10X-1	
		500 mL	ICP-36N-5		ICP-36N-10X-5	
Nickel (Ni) Ni	2-5% Nitric acid	50 mL	-----	--	ICP-37N-10X-0.5	
		100 mL	ICP-37N-1		ICP-37N-10X-1	
		500 mL	ICP-37N-5		ICP-37N-10X-5	
Niobium (Nb) Nb ₂ O ₅	Water tr. HF	50 mL	-----	--	ICP-38W-10X-0.5	
		100 mL	ICP-38W-1		ICP-38W-10X-1	
		500 mL	ICP-38W-5		ICP-38W-10X-5	
Palladium (Pd) Pd	10% HCl	50 mL	-----	--	ICP-40H-10X-0.5	
		100 mL	ICP-40H-1		ICP-40H-10X-1	
		500 mL	ICP-40H-5		-----	--
Phosphorus (P) NH ₄ H ₂ PO ₄	Water	50 mL	-----	--	ICP-41W-10X-0.5	
		100 mL	ICP-41W-1		ICP-41W-10X-1	
		500 mL	ICP-41W-5		ICP-41W-10X-5	
Platinum (Pt) Pt	10% HCl	50 mL	-----	--	ICP-42H-10X-0.5	
		100 mL	ICP-42H-1		ICP-42H-10X-1	
		500 mL	ICP-42H-5		-----	--

ICP

Single Element



- Traceable to NIST Reference Materials
- Formulated from Ultra High Purity Starting Materials and Acids
- 18 Megohm de-ionized Water
- Concentration verified by Wet Chemical and Instrumental Analysis
- Packaged in specially prepared Acid leached bottles

3 Year Minimum Shelf Life on
Single Element ICP Standards

Single Element ICP

Element	Starting Material	Matrix	Unit	1000 µg/mL		10,000 µg/mL	
				Cat. No.		Cat. No.	
Potassium (K) KNO ₃		2-5% Nitric acid	50 mL	-----	--	ICP-43N-10X-0.5	
			100 mL	ICP-43N-1		ICP-43N-10X-1	
			500 mL	ICP-43N-5		ICP-43N-10X-5	
Praseodymium (Pr) Pr ₆ O ₁₁		2-5% Nitric acid	50 mL	-----	--	ICP-44N-10X-0.5	
			100 mL	ICP-44N-1		ICP-44N-10X-1	
			500 mL	ICP-44N-5		ICP-44N-10X-5	
Rhenium (Re) Re		Water tr. Nitric acid	50 mL	-----	--	ICP-45W-10X-0.5	
			100 mL	ICP-45W-1		ICP-45W-10X-1	
			500 mL	ICP-45W-5		ICP-45W-10X-5	
Rhodium (Rh) RhCl ₃ • 3H ₂ O		10% HCl	50 mL	-----	--	ICP-46H-10X-0.5	
			100 mL	ICP-46H-1		ICP-46H-10X-1	
			500 mL	ICP-46H-5		-----	--
Rubidium (Rb) RbNO ₃		2-5% Nitric acid	50 mL	-----	--	ICP-47N-10X-0.5	
			100 mL	ICP-47N-1		ICP-47N-10X-1	
			500 mL	ICP-47N-5		ICP-47N-10X-5	
Ruthenium (Ru) RuCl ₃ • 3H ₂ O		10% HCl	50 mL	-----	--	ICP-48H-10X-0.5	
			100 mL	ICP-48H-1		ICP-48H-10X-1	
			500 mL	ICP-48H-5		-----	--
Samarium (Sm) Sm ₂ O ₃		2-5% Nitric acid	50 mL	-----	--	ICP-49N-10X-0.5	
			100 mL	ICP-49N-1		ICP-49N-10X-1	
			500 mL	ICP-49N-5		ICP-49N-10X-5	
Scandium (Sc) Sc ₂ O ₃		2-5% Nitric acid	50 mL	-----	--	ICP-50N-10X-0.5	
			100 mL	ICP-50N-1		ICP-50N-10X-1	
			500 mL	ICP-50N-5		ICP-50N-10X-5	
Selenium (Se) Se		2-5% Nitric acid	50 mL	-----	--	ICP-51N-10X-0.5	
			100 mL	ICP-51N-1		ICP-51N-10X-1	
			500 mL	ICP-51N-5		ICP-51N-10X-5	
Silicon (Si) (NH ₄) ₂ SiF ₆		Water tr. HF	50 mL	-----	--	ICP-52W-10X-0.5	
			100 mL	ICP-52W-1		ICP-52W-10X-1	
			500 mL	ICP-52W-5		ICP-52W-10X-5	
Silver (Ag) AgNO ₃		2-5% Nitric acid	50 mL	-----	--	ICP-53N-10X-0.5	
			100 mL	ICP-53N-1		ICP-53N-10X-1	
			500 mL	ICP-53N-5		ICP-53N-10X-5	
Sodium (Na) NaNO ₃		2-5% Nitric acid	50 mL	-----	--	ICP-54N-10X-0.5	
			100 mL	ICP-54N-1		ICP-54N-10X-1	
			500 mL	ICP-54N-5		ICP-54N-10X-5	
Strontium (Sr) Sr(NO ₃) ₂		2-5% Nitric acid	50 mL	-----	--	ICP-55N-10X-0.5	
			100 mL	ICP-55N-1		ICP-55N-10X-1	
			500 mL	ICP-55N-5		ICP-55N-10X-5	
Sulfur (S) (NH ₄) ₂ SO ₄		Water	50 mL	-----	--	ICP-56W-10X-0.5	
			100 mL	ICP-56W-1		ICP-56W-10X-1	
			500 mL	ICP-56W-5		ICP-56W-10X-5	
Tantalum (Ta) Ta		Water tr. HF	50 mL	-----	--	ICP-57W-10X-0.5	
			100 mL	ICP-57W-1		ICP-57W-10X-1	
			500 mL	ICP-57W-5		ICP-57W-10X-5	
Tellurium (Te) Te		20%-40% HCl	50 mL	-----	--	ICP-58H-10X-0.5	
			100 mL	ICP-58H-1		ICP-58H-10X-1	
			500 mL	ICP-58H-5		ICP-58H-10X-5	
Terbium (Tb) Tb ₄ O ₇		2-5% Nitric acid	50 mL	-----	--	ICP-59N-10X-0.5	
			100 mL	ICP-59N-1		ICP-59N-10X-1	
			500 mL	ICP-59N-5		ICP-59N-10X-5	
Thallium (Tl) Tl		2-5% Nitric acid	50 mL	-----	--	ICP-60N-10X-0.5	
			100 mL	ICP-60N-1		ICP-60N-10X-1	
			500 mL	ICP-60N-5		ICP-60N-10X-5	
Thorium (Th) Th(NO ₃) ₄ • 4H ₂ O		2-5% Nitric acid	-----	-----	--	-----	--
			100 mL	ICP-61N-1		-----	--
			500 mL	ICP-61N-5		-----	--

Single Element ICP
continued on next page



ICP

Single Element

Single Element ICP

Element	Starting Material	Matrix	Unit	1000 µg/mL		10,000 µg/mL	
				Cat. No.		Cat. No.	
Thulium (Tm) Tm ₂ O ₃		2-5% Nitric acid	50 mL	-----	--	ICP-62N-10X-0.5	
			100 mL	ICP-62N-1		ICP-62N-10X-1	
			500 mL	ICP-62N-5		-----	--
Tin (Sn) Sn		2-5% Nitric acid tr. HF	50 mL	-----	--	ICP-63N-10X-0.5	
			100 mL	ICP-63N-1		ICP-63N-10X-1	
			500 mL	ICP-63N-5		ICP-63N-10X-5	
Titanium (Ti) (NH ₄) ₂ TiF ₆		Water tr. HF	50 mL	-----	--	ICP-64W-10X-0.5	
			100 mL	ICP-64W-1		ICP-64W-10X-1	
			500 mL	ICP-64W-5		ICP-64W-10X-5	
Tungsten (W) (NH ₄) ₂ WO ₄		Water tr. NH ₄ OH	50 mL	-----	--	ICP-65W-10X-0.5	
			100 mL	ICP-65W-1		ICP-65W-10X-1	
			500 mL	ICP-65W-5		ICP-65W-10X-5	
Uranium (U) U ₃ O ₈		2-5% Nitric acid	-----	-----	--	-----	--
			100 mL	ICP-66N-1		-----	--
			500 mL	ICP-66N-5		-----	--
Vanadium (V) NH ₄ VO ₃		2-5% Nitric acid	50 mL	-----	--	ICP-67N-10X-0.5	
			100 mL	ICP-67N-1		ICP-67N-10X-1	
			500 mL	ICP-67N-5		ICP-67N-10X-5	
Ytterbium (Y) Yb ₂ O ₃		2-5% Nitric acid	50 mL	-----	--	ICP-68N-10X-0.5	
			100 mL	ICP-68N-1		ICP-68N-10X-1	
			500 mL	ICP-68N-5		ICP-68N-10X-5	
Yttrium (Yb) Y ₂ O ₃		2-5% Nitric acid	50 mL	-----	--	ICP-69N-10X-0.5	
			100 mL	ICP-69N-1		ICP-69N-10X-1	
			500 mL	ICP-69N-5		ICP-69N-10X-5	
Zinc (Zn) Zn		2-5% Nitric acid	50 mL	-----	--	ICP-70N-10X-0.5	
			100 mL	ICP-70N-1		ICP-70N-10X-1	
			500 mL	ICP-70N-5		ICP-70N-10X-5	
Zirconium (Zr) ZrO(NO ₃) ₂		2-5% Nitric acid	50 mL	-----	--	ICP-71N-10X-0.5	
			100 mL	ICP-71N-1		ICP-71N-10X-1	
			500 mL	ICP-71N-5		ICP-71N-10X-5	

Calibration and Matrix Blanks

Nitric Acid Blank

CLP-BLN-5 500 mL
CLP-BLN-L-VAP 1L
 (2 x 500 mL)

5% HNO₃ in 18 Megohm ASTM Type I deionized Water

Hydrochloric Acid Blank

CLP-BLH-5 500 mL
CLP-BLH-L-VAP 1L
 (2 x 500 mL)

5% HCl in 18 Megohm ASTM Type I deionized Water

Mixed Acid Blank

CLP-BLMA-5 500 mL
CLP-BLMA-L-VAP 1L
 (2 x 500 mL)

5% HCl + 1% HNO₃ in 18 Megohm ASTM Type I deionized Water

Water Blank

CLP-BLW-5 500 mL
CLP-BLW-L-VAP 1L
 (2 x 500 mL)

18 Megohm ASTM Type I deionized Water

We can provide Custom formulations to meet your needs.

To request a Custom formulation, contact Inorganic Technical Service using our website or Email inotech@accustandard.com.

Inorganic products containing acid generally require a hazardous fee for air shipments. Inorganic products in water generally do not.

ICP/MS Single Element



AccuStandard's ICP/MS Standards are formulated to meet the needs of this very special instrument. As matrix effect is of utmost concern, each standard is formulated in specially purified 18 megohm de-ionized water and ultra pure acids.

- Traceable to NIST Reference Materials
- Formulated from Ultra High Purity Starting Materials and Acids
- 18 Megohm de-ionized Water
- Concentration verified by Wet Chemical and Instrumental Analysis

**3 Year Minimum Shelf Life on
Single Element ICP Standards**

Single Element ICP/MS

Element	Matrix	Unit	100 µg/mL			1,000 µg/mL			10,000 µg/mL		
			Cat. No.			Cat. No.			Cat. No.		
Aluminum (Al)	2-5% HNO ₃	100 mL	ICP-MS-01N-0.01X-1			ICP-MS-01N-0.1X-1			ICP-MS-01N-1		
Antimony (Sb)	2-5% HNO ₃ tr. Tartaric acid	100 mL	ICP-MS-02N-0.01X-1			ICP-MS-02N-0.1X-1			ICP-MS-02N-1		
Arsenic (As)	2-5% HNO ₃	100 mL	ICP-MS-03N-0.01X-1			ICP-MS-03N-0.1X-1			ICP-MS-03N-1		
Barium (Ba)	2-5% HNO ₃	100 mL	ICP-MS-04N-0.01X-1			ICP-MS-04N-0.1X-1			ICP-MS-04N-1		
Beryllium (Be)	2-5% HNO ₃	100 mL	ICP-MS-05N-0.01X-1			ICP-MS-05N-0.1X-1			ICP-MS-05N-1		
Bismuth (Bi)	2-10% HNO ₃	100 mL	ICP-MS-06N-0.01X-1			ICP-MS-06N-0.1X-1			ICP-MS-06N-1		
Boron (B)	Water tr. NH ₄ OH	100 mL	ICP-MS-07W-0.01X-1			ICP-MS-07W-0.1X-1			ICP-MS-07W-1		
Cadmium (Cd)	2-5% HNO ₃	100 mL	ICP-MS-08N-0.01X-1			ICP-MS-08N-0.1X-1			ICP-MS-08N-1		
Calcium (Ca)	2-5% HNO ₃	100 mL	ICP-MS-09N-0.01X-1			ICP-MS-09N-0.1X-1			ICP-MS-09N-1		
Cerium (Ce)	2-5% HNO ₃	100 mL	ICP-MS-11N-0.01X-1			ICP-MS-11N-0.1X-1			ICP-MS-11N-1		
Cesium (Cs)	2-5% HNO ₃	100 mL	ICP-MS-12N-0.01X-1			ICP-MS-12N-0.1X-1			ICP-MS-12N-1		
Chromium (Cr)	2-5% HNO ₃	100 mL	ICP-MS-13N-0.01X-1			ICP-MS-13N-0.1X-1			ICP-MS-13N-1		
Cobalt (Co)	2-5% HNO ₃	100 mL	ICP-MS-14N-0.01X-1			ICP-MS-14N-0.1X-1			ICP-MS-14N-1		
Copper (Cu)	2-5% HNO ₃	100 mL	ICP-MS-15N-0.01X-1			ICP-MS-15N-0.1X-1			ICP-MS-15N-1		
Dysprosium (Dy)	2-5% HNO ₃	100 mL	ICP-MS-16N-0.01X-1			ICP-MS-16N-0.1X-1			ICP-MS-16N-1		
Erbium (Er)	2-5% HNO ₃	100 mL	ICP-MS-17N-0.01X-1			ICP-MS-17N-0.1X-1			ICP-MS-17N-1		
Europium (Eu)	2-5% HNO ₃	100 mL	ICP-MS-18N-0.01X-1			ICP-MS-18N-0.1X-1			ICP-MS-18N-1		
Gadolinium (Gd)	2-5% HNO ₃	100 mL	ICP-MS-19N-0.01X-1			ICP-MS-19N-0.1X-1			ICP-MS-19N-1		
Gallium (Ga)	2-5% HNO ₃	100 mL	ICP-MS-20N-0.01X-1			ICP-MS-20N-0.1X-1			ICP-MS-20N-1		
Germanium (Ge)	Water tr. HF	100 mL	ICP-MS-21W-0.01X-1			ICP-MS-21W-0.1X-1			ICP-MS-21W-1		
Gold (Au)	10% HCl	100 mL	ICP-MS-22H-0.01X-1			ICP-MS-22H-0.1X-1			ICP-MS-22H-1		
Hafnium (Hf)	2-5% HNO ₃ tr. HF	100 mL	ICP-MS-23N-0.01X-1			ICP-MS-23N-0.1X-1			ICP-MS-23N-1		
Holmium (Ho)	2-5% HNO ₃	100 mL	ICP-MS-24N-0.01X-1			ICP-MS-24N-0.1X-1			ICP-MS-24N-1		
Indium (In)	2-5% HNO ₃	100 mL	ICP-MS-25N-0.01X-1			ICP-MS-25N-0.1X-1			ICP-MS-25N-1		
Iridium (Ir)	10% HCl	100 mL	ICP-MS-26H-0.01X-1			ICP-MS-26H-0.1X-1			ICP-MS-26H-1		
Iron (Fe)	2-5% HNO ₃	100 mL	ICP-MS-27N-0.01X-1			ICP-MS-27N-0.1X-1			ICP-MS-27N-1		
Lanthanum (La)	2-5% HNO ₃	100 mL	ICP-MS-28N-0.01X-1			ICP-MS-28N-0.1X-1			ICP-MS-28N-1		
Lead (Pb)	2-5% HNO ₃	100 mL	ICP-MS-29N-0.01X-1			ICP-MS-29N-0.1X-1			ICP-MS-29N-1		
Lithium (Li)	2-5% HNO ₃	100 mL	ICP-MS-30N-0.01X-1			ICP-MS-30N-0.1X-1			ICP-MS-30N-1		
Lutetium (Lu)	2-5% HNO ₃	100 mL	ICP-MS-31N-0.01X-1			ICP-MS-31N-0.1X-1			ICP-MS-31N-1		
Magnesium (Mg)	2-5% HNO ₃	100 mL	ICP-MS-32N-0.01X-1			ICP-MS-32N-0.1X-1			ICP-MS-32N-1		
Manganese (Mn)	2-5% HNO ₃	100 mL	ICP-MS-33N-0.01X-1			ICP-MS-33N-0.1X-1			ICP-MS-33N-1		
Mercury (Hg) ●	5-10% HNO ₃	100 mL	ICP-MS-34N-0.01X-1			ICP-MS-34N-0.1X-1			ICP-MS-34N-1		
Molybdenum (Mo)	Water tr. NH ₄ OH	100 mL	ICP-MS-35W-0.01X-1			ICP-MS-35W-0.1X-1			ICP-MS-35W-1		
Neodymium (Nd)	2-5% HNO ₃	100 mL	ICP-MS-36N-0.01X-1			ICP-MS-36N-0.1X-1			ICP-MS-36N-1		
Nickel (Ni)	2-5% HNO ₃	100 mL	ICP-MS-37N-0.01X-1			ICP-MS-37N-0.1X-1			ICP-MS-37N-1		
Niobium (Nb)	Water tr. HF	100 mL	ICP-MS-38W-0.01X-1			ICP-MS-38W-0.1X-1			ICP-MS-38W-1		
Palladium (Pd)	10% HCl	100 mL	ICP-MS-40H-0.01X-1			ICP-MS-40H-0.1X-1			ICP-MS-40H-1		
Phosphorus (P)	Water	100 mL	ICP-MS-41W-0.01X-1			ICP-MS-41W-0.1X-1			ICP-MS-41W-1		
Platinum (Pt)	10% HCl	100 mL	ICP-MS-42H-0.01X-1			ICP-MS-42H-0.1X-1			ICP-MS-42H-1		
Potassium (K)	2-5% HNO ₃	100 mL	ICP-MS-43N-0.01X-1			ICP-MS-43N-0.1X-1			ICP-MS-43N-1		
Praseodymium (Pr)	2-5% HNO ₃	100 mL	ICP-MS-44N-0.01X-1			ICP-MS-44N-0.1X-1			ICP-MS-44N-1		
Rhenium (Re)	Water tr. HNO ₃	100 mL	ICP-MS-45W-0.01X-1			ICP-MS-45W-0.1X-1			ICP-MS-45W-1		
Rhodium (Rh)	10% HCl	100 mL	ICP-MS-46H-0.01X-1			ICP-MS-46H-0.1X-1			ICP-MS-46H-1		

● Product contains Mercury. Dispose according to Federal, State or local laws.

**Single Element ICP/MS
continued on next page**

Single Element ICP/MS



ICP/MS

Single Element

Single Element ICP/MS

Element	Matrix	Unit	100 µg/mL	1,000 µg/mL	10,000 µg/mL
			Cat. No.	Cat. No.	Cat. No.
Rubidium (Rb)	2-5% HNO ₃	100 mL	ICP-MS-47N-0.01X-1	ICP-MS-47N-0.1X-1	ICP-MS-47N-1
Ruthenium (Ru)	10% HCl	100 mL	ICP-MS-48H-0.01X-1	ICP-MS-48H-0.1X-1	ICP-MS-48H-1
Samarium (Sm)	2-5% HNO ₃	100 mL	ICP-MS-49N-0.01X-1	ICP-MS-49N-0.1X-1	ICP-MS-49N-1
Scandium (Sc)	2-5% HNO ₃	100 mL	ICP-MS-50N-0.01X-1	ICP-MS-50N-0.1X-1	ICP-MS-50N-1
Selenium (Se)	2-5% HNO ₃	100 mL	ICP-MS-51N-0.01X-1	ICP-MS-51N-0.1X-1	ICP-MS-51N-1
Silicon (Si)	H ₂ O tr. HF	100 mL	ICP-MS-52W-0.01X-1	ICP-MS-52W-0.1X-1	ICP-MS-52W-1
Silver (Ag)	2-5% HNO ₃	100 mL	ICP-MS-53N-0.01X-1	ICP-MS-53N-0.1X-1	ICP-MS-53N-1
Sodium (Na)	2-5% HNO ₃	100 mL	ICP-MS-54N-0.01X-1	ICP-MS-54N-0.1X-1	ICP-MS-54N-1
Strontium (Sr)	2-5% HNO ₃	100 mL	ICP-MS-55N-0.01X-1	ICP-MS-55N-0.1X-1	ICP-MS-55N-1
Sulfur (S)	Water	100 mL	ICP-MS-56W-0.01X-1	ICP-MS-56W-0.1X-1	ICP-MS-56W-1
Tantalum (Ta)	Water tr. HF	100 mL	ICP-MS-57W-0.01X-1	ICP-MS-57W-0.1X-1	ICP-MS-57W-1
Tellurium (Te)	10% HCl (min.)	100 mL	ICP-MS-58H-0.01X-1	ICP-MS-58H-0.1X-1	ICP-MS-58H-1
Terbium (Tb)	2-5% HNO ₃	100 mL	ICP-MS-59N-0.01X-1	ICP-MS-59N-0.1X-1	ICP-MS-59N-1
Thallium (Tl)	2-5% HNO ₃	100 mL	ICP-MS-60N-0.01X-1	ICP-MS-60N-0.1X-1	ICP-MS-60N-1
Thorium (Th)	2-5% HNO ₃	100 mL	ICP-MS-61N-0.01X-1	ICP-MS-61N-0.1X-1	----- --
Thulium (Tm)	2-5% HNO ₃	100 mL	ICP-MS-62N-0.01X-1	ICP-MS-62N-0.1X-1	ICP-MS-62N-1
Tin (Sn)	2-5% HNO ₃ tr. HF	100 mL	ICP-MS-63N-0.01X-1	ICP-MS-63N-0.1X-1	ICP-MS-63N-1
Titanium (Ti)	Water tr. HF	100 mL	ICP-MS-64W-0.01X-1	ICP-MS-64W-0.1X-1	ICP-MS-64W-1
Tungsten (W)	Water tr. NH ₄ OH	100 mL	ICP-MS-65W-0.01X-1	ICP-MS-65W-0.1X-1	ICP-MS-65W-1
Uranium (U)	2-5% HNO ₃	100 mL	ICP-MS-66N-0.01X-1	ICP-MS-66N-0.1X-1	----- --
Vanadium (V)	2-5% HNO ₃	100 mL	ICP-MS-67N-0.01X-1	ICP-MS-67N-0.1X-1	ICP-MS-67N-1
Ytterbium (Y)	2-5% HNO ₃	100 mL	ICP-MS-68N-0.01X-1	ICP-MS-68N-0.1X-1	ICP-MS-68N-1
Yttrium (Yb)	2-5% HNO ₃	100 mL	ICP-MS-69N-0.01X-1	ICP-MS-69N-0.1X-1	ICP-MS-69N-1
Zinc (Zn)	2-5% HNO ₃	100 mL	ICP-MS-70N-0.01X-1	ICP-MS-70N-0.1X-1	ICP-MS-70N-1
Zirconium (Zr)	2-5% HNO ₃	100 mL	ICP-MS-71N-0.01X-1	ICP-MS-71N-0.1X-1	ICP-MS-71N-1

Matrix Blanks

Nitric Acid Blank

ICP-MS-BLN-1 100 mL
ICP-MS-BLN-5 500 mL

5% HNO₃ in 18 Megohm ASTM Type I deionized Water

These blanks are prepared from the same water source and acids as your standards and therefore provide a consistent matrix. They are excellent as a blank, preparing a standard curve, or as a diluent for standards and samples.

Hydrochloric Acid Blank

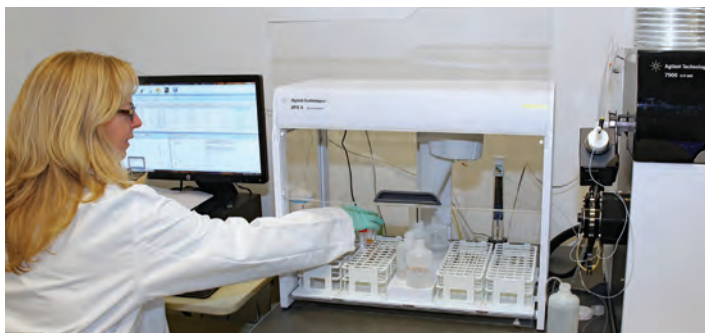
ICP-MS-BLH-1 100 mL
ICP-MS-BLH-5 500 mL

5% HCl in 18 Megohm ASTM Type I deionized Water

Water Blank

ICP-MS-BLW-1 100 mL
ICP-MS-BLW-5 500 mL

18 Megohm ASTM Type I deionized Water





Each standard is prepared from high purity starting materials, 18 megohm de-ionized water and high purity acids. Every standard is instrumentally assayed to verify concentration of specified element. Actual Lot Analysis is provided on the label and a Certificate of Analysis is included for ease of record keeping and availability at audits.

- Traceable to NIST Reference Materials
- Certificate of Analysis included

- 18 megohm de-ionized Water
- 36 Month Shelf Life

3 Year Minimum Shelf Life on
Single Element ICP/MS Standards

Single Element AA

Element	Unit	1000 µg/mL Cat. No.	Element	Unit	1000 µg/mL Cat. No.
Matrix			Matrix		
Aluminum (Al)	100 mL	AA01N-1	Molybdenum (Mo)	100 mL	AA35W-1
2-5% Nitric acid	500 mL	AA01N-5	Water tr. NH ₄ OH	500 mL	AA35W-5
Antimony (Sb)	100 mL	AA02N-1	Nickel (Ni)	100 mL	AA37N-1
2-5% HNO ₃ tr. Tartaric acid	500 mL	AA02N-5	2-5% Nitric acid	500 mL	AA37N-5
Arsenic (As)	100 mL	AA03N-1	Phosphorus (P)	100 mL	AA41W-1
2-5% Nitric acid	500 mL	AA03N-5	Water	500 mL	AA41W-5
Barium (Ba)	100 mL	AA04N-1	Potassium (K)	100 mL	AA43N-1
2-5% Nitric acid	500 mL	AA04N-5	2-5% Nitric acid	500 mL	AA43N-5
Boron (B)	100 mL	AA07W-1	Selenium (Se)	100 mL	AA51N-1
Water tr. NH ₄ OH	500 mL	AA07W-5	2-5% Nitric acid	500 mL	AA51N-5
Cadmium (Cd)	100 mL	AA08N-1	Silicon (Si)	100 mL	AA52W-1
2-5% Nitric acid	500 mL	AA08N-5	Water tr. HF	500 mL	AA52W-5
Calcium (Ca)	100 mL	AA09N-1	Silver (Ag)	100 mL	AA53N-1
2-5% Nitric acid	500 mL	AA09N-5	2-5% Nitric acid	500 mL	AA53N-5
Chromium (Cr)	100 mL	AA13N-1	Sodium (Na)	100 mL	AA54N-1
2-5% Nitric acid	500 mL	AA13N-5	2-5% Nitric acid	500 mL	AA54N-5
Cobalt (Co)	100 mL	AA14N-1	Strontium (Sr)	100 mL	AA55N-1
2-5% Nitric acid	500 mL	AA14N-5	2-5% Nitric acid	500 mL	AA55N-5
Copper (Cu)	100 mL	AA15N-1	Sulfur (S)	100 mL	AA56W-1
2-5% Nitric acid	500 mL	AA15N-5	Water	500 mL	AA56W-5
Gold (Au)	100 mL	AA22H-1	Thallium (Tl)	100 mL	AA60N-1
5% HCl (min.)	500 mL	AA22H-5	2-5% Nitric acid	500 mL	AA60N-5
Iron (Fe)	100 mL	AA27N-1	Tin (Sn)	100 mL	AA63N-1
2-5% Nitric acid	500 mL	AA27N-5	2-5% Nitric acid tr. HF	500 mL	AA63N-5
Lead (Pb)	100 mL	AA29N-1	Titanium (Ti)	100 mL	AA64W-1
2-5% Nitric acid	500 mL	AA29N-5	Water tr. HF	500 mL	AA64W-5
Lithium (Li)	100 mL	AA30N-1	Vanadium (V)	100 mL	AA67N-1
2-5% Nitric acid	500 mL	AA30N-5	5-10% Nitric acid	500 mL	AA67N-5
Magnesium (Mg)	100 mL	AA32N-1	Yttrium (Yb)	100 mL	AA69N-1
2-5% Nitric acid	500 mL	AA32N-5	2-5% Nitric acid	500 mL	AA69N-5
Manganese (Mn)	100 mL	AA33N-1	Zinc (Zn)	100 mL	AA70N-1
2-5% Nitric acid	500 mL	AA33N-5	2-5% Nitric acid	500 mL	AA70N-5
Mercury (Hg) ●	100 mL	AA34N-1			
2-5% Nitric acid	500 mL	AA34N-5			

● Product contains Mercury, dispose according to Federal, State or local laws.

Matrix Modifier Solutions for Graphite Furnace AA

These Matrix Modifiers enhance sensitivity and suppress background interferences observed in trace metal analysis.

Modifier Description	Modifier Source	Unit	Cat. No.
Ammonium dihydrogen phosphate 40% in Water	NH ₄ H ₂ PO ₄	50 mL	MOD-02-0.5
		100 mL	MOD-02-1
Ammonium nitrate 5% in Water	NH ₄ NO ₃	50 mL	MOD-03-0.5
		100 mL	MOD-03-1
Magnesium nitrate 2% Magnesium in 5% HNO ₃	Mg(NO ₃) ₂	50 mL	MOD-07-0.5
		100 mL	MOD-07-1
Nickel nitrate 5% Nickel in 5% HNO ₃	Ni(NO ₃) ₂	50 mL	MOD-08-0.5
		100 mL	MOD-08-1
Palladium nitrate 0.2% Palladium in 5% HNO ₃	Pd(NO ₃) ₂	50 mL	MOD-09A-0.5
		100 mL	MOD-09A-1
Palladium nitrate 1.0% Palladium in 10% HNO ₃	Pd(NO ₃) ₂	50 mL	MOD-09C-0.5
		100 mL	MOD-09C-1

Technical Note

Contact our Inorganic Technical Service Department if an additional matrix modifier is needed.

Calibration and Matrix Blanks

Nitric Acid Blank

CLP-BLN-5 500 mL
CLP-BLN-L-VAP 1L (2 x 500 mL)

5% HNO₃ in 18 Megohm ASTM Type I deionized Water

Hydrochloric Acid Blank

CLP-BLH-5 500 mL
CLP-BLH-L-VAP 1L (2 x 500 mL)

5% HCl in 18 Megohm ASTM Type I deionized Water

Mixed Acid Blank

CLP-BLMA-5 500 mL
CLP-BLMA-L-VAP 1L (2 x 500 mL)

5% HCl + 1% HNO₃ in 18 Megohm ASTM Type I deionized Water

Water Blank

CLP-BLW-5 500 mL
CLP-BLW-L-VAP 1L (2 x 500 mL)

18 Megohm ASTM Type I deionized Water



Ion Chromatography

- 99.99% High Purity Starting Materials
- 18 Megohm, ASTM type I de-ionized Water
- Packaged in pre-cleaned high quality HDPE bottles.
- Each Standard is Supplied with a COA, stating traceability to NIST, certified value and expiration date.
- Final Solution is filtered through a 0.2 µm filter to eliminate contaminants (such as suspended solids and microbes). This extends shelf life and protects your column.
- Ready-To-Use Mixes and Calibration Sets.
- Standards may be used for other "Classical or Wet" methods.

Anions

Water Matrix	Unit	Anions		
		100 µg/mL	200 µg/mL	1000 µg/mL
		Cat. No.	Cat. No.	Cat. No.
Acetate	100 mL	IC-ACET-1X-1	-----	IC-ACET-10X-1
	500 mL	IC-ACET-1X-5	-----	IC-ACET-10X-5
Bromate	100 mL	-----	-----	IC-BROM-10X-1
	500 mL	-----	-----	IC-BROM-10X-5
Bromide (Br)	100 mL	IC-BR-1X-1	IC-BR-2X-1	IC-BR-10X-1
	500 mL	IC-BR-1X-5	IC-BR-2X-5	IC-BR-10X-5
Citrate	100 mL	-----	-----	IC-CITR-10X-1
Chlorate	100 mL	IC-CHLR-1X-1	-----	IC-CHLR-10X-1
	500 mL	IC-CHLR-1X-5	-----	IC-CHLR-10X-5
Chloride (Cl)	100 mL	IC-CL-1X-1	IC-CL-2X-1	IC-CL-10X-1
	500 mL	IC-CL-1X-5	IC-CL-2X-5	IC-CL-10X-5
Chlorite	100 mL	-----	-----	IC-CHLT-10X-1
Chromate	100 mL	IC-CHRM-1X-1	-----	IC-CHRM-10X-1
	500 mL	IC-CHRM-1X-5	-----	IC-CHRM-10X-5
Fluoride (F)	100 mL	IC-F-1X-1	IC-F-2X-1	IC-F-10X-1
	500 mL	IC-F-1X-5	IC-F-2X-5	IC-F-10X-5
Formate	100 mL	IC-FORM-1X-1	-----	IC-FORM-10X-1
	500 mL	IC-FORM-1X-5	-----	IC-FORM-10X-5
Glycolate	100 mL	-----	-----	IC-GLYC-10X-1
Iodide	100 mL	-----	-----	IC-I-10X-1
Lactate	100 mL	-----	-----	IC-LACT-10X-1
Malate	100 mL	-----	-----	IC-MALA-10X-1
Maleate	100 mL	-----	-----	IC-MALE-10X-1
Nitrite (NO ₂)	100 mL	IC-NO2-1X-1	IC-NO2-2X-1	IC-NO2-10X-1
	500 mL	IC-NO2-1X-5	IC-NO2-2X-5	IC-NO2-10X-5
Nitrate (NO ₃)	100 mL	IC-NO3-1X-1	IC-NO3-2X-1	IC-NO3-10X-1
	500 mL	IC-NO3-1X-5	IC-NO3-2X-5	IC-NO3-10X-5
Oxalate	100 mL	IC-OXAL-1X-1	-----	IC-OXAL-10X-1
	500 mL	IC-OXAL-1X-5	-----	IC-OXAL-10X-5
Perchlorate	100 mL	-----	-----	IC-PER-10X-1
Phthalate	100 mL	-----	-----	IC-PHTH-10X-1
Phosphate (PO ₄)	100 mL	IC-PO4-1X-1	IC-PO4-2X-1	IC-PO4-10X-1
	500 mL	IC-PO4-1X-5	IC-PO4-2X-5	IC-PO4-10X-5
Propionate	100 mL	-----	-----	IC-PROP-10X-1
Succinate	100 mL	-----	-----	IC-SUCC-10X-1
Sulfate (SO ₄)	100 mL	IC-SO4-1X-1	IC-SO4-2X-1	IC-SO4-10X-1
	500 mL	IC-SO4-1X-5	IC-SO4-2X-5	IC-SO4-10X-5
Sulfide	20 mL	-----	-----	IC-SULF-10X-20ML
Dilute NaOH, stabilizer	5 x 20 mL	-----	-----	IC-SULF-10X-20ML-VAP
Tartrate	100 mL	-----	-----	IC-TART-10X-1

Anion Kits

IC-AN-1X-1-SET	7 x 100 mL
IC-AN-1X-5-SET	7 x 500 mL
<i>Each at 100 µg/mL in Water</i>	
IC-AN-2X-1-SET	7 x 100 mL
IC-AN-2X-5-SET	7 x 500 mL
<i>Each at 200 µg/mL in Water</i>	
IC-AN-10X-1-SET	7 x 100 mL
IC-AN-10X-5-SET	7 x 500 mL
<i>Each at 1000 µg/mL in Water</i>	

Fluoride (F)	Bromide (Br)
Chloride (Cl)	Phosphate (PO ₄)
Nitrite (NO ₂)	Sulfate (SO ₄)
Nitrate (NO ₃)	



Ion Chrom - Ion Singles as the Element

	Unit	100 µg/mL	1000 µg/mL
Nitrite-Nitrogen (NO₂-N)	100 mL	IC-NO2-N-1X-1	IC-NO2-N-10X-1
Water Matrix	500 mL	IC-NO2-N-1X-5	IC-NO2-N-10X-5
Nitrate-Nitrogen (NO₃-N)	100 mL	IC-NO3-N-1X-1	IC-NO3-N-10X-1
Water Matrix	500 mL	IC-NO3-N-1X-5	IC-NO3-N-10X-5
Phosphate-Phosphorus (PO₄-P)	100 mL	IC-PO4-P-1X-1	IC-PO4-P-10X-1
Water Matrix	500 mL	IC-PO4-P-1X-5	IC-PO4-P-10X-5
Sulfate-Sulfur (SO₄-S)	100 mL	IC-SO4-S-1X-1	IC-SO4-S-10X-1
Water Matrix	500 mL	IC-SO4-S-1X-5	IC-SO4-S-10X-5
Ammonium-Nitrogen (NH₄-N)	100 mL	IC-NH4-N-1X-1	IC-NH4-N-10X-1
Water Matrix	500 mL	IC-NH4-N-1X-5	IC-NH4-N-10X-5

Organic Acid Salt Standard

	Unit	100 µg/mL	1000 µg/mL
Formate	100 mL	IC-FORM-1X-1	IC-FORM-10X-1
Water Matrix	500 mL	IC-FORM-1X-5	IC-FORM-10X-5
Acetate	100 mL	IC-ACET-1X-1	IC-ACET-10X-1
Water Matrix	500 mL	IC-ACET-1X-5	IC-ACET-10X-5
Oxalate	100 mL	IC-OXAL-1X-1	IC-OXAL-10X-1
Water Matrix	500 mL	IC-OXAL-1X-5	IC-OXAL-10X-5
Chromate	100 mL	IC-CHRM-1X-1	IC-CHRM-10X-1
Water Matrix	500 mL	IC-CHRM-1X-5	IC-CHRM-10X-5

Method 314.0 Perchlorate in Drinking Water by IC

Perchlorate has become an analyte of environmental interest since being detected in a number of drinking and groundwater supplies located in Midwestern states. EPA method 314.0 was released as an approved method to achieve the required sensitivity.

Perchlorate Standard

IC-PER-10X-1 100 mL

1000 µg/mL in Water

Perchlorate

Conductivity Meter Calibration Std.

M-314.0-CMCS-1 100 mL

1410 µs/cm @ 25 °C in Water

Mixed Common Anion Stock

M-314.0-MCA-250X-1 100 mL

25 mg/mL in Water 3 comps.

Chloride Carbonate
Sulfate

Method 314.0

Perchlorate Calibration Set

M-314.0-SET 100 mL

IC-PER-10X-1 M-314.0-CMCS-1
M-314.0-MCA-250X-1

Anion Single Kits

IC-AN-R-10X-1-SET 7 x 100 mL

IC-AN-R-10X-5-SET 7 x 500 mL

Each at 1000 µg/mL

Fluoride (F)
Chloride (Cl)
Nitrite-Nitrogen (NO₂-N)
Nitrate-Nitrogen (NO₃-N)
Bromide (Br)
Phosphate-Phosphorus (PO₄-P)
Sulfate-Sulfur (SO₄-S)



Ion Chrom Eluents

0.5 M Sodium bicarbonate (100X concentrate)	50 mL	100 mL	5 x 50 mL	5 x 100 mL
	IC-ELU-01-0.5	IC-ELU-01-1	IC-ELU-01-0.5-PAK	IC-ELU-01-1-PAK
0.5 M Sodium carbonate (100X concentrate)	50 mL	100 mL	5 x 50 mL	5 x 100 mL
	IC-ELU-02-0.5	IC-ELU-02-1	IC-ELU-02-0.5-PAK	IC-ELU-02-1-PAK
0.18 M Sodium carbonate/ 0.17 M Sodium bicarbonate (100X concentrate)	50 mL	100 mL	5 x 50 mL	5 x 100 mL
	IC-ELU-03-0.5	IC-ELU-03-1	IC-ELU-03-0.5-PAK	IC-ELU-03-1-PAK

Technical Note

Ready to dilute concentrates. Open a fresh bottle and dilute the volume (50 mL to 5 L or 100 mL to 10 L) and be assured of a fresh uncontaminated mobile phase.





Ion Chromatography

Anion Mixes

Anion Mix #1

IC-MAN-01-1 100 mL
At stated conc. (µg/mL) in Water
5 comps.

Fluoride (F)	20
Chloride (Cl)	30
Nitrate (NO ₃)	100
Phosphate (O ₄)	150
Sulfate (SO ₄)	150

Anion Mix #2

IC-MAN-02-1 100 mL
At stated conc. (µg/mL) in Water
6 comps.

Fluoride (F)	100
Chloride (Cl)	200
Bromide (Br)	400
Nitrate (NO ₃)	400
Phosphate (PO ₄)	600
Sulfate (SO ₄)	400

Anion Mix #3

IC-MAN-03-1 100 mL
At stated conc. (µg/mL) in Water
3 comps.

Fluoride (F)	100
Chloride (Cl)	100
Sulfate (SO ₄)	100

Anion Mix #4

IC-MAN-04-1 100 mL
At stated conc. (µg/mL) in Water
6 comps.

Fluoride (F)	100
Chloride (Cl)	100
Bromide (Br)	100
Nitrate (NO ₃)	100
Phosphate (PO ₄)	100
Sulfate (SO ₄)	100

Anion Mix #5

IC-MAN-05-R1-1 100 mL
At stated conc. (µg/mL) in Water
6 comps.

Fluoride (F)	10
Chloride (Cl)	20
Bromide (Br)	20
Nitrate (NO ₃)	20
Phosphate (PO ₄)	5
Sulfate (SO ₄)	30

Anion Mix #6

IC-MAN-06-R1-1 100 mL
At stated conc. (µg/mL) in Water
6 comps.

Fluoride (F)	1
Chloride (Cl)	5
Bromide (Br)	5
Nitrate (NO ₃)	5
Phosphate (PO ₄)	5
Sulfate (SO ₄)	10

Anion Mix #7

IC-MAN-07-R1-1 100 mL
At stated conc. (µg/mL) in Water
6 comps.

Fluoride (F)	1
Chloride (Cl)	10
Bromide (Br)	10
Nitrate (NO ₃)	10
Phosphate (PO ₄)	10
Sulfate (SO ₄)	10

Anion Mix #8

IC-MAN-08-R1-1 100 mL
At stated conc. (µg/mL) in Water
6 comps.

Fluoride (F)	10
Chloride (Cl)	20
Bromide (Br)	20
Nitrate (NO ₃)	20
Phosphate (PO ₄)	20
Sulfate (SO ₄)	20

Anion Mix #9

IC-MAN-09-R1-1 100 mL
At stated conc. (µg/mL) in Water
6 comps.

Fluoride (F)	20
Chloride (Cl)	40
Bromide (Br)	40
Nitrate (NO ₃)	40
Phosphate (PO ₄)	40
Sulfate (SO ₄)	40

Anion Mix #10

IC-MAN-10-R1-1 100 mL
At stated conc. (µg/mL) in Water
6 comps.

Fluoride (F)	25
Chloride (Cl)	50
Bromide (Br)	50
Nitrate (NO ₃)	50
Phosphate (PO ₄)	50
Sulfate (SO ₄)	50

Anion Mix #11

IC-MAN-11-1 100 mL
At stated conc. (µg/mL) in Water
5 comps.

Chloride (Cl)	1000
Bromide (Br)	1000
Nitrate (NO ₃)	1000
Phosphate (PO ₄)	1000
Sulfate (SO ₄)	1000

Anion Mix #12

IC-MAN-12-1 100 mL
At stated conc. (µg/mL) in Water
5 comps.

Chloride (Cl)	15
Bromide (Br)	15
Nitrate (NO ₃)	15
Phosphate (PO ₄)	15
Sulfate (SO ₄)	15

Anion Mix #13

IC-MAN-13-1 100 mL
At stated conc. (µg/mL) in Water
3 comps.

Fluoride (F)	25
Chloride (Cl)	50
Sulfate (SO ₄)	100

Anion Mix #14

IC-MAN-14-R3-1 100 mL
At stated conc. (µg/mL) in Water
6 comps.

Fluoride (F)	20
Chloride (Cl)	30
Bromide (Br)	100
Nitrate (NO ₃)	100
Phosphate (PO ₄)	150
Sulfate (SO ₄)	150

Anion Mix #14 Revised

IC-MAN-14-R2-1 100 mL
At stated conc. (µg/mL) in Water
6 comps.

Fluoride (F)	20
Chloride (Cl)	30
Bromide (Br)	100
Nitrogen-Nitrate (N-NO ₃)	100
Phosphorus-Phosphate (P-PO ₄)	150
Sulfate (SO ₄)	150

Anion Mix #14-R2 plus
IC-NO2-N-1X is perfect
for Method 300.1

Nitrite

IC-NO2-N-1X-1 100 mL
Nitrite (NO₂) 100 µg/mL

Dichloroacetate Surrogate Standard

M-300.1-SS 100 mL
0.5 mg/mL Dichloroacetate in Water

Nitrite

IC-NO2-10X-1	100 mL
Nitrite (NO ₂)	1000 µg/mL
IC-NO2-1X-1	100 mL
Nitrite (NO ₂)	100 µg/mL
IC-NO2-0.1X-1	100 mL
Nitrite (NO ₂)	10 µg/mL

Technical Note

To enhance the shelf life and long term stability of our IC products, Nitrite has been removed from mixes that contain Nitrate.

Technical Note

We offer several Nitrite concentrations that can be added just prior to analysis for maximum stability.



Ion Chrom - Cation Singles

Matrix	Unit	100 µg/mL	200 µg/mL	1000 µg/mL
		Cat. No.	Cat. No.	Cat. No.
Calcium (Ca)	100 mL	IC-CA-1X-1	IC-CA-2X-1	IC-CA-10X-1
Water, tr. HNO ₃	500 mL	IC-CA-1X-5	IC-CA-2X-5	IC-CA-10X-5
Ammonium (NH₄)	100 mL	IC-NH4-1X-1	IC-NH4-2X-1	IC-NH4-10X-1 †
Water	500 mL	IC-NH4-1X-5	IC-NH4-2X-5	IC-NH4-10X-5 †
Magnesium (Mg)	100 mL	IC-MG-1X-1	IC-MG-2X-1	IC-MG-10X-1
Water, tr. HNO ₃	500 mL	IC-MG-1X-5	IC-MG-2X-5	IC-MG-10X-5
Potassium (K)	100 mL	IC-K-1X-1	IC-K-2X-1	IC-K-10X-1
Water, tr. HNO ₃	500 mL	IC-K-1X-5	IC-K-2X-5	IC-K-10X-5
Sodium (Na)	100 mL	IC-NA-1X-1	IC-NA-2X-1	IC-NA-10X-1
Water, tr. HNO ₃	500 mL	IC-NA-1X-5	IC-NA-2X-5	IC-NA-10X-5
Lithium (Li)	100 mL	IC-LI-1X-1	IC-LI-2X-1	IC-LI-10X-1
Water, tr. HNO ₃	500 mL	IC-LI-1X-5	IC-LI-2X-5	IC-LI-10X-5
Barium (Ba)	100 mL	IC-BA-1X-1	IC-BA-2X-1	IC-BA-10X-1
Water, tr. HNO ₃	500 mL	IC-BA-1X-5	IC-BA-2X-5	IC-BA-10X-5
Strontium (Sr)	100 mL	IC-SR-1X-1	IC-SR-2X-1	IC-SR-10X-1
Water, tr. HNO ₃	500 mL	IC-SR-1X-5	IC-SR-2X-5	IC-SR-10X-5
Sets listed above	8 x 100 mL	IC-CAT-1X-1-SET	IC-CAT-2X-1-SET	IC-CAT-10X-1-SET
	8 x 500 mL	IC-CAT-1X-5-SET	IC-CAT-2X-5-SET	IC-CAT-10X-5-SET

Water tr. HNO₃ Matrix

† 1,000 µg/mL as Ammonium (NH₄) Other Nitrogen species equivalents are:

NH₃ (Ammonia) = 944 µg/mL

N (Nitrogen) = 776 µg/mL

Ion Chrom - Cation Mixes

Cation Mix #1

IC-MCA-01-1 100 mL
At stated conc. (µg/mL) in Dilute HNO₃ 6 comps.

Calcium (Ca)	1000
Ammonium (NH ₄)	400
Magnesium (Mg)	200
Potassium (K)	200
Sodium (Na)	200
Lithium (Li)	50

Cation Mix #3

IC-MCA-03-1 100 mL
At stated conc. (µg/mL) in Dilute HNO₃ 4 comps.

Calcium (Ca)	100
Potassium (K)	100
Sodium (Na)	50
Lithium (Li)	10

Cation Mix #5

IC-MCA-05-1 100 mL
At stated conc. (µg/mL) in Dilute HNO₃ 4 comps.

Ammonium (NH ₄)	3
Potassium (K)	6
Sodium (Na)	3
Lithium (Li)	0.5

Cation Mix #6

IC-MCA-06-1 100 mL
At stated conc. (µg/mL) in Dilute HNO₃ 6 comps.

Calcium (Ca)	2
Ammonium (NH ₄)	1.5
Magnesium (Mg)	2
Potassium (K)	2.5
Sodium (Na)	1.5
Lithium (Li)	0.2

Cation Mix #2

IC-MCA-02-1 100 mL
At stated conc. (µg/mL) in Dilute HNO₃ 6 comps.

Calcium (Ca)	100
Ammonium (NH ₄)	100
Magnesium (Mg)	100
Potassium (K)	100
Sodium (Na)	100
Lithium (Li)	100

Cation Mix #4

IC-MCA-04-1 100 mL
At stated conc. (µg/mL) in Dilute HNO₃ 4 comps.

Calcium (Ca)	400
Magnesium (Mg)	200
Barium (Ba)	1600
Strontium (Sr)	600

Inorganic products containing acid generally require a hazardous fee for air shipments. Inorganic products in water generally do not.

- ✓ Traceability to NIST SRM by Wet Chemical / Gravimetric Assay
- ✓ Traceability to NIST SRM by Instrumental Analysis
- ✓ Reference to NIST Traceability during product preparation



Wet Chemicals

Our Wet Chemical Standards are prepared from the highest quality raw material according to ASTM, EPA or "Standard Methods" ¹ procedures. All balances used for preparation are calibrated regularly against NIST traceable weights. Each batch of finished product is analyzed to verify concentration, against NIST standards when possible. All of our Wet Chemical standards are subjected to the same rigorous quality control procedures as our ICP and IC standards.

1 Standard Methods for the Examination of Water and Wastewater. American Public Health Association, American Water Works Association, Water Environment Federation

Inorganic Constituents

Many of these methods use classical wet chemical methods to determine the components of either potable or wastewater.

Bromide

IC-BR-10X-1 100 mL
1000 µg/mL Bromide in Water

Method 300.1 Ion Chrom Standard Revised

IC-MAN-14-R2-1 100 mL
At stated conc. (µg/mL) in Water 6 comps.

F (Fluoride)	20
Cl (Chloride)	30
Br (Bromide)	100
NO ₃ -N (Nitrate-Nitrogen)	100
PO ₄ -P (Phosphate-Phosphorus)	150
SO ₄ (Sulfate)	150

Technical Note

This product was designed to more closely meet the EPA standard by having the concentrations for the nutrients calculated back to the element rather than the anion.

Dichloroacetate Surrogate Standard

M-300.1-SS 100 mL
0.5 mg/mL Dichloroacetate in Water

Cyanide

WC-CN-1X-1 100 mL
WC-CN-1X-5 500 mL
100 µg/mL Cyanide in 2% NaOH

WC-CN-10X-1 100 mL
WC-CN-10X-5 500 mL
1000 µg/mL Cyanide in 2% NaOH

Chloride

IC-CL-10X-1 100 mL
1000 µg/mL Chloride in Water

Total Residual Chlorine

WC-TRC-10X-10ML 10 mL
1000 µg/mL Chlorine in Water

Fluoride

IC-F-10X-1 100 mL
1000 µg/mL Fluoride in Water

Iodide

IC-I-10X-1 100 mL
1000 µg/mL Iodide in Water

pH

WC-PH-4-1 100 mL
WC-PH-4-5 500 mL
pH of 4.0 in Water

WC-PH-7-1 100 mL
WC-PH-7-5 500 mL
pH of 7.0 in Water

WC-PH-10-1 100 mL
WC-PH-10-5 500 mL
pH of 10.0 in Water

Phosphorus - Total

IC-PO4-P-10X-1 100 mL
1000 µg/mL Phosphorus in Water

Technical Note

Can also be used for ortho-phosphate analysis.

Technical Note

Nitrogen Species are all calculated back to Nitrogen - Not the Anion or Cation species.

Nitrogen - Ammonium

IC-NH4-N-10X-1 100 mL
1000 µg/mL Ammonium-Nitrogen in Water

Nitrogen - Nitrite

IC-NO2-N-10X-1 100 mL
1000 µg/mL Nitrite-Nitrogen in Water

Nitrogen - Nitrate

IC-NO3-N-10X-1 100 mL
1000 µg/mL Nitrate-Nitrogen in Water

Silica

WC-SIO2-10X-1 100 mL
1000 µg/mL as Silica (SiO₂) in Water tr. HF

Sulfate

IC-SO4-10X-1 100 mL
1000 µg/mL Sulfate (SO₄) in Water

Hexavalent Chromium

WC-HEX-10X-1 100 mL
1000 µg/mL in Water

Physical & Aggregate Properties

These Standards are concerned primarily with measuring actual physical characteristics of a sample as opposed to the chemical characteristics. These analytes are measured frequently in both drinking and waste waters.

Turbidity

WC-TURB-4X-1 100 mL
400 NTU non-ratio Turbidity Standard

A stable solution of microspheres in an aqueous matrix can be diluted in turbidity free water for a calibration curve. Do not shake prior to use.

Alkalinity

WC-ALK-10X-1 100 mL
1000 µg/mL CaCO₃ to pH 4.5

Hardness

WC-HARD-10X-1 100 mL
1000 µg/mL equivalent CaCO₃

A combination of Ca and Mg to give an approx. concentration of 1000 µg/mL CaCO₃. Hardness µg/mL equivalent CaCO₃ = 2.497 [Ca µg/mL] + 4.118 [Mg µg/mL]

Conductivity

WC-COND-10X-1 100 mL
1000 µmhos in Water

Solids

WC-SOL sample
2 comps.
1000 ppm TSS (Total Suspended Solids) and 1000 ppm TDS (Total Dissolved Solids) for a 2000 ppm TS (Total Solids).
Dilute to 100 mL. Rinse vial and cap several times to recover all solids.

Methylene Blue Activated Substance (MBAS)

WC-MBAS-R1-10X-1 100 mL
1000 µg/mL in Water



Aggregate Organic

Rather than determining individual organic analytes, these Standards are used to determine organic matter in broad categories, based primarily on how they react.

Biochemical Oxygen Demand (BOD)

WC-BOD-10ML 10 mL
100 µg/mL BOD (After Dilution)

75 mg/L glucose and 75 mg/L glutamic acid provided in a flame sealed ampule. Dilute to 1L immediately before use.

Absorbable Organic Halogens (AOX)

WC-AOX-2X-1 100 mL
200 µg/mL Chlorine in Water

Chemical Oxygen Demand (COD)

WC-COD-5X-10ML 10 mL
500 µg/mL COD in water

Total Organic Carbon (TOC)

WC-TOC-10X-1 100 mL
1000 µg/mL TOC in water, tr. H₂SO₄

Total Inorganic Carbon (TIC)

WC-TIC-10X-1 100 mL
1000 µg/mL Total Inorganic Carbon in Water

Total Organic Halides (TOX)

WC-TOX-10X-1 1 mL
WC-TOX-10X-1-PAK SAVE 5 x 1 mL
1000 µg/mL in MeOH

Total Organic Nitrogen (TON)

WC-TON-10X-1 100 mL
1000 µg/mL Total Organic Nitrogen in Water

Total Kjeldahl Nitrogen (TKN)

WC-TKN-10X-1 100 mL
1000 µg/mL Total Kjeldahl Nitrogen in Water

Oil and Grease

WC-OILG-10X-1 100 mL
1000 µg/mL Total Oil and Grease in n-Propanol

Contains 500 µg/mL vegetable oil and 500 µg/mL of petroleum oil. Shake well before use.

Phenols

WC-PHEN-10X-1 100 mL
1000 µg/mL Phenol in water.

Inorganic products containing acid generally require a hazardous fee for air shipments. Inorganic products in water generally do not.



D8083 Nitrogen in Water

Total Nitrogen Stock Calibration Standard

D-8083-TN 100 mL
Nitrogen @ 1000 µg/mL

Total Nitrogen Stock Laboratory Control Standard

D-8083-LCS 100 mL
Nitrogen @ 1000 µg/mL

Stock TON Test Solution

D-8083-TON 100 mL
Nitrogen @ 1000 µg/mL

ASTM D8083 Nitrogen Calibration Set

D-8083-SET 3 x 100 mL
D-8083-TN, D-8083-LCS, D-8083-TON



TPH, Oil and Grease

EPA Methods

Method 1664 Oil, Grease & Total Petroleum Hydrocarbon (TPH)

Precision and Recovery (PAR) Spiking Solution

M-1664-5ML			1 x 5 mL
M-1664-5ML-PAK	SAVE		5 x 5 mL
4.0 mg/mL each in Acetone			
M-1664-20ML			1 x 20 mL
M-1664-20ML-PAK	SAVE		5 x 20 mL
4.0 mg/mL each in Acetone			
<i>n</i> -Hexadecane		Stearic acid	2 comps.

Technical Note

This Precision and Recovery (PAR) Spiking Solution was developed for Method 1664. This performance based method was developed to replace previous gravimetric procedures incorporating Freon-113 as the extraction solvent for the determination of Oil and Grease and Total Petroleum Hydrocarbons. Each standard is packaged in a flame sealed ampule conveniently sized for quality control of the analytical batch.

Method 413.2 & 418.1 Total Petroleum Hydrocarbon Analysis by IR

Oil, Grease & Petroleum Hydrocarbon Concentrates Mix

M-418-CON			1 x 1 mL
At stated Vol.%			
Chlorobenzene	25.0	<i>n</i> -Hexadecane	37.5
Isooctane	37.5		

Oil, Grease and Petroleum Hydrocarbon Total Recoverable (IR Method)

M-418			1 x 1 mL
M-418-PAK	SAVE		5 x 1 mL
At stated conc. (mg/mL) in Freon 113			
Chlorobenzene	1.05	Isooctane	1.55
<i>n</i> -Hexadecane	1.55		

Method 8440 Total Petroleum Hydrocarbon Analysis

Total Recoverable Petroleum Hydrocarbon Mix

M-8440			1 x 1 mL
M-8440-PAK	SAVE		5 x 1 mL
At stated Wt.% in Tetrachloroethene			
Chlorobenzene	0.10	Isooctane	0.15
<i>n</i> -Hexadecane	0.15		

Total Petroleum Hydrocarbon Concentrate Mix

M-8440-CON			1 x 1 mL
M-8440-CON-PAK	SAVE		5 x 1 mL
At stated Vol.%			
Chlorobenzene	25.0	Isooctane	37.5
<i>n</i> -Hexadecane	37.5		

Silica Gel Cleanup Calibration Solution

M-8440-SGC			1 x 1 mL
M-8440-SGC-PAK	SAVE		5 x 1 mL
10.0 mg/mL in Tetrachloroethene			
Corn Oil			





Quality Control Standards

Quality Control Standards can be used for many different applications. AccuTrace QC Standards are ideal for calibration when performing NPDES monitoring requirements and can be used for standard curve checks, inter-element correction methods, interference checks or any other unique application.

QC Standard #1

QCS-01-1 100 mL
QCS-01-5 500 mL
 100 µg/mL each in 5% HNO₃ tr. HF 23 comps.

Antimony (Sb)	Manganese (Mn)
Arsenic (As)	Molybdenum (Mo)
Beryllium (Be)	Nickel (Ni)
Cadmium (Cd)	Phosphorus (P)
Calcium (Ca)	Selenium (Se)
Chromium (Cr)	Strontium (Sr)
Cobalt (Co)	Thallium (Tl)
Copper (Cu)	Tin (Sn)
Iron (Fe)	Titanium (Ti)
Lead (Pb)	Vanadium (V)
Lithium (Li)	Zinc (Zn)
Magnesium (Mg)	

QC Standard #2

QCS-02-1 100 mL
QCS-02-5 500 mL
 At stated conc. (µg/mL) in 5% HNO₃ tr. HF 7 comps

Aluminum (Al)	100
Barium (Ba)	100
Boron (B)	100
Potassium (K)	1000
Silicon (Si) †	500
Silver (Ag)	50
Sodium (Na)	100

† 1070 µg/mL as SiO₂

QC Standard #2R

QCS-02-R1-1 100 mL
QCS-02-R1-5 500 mL
 100 µg/mL each in 5% HNO₃ tr. HF 7 comps.

Aluminum (Al)	Silicon (Si) †
Barium (Ba)	Silver (Ag)
Boron (B)	Sodium (Na)
Potassium (K)	

† 214 µg/mL as SiO₂

QC Standard #3

QCS-03-1 100 mL
QCS-03-5 500 mL
 100 µg/mL each in 5% HNO₃ 15 comps.

Aluminum (Al)	Lead (Pb)
Barium (Ba)	Magnesium (Mg)
Cadmium (Cd)	Manganese (Mn)
Calcium (Ca)	Nickel (Ni)
Chromium (Cr)	Sodium (Na)
Cobalt (Co)	Titanium (Ti)
Copper (Cu)	Zinc (Zn)
Iron (Fe)	

QC Standard #4

QCS-04-1 100 mL
 At stated conc. (µg/mL) in 5% HNO₃ 19 comps.

Aluminum (Al)	100
Barium (Ba)	5
Beryllium (Be)	1
Bismuth (Bi)	200
Boron (B)	15
Cadmium (Cd)	20
Chromium (Cr)	25
Cobalt (Co)	20
Copper (Cu)	20
Gallium (Ga)	150
Indium (In)	200
Iron (Fe)	15
Lead (Pb)	200
Manganese (Mn)	5
Nickel (Ni)	50
Silver (Ag)	50
Strontium (Sr)	1
Thallium (Tl)	40
Zinc (Zn)	20

QC Standard #5

QCS-05-1 100 mL
 At stated conc. (µg/mL) in 2% HNO₃ 3 comps.

Lithium (Li)	250
Potassium (K)	10,000
Sodium (Na)	1000

QC Standard #6

QCS-06-1 100 mL
 1000 µg/mL each in 2% HNO₃ 4 comps.

Barium (Ba)	Magnesium (Mg)
Calcium (Ca)	Strontium (Sr)

Quality Control Stds. Sets

QCS-1-SET		3 x 100 mL
QCS-01-1	QCS-02-1	QCS-03-1
QCS-5-SET		3 x 500 mL
QCS-01-5	QCS-02-5	QCS-03-5
QCS-R1-1-SET		3 x 100 mL
QCS-01-1	QCS-02-R1-1	QCS-03-1
QCS-R1-5-SET		3 x 500 mL
QCS-01-5	QCS-02-R1-5	QCS-03-5

Second Source QC Standards

These Alternative Source Standards exactly match a formulation from another source you may be already using. These formulations save you the cost of a custom formulation by providing you with true independent lots.

Second Source QC Standard #1

QCS-ASL-7-1 1 x 100 mL
QCS-ASL-7-5 1 x 500 mL
 At stated conc. (µg/mL) in 2-5% HNO₃ tr. HF 7 comps.

Aluminum (Al)	100
Barium (Ba)	100
Boron (B)	100
Potassium (K)	1000
Silicon (Si)	50
Silver (Ag)	100
Sodium (Na)	100

Second Source QC Standard #2

QCS-ASL-21-1 1 x 100 mL
QCS-ASL-21-5 1 x 500 mL
 100 µg/mL each in 2-5% HNO₃ tr. HF 21 comps.

Antimony (Sb)	Magnesium (Mg)
Arsenic (As)	Manganese (Mn)
Beryllium (Be)	Molybdenum (Mo)
Cadmium (Cd)	Nickel (Ni)
Calcium (Ca)	Selenium (Se)
Chromium (Cr)	Strontium (Sr)
Cobalt (Co)	Thallium (Tl)
Copper (Cu)	Titanium (Ti)
Iron (Fe)	Vanadium (V)
Lead (Pb)	Zinc (Zn)
Lithium (Li)	

Second Source QC Standard #3

QCS-ASL-19-1 1 x 100 mL
QCS-ASL-19-5 1 x 500 mL
 100 µg/mL each in 2-5% HNO₃ tr. HF 19 comps.

Antimony (Sb)	Magnesium (Mg)
Arsenic (As)	Manganese (Mn)
Beryllium (Be)	Molybdenum (Mo)
Cadmium (Cd)	Nickel (Ni)
Calcium (Ca)	Selenium (Se)
Chromium (Cr)	Thallium (Tl)
Cobalt (Co)	Titanium (Ti)
Copper (Cu)	Vanadium (V)
Iron (Fe)	Zinc (Zn)
Lead (Pb)	

- NIST Traceable
- Independent Lots
- Exact Match

Match Other Supplier's Products.
 Use as a **True Second Source.**



ICP

Screening Standards and Groundwater & Wastewater

Screening Standards

These four Qualitative Standards can be combined to scan samples quickly and easily for elements present. They should be used for element identification only. The concentration of each element is approximately 10 µg/mL. To screen for **all 68 elements** these 4 semi-quantitative standards can be blended together and used immediately.

Semi-Quantitative Standard #1

SQS-01-1 1 x 100 mL
10 µg/mL each in 2-5% HNO₃ tr. HF 33 comps.

Aluminum (Al)	Sodium (Na)
Arsenic (As)	Neodymium (Nd)
Barium (Ba)	Phosphorus (P)
Bismuth (Bi)	Lead (Pb)
Calcium (Ca)	Praseodymium (Pr)
Cadmium (Cd)	Scandium (Sc)
Cerium (Ce)	Selenium (Se)
Dysprosium (Dy)	Samarium (Sm)
Erbium (Er)	Strontium (Sr)
Europium (Eu)	Terbium (Tb)
Gallium (Ga)	Thorium (Th)
Gadolinium (Gd)	Thallium (Tl)
Holmium (Ho)	Thulium (Tm)
Indium (In)	Uranium (U)
Lanthanum (La)	Yttrium (Y)
Lutetium (Lu)	Ytterbium (Yb)
Magnesium (Mg)	

Semi-Quantitative Standard #2

SQS-02-R1-1 1 x 100 mL
10 µg/mL each in 2-5% HNO₃ tr. HCl tr. HF 33 comps.

Boron (B)	Platinum (Pt)
Beryllium (Be)	Rubidium (Rb)
Cobalt (Co)	Rhenium (Re)
Chromium (Cr)	Rhodium (Rh)
Cesium (Cs)	Ruthenium (Ru)
Copper (Cu)	Sulfur (S)
Iron (Fe)	Antimony (Sb)
Germanium (Ge)	Silicon (Si)
Hafnium (Hf)	Tin (Sn)
Iridium (Ir)	Tantalum (Ta)
Potassium (K)	Tellurium (Te)
Lithium (Li)	Titanium (Ti)
Manganese (Mn)	Vanadium (V)
Molybdenum (Mo)	Tungsten (W)
Niobium (Nb)	Zinc (Zn)
Nickel (Ni)	Zirconium (Zr)
Palladium (Pd)	

Semi-Quantitative Standard #3

SQS-03-1 1 x 100 mL
10 µg/mL each in 2-5% HNO₃ 2 comps.

Mercury (Hg)	Silver (Ag)
--------------	-------------

Semi-Quantitative Standard #4

SQS-04-1 1 x 100 mL
10 µg/mL each in 5% HCl

Gold (Au)

Screening Standard Set

SQS-R1-1-SET	4 x 100 mL
SQS-01-1	SQS-02-R1-1
SQS-03-1	SQS-04-1

Technical Note

To verify screening results, use single element standards to confirm and quantify the concentration.

Groundwater & Wastewater Standards

Trace Metals I, II, III

Trace Metals I

WPTM-01-1 100 mL
WPTM-01-5 500 mL
At stated conc. (µg/mL) in 5% HNO₃ 15 comps.

Aluminum (Al)	500
Arsenic (As)	100
Beryllium (Be)	100
Cadmium (Cd)	25
Chromium (Cr)	100
Cobalt (Co)	100
Copper (Cu)	100
Iron (Fe)	100
Lead (Pb)	100
Manganese (Mn)	100
Mercury (Hg)	5
Nickel (Ni)	100
Selenium (Se)	25
Vanadium (V)	250
Zinc (Zn)	100

Trace Metals II

WPTM-02-1 100 mL
WPTM-02-5 500 mL
At stated conc. (µg/mL) in 5% HNO₃ 3 comps.

Antimony (Sb)	20
Silver (Ag)	10
Thallium (Tl)	20

Trace Metals III

WPTM-03-1 100 mL
WPTM-03-5 500 mL
At stated conc. (µg/mL) in 5% HNO₃ tr. HF 6 comps.

Barium (Ba)	500
Calcium (Ca)	500
Magnesium (Mg)	100
Molybdenum (Mo)	500
Potassium (K)	100
Sodium (Na)	500

Trace Metal Sets

WPTM-1-SET	3 x 100 mL
WPTM-01-1	WPTM-02-1
WPTM-03-1	
WPTM-5-SET	3 x 500 mL
WPTM-01-5	WPTM-02-5
WPTM-03-5	

Alternate Metals for Groundwater and Wastewater Analysis

Alternate Metals I

WPAM-01-1 100 mL
WPAM-01-5 500 mL
At stated conc. (µg/mL) in 2% HNO₃ 11 comps.

Aluminum (Al)	20
Antimony (Sb)	5
Beryllium (Be)	5
Cobalt (Co)	10
Copper (Cu)	10
Iron (Fe)	20
Manganese (Mn)	10
Nickel (Ni)	10
Thallium (Tl)	5
Vanadium (V)	20
Zinc (Zn)	10

Alternate Metals III

WPAM-03-1 100 mL
WPAM-03-5 500 mL
At stated conc. (µg/mL) in 2% HNO₃ 4 comps.

Calcium (Ca)	500
Magnesium (Mg)	100
Potassium (K)	100
Sodium (Na)	500

Alternate Trace Metal Sets

WPAM-1-SET	2 x 100 mL
WPAM-01-1	WPAM-03-1
WPAM-5-SET	2 x 500 mL
WPAM-01-5	WPAM-03-5

ICP

SDWA (Safe Drinking Water Act) Standards



SDWA Standards

For use in SW-846, Method 1310 and U.S. NPDRW 40CFR Part 141. The three Drinking Water Standards are used for monitoring drinking water and/or ground and surface water.

Primary Drinking Water Metals

SDWA-01-1	100 mL
SDWA-01-5	500 mL
At stated conc. (µg/mL) in 2% HNO ₃ 7 comps.	
Arsenic (As)	10
Barium (Ba)	100
Cadmium (Cd)	5
Chromium (Cr)	10
Lead (Pb)	10
Selenium (Se)	5
Silver (Ag)	10

Secondary Drinking Water Metals

SDWA-02-1	100 mL
SDWA-02-5	500 mL
At stated conc. (µg/mL) in 2-5% HNO ₃ 4 comps.	
Copper (Cu)	100
Iron (Fe)	30
Manganese (Mn)	5
Zinc (Zn)	500

Mercury Solution

SDWA-03-1	100 mL
SDWA-03-5	500 mL
10 µg/mL in 5% HNO ₃	
Mercury (Hg)	

Drinking Water Sets

SDWA-1-SET	3 x 100 mL
SDWA-01-1	SDWA-02-1 SDWA-03-1
SDWA-5-SET	3 x 500 mL
SDWA-01-5	SDWA-02-5 SDWA-03-5

Standards for Analytes covered in the Safe Drinking Water Act (SDWA)

Primary Metals for Analysis by ICP

Contains all approved elements	
SDWA-04-1	100 mL
SDWA-04-5	500 mL
At stated conc. (µg/mL) in 2-5% HNO ₃ 9 comps.	
Arsenic (As)	100
Barium (Ba)	10
Beryllium (Be)	10
Cadmium (Cd)	10
Calcium (Ca)	100
Chromium (Cr)	10
Copper (Cu)	10
Nickel (Ni)	10
Sodium (Na)	100

Primary Metals for Analysis by ICP-MS

Contains all approved elements	
SDWA-06-MS-1	100 mL
SDWA-06-MS-5	500 mL
10 µg/mL each in 2% HNO ₃ 11 comps.	
Antimony (Sb)	Copper (Cu)
Arsenic (As)	Lead (Pb)
Barium (Ba)	Nickel (Ni)
Beryllium (Be)	Selenium (Se)
Cadmium (Cd)	Thallium (Tl)
Chromium (Cr)	

Secondary Metals for Analysis by GFAA/ICP/ICP-MS

SDWA-08-1	100 mL
SDWA-08-5	500 mL
At stated conc. (µg/mL) in 2-5% HNO ₃ 5 comps.	
Aluminum (Al)	10
Iron (Fe)	100
Manganese (Mn)	10
Silver (Ag)	10
Zinc (Zn)	10

Primary Metals for Analysis by GFAA

Contains GFAA approved elements	
SDWA-05-1	100 mL
SDWA-05-5	500 mL
10 µg/mL each in 2-5% HNO ₃ 9 comps.	
Antimony (Sb)	Lead (Pb)
Arsenic (As)	Nickel (Ni)
Cadmium (Cd)	Selenium (Se)
Chromium (Cr)	Thallium (Tl)
Copper (Cu)	

Primary Metals for Analysis by GFAA/ICP/ICP-MS

SDWA-07-1	100 mL
SDWA-07-5	500 mL
At stated conc. (µg/mL) in 2% HNO ₃ tr. HF 14 comps.	
Antimony (Sb)	100
Arsenic (As)	100
Barium (Ba)	10
Beryllium (Be)	10
Cadmium (Cd)	10
Calcium (Ca)	100
Chromium (Cr)	10
Copper (Cu)	10
Lead (Pb)	10
Nickel (Ni)	10
Selenium (Se)	10
Silicon (Si) †	100
Sodium (Na)	100
Thallium (Tl)	10

† 214 µg/mL as SiO₂

Primary & Secondary Metals for Analysis by GFAA/ICP/ICP-MS

Contains all Primary & Secondary Metals	
SDWA-09-1	100 mL
SDWA-09-5	500 mL
At stated conc. (µg/mL) in 2% HNO ₃ 19 comps.	
Aluminum (Al)	10
Antimony (Sb)	100
Arsenic (As)	100
Barium (Ba)	10
Beryllium (Be)	10
Cadmium (Cd)	10
Calcium (Ca)	100
Chromium (Cr)	10
Copper (Cu)	10
Iron (Fe)	100
Lead (Pb)	10
Manganese (Mn)	10
Nickel (Ni)	10
Selenium (Se)	10
Silicon (Si) †	100
Silver (Ag)	10
Sodium (Na)	100
Thallium (Tl)	10
Zinc (Zn)	10

† 214 µg/mL as SiO₂

Inorganic products containing acid generally require a hazardous fee for air shipments. Inorganic products in water generally do not.



ICP

MISA Test Group 29 and ASTM D5184

MISA Test Group 29 Analysis Calibration Standards

For use in MISA Test Group 29 Analysis or general use standards. Set of six standards contains 69 elements at 100 µg/mL each. Ideal for the laboratory that wants to analyze for everything.

MISA Standard 1

Rare Earth Metals

MISA-01-1 100 mL
100 µg/mL each in 5% HNO₃ 18 comps.

Cerium (Ce)	Praseodymium (Pr)
Dysprosium (Dy)	Scandium (Sc)
Erbium (Er)	Samarium (Sm)
Europium (Eu)	Terbium (Tb)
Gadolinium (Gd)	Thorium (Th)
Holmium (Ho)	Thulium (Tm)
Lanthanum (La)	Uranium (U)
Lutetium (Lu)	Ytterbium (Yb)
Neodymium (Nd)	Yttrium (Y)

MISA Standard 4

Alkali, Alkaline Earth, Non-Transition Group

MISA-04-1 100 mL
100 µg/mL each in 10% HNO₃ 16 comps.

Aluminum (Al)	Indium (In)
Arsenic (As)	Lithium (Li)
Barium (Ba)	Magnesium (Mg)
Beryllium (Be)	Potassium (K)
Bismuth (Bi)	Rubidium (Rb)
Calcium (Ca)	Selenium (Se)
Cesium (Cs)	Sodium (Na)
Gallium (Ga)	Strontium (Sr)

MISA Standard 5

Fluoride Soluble Group

MISA-05-1 100 mL
100 µg/mL each in 5% HNO₃ tr. HF 15 comps.

Antimony (Sb)	Silicon (Si)
Boron (B)	Sulfur (S)
Germanium (Ge)	Tantalum (Ta)
Hafnium (Hf)	Tin (Sn)
Molybdenum (Mo)	Titanium (Ti)
Niobium (Nb)	Tungsten (W)
Phosphorus (P)	Zirconium (Zr)
Rhenium (Re)	

MISA Standard 2

Precious Metals

MISA-02-1 100 mL
100 µg/mL each in 10% HCl 6 comps.

Gold (Au)	Platinum (Pt)
Iridium (Ir)	Rhodium (Rh)
Palladium (Pd)	Ruthenium (Ru)

MISA Calibration Set

MISA-1-SET 6 x 100 mL
MISA-01-1 MISA-03-1 MISA-05-1
MISA-02-1 MISA-04-1 MISA-06-1

MISA Standard 6

Transition Metals

MISA-06-1 100 mL
100 µg/mL each in 10% HNO₃ 13 comps.

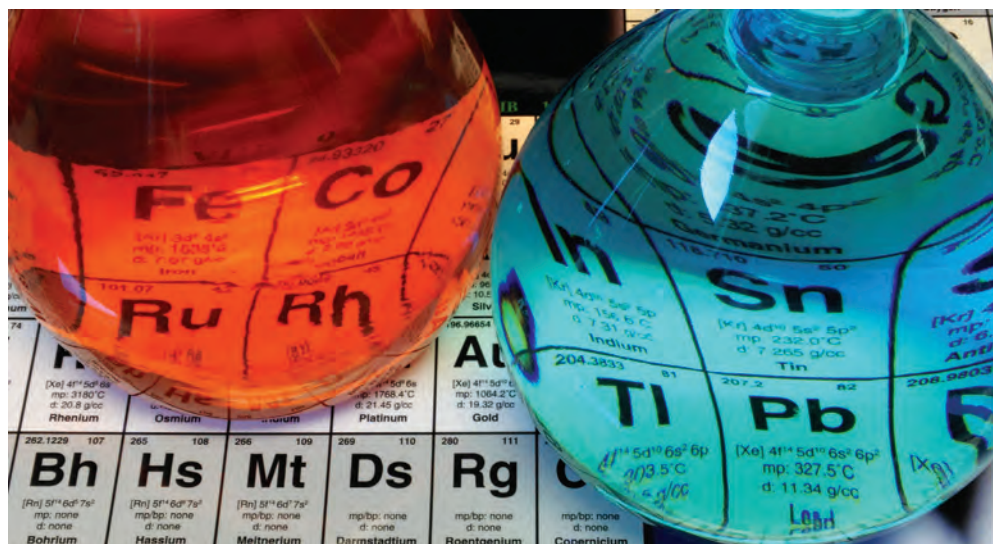
Cadmium (Cd)	Mercury (Hg)
Cobalt (Co)	Nickel (Ni)
Copper (Cu)	Silver (Ag)
Chromium (Cr)	Thallium (Tl)
Iron (Fe)	Vanadium (V)
Lead (Pb)	Zinc (Zn)
Manganese (Mn)	

MISA Standard 3

Tellurium

MISA-03-1 100 mL
100 µg/mL in 10% HCl

Tellurium (Te)





Calibration Check Standards

Calibration Standard #1

CLP-CAL-01-1 100 mL
5000 µg/mL each in 5% HNO₃ 4 comps.

Calcium (Ca)	Potassium (K)
Magnesium (Mg)	Sodium (Na)

Calibration Standard #2

CLP-CAL-02-1 100 mL
At stated conc. (µg/mL) in 5% HNO₃ 5 comps.

Chromium (Cr)	100
Manganese (Mn)	150
Nickel (Ni)	400
Silver (Ag)	100
Zinc (Zn)	200

Calibration Standard #3

CLP-CAL-03-1 100 mL
At stated conc. (µg/mL) in 5% HNO₃ 7 comps.

Aluminum (Al)	2000
Barium (Ba)	2000
Beryllium (Be)	50
Cobalt (Co)	500
Copper (Cu)	250
Iron (Fe)	1000
Vanadium (V)	500

Calibration Standard #4

CLP-CAL-04-1 100 mL
At stated conc. (µg/mL) in 5% HNO₃ 5 comps.

Arsenic (As)	100
Cadmium (Cd)	50
Lead (Pb)	50
Selenium (Se)	50
Thallium (Tl)	100

Calibration Standard #5

CLP-CAL-05-1 100 mL
600 µg/mL in 2% HNO₃

Antimony (Sb)

Calibration Standard #6

CLP-CAL-06-1 100 mL
100 µg/mL in 5% HNO₃

Mercury (Hg)

CLP Calibration Standard Set

CLP-CAL-1-SET	6 x 100 mL	
CLP-CAL-01	CLP-CAL-03	CLP-CAL-05
CLP-CAL-02	CLP-CAL-04	CLP-CAL-06

Verification Standards

Initial Calibration Verification

CLP-ICV-01-1 100 mL
CLP-ICV-01-5 500 mL

At stated conc. (µg/mL) in 5% HNO₃ tr. HF
22 comps.

Aluminum (Al)	200
Antimony (Sb)	60
Arsenic (As)	10
Barium (Ba)	200
Beryllium (Be)	5
Cadmium (Cd)	5
Calcium (Ca)	5000
Chromium (Cr)	10
Cobalt (Co)	50
Copper (Cu)	25
Iron (Fe)	100
Lead (Pb)	5
Magnesium (Mg)	5000
Manganese (Mn)	15
Nickel (Ni)	40
Potassium (K)	5000
Selenium (Se)	5
Silver (Ag)	10
Sodium (Na)	5000
Thallium (Tl)	10
Vanadium (V)	50
Zinc (Zn)	20

Initial Calibration Verification

CLP-ICV-01-R-1 100 mL
CLP-ICV-01-R-5 500 mL

At stated conc. (µg/mL) in 5% HNO₃ tr. HF
22 comps.

Aluminum (Al)	200
Antimony (Sb)	60
Arsenic (As)	10
Barium (Ba)	200
Beryllium (Be)	5
Cadmium (Cd)	5
Calcium (Ca)	500
Chromium (Cr)	10
Cobalt (Co)	50
Copper (Cu)	25
Iron (Fe)	100
Lead (Pb)	5
Magnesium (Mg)	500
Manganese (Mn)	15
Nickel (Ni)	40
Potassium (K)	500
Selenium (Se)	5
Silver (Ag)	10
Sodium (Na)	500
Thallium (Tl)	10
Vanadium (V)	50
Zinc (Zn)	20

Technical Note

CLP-ICV-01-R has Ca, Mg, K & Na at 1/10 the concentration of CLP-ICV-01. This improves plasma robustness and often results in superior recoveries.

We can provide Custom formulations to meet your needs.

To request a Custom formulation, contact Inorganic Technical Service using our website or Email inotech@accustandard.com.



ICP

Contract Laboratory Program (CLP)

Interference Check & Analyte Standards

The common interferents checked for CLP requirements and their associated analytes are listed in our primary interferent analyte solutions. Occasionally, additional interferents may cause other analytical problems according to CLP SOW ILM03.0. These additional six elements are available with their respective analytes in the alternate interferent/analyte solutions.

Primary Analytes

CLP-PAN-01-1 100 mL
CLP-PAN-01-5 500 mL
 At stated conc. (µg/mL) in 5% HNO₃ 12 comps.

Silver (Ag)	100
Barium (Ba)	50
Beryllium (Be)	50
Cadmium (Cd)	100
Cobalt (Co)	50
Chromium (Cr)	50
Copper (Cu)	50
Manganese (Mn)	50
Nickel (Ni)	100
Lead (Pb)	100
Vanadium (V)	50
Zinc (Zn)	100

Alternate Interferents

CLP-PIN-02-1 100 mL
CLP-PIN-02-5 500 mL
 1000 µg/mL each in 5% HNO₃ 6 comps.

Chromium (Cr)	Nickel (Ni)
Copper (Cu)	Titanium (Ti)
Manganese (Mn)	Vanadium (V)

Alternate Analytes

CLP-PAN-02-1 100 mL
CLP-PAN-02-5 500 mL
 At stated conc. (µg/mL) in 5% HNO₃ tr. HF 12 comps.

Aluminum (Al)	100
Antimony (Sb)	100
Arsenic (As)	100
Boron (B)	100
Calcium (Ca)	10
Iron (Fe)	10
Magnesium (Mg)	10
Molybdenum (Mo)	100
Selenium (Se)	100
Silicon (Si)	10
Sodium (Na)	100
Thallium (Tl)	100

Interferent / Analyte Sets

CLP-IA-1-SET	4 x 100 mL
CLP-PIN-01-1	CLP-PIN-02-1
CLP-PAN-01-1	CLP-PAN-02-1
CLP-IA-5-SET	4 x 500 mL
CLP-PIN-01-5	CLP-PIN-02-5
CLP-PAN-01-5	CLP-PAN-02-5

Primary Interferents

CLP-PIN-01-1 100 mL
CLP-PIN-01-5 500 mL
 At stated conc. (µg/mL) in 5% HNO₃ 4 comps.

Aluminum (Al)	5000
Calcium (Ca)	5000
Iron (Fe)	2000
Magnesium (Mg)	5000

Detection Limit Standards

Contract Required Detection Limits (CRDL) Standard Solutions. We offer the flexibility of two convenient solutions:

CLP Detection Limits Standard #1

CLP-CRDL-01-1 100 mL
 At stated conc. (µg/mL) in 5% HNO₃ tr. HF 15 comps.

Antimony (Sb)	120
Arsenic (As)	120
Beryllium (Be)	10
Cadmium (Cd)	10
Chromium (Cr)	20
Cobalt (Co)	100
Copper (Cu)	50
Lead (Pb)	120
Manganese (Mn)	30
Nickel (Ni)	80
Selenium (Se)	120
Silver (Ag)	20
Thallium (Tl)	120
Vanadium (V)	100
Zinc (Zn)	40

Contract Required Detection Limits (CRDL) Set

CLP-CRDL-1-SET	2 x 100 mL
CLP-CRDL-01	CLP-CRDL-02

Technical Note

These standards are prepared to meet the requirements of the CLP protocol; Arsenic (As), Lead (Pb), Selenium (Se) and Thallium (Tl) are at a concentration two times the instrument detection limit (IDL) while the remaining elements are at two times the CRDL.

CLP Detection Limits Standard #2

CLP-CRDL-02-1 100 mL
 At stated conc. (µg/mL) in 5% HNO₃ tr. HF 15 comps.

Antimony (Sb)	120
Arsenic (As)	20
Beryllium (Be)	10
Cadmium (Cd)	10
Chromium (Cr)	20
Cobalt (Co)	100
Copper (Cu)	50
Lead (Pb)	6
Manganese (Mn)	30
Nickel (Ni)	80
Selenium (Se)	10
Silver (Ag)	20
Thallium (Tl)	20
Vanadium (V)	100
Zinc (Zn)	40

Technical Note

These standards are designed for ICPs equipped with ultrasonic nebulizers and offer the elements of interest at two times the CRDL level.



Method 200.7 (Revision 4.4, May 1994) Calibration Standards

Mixed Calibration Standard #1

M-200.7-01-1 100 mL
M-200.7-01-5 500 mL

At stated conc. (µg/mL) in 5% HNO₃ 10 comps.

Antimony (Sb)	50
Arsenic (As)	100
Barium (Ba)	10
Boron (B)	20
Cadmium (Cd)	20
Calcium (Ca)	100
Copper (Cu)	20
Manganese (Mn)	20
Selenium (Se)	50
Silver (Ag)	5

Mixed Calibration Standard #2

M-200.7-02R-1 100 mL
M-200.7-02R-5 500 mL

At stated conc. (µg/mL) in 5% HNO₃ tr. HF 6 comps.

Lithium (Li)	50
Molybdenum (Mo)	100
Potassium (K)	200
Sodium (Na)	100
Strontium (Sr)	10
Titanium (Ti)	100

Mixed Calibration Standard #3

M-200.7-03R-1 100 mL
M-200.7-03R-5 500 mL

At stated conc. (µg/mL) in 5% HNO₃ 4 comps.

Cerium (Ce)	20
Cobalt (Co)	20
Phosphorus (P)	100
Vanadium (V)	20

Mixed Calibration Standard #4

M-200.7-04-1 100 mL
M-200.7-04-5 500 mL

At stated conc. (µg/mL) in 5% HNO₃ tr. HF 5 comps.

Aluminum (Al)	100
Chromium (Cr)	50
Silicon (Si) †	100
Tin (Sn)	40
Zinc (Zn)	50

† 214 µg/mL as SiO₂

Mixed Calibration Standard #5

M-200.7-05-1 100 mL
M-200.7-05-5 500 mL

At stated conc. (µg/mL) in 5% HNO₃ 6 comps.

Beryllium (Be)	10
Iron (Fe)	100
Lead (Pb)	100
Magnesium (Mg)	100
Nickel (Ni)	20
Thallium (Tl)	50

Mixed Calibration Stds. Sets

M-200.7-R-1-SET 5 x 100 mL

M-200.7-01-1	M-200.7-04-1
M-200.7-02R-1	M-200.7-05-1
M-200.7-03R-1	

M-200.7-5-R-5-SET 5 x 500 mL

M-200.7-01-5	M-200.7-04-5
M-200.7-02R-5	M-200.7-05-5
M-200.7-03-5R	

Method 200.7 Instrument Performance Standards

Instrument Performance Check Std. #1

M-200.7-IPC-01-1 100 mL
M-200.7-IPC-01-5 500 mL

At stated conc. (µg/mL) in 5% HNO₃ 26 comps.

Aluminum (Al)	20	Lithium (Li)	20
Arsenic (As)	20	Magnesium (Mg)	20
Barium (Ba)	20	Manganese (Mn)	20
Beryllium (Be)	20	Nickel (Ni)	20
Boron (B)	20	Phosphorus (P)	100
Cadmium (Cd)	20	Potassium (K)	100
Calcium (Ca)	20	Selenium (Se)	20
Cerium (Ce)	20	Silver (Ag)	2.5
Chromium (Cr)	20	Sodium (Na)	20
Cobalt (Co)	20	Strontium (Sr)	20
Copper (Cu)	20	Thallium (Tl)	20
Iron (Fe)	20	Vanadium (V)	20
Lead (Pb)	20	Zinc (Zn)	20

Instrument Performance Check Standard #2

M-200.7-IPC-02-1 100 mL
M-200.7-IPC-02-5 500 mL

At stated conc. (µg/mL) in 5% HNO₃ tr. HF 5 comps.

Antimony (Sb)	20
Molybdenum (Mo)	20
Silicon (Si) †	100
Tin (Sn)	20
Titanium (Ti)	20

† 214 µg/mL as SiO₂

Method 200.7 Performance Check, Fortifying Solution & Mercury Standard

Laboratory Performance Check Std.

Used in demonstrating the initial and continuing verification of the calibration curves by this method.

LPCS-01-1 100 mL
LPCS-01-5 500 mL

At stated conc. (µg/mL) in 5% HNO₃ tr. HF 29 comps.

Aluminum (Al)	20	Manganese (Mn)	20
Antimony (Sb)	20	Molybdenum (Mo)	20
Arsenic (As)	20	Nickel (Ni)	20
Barium (Ba)	20	Phosphorus (P)	100
Beryllium (Be)	20	Potassium (K)	100
Boron (B)	20	Selenium (Se)	20
Cadmium (Cd)	20	Silicon (Si) †	100
Calcium (Ca)	20	Silver (Ag)	5
Chromium (Cr)	20	Sodium (Na)	20
Cobalt (Co)	20	Strontium (Sr)	20
Copper (Cu)	20	Thallium (Tl)	20
Iron (Fe)	20	Tin (Sn)	20
Lead (Pb)	20	Vanadium (V)	20
Lithium (Li)	20	Zinc (Zn)	20
Magnesium (Mg)	20		

† 214 µg/mL as SiO₂

Laboratory Fortifying Stock Solution

Use in preparing the laboratory fortified blank and the laboratory fortified sample matrix.

LFSS-01-1 100 mL
LFSS-01-5 500 mL

At stated conc. (µg/mL) in 5% HNO₃ tr. HF 25 comps.

Aluminum (Al)	25	Manganese (Mn)	25
Antimony (Sb)	25	Molybdenum (Mo)	10
Arsenic (As)	25	Nickel (Ni)	25
Barium (Ba)	25	Phosphorus (P)	50
Beryllium (Be)	5	Selenium (Se)	25
Boron (B)	25	Silicon (Si) †	25
Cadmium (Cd)	10	Silver (Ag)	2.5
Chromium (Cr)	25	Strontium (Sr)	25
Cobalt (Co)	10	Thallium (Tl)	25
Copper (Cu)	25	Tin (Sn)	10
Iron (Fe)	25	Vanadium (V)	10
Lead (Pb)	25	Zinc (Zn)	25
Lithium (Li)	25		† 53.5 µg/mL as SiO ₂

Mercury Standard

In separate solution due to incompatibility with other elements.

TCLP-02-1 100 mL
TCLP-02-5 500 mL

20 µg/mL in 5% HNO₃

Mercury (Hg)

Technical Note

The analytes Ca, K, Mg, and Na are not included in the stock solution because their concentrations vary widely in environmental samples.



Method 200.7 Fortifying (Spiking & Instrument Performance Standards)

Instrument Fortifying Standard

M-200.7-LFSS-01-1 100 mL
M-200.7-LFSS-01-5 500 mL
 At stated conc. (µg/mL) in 5% HNO₃ tr. HF 26 comps.

Aluminum (Al)	20	Lithium (Li)	20
Arsenic (As)	20	Magnesium (Mg)	20
Barium (Ba)	20	Manganese (Mn)	20
Beryllium (Be)	20	Nickel (Ni)	20
Boron (B)	20	Phosphorus (P)	20
Cadmium (Cd)	20	Potassium (K)	500
Calcium (Ca)	20	Selenium (Se)	20
Cerium (Ce)	20	Silver (Ag)	7.5
Chromium (Cr)	20	Sodium (Na)	20
Cobalt (Co)	20	Strontium (Sr)	20
Copper (Cu)	20	Thallium (Tl)	20
Iron (Fe)	20	Vanadium (V)	20
Lead (Pb)	20	Zinc (Zn)	20

Instrument Fortifying Standard #2

M-200.7-LFSS-02-1 100 mL
M-200.7-LFSS-02-5 500 mL
 20 µg/mL each in 5% HNO₃ tr. HF 5 comps.

Antimony (Sb)
Molybdenum (Mo)
Silicon (Si) †
Tin (Sn)
Titanium (Ti)
† 42.78 µg/mL as SiO ₂

Method 200.7 Spiking Solutions for Drinking Water

Spiking Standard #1R

M-200.7-SP-01-R 50 mL
 At stated conc. (µg/mL) in Water tr. HF 4 comps.

Boron (B)	400
Molybdenum (Mo)	200
Silicon (Si) †	2000
Phosphorus (P)	400

† 4278 µg/mL SiO₂

Spiking Standard #2R

M-200.7-SP-02-R 50 mL
M-200.7-SP-02-R-1 100 mL
M-200.7-SP-02-R-5 500 mL
 10,000 µg/mL each in 2% HNO₃ 4 comps.

Calcium (Ca)	Potassium (K)
Magnesium (Mg)	Sodium (Na)

Spiking Standard #3

M-200.7-SP-03 50 mL
 At stated conc. (µg/mL) in 5% HNO₃ 12 comps.

Aluminum (Al)	2000
Barium (Ba)	2000
Beryllium (Be)	50
Chromium (Cr)	200
Cobalt (Co)	500
Copper (Cu)	250
Iron (Fe)	1000
Manganese (Mn)	500
Nickel (Ni)	500
Silver (Ag)	50
Vanadium (V)	500
Zinc (Zn)	500

Spiking Standard #4R

M-200.7-SP-04-R 50 mL
 200 µg/mL in dilute HNO₃

Antimony (Sb)

Spiking Standard #5R

M-200.7-SP-05-R 50 mL
 At stated conc. (µg/mL) in 5% HNO₃ 5 comps.

Arsenic (As)	200
Cadmium (Cd)	100
Lead (Pb)	200
Selenium (Se)	400
Thallium (Tl)	400

Method 200.7 Spiking Set

M-200.7-SP-R-SET 5 x 50 mL
 M-200.7-SP-01-R M-200.7-SP-04-R
 M-200.7-SP-02-R M-200.7-SP-05-R
 M-200.7-SP-03

Method 200.7 Interference Check Standards

For use in testing and verifying the inter-element spectral correction process.

SIC Solution #1

Used to evaluate the spectral interference for the analytes: Al, Sb, Se, Sn, V

SICS-01-1 100 mL
SICS-01-5 500 mL
 50 µg/mL in Water tr. NH₄OH

Molybdenum (Mo)

SIC Solution #2

Used to evaluate the spectral interference for the analytes: Sb, Pb, Zn, Mo, As, Be

SICS-02-1 100 mL
SICS-02-5 500 mL
 At stated conc. (µg/mL) in 2% HNO₃ 5 comps.

Chromium (Cr)	20
Cobalt (Co)	10
Copper (Cu)	40
Manganese (Mn)	20
Vanadium (V)	10

SIC Solution #3

Used to evaluate the spectral interference for the analytes: Sb, Zn, As, Ag, Cr, Mn, V

SICS-03-1 100 mL
SICS-03-5 500 mL
 At stated conc. (µg/mL) in 2% HNO₃ 3 comps.

Aluminum (Al)	30
Iron (Fe)	150
Nickel (Ni)	20

Check Solutions Sets

SIC-1-SET 3 x 100 mL
 SICS-01-1 SICS-03-1
 SICS-02-1

SIC-5-SET 3 x 500 mL
 SICS-01-5 SICS-03-5
 SICS-02-5



Method 6010B (Rev. 2, from SW-846) Calibration Standards

Mixed Calibration Standard #1

MCS-01-1 100 mL
MCS-01-5 500 mL
At stated conc. (µg/mL) in 2% HNO₃ 6 comps.

Beryllium (Be)	50
Cadmium (Cd)	150
Lead (Pb)	500
Manganese (Mn)	100
Selenium (Se)	200
Zinc (Zn)	150

Mixed Calibration Standard #2

MCS-02-1 100 mL
MCS-02-5 500 mL
At stated conc. (µg/mL) in 2% HNO₃ 5 comps.

Barium (Ba)	100
Cobalt (Co)	100
Copper (Cu)	100
Iron (Fe)	10,000
Vanadium (V)	100

Mixed Calibration Standard #3R

MCS-03R-1 100 mL
MCS-03R-5 500 mL
At stated conc. (µg/mL) in 2% HNO₃ tr. HF 2 comps.

Arsenic (As)	500
Molybdenum (Mo)	100

Mixed Calibration Standard #4R

MCS-04R-1 100 mL
MCS-04R-5 500 mL
At stated conc. (µg/mL) in 2% HNO₃ 8 comps.

Aluminum (Al)	200
Calcium (Ca)	1000
Chromium (Cr)	20
Lithium (Li)	100
Nickel (Ni)	20
Potassium (K)	400
Sodium (Na)	200
Strontium (Sr)	10

Mixed Calibration Standard #5R

MCS-05R-1 100 mL
MCS-05R-5 500 mL
At stated conc. (µg/mL) in 2% HNO₃ 4 comps.

Antimony (Sb)	200
Magnesium (Mg)	1000
Silver (Ag)	50
Thallium (Tl)	200

Mixed Calibration Standard 6R

MCS-06R-1 100 mL
MCS-06R-5 500 mL
At stated conc. (µg/mL) in 2-5% HNO₃, tr. HF 5 comps.

Phosphorus (P)	200
Tin (Sn)	200
Titanium (Ti)	100
Boron (B)	50
Silicon (Si) †	100

† 214 µg/mL as SiO₂

Complete Calibration Set 6010B, Rev. 2, 1996 and 6010C, Rev. 3, 2000

MCS-1996-1-SET 7 x 100 mL
MCS-01-1 MCS-04R-1 MCS-06R-1
MCS-02-1 MCS-05R-1 TCLP-02-1
MCS-03R-1

MCS-1996-5-SET 7 x 500 mL
MCS-01-5 MCS-04R-5 MCS-06R-5
MCS-02-5 MCS-05R-5 TCLP-02-5
MCS-03R-5

Technical Note

Additional Analyte Calibration Standards.

The use of this Standard Solution (MCS-06R), plus a Mercury Standard (TCLP-02), completes the analyte list for the 1996 Rev. 2 and 2000 Rev. 3.

Mercury Standard

Mercury is available in a separate solution due to its incompatibility with other elements.

TCLP-02-1 100 mL
TCLP-02-5 500 mL

20 µg/mL in 5% HNO₃

Mercury (Hg)

Method 6010B Spiking Standards

Three convenient solutions that can be used for spiking samples pre- or post- digestion.

Spiking Standard #1

QCS-01-1 100 mL
QCS-01-5 500 mL
100 µg/mL each in 5% HNO₃ tr. HF 23 comps.

Antimony (Sb)	Manganese (Mn)
Arsenic (As)	Molybdenum (Mo)
Beryllium (Be)	Nickel (Ni)
Cadmium (Cd)	Phosphorus (P)
Calcium (Ca)	Selenium (Se)
Chromium (Cr)	Strontium (Sr)
Cobalt (Co)	Thallium (Tl)
Copper (Cu)	Tin (Sn)
Iron (Fe)	Titanium (Ti)
Lead (Pb)	Vanadium (V)
Lithium (Li)	Zinc (Zn)
Magnesium (Mg)	

Spiking Standard #2

QCS-02-1 100 mL
QCS-02-5 500 mL
At stated conc. (µg/mL) in 5% HNO₃ tr. HF 7 comps.

Aluminum (Al)	100
Barium (Ba)	100
Boron (B)	100
Potassium (K)	1000
Silicon (Si) †	500
Silver (Ag)	50
Sodium (Na)	100

† 1070 µg/mL as SiO₂

QC Standard #2R

QCS-02-R1-1 100 mL
QCS-02-R1-5 500 mL
100 µg/mL each in 5% HNO₃ tr. HF 7 comps.

Aluminum (Al)	Silicon (Si) †
Barium (Ba)	Silver (Ag)
Boron (B)	Sodium (Na)
Potassium (K)	

† 214 µg/mL as SiO₂

Mercury Standard

Mercury is available in a separate solution due to incompatibility with other elements.

TCLP-02-1 100 mL
TCLP-02-5 500 mL

20 µg/mL in 5% HNO₃

Mercury (Hg)



ICP

EPA Method 6010

Method 6010B (Rev. 2 from SW-846, Dec. 1996) Performance and Interference Check Standards

Laboratory Performance Check Standard

LPCS-01R-1 100 mL
LPCS-01R-5 500 mL

At stated conc. (µg/mL) in 5% HNO₃ tr. HF
30 comps.

Aluminum (Al)	20
Antimony (Sb)	20
Arsenic (As)	20
Barium (Ba)	20
Beryllium (Be)	20
Boron (B)	20
Cadmium (Cd)	20
Calcium (Ca)	20
Chromium (Cr)	20
Cobalt (Co)	20
Copper (Cu)	20
Iron (Fe)	20
Lead (Pb)	20
Lithium (Li)	20
Magnesium (Mg)	20
Manganese (Mn)	20
Molybdenum (Mo)	20
Nickel (Ni)	20
Phosphorus (P)	100
Potassium (K)	100
Selenium (Se)	20
Silicon (Si) †	100
Silver (Ag)	5
Sodium (Na)	20
Strontium (Sr)	20
Thallium (Tl)	20
Tin (Sn)	20
Titanium (Ti)	20
Vanadium (V)	20
Zinc (Zn)	20

† 214 µg/mL as SiO₂

Primary Interferents

CLP-PIN-01-1 100 mL
CLP-PIN-01-5 500 mL
At stated conc. (µg/mL) in 5% HNO₃ 4 comps.

Aluminum (Al)	5000
Calcium (Ca)	5000
Iron (Fe)	2000
Magnesium (Mg)	5000

Alternate Interferents

CLP-PIN-02-1 100 mL
CLP-PIN-02-5 500 mL
1000 µg/mL each in 5% HNO₃ 6 comps.

Chromium (Cr)	Nickel (Ni)
Copper (Cu)	Titanium (Ti)
Manganese (Mn)	Vanadium (V)

Set-up Solution

Nebulizer Adjustment Solution

ICP-69N-1 100 mL

1000 µg/mL in 2% HNO₃

Yttrium (Y)



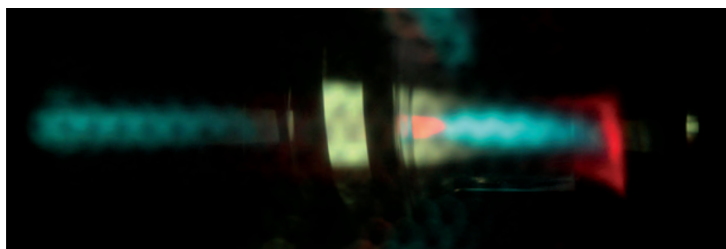


Table of Contents

Agilent	356-357
Perkin Elmer	357-360
Horiba/Jobin Yvon	360
Teledyne	360
Merck ICP Standards	361-362

The Alternate Source Line (ASL) formulations match products from instrument manufacturers. These calibration and testing standards have been formulated to be used for specific instrument setup and verification. Contact our Inorganic Technical Service Dept. for additional formulations not found on these pages or to cross reference part numbers.

Cross Reference Part No. Index

Instrument	AccuStandard Cat. No.	Instrument	AccuStandard Cat. No.	Instrument	AccuStandard Cat. No.
Agilent		Perkin Elmer		Horiba/Jobin Yvon	
5183-4681	AG-INT	N9300215	PE-WPAM3 ♦	JYICP-MIXHM	JY-CALHM ♦
5183-4682	AG-VER1	N9300216	PE-SDWA1 ♦	JYICP-MIXMAJ	JY-CAL
5183-4687	AG-SPIKE	N9300217	PE-SDWA2 ♦	JYICP-MIX7HSI	JY-QC7
5183-4688	AG-CAL	N9300218	PE-CAL4	JYICP-MIX9	JY-CHK ♦
5188-6524	AG-TUN	N9300219	PE-CAL5 ♦	JYICP-MIX21	JY-QC21
5188-6525	AG-INTSTD	N9300220	PE-CAL6 ♦	JYICP-MIX23	JY-QC23
5188-6526	AG-INTFR-6020 ♦	N9300221	PE-CAL7 ♦	JYICP-QC1	JY-CHK1 ♦
5188-6527	AG-INTFR2-6020 ♦	N9300224	PE-CRDL1 * ♦		
5188-6564	AG-TUNSTOCK	N9300225	PE-CRDL2 ♦	Teledyne	AccuStandard
5190-0465	AG-TUNSTOCK1	N9300226	PE-INTA ♦	601-3110	TELE-CHK1 *
8500-6940	AG-MECAL2A	N9300227	PE-ANAB ♦	601-4101	TELE-CHK2 * ♦
8500-6942	AG-MECAL4	N9300228	PE-ALTINTA ♦	601-4102	TELE-CHK3 * ♦
8500-6944	AG-MECAL1	N9300229	PE-ALTB ♦	602-00065	TELE-CHK4 ♦
8500-6948	AG-MECAL3	N9300230	PE-SPIKE ♦	602-00067	TELE-CHK4 ♦
190024400	VAR-TUN ♦	N9300231	PE-MECAL1	602-00068	TELE-CHK5 ♦
190064800	AG-INTFA ♦	N9300232	PE-MECAL2	602-00070	TELE-CHK5 ♦
190024900	AG-ICV7	N9300233	PE-MECAL3	602-00071	TELE-CHK6 ♦
190025000	AG-QCS27	N9300234	PE-MECAL4	602-00073	TELE-CHK6 ♦
190025100	AG-ANALTB	N9300235	PE-MECAL5	620-403	TELE-CHK7 ♦
6610030000	AG-WAVECAL-10X	N9300280	PE-QC7	602-00125	TELE-CHK8-0.1X * ♦
6610030100	AG-WAVECAL	N9300281	PE-QC21		
6610030400	AG-INT2	N9301720	PE-MECAL3	Merck	AccuStandard
6610030500	AG-CAL1	N9301721	PE-CAL2	1.09410	MES-23 ♦
6610030600	AG-CAL2	N9302946	PE-VISWAVE	1.09411	MES-24
6610030700	AG-CALMAJOR	N9303816	PE-CAL1	1.09480	MES-13 *
		N9303818	PE-CAL3	1.09481	MES-14
		N9303821	PE-CHK1	1.09482	MES-15 ♦
		N9303822	PE-CHK3	1.09487	MES-16
		N9303823	PE-CHK4	1.09490	MES-12 *
		N9303824	PE-CHK5	1.09491	MES-11 * ♦
		N9303825	PE-VER1	1.09492	MES-08 *
		N9303826	PE-VER2	1.09493	MES-10 *
		N9303827	PE-INTFRA ♦	1.09494	MES-09 *
		N9303828	PE-INTFR1 ♦	1.09495	MES-17
		N9303829	PE-INTFRB ♦	1.09496	MES-19 * ♦
		N9303830	PE-INTFR2 ♦	1.09497	MES-20 * ♦
		N9303831	PE-INTFRC ♦	1.09498	MES-21 ♦
		N9303832	PE-INT	1.09499	MES-22 *
		N9303834	PE-MEINT ♦	1.09500	MES-18
		N9303835	PE-MEM1 ♦	1.10322	MES-07
		N9303836	PE-MEM2 ♦	1.10580	MES-06 *
		N9303839	PE-SPIKE1 ♦	1.10714	MES-05 * ♦
		N9303840	PE-SPIKE2 ♦	1.11355	MES-04
		N9303841	PE-SPIKE3 ♦	1.15474	MES-01
		N9303843	PE-TUNSOL	1.15626	MES-03 ♦
		N9307113	PE-MES1 ♦	1.15708	MES-02 ♦
		N9307114	PE-MES2 ♦		
		N9307115	PE-MES3 ♦		
		N9307116	PE-MES4 ♦		

* Similar formulation
♦ Custom Products

AccuStandard is not affiliated with the companies and brands. They appear for the purpose of cross reference with the corresponding AccuStandard products.



ICP Alternate Source

Agilent

AccuStandard equivalent of Agilent

ICP-OES Wavelength Calibration Solution

AG-WAVECAL-ASL-1	100 mL
AG-WAVECAL-ASL-5	500 mL
AG-WAVECAL-ASL-10X-1	100 mL
AG-WAVECAL-ASL-10X-5	500 mL
At stated conc. (µg/mL) in 1% HNO ₃ 15 comps.	

	CAL	CAL-10X
Aluminum (Al)	5	50
Arsenic (As)	5	50
Barium (Ba)	5	50
Cadmium (Cd)	5	50
Cobalt (Co)	5	50
Chromium (Cr)	5	50
Copper (Cu)	5	50
Manganese (Mn)	5	50
Molybdenum (Mo)	5	50
Nickel (Ni)	5	50
Lead (Pb)	5	50
Selenium (Se)	5	50
Strontium (Sr)	5	50
Zinc (Zn)	5	50
Potassium (K)	50	500

ICP/MS Stock Tuning Solution

AG-TUNSTOCK-ASL-1	100 mL
AG-TUNSTOCK-ASL-5	500 mL
10 µg/mL in 2% HNO ₃ 5 comps.	

Lithium (Li)	Thallium (Tl)
Yttrium (Y)	Cobalt (Co)
Cerium (Ce)	

ICP/MS Stock Tuning Solution

AG-TUNSTOCK1-ASL-1	100 mL
AG-TUNSTOCK1-ASL-5	500 mL
10 µg/mL in 2% HNO ₃ 6 comps.	

Lithium (Li)	Cerium (Ce)
Magnesium (Mg)	Tl (Thalium)
Yttrium (Y)	Cobalt (Co)

Internal Standard Mix for ICP/MS

AG-INTSTD-ASL-1	100 mL
AG-INTSTD-ASL-5	500 mL
100 µg/mL in 10% HNO ₃ , tr. HCl 8 comps.	

Lithium-6 (Li-6)	Indium (In)
Scandium (Sc)	Terbium (Tb)
Germanium (Ge)	Lutetium (Lu)
Rhodium (Rh)	Bismuth (Bi)

QCSTD-27 Quality Control Std

AG-QCS27-ASL-1	100 mL
AG-QCS27-ASL-5	500 mL
100 µg/mL in 5% HNO ₃ , tr. HF 27 comps.	

Aluminum (Al)	Manganese (Mn)
Antimony (Sb)	Molybdenum (Mo)
Arsenic (As)	Nickel (Ni)
Barium (Ba)	Potassium (K)
Beryllium (Be)	Selenium (Se)
Boron (B)	Silicon (Si)
Cadmium (Cd)	Silver (Ag)
Calcium (Ca)	Strontium (Sr)
Chromium (Cr)	Sodium (Na)
Cobalt (Co)	Thallium (Tl)
Copper (Cu)	Titanium (Ti)
Iron (Fe)	Vanadium (V)
Lead (Pb)	Zinc (Zn)
Magnesium (Mg)	

7500 Series PA Tuning 1

AG-TUN1-ASL-1	100 mL
AG-TUN1-ASL-5	500 mL
At stated conc. (µg/mL) in 5% HNO ₃ 26 comps.	

Zinc (Zn)	20	Barium (Ba)	5
Beryllium (Be)	20	Cobalt (Co)	5
Cadmium (Cd)	20	Strontium (Sr)	5
Arsenic (As)	20	Vanadium (V)	5
Nickel (Ni)	10	Chromium (Cr)	5
Lead (Pb)	10	Manganese (Mn)	5
Magnesium (Mg)	10	Lithium-6 (Li-6)	5
Thallium (Tl)	5	Scandium (Sc)	5
Sodium (Na)	5	Indium (In)	5
Aluminum (Al)	5	Lutetium (Lu)	5
Uranium (U)	5	Bismuth (Bi)	5
Copper (Cu)	5	Yttrium (Y)	2.5
Thorium (Th)	5	Ytterbium (Yb)	2.5

7500 Series PA Tuning 2

AG-TUN2-ASL-1	100 mL
AG-TUN2-ASL-5	500 mL
At stated conc. (µg/mL) in 10% HCl, 1% HNO ₃ tr. HF 8 comps.	

Molybdenum (Mo)	10	Ruthenium (Ru)	10
Antimony (Sb)	10	Palladium (Pd)	10
Tin (Sn)	10	Titanium (Ti)	5
Germanium (Ge)	10	Iridium (Ir)	5

PA Tuning Solution Sets

AG-TUN-ASL-1-SET 2 x 100 mL

AG-TUN1-ASL-1 AG-TUN2-ASL-1

AG-TUN-ASL-5-SET 2 x 500 mL

AG-TUN1-ASL-5 AG-TUN2-ASL-5

Environmental Spike Mix

AG-SPIKE-ASL-R1-1	100 mL
AG-SPIKE-ASL-R1-5	500 mL
At stated conc. (µg/mL) in 5% HNO ₃ tr. HF 24 comps.	

Calcium (Ca)	1000	Chromium (Cr)	100
Iron (Fe)	1000	Copper (Cu)	100
Potassium (K)	1000	Manganese (Mn)	100
Magnesium (Mg)	1000	Molybdenum (Mo)	100
Sodium (Na)	1000	Nickel (Ni)	100
Silver (Ag)	100	Lead (Pb)	100
Aluminum (Al)	100	Antimony (Sb)	100
Arsenic (As)	100	Selenium (Se)	100
Barium (Ba)	100	Thallium (Tl)	100
Beryllium (Be)	100	Uranium (U)	100
Cadmium (Cd)	100	Vanadium (V)	100
Cobalt (Co)	100	Zinc (Zn)	100

Environmental Initial Calibration Verification

AG-VER1-ASL-R1-1	100 mL
AG-VER1-ASL-R1-5	500 mL
At stated conc. (µg/mL) in 5% HNO ₃ 26 comps.	

Calcium (Ca)	1000	Chromium (Cr)	10
Iron (Fe)	1000	Copper (Cu)	10
Potassium (K)	1000	Manganese (Mn)	10
Magnesium (Mg)	1000	Molybdenum (Mo)	10
Sodium (Na)	1000	Nickel (Ni)	10
Strontium (Sr)	100	Lead (Pb)	10
Silver (Ag)	10	Antimony (Sb)	10
Aluminum (Al)	10	Selenium (Se)	10
Arsenic (As)	10	Thallium (Tl)	10
Barium (Ba)	10	Uranium (U)	10
Beryllium (Be)	10	Vanadium (V)	10
Cadmium (Cd)	10	Zinc (Zn)	10
Cobalt (Co)	10	Thorium (Th)	10

ICV-7 Quality Control Standard

AG-ICV7-ASL-1	100 mL
AG-ICV7-ASL-5	500 mL
At stated conc. (µg/mL) in 5% HNO ₃ 22 comps.	

Calcium (Ca)	5000	Copper (Cu)	25
Magnesium (Mg)	5000	Zinc (Zn)	20
Potassium (K)	5000	Manganese (Mn)	15
Sodium (Na)	5000	Arsenic (As)	10
Aluminum (Al)	200	Chromium (Cr)	10
Barium (Ba)	200	Silver (Ag)	10
Iron (Fe)	100	Thallium (Tl)	10
Antimony (Sb)	60	Beryllium (Be)	5
Cobalt (Co)	50	Cadmium (Cd)	5
Vanadium (V)	50	Lead (Pb)	5
Nickel (Ni)	40	Selenium (Se)	5

ANALT-B Quality Control Std

AG-ANALTB-ASL-1	100 mL
AG-ANALTB-ASL-5	500 mL
At stated conc. (µg/mL) in 5% HNO ₃ 12 comps.	

Cadmium (Cd)	100	Beryllium (Be)	50
Nickel (Ni)	100	Cobalt (Co)	50
Lead (Pb)	100	Chromium (Cr)	50
Silver (Ag)	100	Copper (Cu)	50
Zinc (Zn)	100	Manganese (Mn)	50
Barium (Ba)	50	Vanadium (V)	50



AccuStandard equivalent of Agilent

Environmental Calibration Std.

AG-CAL-ASL-1 100 mL
AG-CAL-ASL-5 500 mL
 At stated conc. (µg/mL) in 10% HNO₃ 25 comps.

Calcium (Ca)	1000	Copper (Cu)	10
Iron (Fe)	1000	Manganese (Mn)	10
Potassium (K)	1000	Molybdenum (Mo)	10
Magnesium (Mg)	1000	Nickel (Ni)	10
Sodium (Na)	1000	Lead (Pb)	10
Silver (Ag)	10	Antimony (Sb)	10
Aluminum (Al)	10	Selenium (Se)	10
Arsenic (As)	10	Thallium (Tl)	10
Barium (Ba)	10	Vanadium (V)	10
Beryllium (Be)	10	Zinc (Zn)	10
Cadmium (Cd)	10	Thorium (Th)	10
Cobalt (Co)	10	Uranium (U)	10
Chromium (Cr)	10		

Calibration Mix 1 AA & ICP-OES

AG-CAL1-ASL-1 100 mL
AG-CAL1-ASL-5 500 mL
 100 µg/mL each in 2% HNO₃ tr. HF 4 comps.

Antimony (Sb)	Tin (Sn)
Molybdenum (Mo)	Thallium (Tl)

Calibration Mix 2 AA & ICP-OES

AG-CAL2-ASL-1 100 mL
AG-CAL2-ASL-5 500 mL
 100 µg/mL each in 5% HNO₃ 18 comps.

Silver (Ag)	Manganese (Mn)
Aluminum (Al)	Nickel (Ni)
Arsenic (As)	Lead (Pb)
Barium (Ba)	Selenium (Se)
Beryllium (Be)	Thallium (Tl)
Cadmium (Cd)	Thorium (Th)
Cobalt (Co)	Uranium (U)
Chromium (Cr)	Vanadium (V)
Copper (Cu)	Zinc (Zn)

Calibration Mix Majors For AA & ICP-OES

AG-CALMAJOR-ASL-1 100 mL
AG-CALMAJOR-ASL-5 500 mL
 500 µg/mL each in 5% HNO₃ 5 comps.

Calcium (Ca)	Magnesium (Mg)
Iron (Fe)	Sodium (Na)
Potassium (K)	

Internal Standard Mix

AG-INT-ASL-1 100 mL
AG-INT-ASL-5 500 mL
 10 µg/mL each in 5% HNO₃ 7 comps.

Bismuth (Bi)	Scandium (Sc)
Germanium (Ge)	Terbium (Tb)
Indium (In)	Yttrium (Y)
Lithium-6 (Li-6)	

ICP Internal Standard

AG-INT2-ASL-1 100 mL
AG-INT2-ASL-5 500 mL
 100 µg/mL each in 5% HNO₃ 6 comps.

Lithium-6 (Li-6)	Indium (In)
Scandium (Sc)	Terbium (Tb)
Yttrium (Y)	Bismuth (Bi)

Multi-Element Calibration Std. 1

AG-MECAL1-ASL-1 100 mL
AG-MECAL1-ASL-5 500 mL
 10 µg/mL each in 5% HNO₃ 17 comps.

Cerium (Ce)	Praseodymium (Pr)
Dysprosium (Dy)	Scandium (Sc)
Erbium (Er)	Samarium (Sm)
Europium (Eu)	Terbium (Tb)
Gadolinium (Gd)	Thorium (Th)
Holmium (Ho)	Thulium (Tm)
Lanthanum (La)	Yttrium (Y)
Lutetium (Lu)	Ytterbium (Yb)
Neodymium (Nd)	

Multi-Element Calibration Std. 2A

AG-MECAL2A-ASL-1 100 mL
AG-MECAL2A-ASL-5 500 mL
 10 µg/mL each in 5% HNO₃ 27 comps.

Silver (Ag)	Lithium (Li)
Aluminum (Al)	Magnesium (Mg)
Arsenic (As)	Manganese (Mn)
Barium (Ba)	Sodium (Na)
Beryllium (Be)	Nickel (Ni)
Calcium (Ca)	Lead (Pb)
Cadmium (Cd)	Rubidium (Rb)
Cobalt (Co)	Selenium (Se)
Chromium (Cr)	Strontium (Sr)
Cesium (Cs)	Thallium (Tl)
Copper (Cu)	Uranium (U)
Iron (Fe)	Vanadium (V)
Gallium (Ga)	Zinc (Zn)
Potassium (K)	

Multi-Element Calibration Std. 3

AG-MECAL3-ASL-R-1 100 mL
AG-MECAL3-ASL-R-5 500 mL
 10 µg/mL each in 10% HCl, 1% HNO₃ 10 comps.

Gold (Au)	Rhodium (Rh)
Hafnium (Hf)	Ruthenium (Ru)
Iridium (Ir)	Antimony (Sb)
Palladium (Pd)	Tin (Sn)
Platinum (Pt)	Tellurium (Te)

Multi-Element Calibration Std. 4

AG-MECAL4-ASL-R1-1 100 mL
AG-MECAL4-ASL-R1-5 500 mL
 10 µg/mL each in Water, tr. HF 13 comps.

Boron (B)	Silicon (Si)
Germanium (Ge)	Tantalum (Ta)
Molybdenum (Mo)	Tin (Sn)
Niobium (Nb)	Titanium (Ti)
Phosphorus (P)	Tungsten (W)
Rhenium (Re)	Zirconium (Zr)
Sulfur (S)	

Equivalent of Perkin Elmer

Instrument Calibration Std. 1

PE-CAL1-ASL-1 100 mL
PE-CAL1-ASL-5 500 mL
 20 µg/mL each in 2% HNO₃ tr. Tartaric acid 20 comps.

Silver (Ag)	Molybdenum (Mo)
Aluminum (Al)	Nickel (Ni)
Arsenic (As)	Lead (Pb)
Barium (Ba)	Antimony (Sb)
Beryllium (Be)	Selenium (Se)
Cadmium (Cd)	Thorium (Th)
Cobalt (Co)	Thallium (Tl)
Chromium (Cr)	Uranium (U)
Copper (Cu)	Vanadium (V)
Manganese (Mn)	Zinc (Zn)

Instrument Calibration Std. 2

PE-CAL2-ASL-1 100 mL
PE-CAL2-ASL-5 500 mL
 100 µg/mL each in 5% HNO₃ tr. HF, tr. Tartaric acid 26 comps.

Silver (Ag)	Manganese (Mn)
Aluminum (Al)	Molybdenum (Mo)
Arsenic (As)	Sodium (Na)
Barium (Ba)	Nickel (Ni)
Beryllium (Be)	Lead (Pb)
Calcium (Ca)	Antimony (Sb)
Cadmium (Cd)	Selenium (Se)
Cobalt (Co)	Tin (Sn)
Chromium (Cr)	Strontium (Sr)
Copper (Cu)	Titanium (Ti)
Iron (Fe)	Thallium (Tl)
Potassium (K)	Vanadium (V)
Magnesium (Mg)	Zinc (Zn)

Instrument Calibration Std. 3

PE-CAL3-ASL-1 100 mL
PE-CAL3-ASL-5 500 mL
 1000 µg/mL each in 5% HNO₃ 5 comps.

Iron (Fe)	Sodium (Na)
Potassium (K)	Magnesium (Mg)
Calcium (Ca)	

Instrument Calibration Std. 1

PE-CAL4-ASL-1 100 mL
PE-CAL4-ASL-5 500 mL
 5000 µg/mL each in 5% HNO₃ 4 comps.

Calcium (Ca)	Magnesium (Mg)
Potassium (K)	Sodium (Na)

Multi-Element Calibration Std. 2A

AG-MECAL2A-ASL-1 100 mL
AG-MECAL2A-ASL-5 500 mL
 10 µg/mL each in 5% HNO₃ 27 comps.

Silver (Ag)	Lithium (Li)
Aluminum (Al)	Magnesium (Mg)
Arsenic (As)	Manganese (Mn)
Barium (Ba)	Sodium (Na)
Beryllium (Be)	Nickel (Ni)
Calcium (Ca)	Lead (Pb)
Cadmium (Cd)	Rubidium (Rb)
Cobalt (Co)	Selenium (Se)
Chromium (Cr)	Strontium (Sr)
Cesium (Cs)	Thallium (Tl)
Copper (Cu)	Uranium (U)
Iron (Fe)	Vanadium (V)
Gallium (Ga)	Zinc (Zn)
Potassium (K)	



ICP Alternate Source

Perkin Elmer

AccuStandard equivalent of Perkin Elmer

Instrument Check Standard 1

PE-CHK1-ASL-1 100 mL
PE-CHK1-ASL-5 500 mL
 10 µg/mL each in 2% HNO₃ tr. HF, tr. Tartaric acid
 17 comps.

Silver (Ag)	Manganese (Mn)
Aluminum (Al)	Nickel (Ni)
Arsenic (As)	Lead (Pb)
Barium (Ba)	Antimony (Sb)
Beryllium (Be)	Selenium (Se)
Cadmium (Cd)	Thallium (Tl)
Cobalt (Co)	Vanadium (V)
Chromium (Cr)	Zinc (Zn)
Copper (Cu)	

Instrument Check Standard 3

PE-CHK3-ASL-1 100 mL
PE-CHK3-ASL-5 500 mL
 200 µg/mL each in 2% HNO₃ 5 comps.

Calcium (Ca)	Magnesium (Mg)
Iron (Fe)	Sodium (Na)
Potassium (K)	

Instrument Check Standard 4

PE-CHK4-ASL-1 100 mL
PE-CHK4-ASL-5 500 mL
 10 µg/mL each in 2% HNO₃ 3 comps.

Molybdenum (Mo)	Uranium (U)
Thorium (Th)	

Instrument Check Standard 5

PE-CHK5-ASL-1 100 mL
PE-CHK5-ASL-5 500 mL
 10 µg/mL each in 2% HNO₃ tr. HF 4 comps.

Molybdenum (Mo)	Strontium (Sr)
Tin (Sn)	Titanium (Ti)

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Interference Check Standard 5

PE-ICSS-ASL-1 100 mL
PE-ICSS-ASL-5 500 mL
 At stated conc. (µg/mL) in 5% HNO₃ 5 comps.

Calcium (Ca)	6000
Iron (Fe)	5000
Magnesium (Mg)	3000
Aluminum (Al)	1200
Sodium (Na)	1000

Interference Check Standard 18

PE-ICSS18-ASL-1-SET 2 x 100 mL
PE-ICSS18-ASL-5-SET 2 x 500 mL

PE-ICSS18-ASL
 At stated conc. (µg/mL) in 5% HNO₃ 16 comps.

Potassium (K)	20000
Arsenic (As)	1000
Lead (Pb)	1000
Thallium (Tl)	1000
Selenium (Se)	500
Silver (Ag)	300
Barium (Ba)	300
Cadmium (Cd)	300
Cobalt (Co)	300
Chromium (Cr)	300
Copper (Cu)	300
Nickel (Ni)	300
Vanadium (V)	300
Zinc (Zn)	300
Manganese (Mn)	200
Beryllium (Be)	100

PE-ICSS18-HG-ASL
 100 µg/mL in 5% HNO₃

Mercury (Hg)
 Supplied separately for better product stability.

Internal Standard Mix

PE-INT-ASL-1 100 mL
PE-INT-ASL-5 500 mL
 10 µg/mL each in 5% HNO₃ 7 comps.

Lithium-6 (Li-6)	Indium (In)
Scandium (Sc)	Terbium (Tb)
Germanium (Ge)	Bismuth (Bi)
Yttrium (Y)	

Multi-Element Calibration Std 1

PE-MECAL1-ASL-1 100 mL
PE-MECAL1-ASL-5 500 mL
 10 µg/mL each in 2% HNO₃ 9 comps.

Beryllium (Be)	Magnesium (Mg)
Bismuth (Bi)	Nickel (Ni)
Cerium (Ce)	Lead (Pb)
Cobalt (Co)	Uranium (U)
Indium (In)	

Multi-Element Calibration Std 2

PE-MECAL2-ASL-1 100 mL
PE-MECAL2-ASL-5 500 mL
 10 µg/mL each in 5% HNO₃ 17 comps.

Cerium (Ce)	Praseodymium (Pr)
Dysprosium (Dy)	Samarium (Sm)
Erbium (Er)	Scandium (Sc)
Europium (Eu)	Terbium (Tb)
Gadolinium (Gd)	Thorium (Th)
Holmium (Ho)	Thulium (Tm)
Lanthanum (La)	Ytterbium (Yb)
Lutetium (Lu)	Yttrium (Y)
Neodymium (Nd)	

Multi-Element Calibration Std 3

PE-MECAL3-ASL-1-SET 2 x 100 mL
PE-MECAL3-ASL-5-SET 2 x 500 mL

PE-MECAL3-ASL
 10 µg/mL each in 5% HNO₃ 29 comps.

Silver (Ag)	Potassium (K)
Aluminum (Al)	Lithium (Li)
Arsenic (As)	Magnesium (Mg)
Barium (Ba)	Manganese (Mn)
Beryllium (Be)	Sodium (Na)
Bismuth (Bi)	Nickel (Ni)
Calcium (Ca)	Lead (Pb)
Cadmium (Cd)	Rubidium (Rb)
Cobalt (Co)	Selenium (Se)
Chromium (Cr)	Strontium (Sr)
Cesium (Cs)	Thallium (Tl)
Copper (Cu)	Uranium (U)
Iron (Fe)	Vanadium (V)
Gallium (Ga)	Zinc (Zn)
Indium (In)	

PE-MECAL3-HG-ASL
 10 µg/mL in 5% HNO₃

Mercury (Hg)

Supplied separately for better product stability.

Multi-Element Calibration Std 4

PE-MECAL4-ASL-R1-1 100 mL
PE-MECAL4-ASL-R1-5 500 mL
 10 µg/mL each in 10% HCl, 1% HNO₃ 10 comps.

Gold (Au)	Rhodium (Rh)
Hafnium (Hf)	Ruthenium (Ru)
Iridium (Ir)	Antimony (Sb)
Palladium (Pd)	Tin (Sn)
Platinum (Pt)	Tellurium (Te)

Multi-Element Calibration Std 5

PE-MECAL5-ASL-1 100 mL
PE-MECAL5-ASL-5 500 mL
 10 µg/mL each in Water, tr. HF 12 comps.

Boron (B)	Sulfur (S)
Germanium (Ge)	Silicon (Si)
Molybdenum (Mo)	Tantalum (Ta)
Niobium (Nb)	Titanium (Ti)
Phosphorus (P)	Tungsten (W)
Rhenium (Re)	Zirconium (Zr)

We can provide Custom formulations to meet your needs.

To request a Custom formulation, contact Inorganic Technical Service using our website or Email inotech@accustandard.com.



AccuStandard equivalent of Perkin Elmer

QC Standard 7 Elements

PE-QC7-ASL-1 100 mL
PE-QC7-ASL-5 500 mL

At stated conc. (µg/mL) in 5% HNO₃ tr. HF
7 comps.

Potassium (K)	1000
Silicon (Si)	500
Aluminum (Al)	100
Boron (B)	100
Barium (Ba)	100
Sodium (Na)	100
Silver (Ag)	50

QC Standard 21 Elements

PE-QC21-ASL-1 100 mL
PE-QC21-ASL-5 500 mL

100 µg/mL each in 5% HNO₃, tr. HF, tr. Tartaric acid
21 comps.

Arsenic (As)	Molybdenum (Mo)
Beryllium (Be)	Nickel (Ni)
Calcium (Ca)	Lead (Pb)
Cadmium (Cd)	Antimony (Sb)
Cobalt (Co)	Selenium (Se)
Chromium (Cr)	Strontium (Sr)
Copper (Cu)	Titanium (Ti)
Iron (Fe)	Thallium (Tl)
Lithium (Li)	Vanadium (V)
Magnesium (Mg)	Zinc (Zn)
Manganese (Mn)	

ELAN 9000/6X00 Dual Detector Calibration Solution

PE-SETUP1-ASL-1 100 mL
PE-SETUP1-ASL-5 500 mL

2 µg/mL each in 2% HNO₃ tr. HCl 5 comps.

Cadmium (Cd)	Magnesium (Mg)
Copper (Cu)	Rhodium (Rh)
Lead (Pb)	

Supplied as a 10X concentrate for better stability.

ELAN 6000/5000 Plasma Setup Solution

PE-SETUP2-ASL-1 100 mL
PE-SETUP2-ASL-5 500 mL

1 µg/mL each in 1% HNO₃ tr. HCl 11 comps.

Barium (Ba)	Magnesium (Mg)
Cadmium (Cd)	Rhodium (Rh)
Cerium (Ce)	Scandium (Sc)
Copper (Cu)	Terbium (Tb)
Germanium (Ge)	Thallium (Tl)
Lead (Pb)	

Supplied as a 100X concentrate for better stability.

ELAN 9000/6100 Setup/Stab/Masscal Solution

PE-STAB-ASL-1 100 mL
PE-STAB-ASL-5 500 mL

1 µg/mL each in 1% HNO₃ tr. HCl 9 comps.

Barium (Ba)	Lead (Pb)
Cadmium (Cd)	Magnesium (Mg)
Cerium (Ce)	Rhodium (Rh)
Copper (Cu)	Uranium (U)
Indium (In)	

Supplied as a 100X concentrate for better stability.

SmartTune Solution for ELAN/DRC-e

PE-SMTUNE-ASL-1 100 mL
PE-SMTUNE-ASL-5 500 mL

1 µg/mL each in 2% HNO₃ tr. HCl 9 comps.

Barium (Ba)	Lead (Pb)
Beryllium (Be)	Magnesium (Mg)
Cerium (Ce)	Rhodium (Rh)
Cobalt (Co)	Uranium (U)
Indium (In)	

Supplied as a 100X concentrate for better stability.

SmartTune Solution for DRC/DRC^{Plus}/DRC II

PE-SMTUNE2-ASL-1 100 mL
PE-SMTUNE2-ASL-5 500 mL

At stated conc. (µg/mL) in 0.5% HNO₃ 10 comps.

Barium (Ba)	10
Beryllium (Be)	1
Cerium (Ce)	1
Cobalt (Co)	1
Indium (In)	1
Iron (Fe)	1
Lead (Pb)	1
Magnesium (Mg)	1
Thorium (Th)	1
Uranium (U)	1

Supplied as a 1000X concentrate for better stability.

Tuning Solution I

PE-TUNSOL-ASL-1 100 mL
PE-TUNSOL-ASL-5 500 mL

10 µg/mL each in 2% HNO₃, tr. HCl 12 comps.

Barium (Ba)	Magnesium (Mg)
Beryllium (Be)	Lead (Pb)
Cerium (Ce)	Rhodium (Rh)
Cobalt (Co)	Thallium (Tl)
Indium (In)	Uranium (U)
Lithium (Li)	Yttrium (Y)

Low UV Standard

PE-UV-ASL-1 100 mL
PE-UV-ASL-5 500 mL

10 µg/mL each in 2% HNO₃ 3 comps.

Aluminum (Al)	Sulfur (S)
Phosphorus (P)	

UV Wavecal Solution

PE-UVWAVE-ASL-R1-1 100 mL
PE-UVWAVE-ASL-R1-5 500 mL

At stated conc. (µg/mL) in 5% HCl tr. HNO₃
12 comps.

Potassium (K)	100
Phosphorus (P)	100
Sulfur (S)	100
Arsenic (As)	20
Lanthanum (La)	20
Lithium (Li)	20
Manganese (Mn)	20
Molybdenum (Mo)	20
Sodium (Na)	20
Nickel (Ni)	20
Scandium (Sc)	20
Calcium (Ca)	1

VIS Wavecal Solution

PE-VISWAVE-ASL-1 100 mL
PE-VISWAVE-ASL-5 500 mL

At stated conc. (µg/mL) in 2% HNO₃ 8 comps.

Potassium (K)	50
Lanthanum (La)	10
Lithium (Li)	10
Manganese (Mn)	10
Sodium (Na)	10
Strontium (Sr)	10
Barium (Ba)	1
Calcium (Ca)	1

Initial Calibration Verification Standard 2

PE-VER2-ASL-R1-1 100 mL
PE-VER2-ASL-R1-5 500 mL

10 µg/mL each in 2% HNO₃ tr. HF 2 comps.

Tin (Sn)	Titanium (Ti)
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Initial Calibration Verification Standard 1

PE-VER1-ASL-1 100 mL
PE-VER1-ASL-5 500 mL

At stated conc. (µg/mL) in 5% HNO₃ tr. Tartaric acid 26 comps.

Iron (Fe)	1000
Potassium (K)	1000
Calcium (Ca)	1000
Sodium (Na)	1000
Magnesium (Mg)	1000
Strontium (Sr)	1000
Silver (Ag)	10
Aluminum (Al)	10
Arsenic (As)	10
Barium (Ba)	10
Beryllium (Be)	10
Cadmium (Cd)	10
Cobalt (Co)	10
Chromium (Cr)	10
Copper (Cu)	10
Manganese (Mn)	10
Molybdenum (Mo)	10
Nickel (Ni)	10
Lead (Pb)	10
Antimony (Sb)	10
Selenium (Se)	10
Thallium (Tl)	10
Vanadium (V)	10
Zinc (Zn)	10
Thorium (Th)	10
Uranium (U)	10



ICP Alternate Source

Perkin Elmer and Horiba/Jobin Yvon & Teledyne

AccuStandard equivalent of PE

Trace Metals I

PE-WPTM1-ASL-1-SET 2 x 100 mL
PE-WPTM1-ASL-5-SET 2 x 500 mL

PE-WPTM1-ASL

At stated conc. (µg/mL) in 5% HNO₃ 14 comps.

Aluminum (Al)	500
Vanadium (V)	250
Arsenic (As)	100
Beryllium (Be)	100
Cobalt (Co)	100
Chromium (Cr)	100
Copper (Cu)	100
Iron (Fe)	100
Manganese (Mn)	100
Nickel (Ni)	100
Lead (Pb)	100
Zinc (Zn)	100
Cadmium (Cd)	25
Selenium (Se)	25

PE-WPTM1-HG-ASL

10 µg/mL in 5% HNO₃

Mercury (Hg)

Supplied separately for better product stability.

Trace Metals II

PE-WPTM2-ASL-1 100 mL
PE-WPTM2-ASL-5 500 mL

At stated conc. (µg/mL) in 2% HNO₃ 3 comps.

Antimony (Sb)	20
Thallium (Tl)	20
Silver (Ag)	10

Trace Metals III

PE-WPTM3-ASL-1 100 mL
PE-WPTM3-ASL-5 500 mL

At stated conc. (µg/mL) in 2% HNO₃ 6 comps.

Barium (Ba)	500
Calcium (Ca)	500
Molybdenum (Mo)	500
Sodium (Na)	500
Potassium (K)	100
Magnesium (Mg)	100

Horiba/Jobin Yvon

Instrument Calibration Standard

JY-CAL-ASL-1 100 mL
JY-CAL-ASL-5 500 mL
5000 µg/mL each in 2-5% HNO₃ 4 comps.

Calcium (Ca)	Potassium (K)
Magnesium (Mg)	Sodium (Na)

Quality Control Standard 7

JY-QC7-ASL-1 100 mL
JY-QC7-ASL-5 500 mL
At stated conc. (µg/mL) in 5% HNO₃ 7 comps.

Potassium (K)	1000
Silicon (Si)	500
Aluminum (Al)	100
Boron (B)	100
Barium (Ba)	100
Sodium (Na)	100
Silver (Ag)	50

Quality Control Standard 21

JY-QC21-ASL-1 100 mL
JY-QC21-ASL-5 500 mL
100 µg/mL each in 2-5% HNO₃ tr. HF 21 comps.

Arsenic (As)	Molybdenum (Mo)
Beryllium (Be)	Nickel (Ni)
Calcium (Ca)	Lead (Pb)
Cadmium (Cd)	Antimony (Sb)
Cobalt (Co)	Selenium (Se)
Chromium (Cr)	Strontium (Sr)
Copper (Cu)	Titanium (Ti)
Iron (Fe)	Thallium (Tl)
Lithium (Li)	Vanadium (V)
Magnesium (Mg)	Zinc (Zn)
Manganese (Mn)	

Quality Control Standard 23

JY-QC23-ASL-1 100 mL
JY-QC23-ASL-5 500 mL
1000 µg/mL each in 2-5% HNO₃ 23 comps.

Silver (Ag)	Indium (In)
Aluminum (Al)	Potassium (K)
Boron (B)	Lithium (Li)
Barium (Ba)	Magnesium (Mg)
Bismuth (Bi)	Manganese (Mn)
Cadmium (Cd)	Sodium (Na)
Calcium (Ca)	Nickel (Ni)
Chromium (Cr)	Lead (Pb)
Cobalt (Co)	Strontium (Sr)
Copper (Cu)	Thallium (Tl)
Iron (Fe)	Zinc (Zn)
Gallium (Ga)	

Teledyne

Check Mate 1

TELE-CHK1-ASL-1-SET 2 x 100 mL
TELE-CHK1-ASL-5-SET 2 x 500 mL

TELE-CHK1-ASL

At stated conc. (µg/mL) in 5% HCl, 1% HNO₃ tr. HF 24 comps.

Calcium (Ca)	100
Potassium (K)	100
Magnesium (Mg)	100
Sodium (Na)	100
Aluminum (Al)	10
Arsenic (As)	10
Boron (B)	10
Barium (Ba)	10
Beryllium (Be)	10
Cadmium (Cd)	10
Cobalt (Co)	10
Chromium (Cr)	10
Copper (Cu)	10
Iron (Fe)	10
Manganese (Mn)	10
Molybdenum (Mo)	10
Nickel (Ni)	10
Lead (Pb)	10
Antimony (Sb)	10
Selenium (Se)	10
Silicon (Si)	10
Thallium (Tl)	10
Vanadium (V)	10
Zinc (Zn)	10

TELE-CHK1-AG-ASL

1000 µg/mL in 2% HNO₃

Silver (Ag)

Supplied separately for better product stability.



AccuStandard equivalent of Merck Multi-Element Standards

ICP Multi-Element Standard Solution I

MES-01-1 100 mL
MES-01-5 500 mL
 At stated conc. (µg/mL) in 1 mol/L HNO₃ 19 comps.

Silver (Ag)	50
Aluminum (Al)	100
Boron (B)	15
Barium (Ba)	5
Beryllium (Be)	1
Bismuth (Bi)	200
Cadmium (Cd)	20
Cobalt (Co)	20
Chromium (Cr)	25
Copper (Cu)	20
Iron (Fe)	15
Gallium (Ga)	150
Indium (In)	200
Manganese (Mn)	5
Nickel (Ni)	50
Lead (Pb)	200
Strontium (Sr)	1
Thallium (Tl)	400
Zinc (Zn)	20

ICP Multi-Element Standard Solution IV

MES-04-1 100 mL
MES-04-5 500 mL
 1000 µg/mL each in 1 mol/L HNO₃ 23 comps.

Silver (Ag)	Indium (In)
Aluminum (Al)	Potassium (K)
Boron (B)	Lithium (Li)
Barium (Ba)	Magnesium (Mg)
Bismuth (Bi)	Manganese (Mn)
Calcium (Ca)	Sodium (Na)
Cadmium (Cd)	Nickel (Ni)
Cobalt (Co)	Lead (Pb)
Chromium (Cr)	Strontium (Sr)
Copper (Cu)	Thallium (Tl)
Iron (Fe)	Zinc (Zn)
Gallium (Ga)	

ICP Multi-Element Standard Solution VII

MES-07-1 100 mL
MES-07-5 500 mL
 100 µg/mL each in Water tr. HNO₃ 9 comps.

Ammonium (NH ₄)	Magnesium (Mg)
Barium (Ba)	Manganese (Mn)
Calcium (Ca)	Sodium (Na)
Potassium (K)	Strontium (Sr)
Lithium (Li)	

ICP Multi-Element Standard Solution VI for MS

MES-06-1-SET 100 mL
MES-06-5-SET 500 mL
 At stated conc. (µg/mL) in 1 mol/L HNO₃ tr. HF 29 comps.

Silver (Ag)	10
Aluminum (Al)	10
Arsenic (As)	100
Boron (B)	100
Barium (Ba)	10
Beryllium (Be)	100
Bismuth (Bi)	10
Calcium (Ca)	1000
Cadmium (Cd)	10
Cobalt (Co)	10
Chromium (Cr)	10
Copper (Cu)	10
Iron (Fe)	100
Gallium (Ga)	10
Potassium (K)	10
Lithium (Li)	10
Magnesium (Mg)	10
Manganese (Mn)	10
Molybdenum (Mo)	10
Sodium (Na)	10
Nickel (Ni)	10
Lead (Pb)	10
Rubidium (Rb)	10
Selenium (Se)	100
Strontium (Sr)	10
Thallium (Tl)	10
Uranium (U)	10
Vanadium (V)	10
Zinc (Zn)	100

MES-06-TE
 10 µg/mL in 10% HCl
 Tellurium (Te)

Supplied separately for better stability

ICP Multi-Element Standard Solution VIII

MES-08-1-SET 2x100 mL
MES-08-5-SET 2x500 mL
 100 µg/mL each in 1 mol/L HNO₃ 23 comps.

MES-08

Aluminum (Al)	Potassium (K)
Boron (B)	Lithium (Li)
Barium (Ba)	Magnesium (Mg)
Beryllium (Be)	Manganese (Mn)
Bismuth (Bi)	Sodium (Na)
Calcium (Ca)	Nickel (Ni)
Cadmium (Cd)	Lead (Pb)
Cobalt (Co)	Selenium (Se)
Chromium (Cr)	Strontium (Sr)
Copper (Cu)	Thallium (Tl)
Iron (Fe)	Zinc (Zn)
Gallium (Ga)	

MES-08-TE
 100 µg/mL in 10% HCl
 Tellurium (Te)

Supplied separately for better stability

ICP Multi-Element Standard Solution IX

MES-09-1-SET 2x100 mL
MES-09-5-SET 2x500 mL
 100 µg/mL each in 1 mol/L HNO₃ 8 comps.

MES-09

Arsenic (As)	Chromium (Cr)
Beryllium (Be)	Nickel (Ni)
Lead (Pb)	Selenium (Se)
Cadmium (Cd)	Thallium (Tl)

MES-09-HG
 100 µg/mL in 1 mol/L HNO₃
 Mercury (Hg)

Supplied separately for better stability.

ICP Multi-Element Standard Solution X

MES-10-1 100 mL
MES-10-5 500 mL
 At stated conc. (µg/mL) in 1 mol/L HNO₃ 23 comps.

Calcium (Ca)	3500
Magnesium (Mg)	1500
Sodium (Na)	800
Potassium (K)	300
Boron (B)	10
Iron (Fe)	10
Molybdenum (Mo)	10
Strontium (Sr)	10
Arsenic (As)	5
Barium (Ba)	5
Nickel (Ni)	5
Vanadium (V)	5
Zinc (Zn)	5
Manganese (Mn)	3
Cobalt (Co)	2.5
Lead (Pb)	2.5
Beryllium (Be)	2
Cadmium (Cd)	2
Chromium (Cr)	2
Copper (Cu)	2
Bismuth (Bi)	1
Selenium (Se)	1
Thallium (Tl)	1

Supplied at a 1:10 dilution for better long-term stability.

ICP Multi-Element Standard Solution XII

MES-12-1-SET 2x100 mL
MES-12-5-SET 2x500 mL
 1000 µg/mL each 5% HCl tr. HNO₃ 7 comps.

MES-12-R1

Arsenic (As)	Silicon (Si)
Molybdenum (Mo)	Tungsten (W)
Phosphorus (P)	Vanadium (V)
Sulfur (S)	

MES-12-ZR
 1000 µg/mL in 5% HCl
 Zirconium (Zr)

Supplied separately for better product stability

ICP Multi-Element Standard Solution XIII

MES-13-1-SET 2x100 mL
MES-13-5-SET 2x500 mL
 At stated conc. (µg/mL) in 5% HNO₃ 14 comps.

MES-13

Aluminum (Al)	500
Arsenic (As)	100
Beryllium (Be)	100
Cadmium (Cd)	25
Cobalt (Co)	100
Chromium (Cr)	100
Copper (Cu)	100
Iron (Fe)	100
Manganese (Mn)	100
Nickel (Ni)	100
Lead (Pb)	100
Selenium (Se)	25
Vanadium (V)	250
Zinc (Zn)	100

MES-13-HG
 5 µg/mL each in 5% HNO₃
 Mercury (Hg)

Supplied separately for better stability

ICP Multi-Element Standard Solution XIV

MES-14-1 100 mL
MES-14-5 500 mL
 At stated conc. (µg/mL) in 2% HCl tr. HNO₃ 11 comps.

Phosphorus (P)	100
Sulfur (S)	100
Potassium (K)	100
Arsenic (As)	20
Lanthanum (La)	20
Lithium (Li)	20
Molybdenum (Mo)	20
Manganese (Mn)	20
Nickel (Ni)	20
Scandium (Sc)	20
Sodium (Na)	20



ICP Alternate Source

Merck

AccuStandard equivalent of Merck Multi-Element Standards

ICP Multi-Element Standard Solution XVI

MES-16-1 100 mL
MES-16-5 500 mL
100 µg/mL each in 5% HNO₃ tr. HF
21 comps.

Antimony (Sb)	Magnesium (Mg)
Arsenic (As)	Manganese (Mn)
Beryllium (Be)	Molybdenum (Mo)
Cadmium (Cd)	Nickel (Ni)
Calcium (Ca)	Selenium (Se)
Chromium (Cr)	Strontium (Sr)
Cobalt (Co)	Thallium (Tl)
Copper (Cu)	Titanium (Ti)
Iron (Fe)	Vanadium (V)
Lead (Pb)	Zinc (Zn)
Lithium (Li)	

ICP Multi-Element Standard Solution XVII

MES-17-1 100 mL
MES-17-5 500 mL
100 µg/mL each in 15% HCl tr.
HNO₃ 7 comps.

Hafnium (Hf)	Tantalum (Ta)
Iridium (Ir)	Titanium (Ti)
Antimony (Sb)	Zirconium (Zr)
Tin (Sn)	

ICP Multi-Element GF AAS

Standard Solution XVIII

MES-18-R1-1 100 mL
MES-18-R1-5 500 mL
At stated conc. (µg/mL) in 5%
HNO₃ 16 comps.

Silver (Ag)	10
Aluminum (Al)	100
Arsenic (As)	100
Barium (Ba)	50
Beryllium (Be)	5
Cadmium (Cd)	5
Cobalt (Co)	50
Chromium (Cr)	20
Copper (Cu)	50
Iron (Fe)	20
Manganese (Mn)	20
Nickel (Ni)	50
Lead (Pb)	100
Antimony (Sb)	100
Selenium (Se)	100
Thallium (Tl)	100

ICP Multi-Element Standard Solution XXI for MS

MES-21-1-SET 2x100 mL
MES-21-5-SET 2x500 mL
10 µg/mL each in 5% HNO₃
29 comps.

MES-21

Silver (Ag)	Potassium (K)
Aluminum (Al)	Lithium (Li)
Arsenic (As)	Magnesium (Mg)
Barium (Ba)	Manganese (Mn)
Beryllium (Be)	Sodium (Na)
Bismuth (Bi)	Nickel (Ni)
Calcium (Ca)	Lead (Pb)
Cadmium (Cd)	Rubidium (Rb)
Cobalt (Co)	Selenium (Se)
Chromium (Cr)	Strontium (Sr)
Cesium (Cs)	Thallium (Tl)
Copper (Cu)	Vanadium (V)
Iron (Fe)	Uranium (U)
Gallium (Ga)	Zinc (Zn)
Indium (In)	

MES-21-HG
10 µg/mL in 5% HHNO₃
Mercury (Hg)

Supplied separately for better product stability

ICP Multi-Element Standard Solution XXII for MS

MES-22-1 100 mL
MES-22-5 500 mL
2 µg/mL each in 2% HNO₃ tr. HCl
5 comps.

Cadmium (Cd)	Lead (Pb)
Copper (Cu)	Rhodium (Rh)
Magnesium (Mg)	

Supplied as a 10X concentrate for better stability.

ICP Multi-Element Standard Solution XXIV

MES-24-1 100 mL
MES-24-5 500 mL
At stated conc. (µg/mL) in 1%
HNO₃ 15 comps.

Aluminum (Al)	50
Arsenic (As)	50
Barium (Ba)	50
Cadmium (Cd)	50
Cobalt (Co)	50
Chromium (Cr)	50
Copper (Cu)	50
Potassium (K)	500
Manganese (Mn)	50
Molybdenum (Mo)	50
Nickel (Ni)	50
Lead (Pb)	50
Selenium (Se)	50
Strontium (Sr)	50
Zinc (Zn)	50

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ASTM D3230 Determination of Salts in Crude Oil

Mixed Salt Solution

D-3230-89-1	100 mL
D-3230-89-5	500 mL

At stated conc. (µg/mL) in Alcohol Solution (1-butanol : MeOH) (ratio 63:37) 3 comps.

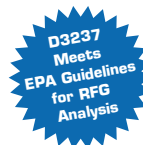
Calcium chloride	10	Sodium chloride	70
Magnesium chloride	20		

ASTM D3237 Lead in Gasoline by AA Spectroscopy

Lead Standard Calibration Curve

D-3237-CAL-SET 4 x 100 mL
Set includes the following Catalog Numbers:

Description	Cat. No.	100 mL
Blank 1% Aliquat 336/MIBK	D-3237-01	
0.02 g Pb / gal (5.3 mg Pb/ L) in 1% Aliquat 336 / MIBK	D-3237-02	
0.05 g Pb / gal (13.2 mg Pb/ L) in 1% Aliquat 336 / MIBK	D-3237-03	
0.10 g Pb / gal (26.4 mg Pb/ L) in 1% Aliquat 336 / MIBK	D-3237-04	



ASTM D3605 Trace Metals in Gas Turbine Fuels by AA & Flame Emission & Spectroscopy

Trace Metals Standard

D-3605-91-R1-1	1 x 100 mL
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250 µg/mL each in 75 cSt Hydrocarbon oil 4 comps.

Sodium (Na)	Calcium (Ca)
Lead (Pb)	Vanadium (V)

Standards of Interest

See 369-374 for a complete listing of Wear Metal Standards.

ASTM D3831 Manganese in Gasoline by AA Spectroscopy

Manganese Stock Solution

D-3831-1	1 x 100 mL
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1.0 g Mn / gal (264.2 mg Mn / L) in Methyl isobutyl ketone

D-3831-R1-1	1 x 100 mL
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400 mg/L in Methyl isobutyl ketone

Manganese

ASTM D5184 Aluminum and Silicon in Fuel Oils by Ashing, Fusion, ICP-AES Spectrometry & AA Spectrometry

Tartaric Acid / Hydrochloric Acid Solution

D-5184-91-TA-5	1 x 500 mL
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Tartaric acid @ 0.5% w/v in 4% HCl

Aluminum Standard Solution

D-5184-91-AL-1	1 x 100 mL
D-5184-91-AL-5	1 x 500 mL

Aluminum @ 1000 µg/mL in 5 % HCl

Silicon Standard Solution

D-5184-91-SI-1	1 x 100 mL
D-5184-91-SI-5	1 x 500 mL

Silicon @ 1000 µg/mL in water tr. NaOH tr. HF



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ICP/MS

Multi-Element Standards

■ Ultra Pure Matrix ■ Special Packaging ■ Traceability to National Reference Materials

AccuStandard's ICP/MS Standards are formulated to meet the needs of this very special instrument. As matrix effect is of utmost concern, each standard is formulated in specially purified 18 megohm de-ionized water and ultra pure acids. After both wet chemical and instrumental analysis, the standards are packaged in acid leached FLPE containers to provide required protection.

Calibration Standards

These five standards encompass the entire range of elements all at 10 ppm.

Calibration Standard 1

ICP-MS-CAL1-1 100 mL
10 µg/mL each in 5% HNO₃ 17 comps.

Element	Most Abundant Isotope
Cerium (Ce)	140
Dysprosium (Dy)	164
Erbium (Er)	166
Europium (Eu)	153
Gadolinium (Gd)	158
Holmium (Ho)	165
Lanthanum (La)	139
Lutetium (Lu)	175
Neodymium (Nd)	143
Praseodymium (Pr)	141
Samarium (Sm)	152
Scandium (Sc)	45
Terbium (Tb)	159
Thorium (Th)	232
Thulium (Tm)	169
Ytterbium (Yb)	174
Yttrium (Y)	89

Calibration Standard 2

ICP-MS-CAL2-1 100 mL
10 µg/mL each in 5% HNO₃ 29 comps.

Element	Most Abundant Isotope
Aluminum (Al)	27
Arsenic (As)	75
Barium (Ba)	138
Beryllium (Be)	9
Bismuth (Bi)	209
Cadmium (Cd)	114
Calcium (Ca)	40
Cesium (Cs)	133
Chromium (Cr)	52
Cobalt (Co)	59
Copper (Cu)	63
Gallium (Ga)	69
Indium (In)	115
Iron (Fe)	56
Lead (Pb)	208
Lithium (Li)	7
Magnesium (Mg)	24
Manganese (Mn)	55
Nickel (Ni)	58
Potassium (K)	39
Rubidium (Rb)	85
Selenium (Se)	80
Silver (Ag)	107
Sodium (Na)	23
Strontium (Sr)	88
Thallium (Tl)	205
Uranium (U)	238
Vanadium (V)	51
Zinc (Zn)	64

Calibration Standard 3

ICP-MS-CAL3-R-1 100 mL
10 µg/mL each in 10% HCl, 1% HNO₃ 10 comps.

Element	Most Abundant Isotope
Antimony (Sb)	121
Gold (Au)	197
Hafnium (Hf)	180
Iridium (Ir)	193
Palladium (Pd)	106
Platinum (Pt)	195
Rhodium (Rh)	103
Ruthenium (Ru)	102
Tellurium (Te)	130
Tin (Sn)	120

Calibration Standard 4

ICP-MS-CAL4-1 100 mL
10 µg/mL each in Water tr. HF 12 comps.

Element	Most Abundant Isotope
Boron (B)	11
Germanium (Ge)	74
Molybdenum (Mo)	98
Niobium (Nb)	93
Phosphorus (P)	31
Rhenium (Re)	187
Silicon (Si)	28
Sulfur (S)	32
Tantalum (Ta)	181
Titanium (Ti)	48
Tungsten (W)	184
Zirconium (Zr)	90

Calibration Standard 5

ICP-MS-CAL5-1 100 mL
10 µg/mL in 5% HNO₃

Element	Most Abundant Isotope
Mercury (Hg)	202

Calibration Standard Set

ICP-MS-CAL-R-1-SET 5 x 100 mL
ICP-MS-CAL1-1 ICP-MS-CAL4-1
ICP-MS-CAL2-1 ICP-MS-CAL5-1
ICP-MS-CAL3-R-1

Matrix Blanks

Nitric Acid Blank

ICP-MS-BLN-1 100 mL
ICP-MS-BLN-5 500 mL

5% HNO₃ in 18 Megohm ASTM Type I deionized Water

Hydrochloric Acid Blank

ICP-MS-BLH-1 100 mL
ICP-MS-BLH-5 500 mL

5% HCl in 18 Megohm ASTM Type I deionized Water

These blanks are prepared from the same water source and acids as your standards and therefore provide a consistent matrix. They are excellent as a blank, preparing a standard curve, or as a diluent for standards and samples.

Water Blank

ICP-MS-BLW-1 100 mL
ICP-MS-BLW-5 500 mL

18 Megohm ASTM Type I deionized Water

ICP/MS Multi-Element Standards



Tuning Solutions

We offer two tuning solutions, both range from 7-238 mass units. Choose the one which best suits your needs.

ICP-MS-TUNSOL1-1 100 mL
100 µg/mL each in 2% HNO₃ 8 comps.

Element	Most Abundant Isotope
Barium (Ba)	138
Beryllium (Be)	9
Copper (Cu)	63
Indium (In)	115
Lithium (Li)	7
Magnesium (Mg)	24
Thallium (Tl)	205
Uranium (U)	238

ICP-MS-TUNSOL2-1 100 mL
100 µg/mL each in 2% HNO₃ 13 comps.

Element	Most Abundant Isotope
Barium (Ba)	138
Beryllium (Be)	9
Bismuth (Bi)	209
Cerium (Ce)	140
Copper (Cu)	63
Holmium (Ho)	165
Indium (In)	115
Lead (Pb)	208
Lithium (Li)	7
Magnesium (Mg)	24
Thallium (Tl)	205
Uranium (U)	238
Yttrium (Y)	89

Interference Check Standards

Solution A
ICP-MS-INTA-1 100 mL
At stated conc. (µg/mL) in 1% HNO₃ 12 comps.

Element	µg/mL	Most Abundant Isotope
Aluminum (Al)	1000	27
Carbon (C)	2000	12
Calcium (Ca)	3000	40
Chloride (Cl)	18000	35
Iron (Fe)	2500	56
Magnesium (Mg)	1000	24
Molybdenum (Mo)	20	98
Phosphorus (P)	1000	31
Potassium (K)	1000	39
Sodium (Na)	2500	23
Sulfur (S)	1000	32
Titanium (Ti)	20	48

Solution B
ICP-MS-INTB-1 100 mL
At stated conc. (µg/mL) in 2% HNO₃ 11 comps.

Element	µg/mL	Most Abundant Isotope
Arsenic (As)	10	75
Cadmium (Cd)	10	114
Carbon (C)	20	12
Chromium (Cr)	20	52
Copper (Cu)	20	63
Manganese (Mn)	20	55
Nickel (Ni)	20	58
Selenium (Se)	10	80
Silver (Ag)	20	107
Vanadium (V)	20	51
Zinc (Zn)	10	64

Interference Check Standard Set

ICP-MS-INT-1-SET 2 x 100 mL
ICP-MS-INTA-1 ICP-MS-INTB-1

Memory Check Solution

Memory Check Solution Sets

ICP-MS-MEMCHKA-R1-SET 2 x 100 mL

ICP-MS-MEMCHKA1-R1
ICP-MS-MEMCHKA2-R1

ICP-MS-MEMCHK-R1-SET 3 x 100 mL

ICP-MS-MEMCHKA1-R1
ICP-MS-MEMCHKA2-R1
ICP-MS-MEMCHKB-R1

Solution A
ICP-MS-MEMCHKA1-R1 100 mL
At stated conc. (µg/mL) in 2% HNO₃ 24 comps.

Element	µg/mL	Most Abundant Isotope
Aluminum (Al)	1000	27
Antimony (Sb)	20	121
Arsenic (As)	20	75
Barium (Ba)	20	138
Beryllium (Be)	20	9
Cadmium (Cd)	20	114
Calcium (Ca)	1000	40
Carbon (C)	2000	12
Chromium (Cr)	20	52
Cobalt (Co)	20	59
Copper (Cu)	20	63
Iron (Fe)	1000	56
Lead (Pb)	20	208
Magnesium (Mg)	1000	24
Molybdenum (Mo)	20	98
Potassium (K)	1000	39
Titanium (Ti)	20	48
Manganese (Mn)	20	55
Nickel (Ni)	20	58
Selenium (Se)	20	80
Sodium (Na)	1000	23
Thallium (Tl)	20	205
Vanadium (V)	20	51
Zinc (Zn)	20	64

ICP-MS-MEMCHKA2-R1 100 mL
20 µg/mL In 2% HNO₃

Element	Most Abundant Isotope
Silver (Ag)	107

Solution B
ICP-MS-MEMCHKB-R1 100 mL
At stated conc. (µg/mL) in Water 3 comps.

Element	µg/mL	Most Abundant Isotope
Chloride (Cl)	7200	35
Phosphorus (P)	1000	31
Sulfur (S)	1000	32

Technical Note

These memory check solutions are not designed to be used as standards. The solutions should be mixed together right before aspiration. Precipitate will form over time - this is normal and will not affect the performance of the solution. The mixture is used only to determine the memory or "carry-over" that occurs after running a "concentrated" solution.





ICP/MS

Multi-Element Standards

Spiking Standards

Spiking Standard for Water

ICP-MS-SPIKE-W-1 100 mL

At stated conc. (µg/mL) in 5% HNO₃ 17 comps.

Element	µg/mL	Isotope
Antimony (Sb)	100	121
Arsenic (As)	50	75
Barium (Ba)	250	138
Beryllium (Be)	25	9
Cadmium (Cd)	25	114
Chromium (Cr)	100	52
Cobalt (Co)	100	59
Copper (Cu)	100	63
Iron (Fe)	500	56
Lead (Pb)	50	208
Manganese (Mn)	100	55
Nickel (Ni)	100	58
Selenium (Se)	25	80
Silver (Ag)	25	107
Thallium (Tl)	25	205
Vanadium (V)	100	51
Zinc (Zn)	250	64

Spiking Standard for Soil

ICP-MS-SPIKE-S-1 100 mL

At stated conc. (µg/mL) in 5% HNO₃ 15 comps.

Element	µg/mL	Isotope
Antimony (Sb)	100	121
Arsenic (As)	50	75
Barium (Ba)	250	138
Beryllium (Be)	25	9
Cadmium (Cd)	50	114
Chromium (Cr)	250	52
Cobalt (Co)	100	59
Copper (Cu)	250	63
Lead (Pb)	100	208
Nickel (Ni)	125	58
Selenium (Se)	25	80
Silver (Ag)	25	107
Thallium (Tl)	25	205
Vanadium (V)	150	51
Zinc (Zn)	250	90

Spiking Standard Set

ICP-MS-SPIKE-1-SET 2 x 100 mL
ICP-MS-SPIKE-W-1 ICP-MS-SPIKE-S-1

Quality Control

Sample 1

ICP-MS-QC1-1 100 mL

10 µg/mL each in 2% HNO₃ 9 comps.

Element	Isotope
Beryllium (Be)	9
Bismuth (Bi)	209
Cerium (Ce)	140
Cobalt (Co)	59
Indium (In)	115
Lead (Pb)	208
Magnesium (Mg)	24
Nickel (Ni)	58
Uranium (U)	238

Sample 2

ICP-MS-QC2-1 100 mL

10 µg/mL each in 5% HNO₃ 25 comps

Element	Isotope
Aluminum (Al)	27
Antimony (Sb)	121
Arsenic (As)	75
Barium (Ba)	138
Beryllium (Be)	9
Cadmium (Cd)	114
Calcium (Ca)	40
Chromium (Cr)	52
Cobalt (Co)	59
Copper (Cu)	63
Iron (Fe)	56
Lead (Pb)	208
Magnesium (Mg)	24
Manganese (Mn)	55
Molybdenum (Mo)	98
Nickel (Ni)	56
Potassium (K)	39
Selenium (Se)	80
Silver (Ag)	107
Sodium (Na)	23
Thallium (Tl)	205
Thorium (Th)	232
Uranium (U)	238
Vanadium (V)	51
Zinc (Zn)	64

Sample 3

ICP-MS-QC3-1 100 mL

10 µg/mL each in 5% HNO₃ tr. HF 21 comps.

Element	Isotope
Antimony (Sb)	121
Arsenic (As)	75
Beryllium (Be)	9
Cadmium (Cd)	114
Calcium (Ca)	40
Chromium (Cr)	52
Cobalt (Co)	59
Copper (Cu)	63
Iron (Fe)	56
Lead (Pb)	208
Lithium (Li)	7
Magnesium (Mg)	24
Manganese (Mn)	55
Molybdenum (Mo)	98
Nickel (Ni)	58
Selenium (Se)	80
Strontium (Sr)	88
Thallium (Tl)	205
Titanium (Ti)	48
Vanadium (V)	51
Zinc (Zn)	64

Internal Standards

Single Internal Standards

For your convenience we offer two concentrations.

Element	Matrix	Unit	10 µg/mL	100 µg/mL
Bismuth	2-5% HNO	100 mL	ICP-MS-IS-BI-1	ICP-MS-IS-BI-10X-1
Holmium	2-5% HNO	100 mL	ICP-MS-IS-HO-1	ICP-MS-IS-HO-10X-1
Indium	2-5% HNO ₃	100 mL	ICP-MS-IS-IN-1	ICP-MS-IS-IN-10X-1
Lutetium	2-5% HNO ₃	100 mL	ICP-MS-IS-LU-1	ICP-MS-IS-LU-10X-1
Lithium-6	2-5% HNO ₃	100 mL	ICP-MS-IS-LI6-1	ICP-MS-IS-LI6-10X-1
Rhodium	10% HCl	100 mL	ICP-MS-IS-RH-1	ICP-MS-IS-RH-10X-1
Scandium	2-5% HNO ₃	100 mL	ICP-MS-IS-SC-1	ICP-MS-IS-SC-10X-1
Terbium	2-5% HNO ₃	100 mL	ICP-MS-IS-TB-1	ICP-MS-IS-TB-10X-1
Yttrium	2-5% HNO ₃	100 mL	ICP-MS-IS-Y-1	ICP-MS-IS-Y-10X-1

Internal Standard Mix

These internal standards have been chosen because they all have nearly 100% abundance of a single isotope and they are not commonly found in routine samples.

ICP-MS-IS-MIX1-1 100 mL
10 µg/mL each in 2% HNO₃ 7 comps.

Element	Isotope
Bismuth (Bi)	209
Holmium (Ho)	165
Indium (In)	115
Lithium-6 (6-Li)	6
Scandium (Sc)	45
Terbium (Tb)	159
Yttrium (Y)	89



Method 200.8 Determination of Trace Elements in Water and Waste by ICP/MS

Calibration Standards

Calibration Standard #1 (1991 Version)

ICP-MS-200.8-CAL1-1 100 mL
10 µg/mL each in 5% HNO₃ tr. HF 18 comps.

Element	Isotope
Aluminum (Al)	27
Antimony (Sb)	121
Arsenic (As)	75
Beryllium (Be)	9
Cadmium (Cd)	114
Chromium (Cr)	52
Cobalt (Co)	59
Copper (Cu)	63
Lead (Pb)	208
Manganese (Mn)	55
Molybdenum (Mo)	98
Nickel (Ni)	58
Selenium (Se)	80
Thallium (Tl)	205
Thorium (Th)	232
Uranium (U)	238
Vanadium (V)	51
Zinc (Zn)	64

Calibration Standard #2

ICP-MS-200.8-CAL2-1 100 mL
10 µg/mL each in 2% HNO₃ 2 comps.

Element	Isotope
Barium (Ba)	138
Silver (Ag)	67

Calibration Standard #1R (1994 Version)

ICP-MS-200.8-CAL1R-1 100 mL
At stated conc. (µg/mL) in 2% HNO₃ tr. HF 18 comps.

Element	µg/mL	Isotope
Aluminum (Al)	10	27
Antimony (Sb)	10	121
Arsenic (As)	10	75
Beryllium (Be)	10	9
Cadmium (Cd)	10	114
Chromium (Cr)	10	52
Cobalt (Co)	10	59
Copper (Cu)	10	63
Lead (Pb)	10	208
Manganese (Mn)	10	55
Molybdenum (Mo)	10	98
Nickel (Ni)	10	58
Selenium (Se)	50	80
Thallium (Tl)	10	205
Thorium (Th)	10	232
Uranium (U)	10	238
Vanadium (V)	10	51
Zinc (Zn)	10	64

Calibration Standard #3

ICP-MS-200.8-CAL3-1 100 mL
1 component in 5% HNO₃

Element	µg/mL	Isotope
Mercury (Hg)	5	202

Internal Standards

Internal Standard #1

ICP-MS-200.8-IS-1 100 mL
100 µg/mL each in 2% HNO₃ 4 comps.

Element	Isotope
Scandium (Sc)	45
Yttrium (Y)	89
Indium (In)	115
Terbium (Tb)	159
Bismuth (Bi)	209

Internal Standard #2

ICP-MS-200.8-IS2-1 100 mL
100 µg/mL in 2% HNO₃

Element	Isotope
Gold (Au)	197

see previous pg for
single element internal standards

Tuning Standard

ICP-MS-200.8-TUN-1 100 mL
10 µg/mL each in 2% HNO₃ 5 comps.

Element	Isotope
Beryllium (Be)	75
Magnesium (Mg)	24
Cobalt (Co)	59
Indium (In)	115
Lead (Pb)	208

Method 6020 Standards for Inductively Coupled Mass Spectrometry

Calibration Standard

ICP-MS-6020-CAL-R-1 100 mL
10 µg/mL each in 2% HNO₃ 22 comps.

Element	Isotope
Aluminum (Al)	27
Antimony (Sb)	121
Arsenic (As)	75
Barium (Ba)	138
Beryllium (Be)	9
Cadmium (Cd)	114
Calcium (Ca)	40
Chromium (Cr)	52
Cobalt (Co)	59
Copper (Cu)	63
Iron (Fe)	56
Lead (Pb)	208
Magnesium (Mg)	24
Manganese (Mn)	55
Nickel (Ni)	58
Potassium (K)	39
Selenium (Se)	80
Silver (Ag)	107
Sodium (Na)	23
Thallium (Tl)	205
Vanadium (V)	51
Zinc (Zn)	64

Interference Check Standard #1

ICP-MS-6020-INT1-1 100 mL
At stated conc. (µg/mL) in 2% HNO₃ 12 comps.

Element	µg/mL	Isotope
Aluminum (Al)	1000	27
Chloride (Cl)	10000	35
Calcium (Ca)	1000	40
Carbon (C)	2000	12
Iron (Fe)	1000	56
Magnesium (Mg)	1000	24
Molybdenum (Mo)	20	98
Phosphorus (P)	1000	31
Potassium (K)	1000	39
Sodium (Na)	1000	23
Sulfur (S)	1000	32
Titanium (Ti)	20	48

Interference Check Standard #2

ICP-MS-6020-INT2-1 100 mL
2 µg/mL each in 5% HNO₃ tr. HF 9 comps.

Element	Isotope
Arsenic (As)	75
Cadmium (Cd)	114
Chromium (Cr)	52
Cobalt (Co)	59
Copper (Cu)	63
Manganese (Mn)	55
Nickel (Ni)	58
Silver (Ag)	107
Zinc (Zn)	64

Tuning Standard

ICP-MS-6020-TUN-1 100 mL
10 µg/mL each in 2% HNO₃ 4 comps.

Element	Isotope
Cobalt (Co)	59
Indium (In)	115
Lithium (Li)	7
Thallium (Tl)	205



Organometallic Standards

AA, ICP, DCP & XRF Analysis

These Standards were formulated for the analysis of metals in oils and other organic matrices. These Standards and curves provide a convenient way to analyze for metals (wear metals, additives and contaminants) in lubricating oils, gasolines, residual oils, crude oils, turbine fuels and environmental samples. All standards undergo rigorous quality assurance checks. Major constituents in the final Standard are typically analyzed by both plasma emission and rotrode techniques. Organometallic Standards listed on this page may contain sulfur which can be introduced by possible sulfonate starting materials used to formulate the actual organometallic standard. We developed a Premium Organometallic line for chemists preferring to have organometallic standards with <1 ppm sulfur or phosphorus (see Table of Contents).

- Single & Multi Element Standards
- Prepared Calibration Curves
- Formulated from Ultra High Purity Organometallic starting materials & matrices
- Certificate of Analysis

Single Element Organometallic

Element	1000 µg/g in 75 cSt base oil		5000 µg/g in 75 cSt base oil	
	Cat. No. (50 g)		Cat. No. (50 g)	
Aluminum (Al)	WM-75CST-01		WM-75CST-01-5X	
Antimony (Sb)	WM-75CST-02		WM-75CST-02-5X	
Arsenic (As)	WM-75CST-03			
Barium (Ba)	WM-75CST-04		WM-75CST-04-5X	
Beryllium (Be)	WM-75CST-05			
Bismuth (Bi)	WM-75CST-06		WM-75CST-06-5X	
Boron (B)	WM-75CST-07		WM-75CST-07-5X	
Cadmium (Cd)	WM-75CST-08		WM-75CST-08-5X	
Calcium (Ca)	WM-75CST-09		WM-75CST-09-5X	
Chromium (Cr)	WM-75CST-13		WM-75CST-13-5X	
Cobalt (Co)	WM-75CST-14		WM-75CST-14-5X	
Copper (Cu)	WM-75CST-15		WM-75CST-15-5X	
Iron (Fe)	WM-75CST-27		WM-75CST-27-5X	
Lanthanum (La)	WM-75CST-28			
Lead (Pb)	WM-75CST-29		WM-75CST-29-5X	
Lithium (Li)	WM-75CST-30		WM-75CST-30-5X	
Magnesium (Mg)	WM-75CST-32		WM-75CST-32-5X	
Manganese (Mn)	WM-75CST-33		WM-75CST-33-5X	
Mercury (Hg)	WM-75CST-34			
Molybdenum (Mo)	WM-75CST-35		WM-75CST-35-5X	
Nickel (Ni)	WM-75CST-37		WM-75CST-37-5X	
Phosphorus (P)	WM-75CST-41		WM-75CST-41-5X	
Potassium (K)	WM-75CST-43		WM-75CST-43-5X	
Scandium (Sc)	WM-75CST-50			
Selenium (Se)	WM-75CST-51			
Silicon (Si)	WM-75CST-52		WM-75CST-52-5X	
Silver (Ag)	WM-75CST-53		WM-75CST-53-5X	
Sodium (Na)	WM-75CST-54		WM-75CST-54-5X	
Strontium (Sr)	WM-75CST-55			
Sulfur (S)	WM-75CST-56		WM-75CST-56-5X	
Thallium (Tl)	WM-75CST-60			
Tin (Sn)	WM-75CST-63		WM-75CST-63-5X	
Titanium (Ti)	WM-75CST-64		WM-75CST-64-5X	
Vanadium (V)	WM-75CST-67		WM-75CST-67-5X	
Yttrium (Y)	WM-75CST-69		WM-75CST-69-5X	
Zinc (Zn)	WM-75CST-70		WM-75CST-70-5X	
Zirconium (Zr)	WM-75CST-71		WM-75CST-71-5X	

Matrix Oil and Stabilizer

75 cSt Oil

MOSOL-75 500 mL

Stabilizer

WM-STAB 1 x 50 g

Technical Note

Used to improve the stability of Organo-metallic Standards when diluting into solvents such as Kerosene. Add 0.6% by weight.

Metals Additives

MA-900-100G 100 g
MA-900-200G 200 g

900 µg/g each in Base oil

MA-1000-100G 100 g
MA-1000-200G 200 g

1000 µg/g each in Base oil

MA-3000-100G 100 g
MA-3000-200G 200 g

3000 µg/g each in Base oil

MA-5000-100G 100 g
MA-5000-200G 200 g

5000 µg/g each in Base oil 5 comps.

Barium (Ba) Phosphorus (P)
Calcium (Ca) Zinc (Zn)
Magnesium (Mg)

See Petrochemical Section for
Metals in Biofuels.

We can provide Custom formulations
to meet your needs.

To request a Custom formulation, contact
Inorganic Technical Service using our website
or Email inotech@accustandard.com.

Organometallic Standards

AA, ICP, DCP & XRF Analysis



21 Wear Metal Multi-Element

Conc.	Unit	Cat. No.
10 µg/g	100 g	WM-21-1X-100G
	200 g	WM-21-1X-200G
30 µg/g	100 g	WM-21-3X-100G
	200 g	WM-21-3X-200G
50 µg/g	100 g	WM-21-5X-100G
	200 g	WM-21-5X-200G
100 µg/g	100 g	WM-21-10X-100G
	200 g	WM-21-10X-200G
300 µg/g	100 g	WM-21-30X-100G
	200 g	WM-21-30X-200G
500 µg/g	100 g	WM-21-50X-100G
	200 g	WM-21-50X-200G
900 µg/g	100 g	WM-21-90X-100G
	200 g	WM-21-90X-200G

WM-21-100G-SET

7 x 100 g

WM-21-200G-SET

7 x 200 g

21 Wear Metals in base oil at the stated conc.

Silver (Ag)	Copper (Cu)	Phosphorus (P)
Aluminum (Al)	Iron (Fe)	Lead (Pb)
Boron (B)	Magnesium (Mg)	Silicon (Si)
Barium (Ba)	Manganese (Mn)	Tin (Sn)
Calcium (Ca)	Molybdenum (Mo)	Titanium (Ti)
Cadmium (Cd)	Sodium (Na)	Vanadium (V)
Chromium (Cr)	Nickel (Ni)	Zinc (Zn)

22 Wear Metal Multi-Element

Conc.	Unit	Cat. No.
10 µg/g	100 g	WM-22-1X-100G
	200 g	WM-22-1X-200G
30 µg/g	100 g	WM-22-3X-100G
	200 g	WM-22-3X-200G
50 µg/g	100 g	WM-22-5X-100G
	200 g	WM-22-5X-200G
100 µg/g	100 g	WM-22-10X-100G
	200 g	WM-22-10X-200G
300 µg/g	100 g	WM-22-30X-100G
	200 g	WM-22-30X-200G
500 µg/g	100 g	WM-22-50X-100G
	200 g	WM-22-50X-200G
900 µg/g	100 g	WM-22-90X-100G
	200 g	WM-22-90X-200G

100 gram Set WM-22-100G-SET

7 x 100 g

200 gram Set WM-22-200G-SET

7 x 200 g

21 Wear Metals plus K in base oil at the stated conc.

Silver (Ag)	Iron (Fe)	Lead (Pb)
Aluminum (Al)	Potassium (K)	Silicon (Si)
Boron (B)	Magnesium (Mg)	Tin (Sn)
Barium (Ba)	Manganese (Mn)	Titanium (Ti)
Calcium (Ca)	Molybdenum (Mo)	Vanadium (V)
Cadmium (Cd)	Sodium (Na)	Zinc (Zn)
Chromium (Cr)	Nickel (Ni)	
Copper (Cu)	Phosphorus (P)	

23 Wear Metal Multi-Element

Conc.	Unit	Cat. No.
10 µg/g	100 g	WM-23-1X-100G
	200 g	WM-23-1X-200G
30 µg/g	100 g	WM-23-3X-100G
	200 g	WM-23-3X-200G
50 µg/g	100 g	WM-23-5X-100G
	200 g	WM-23-5X-200G
100 µg/g	100 g	WM-23-10X-100G
	200 g	WM-23-10X-200G
300 µg/g	100 g	WM-23-30X-100G
	200 g	WM-23-30X-200G
500 µg/g	100 g	WM-23-50X-100G
	200 g	WM-23-50X-200G
900 µg/g	100 g	WM-23-90X-100G
	200 g	WM-23-90X-200G

100 gram Set WM-23-100G-SET

7 x 100 g

200 gram Set WM-23-200G-SET

7 x 200 g

21 Wear Metals plus K and Sb in base oil at the stated conc.

Silver (Ag)	Iron (Fe)	Lead (Pb)
Aluminum (Al)	Potassium (K)	Antimony (Sb)
Boron (B)	Magnesium (Mg)	Silicon (Si)
Barium (Ba)	Manganese (Mn)	Tin (Sn)
Calcium (Ca)	Molybdenum (Mo)	Titanium (Ti)
Cadmium (Cd)	Sodium (Na)	Vanadium (V)
Chromium (Cr)	Nickel (Ni)	Zinc (Zn)
Copper (Cu)	Phosphorus (P)	





Organometallic Standards

Premium Sulfur-Free

Organometallic Single Element Stock Standards

Evtnt	1000 µg/g		5000 µg/g		Element	1000 µg/g		5000 µg/g	
	Cat. No.	50 mL	Cat. No.	50 mL		Cat. No.	50 mL	Cat. No.	50 mL
Aluminum (Al)	WM-NMS-01		WM-NMS-01-5X		Mercury (Hg)	WM-NMS-34		WM-NMS-34-5X	
Antimony (Sb)	WM-NMS-02		WM-NMS-02-5X		Molybdenum (Mo)	WM-NMS-35		WM-NMS-35-5X	
Arsenic (As)	WM-NMS-03		WM-NMS-03-5X		Nickel (Ni)	WM-NMS-37		WM-NMS-37-5X	
Barium (Ba)	WM-NMS-04		WM-NMS-04-5X		Phosphorus (P)	WM-NMS-41		WM-NMS-41-5X	
Beryllium (Be)	WM-NMS-05		WM-NMS-05-5X		Potassium (K)	WM-NMS-43		WM-NMS-43-5X	
Cadmium (Cd)	WM-NMS-08		WM-NMS-08-5X		Selenium (Se)	WM-NMS-51		WM-NMS-51-5X	
Calcium (Ca)	WM-NMS-09		WM-NMS-09-5X		Silicon (Si)	WM-NMS-52		WM-NMS-52-5X	
Cerium (Ce)	WM-NMS-11		WM-NMS-11-5X		Silver (Ag)	WM-NMS-53		WM-NMS-53-5X	
Chromium (Cr)	WM-NMS-13		WM-NMS-13-5X		Sodium (Na)	WM-NMS-54		WM-NMS-54-5X	
Cobalt (Co)	WM-NMS-14		WM-NMS-14-5X		Strontium (Sr)	WM-NMS-55		WM-NMS-55-5X	
Copper (Cu)	WM-NMS-15		WM-NMS-15-5X		Thallium (Tl)	WM-NMS-60		WM-NMS-60-5X	
Gallium (Ga)	WM-NMS-20		WM-NMS-20-5X		Tin (Sn)	WM-NMS-63		WM-NMS-63-5X	
Gold (Au)	WM-NMS-22		-----	----	Titanium (Ti)	WM-NMS-64		WM-NMS-64-5X	
Iron (Fe)	WM-NMS-27		WM-NMS-27-5X		Vanadium (V)	WM-NMS-67		WM-NMS-67-5X	
Lead (Pb)	WM-NMS-29		WM-NMS-29-5X		Yttrium (Y)	WM-NMS-69		WM-NMS-69-5X	
Lithium (Li)	WM-NMS-30		WM-NMS-30-5X		Zinc (Zn)	WM-NMS-70		WM-NMS-70-5X	
Magnesium (Mg)	WM-NMS-32		WM-NMS-32-5X		Zirconium (Zr)	WM-NMS-71		WM-NMS-71-5X	
Manganese (Mn)	WM-NMS-33		WM-NMS-33-5X						

Premium Sulfur-Free

Sulfur below detection limits for most elements

No Metallic Sulfonates

- Stabilized
- Ready for Use

Technical Note

Sulfur below detection limits for most elements. Sulfur content otherwise noted on certificate. For use with X-ray fluorescence (XRF), plasma emission (ICP or DCP), rotating disk (RDE), or atomic absorption (AA) spectroscopy. May be blended together to prepare multi-element standards. Solutions are stabilized with proprietary chelation and stabilization solution and are ready for use.

21 Wear Metal Multi-Element

Conc.	Unit	Cat. No.
10 µg/g	100 mL	WM-21-NMS-1X-1
30 µg/g	100 mL	WM-21-NMS-3X-1
50 µg/g	100 mL	WM-21-NMS-5X-1
100 µg/g	100 mL	WM-21-NMS-10X-1
300 µg/g	100 mL	WM-21-NMS-30X-1
500 µg/g	100 mL	WM-21-NMS-50X-1
900 µg/g	100 mL	WM-21-NMS-90X-1

100 mL Set WM-21-NMS-1-SET
7 x 100 mL

21 Wear Metal in Mineral oil at the stated concentration.

Silver (Ag)	Copper (Cu)	Phosphorus (P)
Aluminum (Al)	Iron (Fe)	Lead (Pb)
Boron (B)	Magnesium (Mg)	Silicon (Si)
Barium (Ba)	Manganese (Mn)	Tin (Sn)
Calcium (Ca)	Molybdenum (Mo)	Titanium (Ti)
Cadmium (Cd)	Sodium (Na)	Vanadium (V)
Chromium (Cr)	Nickel (Ni)	Zinc (Zn)

Recommended Internal Standard

Organometallic (Internal Standard) Sulfur free

	Conc.	Cat. No.	50 mL
Cobalt	1000 µg/g	WM-NMS-14	
	5000 µg/g	WM-NMS-14-5X	

Suitable for ASTM
D4628, D4927, D4951,
D5056, D5185, D6443,
D6481

Organometallic standards do not require a hazardous shipping fee except where noted.

Technical Note

For analysis by XRF, AA, ICP or AE for applications for which sulfur interference is undesirable. Prepared with Sulfur-free organometallics that do not contain metallic sulfonates. Solutions are stabilized with proprietary chelation and stabilization solution and are ready for use. Additional stabilizers may be required in some cases. Contact Technical Service for additional information.

Organometallic Standards

AA, ICP, DCP & XRF Analysis



Sulfur and Metals in Oil

Test Method A - ICP with an Organic Solvent Specimen Solution

Sulfur and Metals in Mineral Oil

Designed for ASTM D5708

ASTM-P-0102-SET		12 x 100 mL			
Cat. No.	Sulfur (Wt. %)	Iron (µg/g)	Nickel (µg/g)	Vanadium (µg/g)	100 mL
ASTM-P-0102-01	0.00	0.00	0.00	0.00	
ASTM-P-0102-02	0.50	300	10.0	500	
ASTM-P-0102-03	1.00	500	100	25.0	
ASTM-P-0102-04	0.00	100	80.0	250	
ASTM-P-0102-05	2.00	200	40.0	100	
ASTM-P-0102-06	2.50	400	5.00	400	
ASTM-P-0102-07	3.00	0.00	60.0	300	
ASTM-P-0102-08	3.50	500	0.00	200	
ASTM-P-0102-09	0.00	100	100	0.00	
ASTM-P-0102-10	4.50	300	50.0	250	
ASTM-P-0102-11	5.00	200	20.0	500	
ASTM-P-0102-12	5.50	50.0	100	50.0	

Sulfur and Metals in Residual Fuel Oil

Designed for ASTM D5708

ASTM-P-0103-SET		12 x 100 mL			
Cat. No.	Sulfur (Wt. %)	Iron (µg/g)	Nickel (µg/g)	Vanadium (µg/g)	100 mL
ASTM-P-0103-01	0.00	0.00	0.00	0.00	
ASTM-P-0103-02	0.50	300	10.0	500	
ASTM-P-0103-03	1.00	500	100	25.0	
ASTM-P-0103-04	0.00	100	80.0	250	
ASTM-P-0103-05	2.00	200	40.0	100	
ASTM-P-0103-06	2.50	400	5.00	400	
ASTM-P-0103-07	3.00	0.00	60.0	300	
ASTM-P-0103-08	3.50	500	0.00	200	
ASTM-P-0103-09	0.00	100	100	0.00	
ASTM-P-0103-10	4.50	300	50.0	250	
ASTM-P-0103-11	5.00	200	20.0	500	
ASTM-P-0103-12	5.50	50	100	50.0	

Stock Multi-Element Standard in Mineral Oil

D-5863-95B-10X-1

1 x 100 mL

At stated conc. (µg/g) in 20 cst Mineral Oil

3 comps.

Sodium (Na)	50	Vanadium (V)	150
Nickel (Ni)	200		

Stock Multi-Element Standard in Mineral Oil

D-5863-00A-10X-1

1 x 100 mL

At stated conc. (µg/g) in 20 cst Mineral Oil

3 comps.

Nickel (Na)	100	Iron (Fe)	10
Vanadium (V)	500	Sodium (Na)	20

ISO/CD 14597 Vanadium and Nickel Standards with Manganese (Internal Standard)

Vanadium Standards - Low Range for ISO/CD 14597 with 0.05% Manganese Internal Standard in Xylene-Mineral Oil

ASTM-P-0104-SET 9 x 100 mL

Cat. No.	Vanadium Conc. (Wt.%)	100 mL
ASTM-P-0104-01	0.0005	
ASTM-P-0104-02	0.0025	
ASTM-P-0104-03	0.0050	
ASTM-P-0104-04	0.0075	
ASTM-P-0104-05	0.0100	
ASTM-P-0104-06	0.0125	
ASTM-P-0104-07	0.0150	
ASTM-P-0104-08	0.0175	
ASTM-P-0104-09	0.0200	

Vanadium Standards - High Range for ISO/CD 14597 with 0.05% Manganese Internal Standard in Xylene-Mineral Oil

ASTM-P-0105-SET 7 x 100 mL

Cat. No.	Vanadium Conc. (Wt.%)	100 mL
ASTM-P-0105-01	0.0000	
ASTM-P-0105-02	0.0300	
ASTM-P-0105-03	0.0400	
ASTM-P-0105-04	0.0500	
ASTM-P-0105-05	0.0600	
ASTM-P-0105-06	0.0800	
ASTM-P-0105-07	0.1000	

Nickel Standards for ISO/CD 14597 with 0.05% Manganese Internal Standard in Xylene-Mineral Oil

ASTM-P-0106-SET 7 x 100 mL

Cat. No.	Nickel Conc. (Wt.%)	100 mL
ASTM-P-0106-01	0.0000	
ASTM-P-0106-02	0.0005	
ASTM-P-0106-03	0.0010	
ASTM-P-0106-04	0.0025	
ASTM-P-0106-05	0.0050	
ASTM-P-0106-06	0.0075	
ASTM-P-0106-07	0.0100	

Internal Standard

ASTM-P-0107-5

500 mL

Manganese @ 0.05 Wt. % in Xylene-Mineral Oil

We can provide Custom formulations to meet your needs.

To request a Custom formulation, contact Inorganic Technical Service using our website or Email inotech@accustandard.com.



Organometallic Standards

AA, ICP, DCP & XRF Analysis

Lubricating Oil Standards

Elements in Lubricating Oil

ASTM-P-0108-SET

17 x 100 mL

Designed for ASTM D4927, D6443 & D6481

Cat. No.	Ca	P	S	Zn
Nominal Value	(Wt.%)	(Wt.%)	(Wt.%)	(Wt.%)
ASTM-P-0108-01	0.600	0.005	0.175	0.060
ASTM-P-0108-02	0.500	0.200	0.050	0.080
ASTM-P-0108-03	0.400	0.150	0.300	0.180
ASTM-P-0108-04	0.260	0.250	0.150	0.120
ASTM-P-0108-05	0.005	0.005	0.450	0.070
ASTM-P-0108-06	0.400	0.025	0.350	0.100
ASTM-P-0108-07	0.300	0.060	0.250	0.120
ASTM-P-0108-08	0.200	0.100	0.450	0.100
ASTM-P-0108-09	0.060	0.080	0.300	0.130
ASTM-P-0108-10	0.060	0.050	0.200	0.050
ASTM-P-0108-11	0.050	0.120	0.100	0.075
ASTM-P-0108-12	0.025	0.150	0.200	0.130
ASTM-P-0108-13	0.005	0.200	0.400	0.150
ASTM-P-0108-14	0.170	0.250	0.550	0.110
ASTM-P-0108-15	0.100	0.100	0.200	0.200
ASTM-P-0108-16	0.010	0.010	0.600	0.250
ASTM-P-0108-17	0.000	0.000	0.000	0.000

Elements in Lubricating Oil

ASTM-P-0109-SET

17 x 100 mL

Designed for ASTM D4927, D6443 & D6481

Cat. No.	Ca	Cl	P	S	Zn
Nominal Value	(Wt.%)	(Wt.%)	(Wt.%)	(Wt.%)	(Wt.%)
ASTM-P-0109-01	0.600	0.100	0.005	0.175	0.060
ASTM-P-0109-02	0.500	0.000	0.200	0.050	0.080
ASTM-P-0109-03	0.400	0.010	0.150	0.300	0.180
ASTM-P-0109-04	0.260	0.500	0.250	0.150	0.120
ASTM-P-0109-05	0.005	1.000	0.005	0.450	0.070
ASTM-P-0109-06	0.400	0.400	0.025	0.350	0.100
ASTM-P-0109-07	0.300	0.100	0.060	0.250	0.120
ASTM-P-0109-08	0.200	0.010	0.100	0.450	0.100
ASTM-P-0109-09	0.060	0.050	0.080	0.300	0.130
ASTM-P-0109-10	0.060	0.200	0.050	0.200	0.050
ASTM-P-0109-11	0.050	0.500	0.120	0.100	0.075
ASTM-P-0109-12	0.025	0.800	0.150	0.200	0.130
ASTM-P-0109-13	0.005	1.000	0.200	0.400	0.150
ASTM-P-0109-14	0.170	0.600	0.250	0.550	0.110
ASTM-P-0109-15	0.100	0.200	0.100	0.200	0.200
ASTM-P-0109-16	0.010	0.400	0.010	0.600	0.250
ASTM-P-0109-17	0.000	0.000	0.000	0.000	0.000

Elements in Lubricating Oil

ASTM-P-0110-SET

17 x 100 mL

Designed for ASTM D4927, D6443 & D6481

Cat. No.	Ba	Ca	P	S	Zn
Nominal Value	(Wt.%)	(Wt.%)	(Wt.%)	(Wt.%)	(Wt.%)
ASTM-P-0110-01	0.100	0.600	0.005	0.175	0.060
ASTM-P-0110-02	0.175	0.500	0.200	0.050	0.080
ASTM-P-0110-03	0.000	0.400	0.150	0.300	0.180
ASTM-P-0110-04	0.025	0.260	0.250	0.150	0.120
ASTM-P-0110-05	0.150	0.005	0.005	0.450	0.070
ASTM-P-0110-06	0.000	0.400	0.025	0.350	0.100
ASTM-P-0110-07	0.200	0.300	0.060	0.250	0.120
ASTM-P-0110-08	0.000	0.200	0.100	0.450	0.100
ASTM-P-0110-09	0.100	0.060	0.080	0.300	0.130
ASTM-P-0110-10	0.050	0.060	0.050	0.200	0.050
ASTM-P-0110-11	0.075	0.050	0.120	0.100	0.075
ASTM-P-0110-12	0.010	0.025	0.150	0.200	0.130
ASTM-P-0110-13	0.005	0.005	0.200	0.400	0.150
ASTM-P-0110-14	0.000	0.170	0.250	0.550	0.110
ASTM-P-0110-15	0.000	0.100	0.100	0.200	0.200
ASTM-P-0110-16	0.005	0.010	0.010	0.600	0.250
ASTM-P-0110-17	0.000	0.000	0.000	0.000	0.000

Elements in Lubricating Oil

ASTM-P-0111-SET

17 x 100 mL

Designed for ASTM D4927, D6443 & D6481

Cat. No.	Ba	Ca	Cl	P	S	Zn
Nominal Value	(Wt.%)	(Wt.%)	(Wt.%)	(Wt.%)	(Wt.%)	(Wt.%)
ASTM-P-0111-01	0.100	0.600	0.100	0.005	0.175	0.060
ASTM-P-0111-02	0.175	0.500	0.000	0.200	0.050	0.080
ASTM-P-0111-03	0.000	0.400	0.010	0.150	0.300	0.180
ASTM-P-0111-04	0.025	0.260	0.500	0.250	0.150	0.120
ASTM-P-0111-05	0.150	0.005	1.000	0.005	0.450	0.070
ASTM-P-0111-06	0.000	0.400	0.400	0.025	0.350	0.100
ASTM-P-0111-07	0.200	0.300	0.100	0.060	0.250	0.120
ASTM-P-0111-08	0.000	0.200	0.010	0.100	0.450	0.100
ASTM-P-0111-09	0.100	0.060	0.050	0.080	0.300	0.130
ASTM-P-0111-10	0.050	0.060	0.200	0.050	0.200	0.050
ASTM-P-0111-11	0.075	0.050	0.500	0.120	0.100	0.075
ASTM-P-0111-12	0.010	0.025	0.800	0.150	0.200	0.130
ASTM-P-0111-13	0.005	0.005	1.000	0.200	0.400	0.150
ASTM-P-0111-14	0.000	0.170	0.600	0.250	0.550	0.110
ASTM-P-0111-15	0.000	0.100	0.200	0.100	0.200	0.200
ASTM-P-0111-16	0.005	0.010	0.400	0.010	0.600	0.250
ASTM-P-0111-17	0.000	0.000	0.000	0.000	0.000	0.000

Elements in Lubricating Oil

ASTM-P-0112-SET

17 x 100 mL

Designed for ASTM D4927, D6443 & D6481

Cat. No.	Ca	Mg	P	S	Zn
Nominal Value	(Wt.%)	(Wt.%)	(Wt.%)	(Wt.%)	(Wt.%)
ASTM-P-0112-01	0.000	0.000	0.000	0.000	0.000
ASTM-P-0112-02	0.500	0.150	0.200	0.050	0.080
ASTM-P-0112-03	0.400	0.350	0.150	0.300	0.180
ASTM-P-0112-04	0.260	0.225	0.250	0.150	0.120
ASTM-P-0112-05	0.005	0.450	0.005	0.450	0.070
ASTM-P-0112-06	0.400	0.500	0.025	0.350	0.100
ASTM-P-0112-07	0.300	0.325	0.060	0.250	0.120
ASTM-P-0112-08	0.200	0.250	0.100	0.450	0.100
ASTM-P-0112-09	0.060	0.100	0.080	0.300	0.130
ASTM-P-0112-10	0.060	0.400	0.050	0.200	0.050
ASTM-P-0112-11	0.050	0.300	0.120	0.100	0.075
ASTM-P-0112-12	0.025	0.200	0.150	0.200	0.130
ASTM-P-0112-13	0.005	0.375	0.200	0.400	0.150
ASTM-P-0112-14	0.170	0.175	0.250	0.550	0.110
ASTM-P-0112-15	0.100	0.425	0.100	0.200	0.200
ASTM-P-0112-16	0.010	0.275	0.010	0.600	0.250
ASTM-P-0112-17	0.600	0.100	0.005	0.175	0.060

Elements in Lubricating Oil

ASTM-P-0113-SET

17 x 100 mL

Designed for ASTM D4927, D6443 & D6481

Cat. No.	Ba	Ca	Mg	P	S	Zn
Nominal Value	(Wt.%)	(Wt.%)	(Wt.%)	(Wt.%)	(Wt.%)	(Wt.%)
ASTM-P-0113-01	0.025	0.600	0.100	0.005	0.175	0.060
ASTM-P-0113-02	0.000	0.500	0.150	0.200	0.050	0.080
ASTM-P-0113-03	0.100	0.400	0.350	0.150	0.300	0.180
ASTM-P-0113-04	0.175	0.260	0.225	0.250	0.150	0.120
ASTM-P-0113-05	0.150	0.005	0.000	0.005	0.450	0.070
ASTM-P-0113-06	0.000	0.400	0.500	0.025	0.350	0.100
ASTM-P-0113-07	0.100	0.300	0.325	0.060	0.250	0.120
ASTM-P-0113-08	0.200	0.200	0.250	0.100	0.450	0.100
ASTM-P-0113-09	0.050	0.060	0.100	0.080	0.300	0.130
ASTM-P-0113-10	0.075	0.060	0.400	0.050	0.200	0.050
ASTM-P-0113-11	0.010	0.050	0.300	0.120	0.100	0.075
ASTM-P-0113-12	0.000	0.025	0.200	0.150	0.200	0.130
ASTM-P-0113-13	0.175	0.005	0.375	0.200	0.400	0.150
ASTM-P-0113-14	0.005	0.170	0.175	0.250	0.550	0.110
ASTM-P-0113-15	0.000	0.100	0.425	0.100	0.200	0.200
ASTM-P-0113-16	0.005	0.010	0.275	0.010	0.600	0.250
ASTM-P-0113-17	0.000	0.000	0.000	0.000	0.000	0.000

Organometallic Standards

AA, ICP, DCP & XRF Analysis



Lubricating Oil Standards (Continued)

Elements in Lubricating Oil

ASTM-P-0114-SET

17 x 100 mL

Designed for ASTM D4927, D6443 & D6481

Cat. No.	Ca (Wt.%)	P (Wt.%)	S (Wt.%)	Zn (Wt.%)
ASTM-P-0114-01	0.005	0.005	0.050	0.050
ASTM-P-0114-02	0.600	0.000	0.000	0.000
ASTM-P-0114-03	0.000	0.300	0.000	0.000
ASTM-P-0114-04	1.000	0.000	1.000	0.000
ASTM-P-0114-05	0.000	0.000	0.000	0.300
ASTM-P-0114-06	0.005	0.250	0.800	0.300
ASTM-P-0114-07	0.500	0.150	0.500	0.150
ASTM-P-0114-08	0.010	0.200	0.100	0.250
ASTM-P-0114-09	0.050	0.010	0.400	0.075
ASTM-P-0114-10	0.100	0.150	0.200	0.200
ASTM-P-0114-11	0.200	0.200	0.800	0.100
ASTM-P-0114-12	0.400	0.005	0.800	0.300
ASTM-P-0114-13	0.600	0.100	0.500	0.050
ASTM-P-0114-14	0.800	0.010	0.050	0.100
ASTM-P-0114-15	1.000	0.300	1.000	0.150
ASTM-P-0114-16	0.400	0.050	0.600	0.250
ASTM-P-0114-17	0.000	0.000	0.000	0.000

Elements in Lubricating Oil

ASTM-P-0115-SET

17 x 100 mL

Designed for ASTM D4927, D6443 & D6481

Cat. No.	Ca (Wt.%)	Mg (Wt.%)	P (Wt.%)	S (Wt.%)	Zn (Wt.%)
ASTM-P-0115-01	0.005	0.100	0.005	0.050	0.050
ASTM-P-0115-02	0.600	0.150	0.000	0.000	0.000
ASTM-P-0115-03	0.000	0.350	0.300	0.000	0.000
ASTM-P-0115-04	1.000	0.225	0.000	1.000	0.000
ASTM-P-0115-05	0.000	0.450	0.000	0.000	0.300
ASTM-P-0115-06	0.005	0.500	0.250	0.800	0.300
ASTM-P-0115-07	0.500	0.325	0.150	0.500	0.150
ASTM-P-0115-08	0.010	0.250	0.200	0.100	0.250
ASTM-P-0115-09	0.050	0.050	0.010	0.400	0.075
ASTM-P-0115-10	0.100	0.400	0.150	0.200	0.200
ASTM-P-0115-11	0.200	0.300	0.200	0.800	0.100
ASTM-P-0115-12	0.400	0.200	0.005	0.800	0.300
ASTM-P-0115-13	0.600	0.375	0.100	0.500	0.050
ASTM-P-0115-14	0.800	0.175	0.010	0.050	0.100
ASTM-P-0115-15	1.000	0.425	0.300	1.000	0.150
ASTM-P-0115-16	0.400	0.275	0.050	0.600	0.250
ASTM-P-0115-17	0.000	0.000	0.000	0.000	0.000

Elements in Lubricating Oil

ASTM-P-0116-SET

11 x 100 mL

Designed for ASTM D6481

Cat. No.	Ca (Wt.%)	P (Wt.%)	S (Wt.%)	Zn (Wt.%)
ASTM-P-0116-01	0.500	1.000	0.500	0.500
ASTM-P-0116-02	2.000	1.000	2.500	2.000
ASTM-P-0116-03	2.000	1.250	1.000	1.500
ASTM-P-0116-04	5.000	0.000	0.000	0.000
ASTM-P-0116-05	4.000	0.500	1.250	0.500
ASTM-P-0116-06	2.500	0.750	4.000	1.000
ASTM-P-0116-07	3.500	0.000	1.500	1.000
ASTM-P-0116-08	0.500	2.000	5.000	1.000
ASTM-P-0116-09	1.000	0.750	2.000	1.500
ASTM-P-0116-10	2.500	1.200	3.000	0.500
ASTM-P-0116-11	0.000	0.000	0.000	0.000

Elements in Lubricating Oil

ASTM-P-0117-SET

10 x 100 mL

Designed for ASTM D6443

Cat. No.	Ca (Wt.%)	Cl (Wt.%)	Cu (Wt.%)	Mg (Wt.%)	P (Wt.%)	S (Wt.%)	Zn (Wt.%)
ASTM-P-0117-01	0.020	0.030	0.010	0.200	0.250	1.000	0.020
ASTM-P-0117-02	0.020	0.020	0.050	0.200	0.020	0.020	0.250
ASTM-P-0117-03	0.020	0.200	0.010	0.040	0.250	0.150	0.250
ASTM-P-0117-04	0.020	0.200	0.050	0.040	0.020	1.000	0.020
ASTM-P-0117-05	0.400	0.020	0.010	0.040	0.020	1.000	0.250
ASTM-P-0117-06	0.400	0.020	0.050	0.040	0.250	0.020	0.020
ASTM-P-0117-07	0.400	0.200	0.010	0.200	0.020	0.020	0.050
ASTM-P-0117-08	0.400	0.200	0.050	0.200	0.250	1.000	0.250
ASTM-P-0117-09	0.200	0.100	0.025	0.080	0.150	0.500	0.100
ASTM-P-0117-10	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Elements in Lubricating Oil

ASTM-P-0118-SET

10 x 100 mL

Designed for ASTM D4628, D4927, D4951, D6443

Cat. No.	Ba (Wt.%)	Ca (Wt.%)	Cl (Wt.%)	Cu (Wt.%)	Mg (Wt.%)	P (Wt.%)	S (Wt.%)	Zn (Wt.%)
ASTM-P-0118-01	0.020	0.020	0.030	0.010	0.200	0.250	1.000	0.020
ASTM-P-0118-02	0.250	0.020	0.020	0.050	0.200	0.020	0.020	0.250
ASTM-P-0118-03	0.020	0.020	0.200	0.010	0.040	0.250	0.150	0.250
ASTM-P-0118-04	0.250	0.020	0.200	0.050	0.040	0.020	1.000	0.020
ASTM-P-0118-05	0.020	0.400	0.020	0.010	0.040	0.020	1.000	0.250
ASTM-P-0118-06	0.250	0.400	0.020	0.050	0.040	0.250	0.020	0.020
ASTM-P-0118-07	0.020	0.400	0.200	0.010	0.200	0.020	0.020	0.050
ASTM-P-0118-08	0.250	0.400	0.200	0.050	0.200	0.250	1.000	0.250
ASTM-P-0118-09	0.130	0.200	0.100	0.025	0.080	0.150	0.500	0.100
ASTM-P-0118-10	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000



Organometallic Standards

AA, ICP, DCP & XRF Analysis

Lubricating Oil Standards (Continued)

Elements in Lubricating Oil

ASTM-P-0119-SET

22 x 100 mL

Designed for ASTM D4927, D6443, D6481 & D7751

Cat. No. Nominal Value	Ca (Wt.%)	Cl (Wt.%)	Cu (Wt.%)	Mg (Wt.%)	P (Wt.%)	S (Wt.%)	Zn (Wt.%)
ASTM-P-0119-01	0.300	0.080	0.030	0.060	0.060	0.275	0.060
ASTM-P-0119-02	0.250	0.100	0.000	0.010	0.150	0.000	0.150
ASTM-P-0119-03	0.500	0.000	0.035	0.160	0.150	0.000	0.020
ASTM-P-0119-04	0.350	0.010	0.000	0.120	0.080	0.200	0.000
ASTM-P-0119-05	0.110	0.000	0.015	0.100	0.100	0.300	0.050
ASTM-P-0119-06	0.200	0.100	0.000	0.200	0.050	0.250	0.150
ASTM-P-0119-07	0.000	0.050	0.025	0.000	0.000	0.450	0.020
ASTM-P-0119-08	0.150	0.030	0.000	0.100	0.030	0.400	0.040
ASTM-P-0119-09	0.250	0.150	0.010	0.160	0.000	0.350	0.080
ASTM-P-0119-10	0.110	0.150	0.040	0.005	0.030	0.750	0.150
ASTM-P-0119-11	0.260	0.050	0.000	0.000	0.000	0.750	0.000
ASTM-P-0119-12	0.200	0.000	0.005	0.140	0.080	0.500	0.080
ASTM-P-0119-13	0.000	0.000	0.005	0.020	0.020	0.200	0.020
ASTM-P-0119-14	0.070	0.150	0.020	0.080	0.140	0.650	0.150
ASTM-P-0119-15	0.050	0.000	0.000	0.000	0.150	0.000	0.000
ASTM-P-0119-16	0.400	0.000	0.001	0.080	0.000	0.500	0.020
ASTM-P-0119-17	0.180	0.020	0.020	0.000	0.020	0.600	0.060
ASTM-P-0119-18	0.400	0.010	0.001	0.010	0.020	0.000	0.000
ASTM-P-0119-19	0.010	0.020	0.040	0.010	0.020	0.200	0.100
ASTM-P-0119-20	0.050	0.005	0.050	0.000	0.008	0.000	0.120
ASTM-P-0119-21	0.200	0.050	0.020	0.080	0.050	0.275	0.050
ASTM-P-0119-22	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Standards of Interest

Concentrations for the sets on pages 371-374 are targets. Actual production lots may vary.

Metal Working Fluids

ASTM-P-0121-SET

13 x 100 mL

Cat. No. Nominal Value	Cl (Wt.%)	P (Wt.%)	S (Wt.%)
ASTM-P-0121-01	0.000	0.000	0.000
ASTM-P-0121-02	0.750	0.025	0.500
ASTM-P-0121-03	0.050	0.100	3.000
ASTM-P-0121-04	1.000	0.500	2.500
ASTM-P-0121-05	0.100	0.005	2.000
ASTM-P-0121-06	1.500	0.200	1.000
ASTM-P-0121-07	2.000	0.005	3.000
ASTM-P-0121-08	1.000	0.050	0.100
ASTM-P-0121-09	0.500	0.400	0.000
ASTM-P-0121-10	2.000	0.200	1.500
ASTM-P-0121-11	0.000	0.500	1.500
ASTM-P-0121-12	1.250	0.010	0.050
ASTM-P-0121-13	0.050	0.300	0.050

Elements in Lubricating Oil

ASTM-P-0120-SET

23 x 100 mL

Designed for ASTM D4927, D6443 & D6481

Cat. No. Nominal Value	Ba (Wt.%)	Ca (Wt.%)	Cl (Wt.%)	Cu (Wt.%)	Mg (Wt.%)	P (Wt.%)	S (Wt.%)	Zn (Wt.%)
ASTM-P-0120-01	0.100	0.300	0.080	0.030	0.060	0.060	0.275	0.060
ASTM-P-0120-02	0.175	0.250	0.100	0.000	0.010	0.150	0.000	0.150
ASTM-P-0120-03	0.040	0.500	0.000	0.035	0.160	0.150	0.000	0.020
ASTM-P-0120-04	0.020	0.350	0.010	0.000	0.120	0.080	0.200	0.000
ASTM-P-0120-05	0.150	0.110	0.000	0.015	0.100	0.100	0.300	0.050
ASTM-P-0120-06	0.000	0.200	0.100	0.000	0.200	0.050	0.250	0.150
ASTM-P-0120-07	0.200	0.000	0.050	0.025	0.000	0.000	0.450	0.020
ASTM-P-0120-08	0.000	0.150	0.030	0.000	0.100	0.030	0.400	0.040
ASTM-P-0120-09	0.000	0.250	0.150	0.010	0.160	0.000	0.350	0.080
ASTM-P-0120-10	0.000	0.110	0.150	0.040	0.005	0.030	0.750	0.150
ASTM-P-0120-11	0.100	0.260	0.050	0.000	0.000	0.000	0.750	0.000
ASTM-P-0120-12	0.050	0.200	0.000	0.005	0.140	0.080	0.500	0.080
ASTM-P-0120-13	0.000	0.000	0.000	0.005	0.020	0.020	0.200	0.020
ASTM-P-0120-14	0.080	0.070	0.150	0.020	0.080	0.140	0.650	0.150
ASTM-P-0120-15	0.010	0.050	0.000	0.000	0.000	0.150	0.000	0.000
ASTM-P-0120-16	0.000	0.400	0.000	0.001	0.080	0.000	0.500	0.020
ASTM-P-0120-17	0.000	0.180	0.020	0.020	0.000	0.020	0.600	0.060
ASTM-P-0120-18	0.000	0.400	0.010	0.001	0.010	0.020	0.000	0.000
ASTM-P-0120-19	0.150	0.010	0.020	0.040	0.010	0.020	0.200	0.100
ASTM-P-0120-20	0.005	0.050	0.005	0.050	0.000	0.008	0.000	0.120
ASTM-P-0120-21	0.100	0.200	0.050	0.020	0.080	0.050	0.275	0.050
ASTM-P-0120-22	0.120	0.200	0.000	0.000	0.000	0.000	0.750	0.000
ASTM-P-0120-23	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Elements in Lubricating Oil

ASTM-P-0127-SET

11 x 100 mL

Designed for Test Method IP 501

Cat # Nominal Value	Al (Wt.%)	Ca (Wt.%)	Fe (Wt.%)	Na (Wt.%)	Ni (Wt.%)	P (Wt.%)	S (Wt.%)	Si (Wt.%)	V (Wt.%)	Zn (Wt.%)
ASTM-P-0127-01	0.0005	0.0010	0.0250	0.0010	0.0050	0.0020	5.0000	0.0050	0.0075	0.0010
ASTM-P-0127-02	0.0100	0.0075	0.0100	0.0000	0.0005	0.0005	2.0000	0.0100	0.0300	0.0002
ASTM-P-0127-03	0.0010	0.0100	0.0000	0.0020	0.0000	0.0010	0.5000	0.0000	0.0350	0.0050
ASTM-P-0127-04	0.0025	0.0030	0.0050	0.0200	0.0075	0.0050	4.0000	0.0250	0.0050	0.0040
ASTM-P-0127-05	0.0075	0.0040	0.0150	0.0005	0.0100	0.0075	3.0000	0.0200	0.0000	0.0015
ASTM-P-0127-06	0.0050	0.0000	0.0075	0.0015	0.0040	0.0100	1.0000	0.0030	0.0100	0.0075
ASTM-P-0127-07	0.0150	0.0050	0.0200	0.0100	0.0020	0.0040	0.7250	0.0150	0.0010	0.0000
ASTM-P-0127-08	0.0000	0.0005	0.0010	0.0000	0.0010	0.0000	0.1000	0.0010	0.0200	0.0020
ASTM-P-0127-09	0.0025	0.0020	0.0005	0.0050	0.0150	0.0025	2.5000	0.0050	0.0005	0.0005
ASTM-P-0127-10	0.0050	0.0150	0.0025	0.0150	0.0025	0.0015	3.0000	0.0025	0.0025	0.0010
ASTM-P-0127-11	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

CAS Number Index

Check Digit Verification of CAS Registry Numbers

A CAS Registry Number® includes up to 10 digits which are separated into 3 groups by hyphens. The first part of the number, starting from the left, has 2 to 7 digits; the second part has 2 digits. The final part consists of a single check digit.

The check digit is developed by following a standard calculation shown below. Use it to see if you have a valid CAS Registry Number. If the CAS number is represented in the general format of:

$$N_9 \dots N_4 N_3 - N_2 N_1 - R$$

Where N represents a sequential number and R represents the check digit. Using the following formula:

$$9(N_9) + \dots + 4(N_4) + 3(N_3) + 2(N_2) + 1(N_1) = Q$$

If you divide Q by 10, the remainder should equal the check digit.

For example: 74070-46-5

$$7(7) + 6(4) + 5(0) + 4(7) + 3(0) + 2(4) + 1(6) = 49 + 24 + 0 + 28 + 0 + 8 + 6 = 115$$

Dividing 115 by 10 is 11 with a remainder of 5 – the check digit (R) is equal to 5 so this is a valid CAS number.

CAS Registry Number is a Registered Trademark of the American Chemical Society.

50-00-0	74, 104	67-03-8	99	76-22-2	100	82-68-8	61, 125, 199	88-85-7	55, 121, 198	95-48-7	75, 119, 198
50-14-6	99	67-56-1	73, 123	76-44-8	58, 123, 198	82-71-3	85	88-89-1	85, 125	95-49-8	70, 119
50-29-3	54, 120, 198	67-63-0	73, 123, 261	76-87-9	57	83-05-6	54, 120	89-61-2	47	95-50-1	70, 120, 198
50-32-8	118, 117, 42	67-64-1	74, 117, 198	77-40-7	92	83-26-1	62	89-63-4	77	95-51-2	77
50-65-7	60, 124	67-66-3	70, 119, 103	77-47-4	71, 123, 198	83-32-9	42, 117, 198	89-69-0	47	95-53-4	78, 126, 199
50-73-7	65, 127	67-72-1	71, 123, 198	77-48-5	260	83-66-9	105, 106	89-79-1	100	95-55-6	108, 109
50-81-7	99	67-97-0	99	77-78-1	71	83-79-4	63, 126, 262	90-04-0	76	95-56-7	38
51-03-6	62, 262	68-19-9	99	77-89-4	92	83-88-5	99	90-12-0	43, 124	95-57-8	75, 119, 198
51-28-5	45, 47, 75, 121, 198	69-72-7	106, 262	77-90-7	92	84-15-1	311, 21, 91, 310	90-13-1	22	95-63-6	72, 127
51-36-5	54, 120	70-25-7	46, 47	77-92-9	260	84-61-7	80, 93, 103, 107	90-15-3	60, 124	95-69-2	77
51-79-6	56, 122	70-30-4	71, 123, 104	77-93-0	92	84-62-8	80	90-30-2	46, 90	95-73-8	77
52-51-7	102, 260	71-23-8	73, 125, 262	77-94-1	92	84-64-0	81	90-41-5	46, 76	95-76-1	71
52-68-6	65, 127	71-36-3	73, 118	78-11-5	84, 125	84-66-2	80, 103, 107	90-43-7	61, 60, 20, 262	95-77-2	75
52-85-7	56, 122, 198	71-43-2	69, 118, 198	78-30-8	41	84-69-5	80	90-66-4	90	95-80-7	46, 77
53-19-0	54, 120	71-55-6	72, 127, 199	78-32-0	41	84-74-2	80, 92, 103, 107	90-98-2	54, 120	95-85-2	108
53-70-3	42, 98	72-20-8	56, 122, 198	78-34-2	55, 122	84-75-3	80, 103, 107	91-20-3	43, 22, 71, 110, 261	95-93-2	72
53-96-3	46, 117, 198	72-43-5	60, 123, 198	78-40-0	41, 65, 93	84-76-4	81	91-22-5	43	95-94-3	64, 72, 126, 199
54-64-8	106	72-54-8	54, 120, 198	78-42-2	41	84-77-5	81	91-53-2	56	95-95-4	76, 127, 199
55-18-5	78, 124, 199	72-55-9	54, 120, 198	78-48-8	54, 120	84-78-5	81	91-57-6	43, 124, 198	96-12-8	57, 70, 198
55-38-9	57, 122	72-56-0	61, 125	78-51-3	41, 82, 93	84-80-0	89	91-58-7	119, 22	96-14-8	72, 127, 199
55-63-0	84	74-31-7	90	78-59-1	74, 123, 198	85-01-8	43, 125, 199	91-59-8	46, 78, 124, 198	96-23-1	73
56-23-5	69, 118, 198	74-83-9	69, 71, 118, 198	78-70-6	100, 104, 106, 261	85-02-9	42	91-64-5	103, 106	96-24-2	52, 119
56-35-9	65	74-87-3	70, 71, 104, 107, 111	78-75-1	70, 120	85-22-3	39	91-80-5	123, 198	96-32-2	79, 123
56-38-2	61, 125, 199	74-88-4	71, 124, 198	78-83-1	73, 123, 198	85-34-7	56	91-94-1	46, 77, 120, 198	96-34-4	79
56-49-5	43, 124, 198	74-89-5	77	78-84-2	74	85-40-5	64	91-95-2	46, 77	96-45-7	56, 89
56-55-3	42, 118, 198	74-95-3	70, 120, 198	78-87-5	70, 121, 198	85-44-9	93	92-04-6	19	96-69-5	90
56-57-5	124, 199	74-97-5	69, 118	78-88-6	70	85-60-9	89	92-06-8	21, 91	96-91-3	85, 97, 125
56-72-4	53, 119	75-00-3	119, 69, 104, 107, 111	78-90-0	84	85-68-7	80, 81, 93, 102, 107	92-24-0	42	97-02-9	77
57-06-7	102, 106	75-01-4	72, 127, 106	78-93-3	74, 124, 198	85-70-1	80, 93	92-44-4	108	97-17-6	54
57-11-4	91, 94	75-05-8	69, 117, 198	79-00-5	72, 127, 199	85-83-6	108	92-48-8	104	97-18-7	102
57-13-6	89	75-07-0	73, 117	79-01-6	72, 127, 199	85-86-9	108	92-52-4	42	97-23-4	54, 121, 260
57-55-6	71, 105	75-09-2	70, 121, 105	79-06-1	117	86-00-0	45, 47	92-66-0	37	97-39-2	89
57-97-6	42, 121, 198	75-12-7	74	79-07-2	103, 260	86-30-6	78, 124, 199	92-67-1	46, 76, 117, 198	97-53-0	103, 106
58-27-5	99	75-15-0	69, 118, 198	79-08-3	79, 118, 260	86-50-0	51, 117	92-69-3	20	97-54-1	104, 106
58-36-6	260	75-21-8	71, 261	79-09-4	72, 99	86-57-7	45	92-84-2	61	97-56-3	76
58-56-0	99	75-25-2	69, 118, 198	79-11-8	79, 119	86-73-7	43, 122, 198	92-85-3	43	97-63-2	71, 122, 198
58-85-5	99	75-27-4	118, 69	79-14-1	261	86-74-8	42, 118	92-86-4	37, 35, 21	98-06-6	69, 118
58-89-9	59, 123, 198	75-34-3	70, 121, 198	79-21-0	262	86-86-2	60, 124	92-87-5	46, 77, 118	98-07-7	72, 127
58-90-2	76, 126, 199	75-35-4	70, 121, 198	79-33-4	261	86-87-3	60	92-88-6	20	98-08-8	127
59-30-3	99	75-37-6	104, 121, 107, 111	79-34-5	72, 126, 199	87-10-5	106	92-93-3	45, 47	98-54-4	102, 106
59-40-5	63	75-43-4	104, 107, 111	79-43-6	79	87-12-7	103	92-94-4	21, 91	98-82-8	71, 110
59-50-7	75, 119, 198, 260	75-45-6	119, 107, 111	79-74-3	90	87-40-1	110	93-15-2	105, 106	98-86-2	74, 117, 198
59-67-6	99	75-46-7	127, 107, 111	79-77-6	104	87-41-2	58	93-71-0	50	98-92-0	99
59-89-2	124, 199	75-52-5	84, 124	79-81-2	99	87-44-5	100	93-72-1	63, 126, 199	98-95-3	45, 71, 84, 199
60-09-3	76, 108	75-56-9	71	79-92-5	100	87-60-5	77	93-76-5	64, 126, 199	99-02-5	74, 110
60-11-7	46, 77, 121, 198	75-60-5	55	79-94-7	39, 40, 91	87-61-6	65, 72, 127	93-79-8	64, 126	99-08-1	84, 124
60-29-7	79, 121	75-62-7	69	79-95-8	41	87-62-7	77	94-13-3	99, 105, 107	99-09-2	45, 78, 124, 199
60-51-5	55, 121, 49	75-63-8	118, 107, 111	79-97-0	92	87-65-0	75, 198	94-18-8	102, 107	99-30-9	51, 77, 118
60-57-1	55, 121, 198	75-65-0	73, 118	80-05-7	75, 92	87-68-3	41, 71, 123, 198	94-26-8	102, 107	99-35-4	72, 85, 199
62-38-4	61	75-68-3	104, 119, 107, 111	80-09-1	92	87-82-1	40	94-59-7	126, 199	99-50-3	105, 107
62-44-2	125, 199	75-69-4	71, 72, 104, 107, 111	80-33-1	61	87-84-3	40	94-74-6	59, 123	99-52-5	77, 124
62-50-0	71, 122, 198	75-71-8	70, 121, 104, 107, 111	80-38-6	57	87-86-5	76, 125, 199	94-75-7	53, 119, 198	99-55-8	76, 78, 124, 199
62-53-3	76, 117, 198	75-72-9	119, 107, 111	80-54-6	102, 106	87-90-1	262	94-80-4	53	99-65-0	71, 84, 198
62-73-7	55, 121, 260	75-96-7	79, 127	80-56-8	100	88-04-0	260	94-81-5	59, 123	99-76-3	99, 105, 107
62-75-9	78, 124, 199	75-99-0	54, 120	80-62-6	71, 124, 105	88-06-2	65, 76, 127, 199	94-82-6	54, 120	99-85-4	100
63-25-2	52, 118	75		81-20-9	71, 121	88-24-4	89	94-96-2	56	99-86-5	100
64-17-5	73, 122, 261	76-01-7	71, 125, 199	81-81-2	66, 262	88-27-7	89, 90	95-06-7	63	99-87-6	71, 100
64-18-6	261	76-03-9	65, 79, 127	81-82-3	53	88-72-2	45, 47, 84, 124	95-13-6	43, 110	99-89-9	108, 109
65-85-0	93, 99, 118, 259	76-06-2	52, 119	81-88-9	108	88-73-3	47	95-15-8	43	99-91-2	74, 110
66-25-1	74, 123	76-13-1	104, 107, 111	82-28-0	108	88-74-4	45, 78, 124, 199	95-31-8	89	99-96-7	104, 107
66-27-3	71, 124, 198	76-14-2	121, 107, 111	82-45-1	46	88-75-5	45, 47, 75, 124, 199	95-33-0	89	99-99-0	84, 124
66-81-9	53	76-15-3	104, 107, 111	82-66-6	55	88-82-4	65, 127	95-47-6	72, 127	100-00-5	47

CAS Number Index

100-01-6	45, 78, 124, 199	108-95-2	76, 125, 199	120-82-1	65, 72, 127, 199	137-17-7	78	302-01-2	84, 123	544-35-4	99
100-02-7	45, 47, 75, 124, 199	109-06-8	125, 199	120-83-2	75, 121, 198	137-26-8	65, 106, 262	302-17-0	69, 119	545-06-2	72, 127
100-17-4	61, 124	109-09-1	103	120-93-4	58, 68	137-30-4	66, 127, 262	306-83-2	121, 111	548-35-6	43
100-41-4	71, 122, 198	109-31-9	82, 92	121-14-2	45, 47, 84, 198	137-40-6	97	307-24-4	110, 162	548-62-9	108
100-42-5	72, 110	109-43-3	92	121-17-5	119	139-07-1	259	307-55-1	110, 162	554-84-7	75
100-44-7	69, 118	109-97-7	43	121-54-0	259	139-40-2	62, 68, 125	309-00-2	50, 198	555-37-3	60, 124
100-51-6	73, 102, 106	109-99-9	72, 126	121-73-3	69	139-65-1	78	311-45-5	61, 125	555-43-1	96
100-75-4	78, 124, 199	110-27-0	82, 93	121-75-5	59, 123	140-03-4	93	314-40-9	51, 118	555-44-2	96
101-05-3	50, 117	110-38-3	99	121-79-9	90	140-04-5	82, 92	315-18-4	60, 124	555-45-3	96
101-14-4	46, 78	110-42-9	96	121-82-4	85	140-29-4	102, 106	316-14-3	43	556-22-9	58
101-20-2	262	110-44-1	99, 262	121-87-9	77	140-41-0	60, 124	316-49-4	43	556-61-6	71, 124
101-21-3	53, 119	110-56-5	70, 120	122-09-8	77, 121, 198	140-56-7	56, 122	316-51-8	42	556-88-7	84, 124
101-27-9	51, 117	110-57-6	70, 121, 198	122-14-5	56, 122, 261	140-57-8	50, 117, 198	317-64-6	42	557-30-2	56
101-34-8	82, 92	110-62-3	74, 125	122-32-7	97	140-66-9	263	319-84-6	51, 198	557-48-2	110
101-42-8	57, 122	110-75-8	79, 119	122-34-9	63, 68, 126	140-88-5	103, 106	319-85-7	51, 118, 198	558-13-4	69
101-54-2	105	110-80-5	103	122-39-4	77, 122, 103, 106	140-95-4	260	319-86-8	51, 118, 198	563-04-2	41
101-55-3	28, 118, 198	110-82-7	70	122-40-7	102, 106	141-04-8	82, 92	321-38-0	122	563-12-2	56, 122
101-72-4	89	110-86-1	47, 78, 126, 199	122-42-9	62, 125	141-05-9	103, 106	321-60-8	21	563-58-6	70, 71, 121
101-77-9	46, 77	111-03-5	97	122-57-6	105, 106	141-10-6	103, 106	323-09-1	122	569-41-5	43
101-80-4	78	111-11-5	96	122-62-3	92	141-23-1	96	327-98-0	65, 127	569-61-9	108
101-85-9	102, 106	111-12-6	104, 106	122-66-7	46	141-24-2	96	330-54-1	59, 123, 260	571-53-4	43
101-86-0	104, 106	111-15-9	103	122-88-3	53, 119	141-28-6	92	330-55-2	59, 123	571-61-9	43
102-06-7	91	111-22-8	85, 97	122-99-6	262	141-43-5	105	333-18-6	103	573-58-0	108
102-08-9	89	111-30-8	261	123-01-3	71	141-66-2	55, 121	333-41-5	54, 120, 260	573-98-8	43
102-71-6	106	111-42-2	103	123-02-4	72	141-78-6	71, 122	334-48-5	260	575-41-7	43
102-76-1	82, 92	111-44-4	41, 79, 119, 198	123-03-5	260	141-86-6	108, 109	335-67-1	110, 162	575-43-9	43
103-17-3	52, 119	111-59-1	82, 93	123-25-1	82, 92	141-93-5	71	335-76-2	110, 162	575-89-3	64
103-23-1	56, 122	111-60-4	82, 92	123-28-4	89	142-16-5	82, 92	348-51-6	119	575-90-6	53, 119
103-24-2	82, 92	111-61-5	99	123-33-1	59	142-18-7	96	352-33-0	310, 69, 309	576-24-9	75
103-33-3	47, 69, 117	111-62-6	99	123-35-3	100	142-28-9	70, 121	353-59-3	111, 118	577-16-2	110
103-41-3	102, 106	111-71-7	74	123-38-6	74, 125	142-59-6	60, 124, 261	354-33-6	125, 111	577-19-5	69, 118
103-65-1	72, 125	111-82-0	96	123-63-7	74, 125	142-77-8	93	359-35-3	126, 111	578-57-4	38
104-27-8	104, 106	111-91-1	69, 198	123-72-8	73, 118	142-91-6	82, 93	363-72-4	71, 125	580-51-8	20
104-35-8	263	112-05-0	261	123-73-9	73, 119	143-07-7	261	367-12-4	75, 122	581-42-0	43
104-40-5	263	112-12-9	60, 124, 262	123-77-3	90	143-50-0	59, 123, 198	371-40-4	77, 122	581-89-5	45
104-51-8	118	112-31-2	73, 120	123-91-1	79, 121, 103	144-21-8	56	375-22-4	110, 162	582-16-1	43
104-54-1	103, 106	112-39-0	96	123-95-5	82, 92	145-73-3	56, 122	375-85-9	110, 162	583-78-8	75
104-55-2	103, 106, 260	112-40-3	310	124-06-1	99	146-50-9	80	375-95-1	110, 162	584-79-2	50, 117, 259
104-72-3	70	112-56-1	59	124-07-2	261	148-79-8	64, 126, 262	388-82-9	21	586-62-9	100
104-92-7	38	112-61-8	96	124-10-7	96	149-30-4	89, 91, 123, 261	398-23-2	121	587-98-4	108
105-05-5	71	112-62-9	82, 96, 93	124-13-0	74, 125	150-50-5	59, 123	420-04-2	260	589-68-4	96
105-13-5	102, 106	112-63-0	96	124-19-6	74, 125	150-68-5	60, 124	420-46-2	127, 111	591-20-8	38
105-55-5	89	112-84-5	93	124-48-1	120, 70	150-76-5	104	434-90-2	21	591-35-5	75
105-67-9	75, 121, 98	113-48-4	60, 124	124-65-2	262	151-13-3	82, 92	438-22-2	310	591-78-6	74, 123, 198
105-75-9	82, 92	114-26-1	51, 117, 262	124-73-2	70, 111	152-16-9	63	460-00-4	69, 118, 310	593-51-1	60
105-76-0	82, 92	115-26-4	55, 121	126-11-4	104, 261	153-78-6	46	462-06-6	71, 122	594-20-7	70, 121
106-22-9	103, 106	115-27-5	41	126-68-1	65, 127, 199	156-59-2	70, 121	464-43-7	100	598-02-7	41, 55
106-24-1	100, 104, 106, 261	115-29-7	56	126-72-7	39, 40, 41	156-60-5	70, 121, 198	464-45-9	100	598-72-1	118
106-32-1	99	115-32-2	59, 123	126-73-8	41, 93	188-94-3	42	465-73-6	58, 123, 198	598-77-6	127
106-33-2	99	115-86-6	65, 92	126-75-0	54, 120	189-55-9	42	470-82-6	100	598-99-2	79, 124
106-39-8	118	115-86-8	41	126-98-7	71, 123, 198	189-64-0	42	470-90-6	52, 119	600-05-5	120
106-40-1	77	115-90-2	54, 120, 122	126-99-8	70, 119, 198	191-07-1	42	477-73-6	108, 109	602-38-0	43
106-41-2	38	115-96-8	41	127-18-4	72, 126, 199	191-24-2	42, 118, 198	479-27-6	46	602-55-1	45
106-42-3	72, 127	116-06-3	50, 117	127-20-8	55	191-26-4	42	479-45-8	85, 126	602-60-8	45
106-43-4	70, 119	116-29-0	64, 126	127-41-3	104	191-30-0	42	485-31-4	51	602-87-9	45
106-44-5	75, 119, 198	116-54-1	79, 124	127-51-5	103, 106	192-65-4	42	488-23-3	72	603-85-0	108, 109
106-46-7	70, 120, 198	117-18-0	47, 64, 126	127-54-8	92	192-97-2	42	488-48-2	263	605-02-7	43
106-47-8	77, 119, 198	117-79-3	46	127-90-2	63	193-39-5	43, 123, 198	489-86-1	100	605-45-8	80
106-48-9	75	117-80-6	54, 120	128-03-0	62, 262	194-59-2	42	496-11-7	43, 110	605-50-5	80
106-50-3	78, 125, 105	117-81-7	80, 103, 92, 107, 198	128-04-1	54	195-19-7	42	499-44-5	261	605-54-9	80
106-79-6	92	117-82-8	80	128-08-5	260, 305	198-55-0	43	500-28-7	53	605-71-0	45
106-88-7	71	117-83-9	80	128-37-0	90, 102	203-64-5	43	504-24-5	50, 117	606-20-2	45, 47, 84, 198
106-89-8	71	117-84-0	80, 103, 107	128-39-2	89	205-82-3	42	506-93-4	84, 96, 122	606-37-1	45
106-93-4	70, 120, 198	118-52-5	260	129-00-0	43, 126, 199	205-99-2	42, 118, 198	510-15-6	52, 119, 198	607-12-5	19
106-99-0	69, 118	118-56-9	104, 107	129-06-6	262	206-44-0	43, 122, 198	512-56-1	41, 65, 127	607-57-8	45
107-02-8	73, 117, 198	118-58-1	102, 106	129-79-3	45	207-08-9	42, 118, 198	513-02-0	41	607-99-8	38
107-05-1	69, 117, 198	118-60-5	103	130-15-4	124, 198	208-96-8	42, 117, 198	513-08-6	41	608-33-3	38
107-06-2	70, 121, 198	118-74-1	71, 123, 21	131-11-3	80, 103, 107	213-46-7	43	513-88-2	74, 121	608-71-9	38
107-07-3	52	118-79-6	38, 40, 76, 127	131-17-9	80	214-17-5	42	523-31-9	80	608-73-1	51, 118
107-10-8	78	118-82-1	90	131-18-0	80, 103, 107	215-58-7	42	525-64-4	46	608-90-2	39
107-12-0	72, 125, 199	118-96-7	85, 126	131-54-4	94	217-59-4	43	526-73-8	72, 311	608-93-5	71, 125, 199
107-13-1	69, 117, 198	119-06-2	93	131-56-6	94	218-01-9	42, 119, 198	527-20-8	61	609-19-8	76, 127
107-15-3	77	119-07-3	81	131-57-7	94, 102, 107	224-42-0	42	527-53-7	72	610-39-9	71, 84, 121
107-18-6	73, 117	119-12-0	63	131-70-4	80, 105, 107	226-36-8	42	528-29-0	84, 121	610-48-0	43
107-19-7	73	119-15-3	108	131-72-6	59	230-27-3	42	531-59-9	104, 106	610-49-1	46
107-21-1	71, 73, 122	119-26-6	121	131-73-7	84	238-84-6	42	531-85-1	77	611-06-3	47
107-49-3	64, 126	119-47-1	89	131-74-8	84	243-17-4	42	532-27-4	74, 110	611-14-3	71
107-75-5	104, 106	119-65-3	43	131-89-5	55, 75, 121	260-94-6	42	532-32-1	99, 262	611-64-3	25
107-87-9	74, 125	119-75-5	84	132-27-4	260	262-12-4	23	532-34-3	58	612-78-2	42
107-88-0	102	119-84-6	103, 106	132-64-9	42, 120, 25	262-16-8	25	533-23-3	53, 120	612-94-2	43
108-05-4	72, 127, 199	119-90-4	46, 77	132-65-0	42	271-89-6	42	533-74-4	54, 120, 260	613-06-9	42
108-10-1	74, 124, 110	119-93-7	46, 77, 121, 198	132-66-1	50, 117	275-51-4	42	534-52-1	45, 55, 75, 121, 198	613-12-7	43
108-38-3	72, 110	120-12-7	42, 117, 198	133-06-2	52, 118, 260	283-66-9	84	535-89-7	53	613-13-8	46
108-39-4	75, 119, 198, 260	120-32-1	259	133-07-3	57, 122, 261	288-88-0	65,				

CAS Number Index

620-88-2	79	944-22-9	56, 122	1610-39-5	43	2074-02-4	74	2593-15-9	64, 126	3689-24-5	63, 126, 199
620-92-8	92	947-02-4	62, 125	1633-14-3	263	2074-05-7	74, 123	2595-54-2	59	3691-35-8	52, 260
621-07-8	89	950-10-7	59	1634-04-4	79, 124	2081-08-5	92	2597-03-7	61, 125	3696-28-4	261
621-64-7	78, 124, 199	950-35-6	60, 124	1634-78-2	59	2082-79-3	89, 90	2599-11-3	63	3697-24-3	43
621-65-8	84	950-37-8	60, 123	1646-87-3	50, 117	2091-61-4	79	2600-69-3	61	3703-10-4	59, 68
621-71-6	96	953-17-3	60	1646-88-4	50, 117	2093-28-9	79	2602-46-2	108	3734-33-6	51
622-62-8	104, 106	954-46-1	45	1665-00-5	70, 121	2104-64-5	56, 122	2606-85-1	43	3734-48-3	52, 119
622-96-8	71	957-51-7	55, 122	1675-54-3	92	2104-96-3	51	2631-37-0	62, 125	3761-41-9	57
623-43-8	105, 106	959-98-8	56, 122, 198	1689-83-4	58, 123	2113-57-7	37	2631-40-5	58	3761-42-0	57
623-87-0	84	962-58-3	54	1689-84-5	51, 118	2113-58-8	45, 47	2634-33-5	259	3761-53-3	108
624-43-1	84	976-56-7	89	1689-99-2	52	2122-19-2	62	2635-10-1	60	3766-60-7	52
626-15-3	70, 120	991-84-4	90	1694-09-3	108	2131-18-2	71	2636-26-2	53	3766-81-2	117
626-39-1	72, 127	994-05-8	79, 126	1698-60-8	62, 125	2132-70-9	60, 123	2642-71-9	50, 117	3784-03-0	262
626-41-5	38	999-81-5	52	1702-17-6	59, 123	2136-79-0	54, 120	2642-81-1	53	3806-34-6	89
626-43-7	54	1007-28-9	50, 68, 117	1705-85-7	43	2136-99-4	7	2642-98-0	46	3811-73-2	262
627-93-0	92	1014-69-3	54	1709-70-2	89	2142-68-9	74, 110	2655-14-3	66	3813-05-6	51, 117
628-96-6	84, 122	1014-70-6	63, 126	1713-15-1	54	2163-68-0	58, 68, 123	2655-15-4	65, 127	3844-45-9	108
628-97-7	99	1019-57-4	73, 117	1717-00-6	121, 111	2163-69-1	53	2664-63-3	65, 126	3846-71-7	94
629-50-5	311	1022-22-6	54, 120	1718-51-0	126	2163-80-6	52, 118	2671-93-4	79	3855-82-1	70, 120
629-59-4	311	1024-57-3	58, 123, 198	1718-52-1	126	2164-08-1	59	2675-77-6	52	3860-63-7	108
629-62-9	310	1031-07-8	56, 122, 198	1718-53-2	118	2164-17-2	57, 261	2682-20-4	261	3861-47-0	58
629-97-0	310	1066-51-9	50	1719-03-5	119	2167-51-3	92	2686-99-9	65, 127	3864-99-1	94
630-20-6	72, 126, 199	1071-83-6	58, 122	1719-06-8	117	2170-39-0	94	2691-41-0	84, 123	3896-11-5	89, 94
631-64-1	79, 120	1072-62-4	95	1726-77-8	74, 125	2179-25-1	60	2706-90-3	110, 162	3964-18-9	84, 121
632-79-1	40	1076-43-3	69, 118	1729-67-5	71	2181-42-2	65	2716-53-2	97	3875-81-4	99
632-99-5	108	1077-16-3	71	1731-84-6	96	2189-60-8	71	2732-58-3	43	4076-39-5	43
633-96-5	108	1078-71-3	71	1731-86-8	96	2199-69-1	70, 120	2733-88-2	96	4076-40-8	43
634-66-2	64, 72	1079-21-6	20	1731-88-0	96	2212-67-1	60, 124	2734-47-6	96	4076-43-1	42
634-87-7	85	1081-15-8	74, 122	1731-92-6	96	2227-13-6	64	2777-58-4	96	4130-42-1	89
634-90-2	64, 72	1081-77-2	71	1731-94-8	96	2234-13-1	21, 22, 91	2783-94-0	108	4147-51-7	55
636-09-9	80	1085-12-7	104, 107	1732-10-1	82, 92	2245-38-7	43	2795-39-3	110, 162	4162-45-2	39
636-30-6	78	1085-98-9	54, 260	1746-01-6	23	2255-17-6	59	2797-51-5	63	4164-28-7	84
639-58-7	65	1111-67-7	260	1746-81-2	60, 261	2256-01-1	74, 123	2813-95-8	55	4165-60-0	71, 124
640-15-3	65	1113-02-6	61, 125	1762-83-0	21	2275-23-2	66	2814-20-2	59	4165-61-1	76, 117
640-19-7	71	1114-71-2	65, 126	1763-23-1	110, 162	2277-28-3	97	2828-42-4	62	4165-62-2	76, 125
644-64-4	55	1119-97-7	261	1770-80-5	54, 120	2303-16-4	54, 70, 120, 198	2832-40-8	108	4191-73-5	104, 107
646-31-1	311	1120-25-8	96	1773-44-0	74, 126	2303-17-5	65, 126	2837-89-0	119, 111	4247-02-3	104, 107
652-04-0	43	1120-28-1	96	1777-82-8	260	2303-23-3	79	2872-48-2	108	4265-25-2	110
672-99-1	118	1120-34-9	96	1806-26-4	263	2306-33-4	80, 105, 107	2872-52-8	108	4306-88-1	90
673-04-1	63	1122-62-9	102	1806-29-7	20	2307-68-8	61	2880-05-9	74, 126	4345-03-3	99
680-31-9	58	1129-41-5	60	1817-73-8	77	2310-17-0	62, 125	2905-67-1	60, 124	4351-70-6	41
693-21-0	84	1134-23-2	53, 119	1825-19-0	60	2312-35-8	62, 125	2921-88-2	56, 119, 122	4376-18-5	81, 105, 107
693-36-7	89	1137-59-3	19	1825-21-4	61, 125	2319-96-2	43	2941-55-1	56	4376-20-9	81, 105, 107
693-98-1	95	1139-30-6	100	1825-31-6	22	2348-19-8	74, 125	2943-75-1	91	4445-07-2	71
694-80-4	69, 118	1146-65-2	71, 124	1836-74-4	79	2371-42-8	110	2974-90-5	4	4482-55-7	57, 122
697-91-6	263	1154-59-2	106	1836-75-5	61, 79	2381-15-9	43	2974-92-7	4	4548-53-2	108, 109
709-98-8	62, 125	1157-84-2	73, 118	1836-77-7	52, 79	2381-16-0	43	2976-74-1	53, 121	4602-84-0	104, 106
725-00-8	74, 125	1163-19-5	30, 40, 91	1843-05-6	94	2381-19-3	43	3017-95-6	69, 118	4630-07-3	100
730-40-5	108	1191-41-9	99	1844-01-5	92	2381-71-7	43	3018-12-0	70, 120	4682-03-5	84
731-27-1	65, 262	1194-65-6	54, 120	1861-32-1	54, 120	2385-85-5	60, 124	3032-55-1	85	4695-62-9	100
732-11-6	58, 123	1212-97-9	259	1861-40-1	51, 117	2390-09-2	96	3058-38-6	85	4719-04-4	261
732-26-3	90	1216-44-0	57, 122	1868-53-7	70, 120	2390-60-5	108, 109	3060-89-7	60	4726-14-1	61
741-58-2	51, 118	1241-94-7	41, 93	1888-71-7	71, 123, 198	2398-37-0	38	3064-70-8	260	4824-78-6	51, 118
744-45-6	80	1303-86-2	260	1897-45-6	53, 119, 260	2398-96-1	262	3064-73-1	89	4841-20-7	63, 126
759-94-4	56	1305-62-0	260	1910-42-5	61, 125	2425-06-1	52, 118	3072-84-2	40	4849-32-5	59
771-61-9	76, 125	1305-78-8	260	1912-24-9	50, 68, 117	2432-90-8	80	3081-14-9	89	4901-51-3	76
776-34-1	45	1310-73-2	106	1912-26-1	65	2433-97-8	96	3089-11-0	91	5006-66-6	68
779-02-2	43	1314-98-3	262	1918-00-9	54, 120	2435-54-3	263	3114-55-4	69	5074-71-5	120
781-43-1	42	1317-38-0	260	1918-02-1	62, 125	2436-73-9	59, 123	3115-49-9	263	5103-71-9	52, 119
786-19-6	52, 118	1317-39-1	260	1918-11-2	64	2436-96-6	45, 47	3118-97-6	108	5103-73-1	61, 124
789-02-6	54, 120	1321-64-8	21, 22, 91	1918-13-4	53	2437-79-8	5	3147-75-9	89, 94	5103-74-2	52, 119
811-97-2	104, 107, 111	1323-39-3	82, 93	1918-16-7	62, 125	2439-01-2	52	3147-76-0	94	5131-24-8	55
813-78-5	41, 55	1323-83-7	96	1918-18-9	64, 126	2439-10-3	55	3179-89-3	108	5234-68-4	52, 118
822-36-6	95	1330-20-7	72, 127, 199	1928-37-6	64, 126	2440-22-4	94	3179-90-6	108	5259-88-1	61, 125
822-55-9	95	1330-43-4	262	1928-38-7	54, 120	2442-49-1	96	3194-55-6	37, 40	5278-95-5	79, 119
827-94-1	77	1330-78-5	41, 65, 92	1928-43-4	53, 120	2444-89-5	22, 38	3194-57-8	39	5281-04-9	108
832-69-9	43	1332-40-7	53	1929-73-3	53, 120	2445-83-2	104, 106	3209-22-1	47, 54	5307-14-2	108, 109
834-12-8	50, 68, 117	1335-87-1	21, 22, 91	1929-77-7	66, 127	2463-02-7	96	3222-05-7	79, 124	5315-79-7	46
836-30-6	84	1420-06-0	65	1929-82-4	61	2463-84-5	54, 120	3244-88-0	108	5326-23-8	68
838-88-0	77	1420-07-1	55	1934-21-0	108	2475-45-8	108	3244-90-4	50	5334-09-8	81
841-06-5	60	1459-09-2	71	1937-37-7	108	2475-46-9	108	3252-43-5	70, 120	5385-75-1	42
842-07-9	108	1459-10-5	72	1937-62-8	96	2497-06-5	55, 122	3268-87-9	21, 23	5392-40-5	103, 106
843-55-0	92	1459-93-4	80	1937-63-9	96	2497-07-6	55	3278-89-5	39	5393-19-1	81
860-22-0	108	1464-53-5	71	1967-16-4	52	2498-66-0	42	3296-43-3	97	5405-53-8	45
863-61-6	99	1469-48-3	64	1972-08-3	100	2498-75-1	43	3296-90-0	40	5409-83-6	25
877-09-8	72	1478-61-1	92	1982-47-4	53	2498-76-2	43	3319-31-1	93	5410-97-9	25
879-39-0	47, 64	1499-10-1	43	1982-49-6	63, 126	2498-77-3	43	3322-93-8	39	5412-25-9	41
886-50-0	62, 125, 262	1517-22-2	125	2008-41-5	52, 118	2528-16-7	80, 105, 107	3336-39-8	51	5413-75-2	108, 109
887-54-7	60	1522-92-5	39	2008-58-4	54	2528-38-3	41	3337-71-1	50, 117	5420-17-7	82, 93
888-54-0	73, 117	1527-95-3	73, 120	2012-00-2	56	2530-83-8	91	3347-22-6	55	5436-43-1	28, 91
892-21-7	45	1527-96-4	73, 119	2032-59-9	50, 117	2531-84-2	43	3351-30-2	43	5445-17-0	71
900-95-8	57	1527-97-5	74, 123	2032-65-7	60, 123	2536-31-4	52, 119	3380-34-5	262	5466-77-3	105, 107
918-00-3	74, 127	1527-98-6	73, 118	2039-82-9	40	2540-82-1	57, 122	3383-96-8	50	5522-43-0	45
919-30-2	91	1528-49-0	93	2039-86-3	40	2541-69-7	43	3386-33-2	310	5589-96-8	79, 118
919-86-8	54, 120	1532-24-7	53, 119	2050-47-7	28	2545-59-7	64, 126	3391-86-4	261	5598-13-0	53, 119
924-16-3	78, 124, 199	1563-38-8	55	2050-67-1	4	2566-89-4	96	3397-62-4	50		

CAS Number Index

6064-90-0	96	8001-50-1	63	13684-56-5	54	20675-51-8	100	27208-37-3	42	34622-58-7	61
6099-79-2	55, 79, 121	8001-75-0	93	13684-63-4	61	20839-34-3	96	27215-22-1	81, 102	34643-46-4	65, 126
6145-73-9	41	8003-34-7	63, 262	13706-86-0	105, 106	21061-10-9	96	27251-75-8	82, 93	34681-10-2	52
6164-98-3	52	8004-87-3	108	13810-83-8	39	21087-64-9	60, 124	27304-13-8	61, 125	34681-23-7	52
6190-65-4	50, 68	8006-54-0	104	13877-91-3	100	21105-77-1	79	27314-13-2	61	34681-24-8	52
6252-76-2	108	8006-64-2	311	13927-77-0	90, 91	21232-47-3	25	27344-41-8	89	34803-66-2	298
6317-18-6	261	8007-00-9	102	13956-29-1	100	21245-02-3	105, 107	27519-02-4	262	34816-53-0	23
6368-72-5	108	8007-45-2	103	13980-04-6	84	21564-17-0	52, 260	27554-26-3	81, 92, 103, 107	34883-39-1	4
6373-73-5	108	8008-20-6	310	14010-23-2	99	21609-90-5	59, 123	27581-13-1	40	34883-41-5	4
6385-62-2	55	8013-07-8	93	14047-09-7	25	21702-84-1	38	27605-76-1	62	34883-43-7	4
6410-10-2	108	8013-74-9	82, 93	14143-55-6	62, 125	21725-46-2	53, 68, 119	27638-00-2	96	35065-27-1	6
6422-86-2	80, 92	8016-11-3	82, 92	14214-32-5	55	21850-44-2	39	27676-62-6	89, 90	35065-28-2	6
6423-43-4	85, 125	8017-34-3	54, 120	14324-55-1	89, 91	22042-59-7	52	27858-07-7	40	35065-29-3	7
6482-26-4	79, 124	8018-01-7	59	14400-94-3	38	22125-22-0	53	27986-36-3	263	35065-30-6	7
6515-38-4	65	8021-39-4	260	14401-61-7	38	22212-55-1	51	28034-99-3	19	35074-77-2	90
6597-78-0	54, 120	8024-12-2	106	14465-68-0	97	22224-92-6	56, 122	28044-83-9	58, 123	35109-60-5	39
6629-29-4	84, 120	8030-30-6	310	14484-64-1	57, 122	22248-79-9	64, 126	28057-48-9	51	35118-50-4	81, 105
6639-36-7	45	8047-99-2	82, 92	14752-75-1	71	22532-68-9	79	28159-98-0	58, 261	35256-85-0	64
6683-19-8	89, 90	8050-09-7	93	14807-96-6	106	22532-80-5	79	28165-52-8	38	35367-38-5	55, 260
6734-80-1	60, 261	8052-41-3	311	14816-18-3	62	22610-63-5	96	28249-77-6	64, 126	35400-43-2	51, 118
6742-54-7	72	8061-51-6	262	14868-03-2	92	22781-23-3	51, 117, 259	28424-00-6	51	35554-44-0	58, 261
6753-98-6	100	8065-48-3	54	14962-28-8	19	22936-75-0	55	28434-01-7	51	35572-78-2	84, 117
6846-50-0	82, 93	8219-37-7	89	14962-32-4	19	22936-86-3	53, 119	28472-97-1	82, 92	35575-96-3	50, 117, 259
6876-00-2	28	9002-88-4	90	15067-26-2	117	23031-36-9	62, 262	28473-03-2	59	35691-65-7	105, 260
6903-63-5	28	9002-91-9	59, 123	15096-52-3	53	23089-26-1	100	28553-12-0	93	35693-92-6	4
6916-74-1	96	9003-39-8	105	15263-53-3	52	23103-98-2	62, 125	28772-56-7	51, 260	35693-99-3	6
6923-22-4	60, 124	9004-81-3	93	15299-99-7	60	23128-7-9	90	29027-13-2	60	35694-04-3	5
6967-29-9	52	9004-86-8	82, 93	15310-01-7	51	23135-22-0	61, 125	29082-74-4	21	35694-06-5	6
6988-21-2	55, 121	9005-53-2	261	15457-05-3	57	23184-66-9	52, 118	29091-05-2	55	35694-08-7	7
7005-72-3	41, 40, 22, 38	9006-42-2	60	15545-48-9	53, 260	23355-64-8	108	29091-21-2	62	35822-46-9	23
7012-37-5	4	9016-00-6	89	15862-07-4	4	23422-53-9	57	29104-30-1	51	35854-94-5	30
7025-06-1	28	10004-44-1	58	15879-93-3	260	23505-41-1	62	29136-19-4	71	35958-30-6	90
7080-50-4	260	10030-74-7	96	15950-66-0	76	23560-59-0	58	29232-93-7	62, 125	36354-80-0	96
7085-19-0	59, 123	10043-35-3	260	15968-05-5	5	23564-05-8	65	29446-15-9	23	36437-37-3	94
7128-64-5	90	10061-01-5	70, 121, 198	15972-60-8	50, 117	23564-06-9	65, 126	29450-45-1	59	36443-68-2	90
7132-64-1	96	10061-02-6	71, 121, 198	16118-49-3	52	23719-22-4	19	29598-76-3	90	36559-22-5	5
7173-51-5	260	10081-67-1	90	16326-32-2	96	23844-56-6	59, 123	29761-21-5	41, 93	36631-30-8	82, 93
7194-86-7	310	10117-38-1	262	16400-50-3	37	23947-60-6	56	29973-13-5	56	36734-19-7	58, 123
7212-44-4	100	10191-41-0	90	16423-19-1	110	23950-58-5	62, 125, 199	30007-47-7	102	36861-47-9	104, 107
7235-40-7	99	10222-01-2	260	16423-68-0	108	23978-85-0	100	30043-49-3	56	37324-23-5	18, 91, 277
7286-69-3	63, 68	10265-92-6	60, 124	16484-77-8	59	24017-47-8	65, 126	30125-63-4	64	37515-51-8	46
7286-84-2	52, 119	10290-37-6	55, 68	16605-91-7	4	24038-68-4	92	30402-14-3	25	37515-61-0	97
7287-19-6	62, 68, 125, 262	10311-84-9	54	16606-02-3	4	24151-93-7	62	30560-19-1	50, 117	37680-65-2	4
7287-36-7	60	10386-84-2	21	16655-82-6	58, 123	24307-26-4	59	30606-27-0	97	37680-66-3	4
7291-22-7	78, 126	10396-10-8	90	16672-87-0	56, 122	24353-61-5	58	30614-22-3	62	37680-68-5	4
7297-25-8	84	10443-70-6	59	16709-30-1	59, 123	24478-72-6	25	30667-99-3	60, 123	37680-69-6	4
7313-54-4	50, 68	10453-86-8	63	16731-55-8	260	24539-56-8	81, 105	30746-58-8	23	37764-25-3	54, 120
7415-86-3	39	10548-10-4	64	16752-77-5	60, 123	24539-57-9	81, 105	30833-53-5	81, 105	37853-59-1	39, 40
7421-93-4	56, 122, 198	10552-74-6	61	16753-62-1	91	24579-73-5	65	30979-48-7	58	37853-61-5	39
7439-44-3	96	10595-95-6	78, 124, 199	16883-83-3	93	24602-86-6	62	31107-44-5	61	37910-77-3	99
7439-92-1	104, 107	10605-21-7	52, 118, 260	16958-92-2	82, 92	24634-61-5	99, 105, 107, 262	31218-83-4	62	38051-10-4	41
7439-97-6	104, 107	10606-46-9	55	17024-19-0	45	24634-95-5	99	31450-14-3	99	38082-89-2	85, 126
7440-02-0	105, 107	11096-82-5	18, 91, 277	17040-19-6	54	24683-00-9	110	31508-00-6	6	38178-38-0	23
7440-22-4	262	11097-59-9	89	17060-07-0	70, 121	24691-76-7	62	31566-31-1	82, 92	38260-54-7	56
7440-38-2	102, 107	11097-69-1	18, 91, 277	17088-37-8	85	24691-80-3	62	31570-04-4	89, 90	38380-03-9	6
7440-47-3	103, 107	11100-14-4	18, 91, 277	17109-49-8	56	24934-91-6	52	31710-30-2	22, 38	38380-04-0	6
7440-48-4	103, 107	11104-28-2	18, 91, 277	17540-75-9	90	25013-16-5	102	31717-87-0	55	38380-05-1	6
7440-50-8	260	11126-42-4	21, 91	17606-31-4	51	25038-32-8	89	31895-22-4	65	38380-07-3	6
7440-67-7	106, 107	11141-16-5	18, 91, 277	17640-02-7	54, 120	25057-89-0	51, 118	31906-04-4	104, 106	38380-08-4	6
7477-94-3	25	11141-17-6	50	17700-09-3	47	25265-77-4	93	31972-43-7	56	38411-22-2	6
7492-55-9	260	12069-69-1	53, 260	17781-16-7	52	25311-71-1	58, 123	31972-44-8	56	38411-25-5	7
7496-02-8	45	12071-83-9	62	17804-35-2	51, 117	25322-68-3	73, 105	32588-76-4	40	38444-73-4	4
7517-36-4	80	12122-67-7	66, 262	18172-67-3	100	25327-89-3	39	32598-10-0	5	38444-76-7	4
7553-56-2	260	12222-97-8	108	18181-70-9	58, 123	25496-72-4	82, 92	32598-11-1	5	38444-77-8	4
7601-89-0	91	12427-38-2	59	18181-80-1	51	25569-80-6	4	32598-12-2	5	38444-78-9	4
7631-86-9	262	12642-23-8	21, 91	18259-05-7	6	25606-41-1	62	32598-13-3	5	38444-81-4	4
7631-90-5	262	12672-29-6	18, 91, 277	18281-05-5	99	25637-84-7	97	32687-78-8	90	38444-84-7	4
7631-99-4	99	12674-11-2	18, 91, 277	18318-83-7	104, 106	25654-31-3	100	32690-93-0	5	38444-85-8	4
7632-00-0	99, 106	12767-79-2	91	18625-12-2	54, 120	25655-41-8	262	32774-16-6	6	38444-86-9	4
7647-14-5	262	12767-90-7	262	18641-57-1	96	25713-60-4	39	32809-16-8	62	38444-87-0	4
7647-15-6	262	12771-68-5	50	18691-97-9	60	25773-40-4	110	33025-41-1	5	38444-88-1	4
7664-38-2	261	12789-03-6	52, 119, 198	18829-55-5	104, 106	25837-05-2	71, 122	33089-61-1	50	38444-90-5	4
7681-57-4	262	13029-08-8	4	18854-01-8	59	25956-17-6	108	33091-17-7	7	38444-93-8	5
7695-91-2	99	13029-09-9	37	19044-88-3	61, 125	25973-55-1	90, 94	33146-45-1	4	38463-82-0	29
7696-12-0	64, 262	13067-93-1	53	19186-97-1	39, 41	26002-80-2	64, 126, 262	33213-65-9	56, 122, 198	38521-51-6	39
7700-17-6	53	13071-79-9	64, 126	19406-51-0	84, 117	26027-38-3	102	33245-39-5	57, 122	38603-09-7	38
7722-64-7	262	13103-52-1	89	19408-74-3	23	26040-51-7	39	33284-50-3	4	38727-55-8	55
7747-35-5	261	13121-70-5	53	19666-30-9	61, 125	26087-47-8	58	33284-52-5	5	38964-22-6	23
7757-79-1	99	13171-21-6	62, 125	19670-49-6	96	26225-79-6	56	33284-53-6	5	38969-08-3	263
7757-83-7	262	13181-17-4	51	19719-28-9	54, 79, 121	26248-87-3	41	33284-54-7	5	38998-75-3	25
7758-09-0	99	13184-80-0	84	19937-59-8	60	26259-45-0	63, 126	33423-92-6	23	39001-02-0	21, 25
7758-19-2	262	13194-48-4	56, 122	19988-24-0	50	26266-77-3	103, 106	33543-31-6	43	39145-48-7	79
7758-98-7	260	13301-61-6	108	20020-02-4	22	26399-36-0	62, 125	33629-47-9	52	39148-24-8	57
7761-88-8	262	13356-08-6	56	20062-22-0	84	26402-31-3	82, 93	33685-60-8	45	39184-27-5	65
7773-06-0	50	13360-45-7</									

CAS Number Index

39515-41-8	54, 120	52663-69-1	7	58802-09-8	23	67018-59-1	62	71925-18-3	23	84087-01-4	63
39569-21-6	40	52663-70-4	7	58810-48-3	61	67129-08-2	60, 123	71998-76-0	23	84332-86-5	53
39635-31-9	7	52663-71-5	7	58965-66-5	39	67306-00-7	57	72375-21-4	298	84496-56-0	53
39635-32-0	6	52663-72-6	6	59080-32-9	37	67323-56-2	23	72375-24-7	298	84665-66-7	261
39635-33-1	6	52663-73-7	7	59080-33-0	37	67375-30-8	53, 260	72375-27-0	298	84696-25-3	261
39635-34-2	6	52663-74-8	7	59080-34-1	37	67485-29-4	58, 261	72490-01-8	57, 122, 261	84777-06-0	81
39635-35-3	6	52663-75-9	7	59080-35-2	37	67564-91-4	57, 261	72963-72-5	58, 261	84852-15-3	263
39635-79-5	39	52663-76-0	7	59080-36-3	37	67628-93-7	55	73250-68-7	59	84852-53-9	40
39765-80-5	61, 125	52663-77-1	7	59080-37-4	37	67651-34-7	19	73557-53-8	5	85380-74-1	76
39807-15-3	61	52663-78-2	7	59080-39-6	37	67651-35-8	19	73575-52-7	5	85509-19-9	57
40088-47-9	28	52663-79-3	7	59080-40-9	37	67651-36-9	19	74051-80-2	63	85785-20-2	56
40186-70-7	7	52704-70-8	6	59229-75-3	84, 120	67651-37-0	19	74070-46-5	50	86209-51-0	62
40186-71-8	7	52712-04-6	6	59261-08-4	37	67733-52-2	37	74115-24-5	53	86479-06-3	58, 261
40186-72-9	7	52712-05-7	7	59283-75-0	84, 96	67746-30-9	104, 106	74137-36-3	38	86598-92-7	58
40321-76-4	23, 199	52744-13-5	6	59283-76-0	84, 96	67747-09-5	62	74222-97-2	63	87130-20-9	55
40372-72-3	91,	52756-22-6	51	59291-64-4	6	67888-96-4	6	74223-64-6	60, 124	87392-12-9	60
40487-42-1	61, 125	52756-25-9	57, 122	59291-65-5	6	67889-00-3	37	74338-23-1	5	87405-27-4	263
40596-69-8	60, 123	52829-07-9	90,	59447-55-1	39	67989-23-5	82, 93	74338-24-2	5	87546-18-7	57
40601-76-1	89	52888-80-9	62	59536-65-1	40	68157-60-8	57	74472-33-6	5	87674-68-8	55
40843-25-2	55	52918-63-5	54, 120, 260	59669-26-0	65	68171-33-5	82, 93	74472-34-7	5	87820-88-0	65
41083-11-8	51	53112-28-0	63	59756-60-4	57, 122	68186-30-1	92	74472-35-8	6	88283-41-4	63
41198-08-7	62, 125	53380-22-6	56	60044-24-8	37	68194-04-7	5	74472-36-9	6	88671-89-0	60, 124
41318-75-6	28	53380-23-7	56	60044-25-9	37	68194-08-1	6	74472-37-0	6	88678-67-5	63
41394-05-2	59, 123	53404-76-5	63	60044-26-0	37	68194-09-2	6	74472-38-1	6	88700-06-5	37
41411-61-4	6	53469-21-9	18, 91, 277	60123-65-1	22, 38	68194-10-5	6	74472-39-2	6	90035-08-8	261
41411-62-5	6	53494-70-5	56, 122	60145-22-4	6	68194-11-6	6	74472-40-5	6	90717-03-6	63
41411-63-6	6	53555-66-1	4	60145-23-5	7	68194-12-7	6	74472-41-6	6	90952-64-0	52, 68
41411-64-7	7	53558-25-1	66, 127	60168-88-9	51	68194-13-8	51	74472-42-7	6	90982-32-4	52, 119
41464-39-5	5	53563-63-6	96	60207-31-0	50	68194-14-9	50	74472-43-8	6	91465-08-6	53, 260
41464-40-8	5	53592-10-2	37	60207-90-1	65, 126, 262	68194-15-0	6	74472-44-9	6	93697-74-6	62
41464-41-9	5	53894-23-8	93	60207-93-4	56	68194-16-1	7	74472-45-0	6	93703-48-1	29
41464-42-0	5	53905-28-5	19	60233-24-1	5	68194-17-2	7	74472-46-1	6	93951-73-6	75
41464-43-1	5	53905-29-6	19	60238-56-4	53	68334-30-5	310	74472-47-2	7	93951-75-8	75
41464-46-4	5	53905-30-9	19	60348-60-9	29, 91	68359-37-5	53, 260	74472-48-3	7	93951-87-2	81, 94
41464-47-5	5	53905-33-2	19	60397-77-5	55	68411-46-1	89, 90	74472-49-4	7	93951-89-4	81, 94
41464-48-6	5	53988-07-1	96	60568-05-0	57	68412-48-6	90	74472-50-7	7	93952-07-9	311
41464-49-7	5	53988-10-6	89	60586-60-9	96	68442-68-2	96	74472-51-8	7	93952-11-5	81, 94
41483-43-6	52	54230-22-7	5	60640-54-2	20	68476-30-2	310	74472-52-9	7	93952-12-6	81, 94
41484-35-9	90	54406-48-3	56, 261	60640-55-3	20	68476-31-3	310	74472-53-0	7	93952-13-7	81, 94
41556-26-7	89	54460-46-7	53	60825-26-5	65, 127	68476-43-6	310	74487-85-7	7	94125-34-5	62
41814-78-2	65, 127	54536-17-3	23	61012-47-3	96	68505-69-1	51	74712-19-9	51	94361-06-5	53, 260
41903-57-5	23	54589-71-8	25	61213-25-0	57	68515-40-2	93	74782-23-3	61	94593-91-6	53
42397-64-8	45	54593-83-8	52	61432-55-1	55	68515-47-9	93	74845-58-2	43	95266-40-3	65
42397-65-9	45	54827-17-7	78	61576-83-8	21	68515-48-0	81, 93, 103, 107	74992-96-4	25	95465-99-9	52
42429-88-9	21	54886-63-9	42	61576-86-1	21	68515-49-1	93	75321-20-9	45	95617-09-7	57
42429-89-0	91,	54965-21-8	50	61576-97-4	21	68515-50-4	81	75673-16-4	81	95737-68-1	63, 262
42488-57-3	79	55179-31-2	51	61576-99-6	21	68515-75-3	82, 92	75736-33-3	55	95970-08-4	38
42509-80-8	58	55215-18-4	6	61577-01-3	21	68553-00-4	310	76578-14-8	63, 126	95970-22-2	38
42576-02-3	51, 118	55219-65-3	65	61577-02-4	21	68610-51-5	89, 90	76674-21-0	57	96182-53-5	64
42609-52-9	54	55283-68-6	56, 122	61592-45-8	51, 118	68631-49-2	91, 30	76738-62-0	51	96489-71-3	63
42740-50-1	7	55285-14-8	52, 118	61789-01-3	82, 92	68694-11-1	65	76842-07-4	6	96551-70-1	37
42757-55-1	39	55290-64-7	55	61790-53-2	262	68855-78-7	82, 93	76926-16-4	93	97886-45-8	55
42822-86-6	261	55335-06-3	65, 127	61798-70-7	6	68952-47-6	94	77058-07-8	90	98168-52-6	97
42874-03-3	61, 125	55406-53-6	261	61951-51-7	108	69119-90-0	96	77102-82-0	37	98730-04-2	51
43121-43-3	65	55512-33-9	63	62610-77-9	60	69119-99-9	96	77182-82-2	58	98886-44-3	57
43222-48-6	55	55566-30-8	262	62796-65-0	5	69278-58-6	19	77458-01-6	62	98967-40-9	67
46438-88-4	28	55635-13-7	50	62850-32-2	56	69327-76-0	52	77501-63-4	59	99105-77-8	53
50471-44-8	66, 127	55682-88-7	96	62924-70-3	57	69377-81-7	57	77607-09-1	37	99129-21-2	53, 119
50512-35-1	59	55684-94-1	25, 199	63041-76-9	43	69782-90-7	6	77732-09-3	61	99485-76-4	53
50563-36-5	55	55702-45-9	4	63041-77-0	43	69782-91-8	7	78491-02-8	103, 260	99607-70-2	53
50585-41-6	25	55702-46-0	4	63041-90-7	45	69797-51-9	20	78587-05-0	58	99675-03-3	58
50585-46-1	23	55712-37-3	4	63104-32-5	43	69797-52-0	20	79241-46-6	57, 122	99717-56-3	40
50594-66-6	50, 117	55720-44-0	4	63104-33-6	42	69806-34-4	58, 122	79270-78-3	55, 122	100784-20-1	58
50594-67-7	50, 117	55954-23-9	79, 60	63284-71-9	65	69806-40-2	58, 122	79277-27-3	64	101007-06-0	60
50815-00-4	310	56030-56-9	6	63387-28-0	30	69806-50-4	57, 122	79538-32-2	64, 126	101200-48-0	55
51026-28-9	62	56070-16-7	64	63449-39-8	90	70124-77-5	57	79540-50-4	56	101205-02-1	53
51200-87-4	305	56073-07-5	55, 260	63449-41-2	259	70156-79-9	40	79622-59-6	57	101463-69-8	57, 261
51207-31-9	25	56073-10-0	51, 260	63496-31-1	21, 91	70321-86-7	89, 94	79983-71-4	58	102783-82-4	97
51218-45-2	60, 124	56219-10-4	99	64249-01-0	50	70331-94-1	90	80060-09-9	54	102851-06-9	57, 122
51218-49-6	62	56399-71-4	97	64529-56-2	56	70356-09-1	102, 107	80380-39-8	97	103055-07-8	59
51229-78-8	105, 262	56425-91-3	57	64532-95-2	41	70362-41-3	6	80844-07-1	56, 261	103173-66-6	29
51230-49-0	25	56558-17-9	6	64628-44-0	65, 262	70362-45-7	5	81334-34-1	58	103361-09-7	57
51235-04-2	58, 123	56558-18-0	6	64700-56-7	65	70362-46-8	5	81335-37-7	58	104030-54-8	52
51338-27-3	55, 121	56634-95-8	51	64742-42-3	90	70362-47-9	5	81335-77-5	58, 68	104040-79-1	53
51437-89-9	263	56803-37-3	82, 92	64742-47-8	310	70362-48-0	5	81381-52-4	37	104086-16-0	20
51437-90-2	263	56849-83-3	43	64742-54-7	310	70362-49-1	5	81405-85-8	58	104086-18-2	20
51452-87-0	28	57018-04-9	65	64742-89-8	310	70362-50-4	5	81406-37-3	57	104086-19-3	20
51580-86-0	262	57117-31-4	25	64902-72-3	53, 119	70424-67-8	5	81741-28-8	262	104098-48-8	58
51630-58-1	57, 122	57117-41-6	25, 199	65075-08-3	28	70424-68-9	6	81777-89-1	53	104206-82-8	59
51707-55-2	64	57153-17-0	55, 121	65140-91-2	90	70424-70-3	6	82097-50-5	65	105024-66-6	63
51908-16-8	6	57153-18-1	59, 123	65447-77-0	89	70592-80-2	261	82239-20-1	79	105512-06-9	53
51930-04-2	28	57346-61-9	21	65510-44-3	6	70624-18-9	89	82291-37-0	23	105779-78-0	63
51936-55-1	39	57369-32-1	63	65733-16-6	261	70630-17-0	59	82306-65-8	23	107534-96-3	64, 126, 262
52304-36-6	261	57383-80-9	38	65907-30-4	57, 68	70644-19-8	43	82469-79-2	92	108698-01-7	96
52315-07-8	53, 119, 260	57422-77-2	37	66063-05-6	61	70693-62-8	262	82558-50-7	59	108698-02-8	96
52434-90-9	39	57465-28-8	6	66215-27-8	53, 119, 260	70862-65-6	260	82560-54-1	51, 117	108736-08-9	20
52570-16-8	60	57583-54-7	41	66230-04-4							

CAS Number Index

112226-61-6	58	123312-89-0	62	144550-36-7	58	173159-57-4	57	335104-84-2	64	446254-53-1	29
112281-77-3	64	123333-56-2	77, 104	144651-06-9	61	175013-18-0	62	337458-27-2	63	446254-54-2	29
112410-23-8	64	123359-41-1	102	145701-21-9	55	177406-68-7	51	337513-53-8	28	446254-55-3	29
113136-77-9	53	123997-26-2	56	145701-23-1	57	178928-70-6	62	337513-54-9	28	446254-57-5	29
113260-74-5	25	124495-18-7	63	147150-35-4	53	179101-81-6	63	337513-55-0	28	446254-59-7	29
113614-08-7	51	125116-23-6	60	147217-71-8	28	180409-60-3	53	337513-56-1	28	446254-61-1	29
113728-10-2	97	125225-28-7	58	147217-72-9	28	181274-15-7	62	337513-66-3	28	446254-64-4	29
114311-32-9	58	126535-15-7	65	147217-73-0	28	181274-17-9	57	337513-67-4	28	446254-65-5	29
114369-43-6	56	126801-58-9	56	147217-74-1	28	181587-01-9	56	337513-68-5	28	446254-66-6	29
114420-56-3	53	126833-17-8	56	147217-75-2	28	182346-21-0	29	337513-72-1	30	446254-67-7	29
115044-19-4	58, 261	127277-53-6	62	147217-76-3	28	182677-28-7	29	337513-75-4	28	446254-68-8	29
115086-54-9	58	128639-02-1	52	147217-77-4	28	182677-30-1	29	348635-87-0	50	446254-69-9	29
115245-07-3	37	129188-99-4	92	147217-78-5	28	183658-27-7	39	358730-88-8	81, 94	446254-71-3	29
115852-48-7	57	129322-83-4	74, 127	147217-79-6	28	183675-82-3	61	358730-89-9	81, 94	446254-72-4	29
116255-48-2	52	129630-19-9	62	147217-80-9	28	188425-85-6	51	358731-25-6	81, 94	446254-74-6	29
116714-46-6	61	129909-90-6	50	147217-81-0	28	189084-57-9	28	358731-29-0	81, 94	446254-77-9	29
116806-76-9	20	130000-40-7	64	147411-69-6	63	189084-58-0	30	361377-29-9	57	446254-78-0	29
116807-23-9	20	131341-86-1	57	148477-71-8	63	189084-59-1	28	365400-11-9	62	446254-80-4	29
116807-52-4	20	131475-57-5	65	149877-41-8	51	189084-60-4	28	366791-32-4	29	446254-86-0	29
116807-53-5	20	131807-57-3	56	149949-86-0	20	189084-61-5	28	373594-78-6	29	446254-87-7	30
116889-69-1	23	131860-33-8	51	149949-87-1	20	189084-62-6	28	374726-62-2	59	461642-78-4	93
116889-70-4	23	131983-72-7	65	149949-88-2	20	189084-63-7	28	407606-55-7	28	500008-45-7	52
117337-19-6	57	133220-30-1	58	149949-89-3	20	189084-64-8	29, 91	422556-08-9	63	634493-98-4	41
117428-22-5	62	133855-98-8	56	149949-90-6	20	189084-65-9	29	437701-79-6	30	658066-35-4	57
117704-25-3	55	134237-50-6	37	149961-52-4	55	189084-66-0	29	446254-14-4	28	446254-74-6	64, 68
117718-60-2	64	134237-51-7	37	150114-71-9	50	189084-67-1	30	446254-15-5	28	796045-97-1	93
118134-30-8	63	134237-52-8	37	150304-08-8	19	189084-68-2	30	446254-16-6	28	847488-62-4	89
118712-89-3	65, 262	134605-64-4	52	150824-47-8	61, 68	189278-12-4	62	446254-17-7	28	865318-97-4	50
119168-77-3	64	135158-54-2	50	152477-96-8	73, 121	201611-85-0	93	446254-18-8	28	870196-80-8	93
119264-60-7	37	135410-20-7	50, 68, 259	153197-14-9	61	201611-92-9	93	446254-19-9	28	870196-83-1	93
119446-68-3	55	135590-91-9	59	153233-91-1	56	203313-25-1	63	446254-20-2	28	870532-86-8	93
119515-38-7	261	135821-03-3	37	153310-30-6	20	205650-65-3	57, 68	446254-22-4	28	881685-58-1	59
120067-83-6	57, 68, 122	135821-74-8	37	153719-23-4	64, 68, 262	207122-15-4	30, 91	446254-23-5	28	907204-31-3	57
120068-36-2	57, 68, 122	136426-54-5	57	154862-43-8	89	207122-16-5	30, 91	446254-24-6	28	946578-00-3	68
120068-37-3	57, 68, 122, 261	137641-05-5	62	155569-91-8	56	207233-95-2	262	446254-25-7	28	950782-86-2	58
120116-88-3	53	137888-64-3	99	155999-95-4	28	208465-21-8	59	446254-31-5	28	1015854-55-3	81, 94
120162-55-2	50	138261-41-3	58, 68, 261	156052-68-5	66	210880-92-5	53, 68, 260	446254-32-6	28	1015854-62-2	81, 94
120868-66-8	58	138507-65-0	38	156609-10-8	263	213464-77-8	61	446254-33-7	28		
120923-37-7	50	139528-85-1	60	158062-67-0	57	219714-96-2	61	446254-34-8	28		
120928-09-8	56	139968-49-3	59	158076-63-2	19	220899-03-6	60	446254-37-1	28		
120991-47-1	37	140923-17-7	58	158474-72-7	62	221205-90-9	63	446254-38-2	28		
120991-48-2	37	141112-29-0	59	161050-58-4	60	229977-93-9	57	446254-39-3	28		
121451-02-3	61	141517-21-7	65	161326-34-7	56	239110-15-7	57	446254-40-6	28		
121552-61-2	53	141776-32-1	63	161922-37-8	59	243973-20-8	62	446254-41-7	28		
121776-33-8	57, 261	142022-58-0	79	162650-77-3	56	243982-82-3	28	446254-42-8	28		
122008-85-9	53	142022-59-1	79	163515-14-8	55	243982-83-4	29	446254-43-9	29		
122453-73-0	52, 260	142022-61-5	79	165252-70-0	68	272451-65-7	57	446254-45-1	29		
122548-33-8	58	142459-58-3	57	168316-95-8	63, 262	283594-90-1	63	446254-48-4	29		
122836-35-5	63	143390-89-0	59	171103-04-1	68	327185-09-1	28	446254-50-8	29		
122931-48-0	63	144171-61-9	58	171977-44-9	28	327185-13-7	30	446254-51-9	29		

Organic Analyte Index

A

Abamectin	50, 259
Abate	50
Accelerator BBTS	89
Accelerator CBTS	89
Accelerator EZ & EZ-SP	89
Accelerator MBT, MBT/MG	89
Acenaphthene	42, 44, 117, 198, 238, 257
Acenaphthene-d10	117, 162
Acenaphthylene	42, 44, 117, 198, 238, 257
Acephate	50, 117
Acequinocyl	50
Acetaldehyde	73, 117, 166
Acetaldehyde-DNPH	73, 117, 166
2-Acetamidofluorene	46
Acetamidiprid	50, 68, 259
Acetate	339
Acetochlor	50, 117
Acetone	74, 117, 198, 204
Acetone-DNPH	74, 117
Acetonitrile	69, 117, 198, 204
Acetophenone	74, 117, 198
2-Acetylaminofluorene	117, 198
2-Acetylpyridine	102
Acibenzolar-S-methyl	50
Acid Red 26	108
Acid Violet 30	108
Acid Violet 49	108
Acifluorfen	50, 117
Acifluorfen methyl ester	50, 117
Aclonifen	50
Acridine	42
Acrinathrin	50
Acrolein	73, 117, 198, 204
Acrolein-DNPH	73, 117
Acrylamide	69, 117, 168, 206
Acrylonitrile	69, 117, 198, 204, 206
Activator OT Urea	89
Akrochem® Antiox 12	89
Akrochem® Ceresin Wax	93
Akrochem® Retarder BAX	93
Akrofax A	94
Akrofax B	94
Akroform ETU-22 PM	89
Akrowax™ 195	90
Alachlor	50, 117
Alanap	50, 117
Alar	50
Albendazole	50
Aldicarb	50, 117
Aldicarb sulfone	117
Aldicarb sulfoxide	50, 117
Aldrin	50, 67, 117, 198
Alkanox® P27	89
Alkanox TNPP	89
Allethrin	50, 117, 259
Alliodochlor	50
Alloxydim-sodium	50
Allyl alcohol	73, 117, 204
Allyl chloride	69, 117, 198
Allylthiocyanate	102, 106
Aluminum	335, 337, 280, 363, 368, 370
Ametoctradin	50
Ametryn	50, 68, 117, 176
Amicarbazone	50
Amidosulfuron	50
1-Aminoanthracene	46
2-Aminoanthracene	46
1-Aminoanthraquinone	46
2-Aminoanthraquinone	46
p-Aminoazobenzene	76, 109
o-Aminoazotoluene	76, 109
2-Aminobiphenyl	46, 76, 109
4-Aminobiphenyl	46, 76, 117, 109
Aminocarb	50, 117, 181
2-Amino-4-chlorophenol	108
6-Aminochrysene	46
2-Amino-7,8-dibromodibenzo-p-dioxin	25
2-Amino-5-(diethylamino)toluene monohydrochloride	108, 109
2-Amino-4,6-dinitrotoluene	84, 117, 241
4-Amino-2,6-dinitrotoluene	84, 117, 241
2-Aminofluorene	46
Aminomethyl phosphonic acid	162
Aminomethylphosphonic acid	50
1-Aminonaphthalene	46
2-Aminonaphthalene	46
1-Amino-4-nitronaphthalene	45
2-Amino-3-nitrophenol	108, 109
2-Amino-4-nitrotoluene	76, 109
2-Aminophenol	108, 109
Aminopyralid	50
4-Aminopyridine	50, 117
3-Amino-1,2,4-triazol-5-one	84
Amisulbrom	50

Amitraz	50
Amitrole	50
Ammelide	95
Ammeline	95
Ammonium	341
Ammonium bromide	259
Ammonium dihydrogen phosphate	337
Ammonium nitrate	337
Ammonium picrate	84, 241
Ammonium sulfate	50
Ammonium sulfate	259
n-Amylbenzene	69
Amyl cinnamal	102, 106
Amylcinnamyl alcohol	102, 106
Ancymidol	50
5- α -Androstane	310, 316, 318, 319, 320, 324, 326
Anilazine	50, 117
Aniline	76, 117, 198
Aniline-d5	76, 117, 198
Anilofos	50
o-Anisidine	76, 109
Anisyl alcohol	102, 106
Anox® PP18	89
Anthanthrene	42
Anthracene	42, 44, 117, 198, 238, 257
Anthracene-d10	117, 170, 179
Antimony	331, 335, 337, 368, 370
Antioxidant 60	89
Antioxidant S	89
Antiozonant NIBUD	90
Aramite	50, 117, 198, 227, 236
Aroclor 1016	209, 140, 142, 246, 179, 210, 299, 18
Aroclor 1221	140, 209, 246, 174, 179, 18, 299, 91, 300
Aroclor 1232	140, 209, 246, 174, 299, 18, 91, 300
Aroclor 1242	140, 209, 246, 174, 179, 299, 18, 91, 300
Aroclor 1248	140, 209, 246, 174, 179, 299, 18, 91, 300
Aroclor 1254	140, 209, 142, 246, 174, 179, 299, 18, 91, 300
Aroclor 1260	140, 209, 246, 150, 174, 179, 299, 91, 18, 300
Aroclor 1262	140, 209, 246, 174, 179, 299, 91, 18, 300
Aroclor 1268	140, 209, 246, 174, 299, 18, 91, 300
Aroclor 5432	21, 91
Aroclor 5442	21, 91, 150
Aroclor 5460	21, 91
Aroclor 6050	21, 91
Aroclor® 1016	156, 91
Arsenic	337, 102, 107, 335, 368, 370
L-Ascorbic acid	99
Aspon	50
Asulam	50, 117
Atraton	176
Atrazine	50, 68, 117, 176
Atrazine desethyl	50, 68, 117
Atrazine-desethyl-desisopropyl	50
Atrazine-desethyl-2-hydroxy	50
Atrazine-desisopropyl	50, 68, 117
Atrazine-desisopropyl-2-hydroxy	50, 68
Aviation gasoline	310, 311
Azaconazole	50
Azaditrachtin	50
Azamethiphos	50, 117, 259
Azimsulfuron	50
Azinphos ethyl	219
Azinphos-ethyl	50, 117
Azinphos-methyl	51, 117
Azobenzene	47, 69, 117
Azocyclozin	51
Azoxystrobin	51
Azulene	42

B

Balsam of Peru	102
Barbamate	51, 117
Barban	181
Barium	331, 335, 337, 341, 368, 370
Barnon	51
Basic Blue 7	108, 109
Basic Fuchsin	108
Basic Red 2	108, 109
Basic Red 9	108
Basic Violet 1	108
Basic Violet 14	108, 109
Basic Violet 3	108
Baycarb	51, 117
Baygon	51, 117
Beflubutamid	51
Behenin	96
Benalaxyl	51
Benazolin	51, 117
Bendiocarb	51, 117, 182, 259
Benfluralin	51, 117
Benfuracarb	51, 117
Benfuresate	51
Benodanil	51

Benomyl	51, 117
Benoxacor	51
Bensulfuron-methyl	51, 117
Bensulide	51, 118, 182
Bensultap	51
Bentazon	51, 118, 182
Bentazon methyl	51, 118
Benthiavalicarb-isopropyl	51
Benz[a]anthracene	42, 44, 118, 198, 238, 257
Benz[a]anthracene-d12	118, 179
Benz[a]anthracene-7,12-dione	42
Benz[a]fluorene	42
Benzaldehyde-DNPH	73, 118
Benzalkonium chloride (Tech)	259
Benz[a]pyrene	44, 118, 198, 238, 42
Benzene	69, 118, 198, 205, 223
Benzene-d6	69, 118, 177
Benz[e]pyrene	42
Benzethonium chloride	259
Benzidine	46, 77, 118, 117, 179, 232, 109
1,2-Benzisothiazol-3(2H)-one	259
Benzo[b]anthracene	42
Benzo[b]chrysene	42
Benzo[b]fluoranthene	42, 44, 118, 198, 238, 257
Benzo[b]fluorene	42
Benzo[c]phenanthrene	42
Benzo[ghi]perylene	42, 44, 118, 198, 238, 257
Benzoic acid	99, 118, 259
Benzo[j]fluoranthene	42
Benzo[k]fluoranthene	42, 44, 118, 198, 238, 257
Benzophenone-3	102, 107
5,6-Benzoquinoline	42
7,8-Benzoquinoline	42
Benzoaximate	51
Benzoylprop ethyl	51
Benzyl alcohol	73, 102, 106
Benzyl benzoate	102, 106, 259
Benzyl butyl phthalate	102, 80, 107
Benzyl chloride	69, 118
2-Benzyl-4-chlorophenol	259
Benzyl cinnamate	102, 106
Benzyl cyanide	102, 106
Benzyltrimethyldecylammonium chloride	259
Benzyl 2-ethylhexyl phthalate	81, 102
Benzyl paraben	102, 107
Benzyl salicylate	102, 106
Beryllium	331, 335, 368, 370
α -BHC	51, 118, 198
δ -BHC	118, 198
γ -BHC	123, 198
β -BHC	118, 198
BHC Tech	51, 118
Bifenazate	51
Bifenox	51
Bifenthrin	51, 118, 260
Binapacryl	51
2,2'-Binaphthyl	42
Bioallethrin	51
S-Bioallethrin	51
d-Biotin	99
2-Biphenylol sodium salt tetrahydrate	260
(-)- α -Bisabolol	100
(+)-Borneol	100
(-)-Borneol	100
2-Bromoallyl-2,4,6-tribromophenyl ether	40
4-Bromoaniline	77
2-Bromoanisole	38, 207
3-Bromoanisole	38, 207
4-Bromoanisole	38, 118, 207
2-Bromobiphenyl	37, 118, 213
3-Bromobiphenyl	37
4-Bromobiphenyl	37
2-Bromo-2-(bromomethyl)pentanedinitrile	260
2-Bromobutanoic acid	165
2-Bromochlorobenzene	69, 118, 177
4-Bromochlorobenzene	69, 118, 204
2-Bromo-1-chloropropane	69, 118, 177
4-Bromo-3,5-dimethylphenyl-N-methylcarbamate	118, 161
2-Bromo-4,6-dinitroaniline	77
2-Bromodiphenyl ether	28
3-Bromodiphenyl ether	28
4-Bromodiphenyl ether	28
4-Bromofluorobenzene	177, 325
p-Bromofluorobenzene	69, 118, 130, 131, 192, 154, 226, 256, 310, 129
1-Bromo-2-nitrobenzene	69, 118, 213, 219
5-Bromo-5-nitro-1,3-dioxane	102
2-Bromo-2-nitropropane-1,3-diol	102, 260
2-Bromophenol	38, 207
3-Bromophenol	38, 207
4-Bromophenol	38, 207
4-Bromophenyl phenyl ether	118, 198
2-Bromopropanoic acid	118, 164
3-Bromostyrene	40

Organic Analyte Index

4-Bromostyrene	40
N-Bromosuccinimide	260, 305
2-Bromo-4-tert-octylphenol	263
2-Bromo-4-tert-octylphenol diethoxylate	263
2-Bromo-4-(1,1,3,3-tetramethylbutyl)phenol	263
1,3-Butadiene	69, 118
(S)-(-)-1,2,4-Butanetriol	302, 306
1-Butanethiol	289
1-Butanol	73, 118
n-Butanol	204
t-Butanol	73, 118, 204
tris(2-Butoxyethyl) phosphate	41
2-Butoxy-2-oxoethyl butyl phthalate	80
n-Butyl acetyl ricinoleate	82, 92
n-Butylbenzene	69, 118, 205, 223
t-Butylbenzene	69, 118, 205, 223
n-Butyl benzyl phthalate	81
2-(4-tert-Butylbenzyl)propionaldehyde	102, 106
4,4'-Butyldienebis(6-tert-butyl-m-cresol)	89
n-Butyl iso-butyl phthalate	81
p-tert-Butylphenol	102, 106
t-Butylphenyl diphenyl phosphate	82, 92
n-Butyl stearate	82, 92

C

Cadmium	331, 335, 337, 368, 370
Cadusafos	52
Calcium	331, 335, 337, 341, 368, 370
Calcium arsenate	52
Calcium-D-pantothenate	99
Calcium hydroxide	260
Calcium hypochlorite	260
Calcium oxide	260
Calcium propionate	99
Calcium sorbate	260
Camphene	100
Camphor	100
Cannabichromene (CBC)	100
Cannabidiol (CBD)	100
Cannabigerol (CBG)	100
Caprylin	96
Captafol	52, 118
Captan	52, 118, 260
Carbaryl	52, 118, 181
Carbazole	42, 118, 181
Carbendazim	52, 118, 182, 260
Carbetamide	52
Carbofuran	52, 118, 181
Carbofuran-d3	167, 264
Carbofuran phenol-3-ketone	52
Carbon disulfide	118, 198, 289
Carbon tetrabromide	69
Carbon tetrachloride	69, 118, 198, 205, 223, 248
Carbonyl sulfide	289
Carbophenothion	52, 118, 219
Carbophenothion methyl-o-analog	52
Carbosulfan	52, 118
Carboxin	52, 118
3-Carene	100
Carfentrazon-ethyl	52
β-Carotene	99
Carpropamid	52
Cartap	52
Cartap hydrochloride	52
beta-Caryophyllene	100
(-)-Caryophyllene oxide	100
Celogen® AZ	90
Celogen® SD-125	92
Cerium	331, 335, 370
Cesium	331, 335
Cetone Alpha	103, 106
Cetylpyridinium chloride	260
Chinomethionate	52
Chlorafin™ 40	41
Chloral hydrate	69, 119, 224
Chloralose	260
Chloramben	52, 119
Chloramben methyl ester	52, 119
Chloramine T trihydrate	260
Chlorantraniliprole	52
Chlorbenside	52, 119
Chlorbromuron	52
Chlorbufam	52
α-Chlordane	52, 119
γ-Chlordane	52, 119
Chlordane	52, 67, 119, 140, 176, 179, 198, 209, 229
Chlordene	52, 119
Chlordimeform	52
Chlorendic anhydride	41
Chlorethoxyfos	52
Chlorfenapyr	52, 260
Chlorfenvinphos	52, 119, 219
Chlorfluazuron	52
Chlorfluorecol-methyl ester	52, 119
Chloride	342
Chlorimuron-ethyl	52, 119
Chlorine	279, 342
Chlormephos	52
Chlormequat chloride	52
Chlornitrofen	52
Chloroacetamide	103, 260
Chloroacetic acid	79, 119, 164
2-Chloroacetophenone	74, 110
2'-Chloroacetophenone	74, 110
3'-Chloroacetophenone	74, 110
4'-Chloroacetophenone	74, 110
2-Chloroaniline	77
3-Chloroaniline	77
4-Chloroaniline	77, 109
p-Chloroaniline	119, 198
Chlorobenzene	119, 70, 198, 223
Chlorobenzene-d5	69
Chlorobenzilate	52, 119, 198
2-Chlorobiphenyl	4, 214
3-Chlorobiphenyl	4
4-Chlorobiphenyl	4
4-Chloro-3-cresol	75
2-Chlorodibenzofuran	25
4-Chlorodibenzofuran	25
1-Chlorodibenzo-p-dioxin	23
2-Chlorodibenzo-p-dioxin	23
Chlorodibromoacetic acid	79, 119, 165
2-Chloro-2',6'-diethylacetanilide	52
1-Chloro-1,1-difluoroethane	107, 111, 119
Chlorodifluoromethane	107, 111, 119
4-Chloro-3,5-dimethylphenol	260
2-Chloro-4,6-dinitroaniline	77
4-Chlorodiphenyl ether	22, 38
Chloroethane	107, 111, 119, 69, 198, 223
2-Chloroethanol	52
2-Chloro-4-ethylamino-6-methylethylamino-s-triazine	52, 68
2-Chloro-4-ethylamino-6-propylamino-s-triazine	52, 68
tetrakis(2-Chloroethyl)dichloroisopentylidiphosphate	41
tris(2-Chloroethyl) phosphate	41
2-Chloroethylvinyl ether	79, 119, 172, 173, 202
1-Chloro-2-fluorobenzene	69, 119
1-Chloro-4-fluorobenzene	310, 317, 310, 69
4-Chlorofluorobenzene	177
Chloro-4-fluorobenzene	325
Chloroform	119, 103, 70, 223
1-Chlorohexane	70, 119
p-Chloro-m-cresol	198
Chloromethane	70, 107, 111, 119, 198, 205, 223
2-Chloro-4-methylamino-6-diethylamino-s-triazine	52, 68
2-Chloro-4-methylamino-6-sec-butylamino-s-triazine	52, 68
Chloromethyl methyl ether	202
4-Chloro-2-methylphenol	52
4-Chloro-3-methylphenol	119, 260
1-Chloronaphthalene	22
2-Chloronaphthalene	119, 22, 218
Chloroneb	52
2-Chloro-4-nitroaniline	77
4-Chloro-2-nitroaniline	77
1-Chloro-3-nitrobenzene	69, 216
2-Chloronitrobenzene	47
4-Chloronitrobenzene	47
4-Chloro-3-nitrobenzotrifluoride	119, 213, 219
4'-Chloro-2,2',3,3',4,5,5',6,6'-Nonabromodiphenyl ether	30
1-Chlorooctadecane	310, 320, 324
4-Chloro-o-terphenyl	21
3-Chloro-o-toluidine	77, 109
4-Chloro-o-toluidine	77, 109
Chloropentafluoroethane	107, 111, 119
Chlorophacinone	52, 260
2-Chlorophenol	75, 119, 198
3-Chlorophenol	75
4-Chlorophenol	75
o-Chlorophenol	75
2-Chlorophenol-d4	119, 75
1,1-bis(4-Chlorophenyl)ethylene	53
4-Chlorophenyl methyl sulfoxide	25
2-Chlorophenyl-4'-nitrophenyl ether	79
3-Chlorophenyl-4'-nitrophenyl ether	79
4-Chlorophenyl-4'-nitrophenyl ether	79
4-Chlorophenyl phenyl ether	41, 119, 198
Chloropicrin	52, 119
Chloroprene	70, 119, 198, 203, 206, 222
3-Chloro-1,2-propanediol	52, 119
3-Chloropropionitrile	70
Chloropropylate	53, 119
tris(1-Chloro-2-propyl) phosphate	41
tris(2-Chloropropyl) phosphate	41
4-Chloro-p-terphenyl	21
2-Chloropyridine	103
6-Chloropyridine-3-carboxylic acid	68
2-Chloro-1,1,1,2-tetrafluoroethane	111, 119
Chlorothaloniol	53, 119, 260
2-Chlorotoluene	70, 119, 205, 223
3-Chlorotoluene	70
4-Chlorotoluene	70, 119, 205, 223
Chlorotoluron	53, 260
Chlorotrifluoromethane	107, 111, 119
Chlorowax™ 500C	41
Chloroxuron	53
Chlorpropopham	53, 119, 181
Chlorpyrifos	119
Chlorpyrifos-methyl	53, 119
Chlorpyrifos-oxon	53
Chlorsulfuron	53, 119
Chlorthiamid	53
Chlorthion	53
Chlorthiophos	53
Chlortoluron	53
Chlorzolinate	53
Cholecalciferol	99
Chromate	339
Chromium	331, 337, 103, 107, 335, 368, 370
Chrysene	42, 44, 119, 198, 238, 257
Chrysene-d12	16, 119, 182
Cinnamal	103, 106, 260
Cinnamyl alcohol	103, 106
Cinosulfuron	53
Ciodrin	53
Citral	103, 106
Citric acid	260
Citroflex 4	92
Citroflex® 2	92
Citroflex A-2	92
Citroflex A-4	92
Citroflex B-6	92
β-Citronellol	103, 106
Clarity	53
Clethodim	53, 119
Clodinafop	53
Clodinafop-propargyl	53
Clofentazine	53
Clomazon	53
Clomeprop	53
Clopyralid methyl ester	53, 119
Cloquintocet-mexyl	53
Cloransulam methyl	53
Clothianidin	53, 68, 260
Coal Tar	103
Cobalt	331, 337, 103, 107, 335, 368, 370
Composite Standard	311
Copper	331, 335, 337, 260, 368, 370
Copper dihydroxide	260
Copper (II) carbonate	53, 260
Copper (II) oxide	260
Copper (II) sulfate	260
Copper (I) oxide	260
Copper oxychloride	53
Copper thiocyanate	260
Corn Oil	136, 242, 327, 344
Coronene	42
Coumachlor	53
Coumaphos	53, 119
Coumarin	103, 106
Coumatetrallyl	53, 260
4-CPA	53, 119
Creosote from beechwood tar	260
p-Cresidine	77, 109
m-Cresol	75, 119, 198, 260
o-Cresol	75, 119, 198
p-Cresol	75, 119, 198
Cresyl diphenyl phosphate	41, 92
Crimidine	53
Crocein Scarlet 3b	108, 109
Crotonaldehyde	73, 119, 166, 204
Crotonaldehyde-DNPH	73, 119, 166
Cruformate	53, 119
Cryolite	53
Cumene	110
Cumyluron	53
Cure-Rite® IBT	89
Cyanamide	260
Cyanazine	53, 68, 119, 182
Cyanide	342
Cyanocobalamin	99
Cyanofenphos	53
Cyanomethyl dodecyl trithiocarbonate	93
4-Cyano-4-(phenylcarbothioylthio)pentanoic acid	93
Cyanophos	53
2-Cyano-2-propyl benzodithioate	93
Cyanox 1790	89
Cyanox 2246	89
Cyanox 425	89
Cyanox® 1212	89
Cyanox LTDP	89
Cyanox STDP	89
Cyanuric acid	95
Cyazofamid	53
Cyclanilide	53
Cycloate	53, 119
Cyclohexane	70

Organic Analyte Index

Cyclohexanone	74, 119, 166
Cyclohexanone-DNPH	74, 119, 166, 255
Cycloheximide	53
2-Cyclohexyl-4,6-dinitrophenol	75
Cyclopenta[c,d]pyrene	42
Cycloprate	53
N-Cyclopropyl-1,3,5-triazine-2,4,6-triamine	260
Cycloxydime	53
Cycluron	53
Cyflufenamide	53
Cyfluthrin	53, 260
Cyhalofop-butyl	53
λ-Cyhalothrin	53, 260
Cyhexatin	53
p-Cymene	100, 123
Cymoxanil	53
a-Cypermethrin	260
Cypermethrin	53, 119, 260
Cyphenothrin	53, 260
Cyprazine	53, 119
Cyproconazole	53, 260
Cyprodinil	53
Cyromazine	53, 119
2,3-D	53
2,4-D	53, 119, 176, 198, 221
2,6-D	53

D

2,6-D acid	119
Dacthal	54, 120
Daimuron	54
Dalapon	176, 221
Dalapon acid	54, 120, 165
Dalapon methyl ester	54, 120, 165
Danitol	54, 120
Dasanit	54, 120
Dazomet	54, 120, 191, 260
2,4-DB	54, 176, 221
2,4-DB acid	120
2,4-DB methyl ester	54, 120
2,4-D butoxyethyl ester	53, 120
2,4-D butyl ester	53
DCPA diacid	54, 120
D & C Red 7	108
p,p'-DDA	54, 120
4,4'-DDD	198
o,p'-DDD	54, 120
p,p'-DDD	54, 120
4,4'-DDE	198
o,p'-DDE	54, 120
p,p'-DDE	54, 120
4,4'-DDMU	54, 120
4,4'-DDT	198
o,p'-DDT	54, 120
p,p'-DDT	54, 67, 120
DDT, Tech	54, 120
Decabromobiphenyl	37
Decabromodiphenyl ether	30, 91
Decachlorobiphenyl	7, 11, 120, 17, 21, 17, 214, 214
Decachlorodiphenyl ether	22, 38
Decafluorobiphenyl	120, 163, 238, 21
Decafluorotriphenylphosphine	16, 120, 136, 137, 139, 179, 181, 182, 232
Decanal	73, 120, 166
Decanal-DNPH	73, 120, 166
Decanoic acid	260
Dechlorane 602	41
Dechlorane 603	41
Dechlorane Plus "Anti"	37
Dechlorane Plus (Mixed isomers)	37, 41
Dechlorane Plus "Syn"	37
Decylbenzene	70
Decyl octyl phthalate	81
Deet	54, 120
DEF 6	54, 120, 149
DEGDN	84, 241
DE-79 (Great Lakes)	31
Deltamethrin	54, 120, 260
Demeton	54
Demeton-S	54, 120
Demeton-S-methyl	54, 120
Demeton-S-methylsulfone	54
Desmedipham	54
n-Desmethylthiamethoxam	68
Desmetryn	54
2,4-D ethyl ester	53, 120
2,4-D ethylhexyl ester	53, 120
DFTPP	120, 155, 159, 188, 191
DFTPPO (Decafluorotriphenylphosphine oxide)	120, 240, 166
Diablo 700X	41
Diafenthuron	54
Dialifos	54
Diallate	54, 70, 120, 198

Diallyl phthalate	80
2,4-Diaminoanisole	250, 103, 109
2,4-Diaminoanisole sulfate hydrate	77
3,3'-Diaminobenzidine	46, 77
2,6-Diamino-4-chloropyrimidine	95
2,4-Diaminodiphenylamine	108, 109
4,4'-Diaminodiphenylmethane	46, 77, 109
2,7-Diaminofluorene	46
1,8-Diaminonaphthalene	46
2,4-Diamino-6-nitrotoluene	84, 120, 241
2,6-Diamino-4-nitrotoluene	84, 120, 241
2,4-Diaminophenol dihydrochloride	103
1,2-Diaminopropane	84, 241
2,6-Diaminopyridine	108, 109
2,4-Diaminotoluene	46, 77, 109
Diamyl phthalate	80, 103, 107
Diarachidin	96
Diazinon	54, 120, 260
Diazinon-o-analog	54
Diazodinitrophenol	84
Diazolidinyl urea	103, 260
Dibam	54
Dibehenin	96
Dibenz[a,c]anthracene	42
Dibenz[a,e]fluoranthene	42
Dibenz[a,e]pyrene	42
Dibenz[a,h]acridine	42
Dibenz[a,h]anthracene	42, 44, 120, 198, 238, 257
Dibenz[a,h]pyrene	42
Dibenz[a,i]pyrene	42
Dibenz[a,j]acridine	42
Dibenz[a,l]pentacene	42
Dibenz[a,l]pyrene	42
Dibenzofuran	42, 120, 25
Dibenzo-p-dioxin	23
Dibenzothiofene	42
Dibenzylhydroxylamine	89
Dibenzyl phthalate	80
Dibenzyl phthalate-d4	94
Dibenzylphthalate-d4	81
Diboron trioxide	260
Dibromoacetic acid	79, 120, 164, 165
Dibromoacetone	70, 120
2,3-Dibromoanisole	38, 207
2,4-Dibromoanisole	38, 207
2,5-Dibromoanisole	38, 207
2,6-Dibromoanisole	38, 207
3,5-Dibromoanisole	38, 207
2,5-Dibromo-1,4-benzoquinone	263
2,2'-Dibromobiphenyl	37
2,4-Dibromobiphenyl	37
2,5-Dibromobiphenyl	37
2,6-Dibromobiphenyl	37
4,4'-Dibromobiphenyl	21, 35, 37, 120, 151, 218
Dibromochloromethane	70, 120, 198, 205, 223
2,6-Dibromo-3-chloro-5-methyl-1,4-benzoquinone	263
1,2-Dibromo-3-chloropropane	70, 120, 198, 205, 223
2,2-Dibromo-2-cyanoacetamide	260
1,2-Dibromo-4-(1,2-dibromoethyl)cyclohexane	39
2,3-Dibromo-5,6-dimethyl-1,4-benzoquinone	263
2,6-Dibromo-3,5-dimethyl-1,4-benzoquinone	263
1,3-Dibromo-5,5-dimethylhydantoin	260
2,2'-Dibromodiphenyl ether	28
2,3-Dibromodiphenyl ether	28
2,3'-Dibromodiphenyl ether	28
2,4-Dibromodiphenyl ether	28
2,4'-Dibromodiphenyl ether	28
2,5-Dibromodiphenyl ether	28
2,6-Dibromodiphenyl ether	28
3,3'-Dibromodiphenyl ether	28
3,4-Dibromodiphenyl ether	28
3,4'-Dibromodiphenyl ether	28
3,5-Dibromodiphenyl ether	28
4,4'-Dibromodiphenyl ether	28
1,2-Dibromoethane	70, 120, 198, 205, 223
Dibromofluoromethane	70, 120, 225
Dibromomethane	70, 120, 198, 205, 223
α,α-Dibromo-m-xylene	70, 120, 213
2,6-Dibromo-4-nitroaniline	77
4,4'-Dibromooctafluorobiphenyl	21, 120, 152, 153, 220, 221, 222
2,3-Dibromophenol	38, 207
2,4-Dibromophenol	38, 75, 207, 208
2,5-Dibromophenol	38, 207
2,6-Dibromophenol	38, 207
3,4-Dibromophenol	38
3,5-Dibromophenol	38, 207
2,4-Dibromophenyl-4'-nitrophenyl ether	79
1,2-Dibromopropane	70, 120, 164, 166
2,3-Dibromopropionamide	206
2,3-Dibromopropionic acid	120, 164, 165
tris(2,3-Dibromopropyl) isocyanurate	39
tris(2,3-Dibromopropyl)phosphate	39, 41
(2,3-Dibromopropyl)(2,4,6-tribromophenyl) ether	39
1,2-Dibromo-1,1,2,2-tetrafluoroethane	70
1,2-Dibromotetrafluoroethane	111, 120
2,5-Dibromotoluene	310, 321, 323

Dibromsalon	103
Dibutylchlorendate	54, 120, 139, 188
Dibutyl fumarate	82, 92
Dibutyl phthalate	80, 92
Dibutyl sebacate	92
Dicamba	54, 120, 176, 221
Dicamba methyl ester	54, 120
Dicaprin	96
Dicaprylin	96
Dicaptho	54, 120
Dichlobenil	54, 120
Dichlofenthion	54, 120
Dichlofluandil	54, 260
Dichlone	54, 120
Dichlormid	54, 120
Dichloroacetate	342
Dichloroacetic acid	79, 120, 164, 165
Dichloroacetonitrile	70, 120
3,4-Dichloroaniline	77
3,5-Dichloroaniline	54
2,4-Dichloroanisole	164
2,6-Dichlorobenzamide	54
1,2-Dichlorobenzene	70, 120, 198, 205, 218, 223
1,3-Dichlorobenzene	70, 120, 198, 205, 218, 223
1,4-Dichlorobenzene	70, 120, 198, 205, 218, 220, 222, 223
1,2-Dichlorobenzene-d4	70, 120
1,4-Dichlorobenzene-d4	70, 120
3,3'-Dichlorobenzidine	46, 77, 109, 120, 198
3,5-Dichlorobenzoic acid	54, 120, 164
4,4'-Dichlorobenzophenone	54, 120
2,6-Dichloro-1,4-benzoquinone	263
2,4-Dichlorobenzyl alcohol	260
2,2'-Dichlorobiphenyl	4
2,3-Dichlorobiphenyl	4, 214
2,3'-Dichlorobiphenyl	4
2,4-Dichlorobiphenyl	4
2,4'-Dichlorobiphenyl	4
2,5-Dichlorobiphenyl	4
2,6-Dichlorobiphenyl	4
3,3'-Dichlorobiphenyl	4
3,4-Dichlorobiphenyl	4
3,4'-Dichlorobiphenyl	4
3,5-Dichlorobiphenyl	4
4,4'-Dichlorobiphenyl	4, 120, 150
1,4-Dichlorobutane	70, 120, 177
1,4-Dichlorobutane-d8	70
trans-1,4-Dichloro-2-butene	70, 121, 198
2,8-Dichlorodibenzofuran	25
1,2-Dichlorodibenzo-p-dioxin	23
1,3-Dichlorodibenzo-p-dioxin	23
1,4-Dichlorodibenzo-p-dioxin	23
1,6-Dichlorodibenzo-p-dioxin	23
2,3-Dichlorodibenzo-p-dioxin	23
2,7-Dichlorodibenzo-p-dioxin	23
2,8-Dichlorodibenzo-p-dioxin	23
Dichlorodifluoromethane	70, 107, 111, 121, 198, 205, 223
1,3-Dichloro-5,5-dimethylhydantoin	260
4,4'-Dichlorodiphenyl ether	22, 38
1,1-Dichloroethane	70, 121, 198, 205, 223
1,2-Dichloroethane	70, 121, 198, 205, 223
1,2-Dichloroethane-d4	70, 121
1,1-Dichloroethene	70, 121, 205, 223
cis-1,2-Dichloroethene	70, 121, 205, 223
trans-1,2-Dichloroethene	70, 121, 205, 223
2,4-Dichloro-6-ethylamino-s-triazine	54, 68
1,1-Dichloroethylene	198
trans-1,2-Dichloroethylene	198
1,1-Dichloro-1-fluoroethane	111, 121
Dichlorofluoromethane	70, 107, 111, 121
Dichloromethane	70, 121, 198, 248
Dichloromethane-d2	121, 70
2,5-Dichloro-m-terphenyl	21
1,4-Dichloronaphthalene	22
2,6-Dichloro-4-nitroaniline	77
2,3-Dichloronitrobenzene	47, 54
2,4-Dichloronitrobenzene	47
2,5-Dichloronitrobenzene	47
2,5-Dichloro-o-terphenyl	21
Dichlorophen	54, 121, 260
2,3-Dichlorophenol	75
2,4-Dichlorophenol	75, 121, 164, 198
2,5-Dichlorophenol	75
2,6-Dichlorophenol	75, 121, 198
3,4-Dichlorophenol	75
3,5-Dichlorophenol	75
2,3-Dichlorophenoxyacetic acid	121
2,4-Dichlorophenylacetic acid	54, 79, 121, 152, 153, 187, 220, 221, 222
2,4-Dichlorophenylacetic acid methyl ester	79
2,4-Dichlorophenyl-3'-methyl-4'-nitrophenyl ether	79
1-(3,4-Dichlorophenyl)-3-methylurea	54
2,3-Dichlorophenyl-4'-nitrophenyl ether	79
2,4-Dichlorophenyl-4'-nitrophenyl ether	79
2,5-Dichlorophenyl-4'-nitrophenyl ether	79
2,6-Dichlorophenyl-4'-nitrophenyl ether	79
3,4-Dichlorophenyl-4'-nitrophenyl ether	79

Organic Analyte Index

3,5-Dichlorophenyl-4'-nitrophenyl ether	79	Diisobutyl phthalate	80	1,5-Dinitronaphthalene	45
1,2-Dichloropropane	70, 121, 198, 205, 223	Di-iso-butyl phthalate-3,4,5,6-d4	81, 94	1,8-Dinitronaphthalene	45
1,3-Dichloropropane	70, 121, 205, 223	Diisooctyl azelate	82, 92	4,6-Dinitro-o-cresol	45, 55, 121, 198
2,2-Dichloropropane	70, 121, 205, 223	Diisodecyl adipate	82, 92	4,6-Dinitro-o-toluidine	25
1,3-Dichloro-2-propanol	73	Diisodecyl azelate	82, 92	2,4-Dinitrophenol	45, 47, 75, 121, 198
1,1-Dichloro-2-propanone	74, 121	Diisodecyl phthalate	81, 103, 107	2,4-Dinitrophenylhydrazine	121
1,1-Dichloropropene	70, 121, 205, 223	Diisoheptyl phthalate	81	2,4-Dinitrophenylhydrazine (DNPH)	193
1,3-Dichloropropene	70	Diisohexyl phthalate	81	1,3-Dinitropyrene	45
2,3-Dichloro-1-propene	70	Diisononyl phthalate	81, 103, 107	1,6-Dinitropyrene	45
cis-1,3-Dichloropropene	70, 121, 198, 205, 223	Diisooctyl phthalate	81, 92, 103, 107	1,8-Dinitropyrene	45
trans-1,3-Dichloropropene	71, 121, 198, 205, 223	Diisopentyl phthalate	80	2,4-Dinitrotoluene	45, 47, 87, 99, 241, 84, 238
1,3-Dichloropropene (cis/trans)	121	Diisopropyl phthalate	80	2,5-Dinitrotoluene	71, 217, 86
1,1-Dichloro-1-propylene	71	Dilaurin	96	2,6-Dinitrotoluene	45, 47, 87, 99, 241, 84, 238
tris(1,3-Dichloro-2-propyl) phosphate	41	Dilinolein	97	3,4-Dinitrotoluene	71, 217, 84, 85, 86, 218, 241
2,4-Dichloro-p-terphenyl	21	Dilinolenin	97	3,5-Dinitrotoluene	84, 241
2,5-Dichloro-p-terphenyl	21	Dimefox	55, 121	Dinocap	55, 121
1,2-Dichloro-1,1,2,2-tetrafluoroethane	107, 111, 121	Dimefuron	55	Di-n-octyl phthalate	80, 103, 107
2,4-Dichlorotoluene	71	Dimepax	55	Di-n-octyl phthalate-3,4,5,6-d4	81, 94
2,2-Dichloro-1,1,1-trifluoroethane	111, 121	Dimepiperate	55	Dinonyl phthalate	81
Dichloroprop	55, 121, 176, 221	Dimethachlor	55	Dinoseb	55, 121, 176, 198, 221
Dichloroprop methyl ester	55, 121	Dimethenamid	55	Dinoseb acetate	55
Dichlorvos	55, 121, 260	Dimethenamide-P	55	Dinoseb methyl ether	55, 79, 121
2,4-Dichlorodiphenyl ether	22, 38	Dimethipin	55	Dinotefuran	68
Diclobutrazol	55	Dimethoate	55, 121, 198, 219	Dinoterb	55
Diclofop	55	Dimethomorph	55	Di-n-pentyl phthalate-3,4,5,6-d4	81, 94
Diclofop methyl	55, 121	3,3'-Dimethoxybenzidine	46, 77, 109, 230	Di-n-propyl phthalate-3,4,5,6-d4	81, 94
Diclosulam	55	1,2-Dimethoxyethane	279, 287, 288	Diocetyl phthalate	92
o,p'-Dicofol	55	Dimethyl adipate	92	1,3-Diolein	302, 306
Dicrotophos	55, 121	4-Dimethylaminoazobenzene	46, 77, 121, 198	Diolein	97
Dicyclohexyl phthalate	80, 103, 107	2,6-Dimethylaniline	77	1,3-Di-o-tolylguanidine	89
Dicyclohexyl phthalate-3,4,5,6-d4	81, 94	2,3-Dimethylanthracene	42	Dioxacarb	55, 121
Dicycldimethylammonium chloride	260	9,10-Dimethylanthracene	42	p-Dioxane	79, 103, 121, 204
1,3-Didecyl-2-methyl-1H-imidazolium chloride	260	Dimethylarsinic acid	55	Dioxathion	55, 122, 219
Didecyl phthalate (Tech Mix)	81	Dimethyl azelate	82, 92	1,4-Dioxino(2,3,b,5,6,b')dipyridine	25
Didodecyl phthalate	80	3,9-Dimethylbenz[a]anthracene	42	Dipalmitin	96
Dieicosadienoin	97	6,8-Dimethylbenz[a]anthracene	42	Dipalmitolein	97
Dieicosenoin	97	7,12-Dimethylbenz[a]anthracene	42, 121, 198	Dipentaerythritol hexanitrate	84
Dielaidin	97	2,5-Dimethylbenzaldehyde-DNPH	73, 121	Dipentamethyleneurea tetrasulfide	89
Dieldrin	55, 67, 121, 198	7,10-Dimethylbenz[a]pyrene	42	Dipetroselinin	97
1,2,3,4-Diepoxybutane	71	3,3'-Dimethylbenzidine	77, 109, 121, 198	Diphacnone	55
#1 Diesel	310, 311	1,12-Dimethylbenzo[c]phenanthrene	42	Diphenamid	55, 122
#2 Diesel	310, 311, 312, 318	5,8-Dimethylbenzo[c]phenanthrene	42	Diphenoxarsin-10-yl oxide	160
Diesel	310	Dimethyl citraconate	103, 106	Diphenyl sulfide	289
Diethanolamine	103	3,3'-Dimethyl-4,4'-diaminodiphenylmethane	77, 109	Diphenylamine	77, 87, 99, 122, 121, 103, 106
Diethanolamine-d8	167, 264	2,3-Dimethyl-2,3-dinitrobutane	84, 121, 241	9,10-Diphenylanthracene	43
Diethyl ethyl	55	Dimethyl isophthalate	80	1,2-Diphenylhydrazine	46
Diethofencarb	55	1,2-Dimethylnaphthalene	43	Diphenyl isophthalate	80
Diethyl adipate	92	1,3-Dimethylnaphthalene	43	Diphenyl phthalate	80
m-Diethylbenzene	71	1,4-Dimethylnaphthalene	43	Diphenyl sulfide	289
o-Diethylbenzene	71	1,5-Dimethylnaphthalene	43	1,3-Diphenyl-2-thiourea	89
p-Diethylbenzene	71, 290, 291, 293, 294, 295	1,6-Dimethylnaphthalene	43	Dipotassium disulfite	260
Diethyl disulfide	289	1,8-Dimethylnaphthalene	43	Dipropetryn	55
Diethylene glycol monohexyl ether	196	2,6-Dimethylnaphthalene	43	Di(propylene glycol) dibenzoate	82, 92
Diethyl ether	79, 121, 204	2,7-Dimethylnaphthalene	43	Diquat	168
Di(2-ethylhexyl)azelate	82, 92	1,3-Dimethyl-2-nitrobenzene	71, 121, 149	Diquat dibromide monohydrate	55, 122
Di(2-ethylhexyl)maleate	92	4,4-Dimethylloxazolidine	305	Direct Black 38	108, 109
Di(2-ethylhexyl)phthalate	103, 107	3,6-Dimethylphenanthrene	43	Direct Blue 6	108, 109
Di(2-ethylhexyl)tetrabromophthalate	39	a,a-Dimethylphenethylamine	77, 121, 198	Direct Red 28	108
Diethyl maleate	103, 106	2,4-Dimethylphenol	75, 121, 198	Disflamoll® TKP	92
N,N-Diethyl-m-toluamide (DEET, OFF)	260	2,4-Dimethylphenol-3,5,6-d3	75	Disflamoll® TP	92
Diethyl phosphate	41, 55, 121	N,N-Dimethyl-1,4-phenylenediamine	108, 109	Disilver oxide	261
Diethyl phthalate	80, 103, 107	N-(2,4-Dimethylphenyl)formamide	55	2,4-D isobutyl ester	54
Diethyl phthalate-3,4,5,6-d4	81, 94	Dimethyl phosphate	41, 55	Disperse Blue 1	108, 109
Diethyl succinate	82, 92	Dimethyl phthalate	80, 103, 107	Disperse Blue 102	108, 109
Diethyl sulfide	289	Dimethyl phthalate-3,4,5,6-d4	81, 94	Disperse Blue 124	108, 109
Diethyl terephthalate	80	Dimethyl sebacate	92	Disperse Blue 26	108, 109
N,N'-Diethylthiourea	89	Dimethyl sulfate	71	Disperse Blue 3	108, 109
Difenacoum	55, 260	Dimethyl terephthalate	80	Disperse Blue 35	108, 109
Difenocanazole	55	6,10-Dimethyl-3,5,9-undecatrien-2-one	103, 106	Disperse Blue 7	108, 109
Difenoxuron	55	Dimethylvinphos (Z type)	55	Disperse Brown 1	108
Difenzoquat methyl sulfate	55	Dimetilan	55	Disperse Orange 1	108, 109
Diflubenzuron	55, 260	Dimoxystrobin	55	Disperse Orange 11	108, 109
Diflufenican	55	Dimyristin	96	Disperse Orange 3	108, 109
1,4-Difluorobenzene	71, 121, 177	Dimyristolein	97	Disperse Orange 37	108, 109
2,2'-Difluorobiphenyl	21, 121, 188, 191	Di-n-butyl phthalate	103, 107	Disperse Red 1	108, 109
4,4'-Difluorobiphenyl	121, 162	Di-n-butyl phthalate-d4	81, 94	Disperse Red 11	108, 109
1,1-Difluoroethane	107, 111, 121	Dinex	55, 121, 235	Disperse Red 17	108, 109
4',6-Difluoro-2',3',3',4',5,5',6'-octabromodiphenyl ether	36	Di(n-heptyl, n-nonyl) adipate	82, 92	Disperse Yellow 1	108
3,5-Difluoro-2',3',4',4',6-pentabromodiphenyl ether	36	Di-n-heptyl phthalate	80	Disperse Yellow 3	108, 109
3,6-Difluoro-2',2',4',4',5-pentabromodiphenyl ether	36	Di-n-hexyl azelate	82, 92	Disperse Yellow 9	108, 109
5,6-Difluoro-2',2',3,4,4'-pentabromodiphenyl ether	36	Di-n-hexyl phthalate-3,4,5,6-d4	81, 94	Distearin	96
5,5'-Difluoro-2',2',4,4'-tetrabromodiphenyl ether	36	Diniconazole	55	Distyryl biphenyl	89
Digamma Linolenin	97	Dinitramine	55	Disulfoton	55, 122, 198
Dihexyl phthalate	80, 103, 107	2,4-Dinitroaniline	77	Disulfoton sulfone	55, 122
Dihydrodiethyl alcohol	103, 106	3,5-Dinitroaniline	84, 121, 241	Disulfoton sulfoxide	55
9,10-Dihydroanthracene	42	9,10-Dinitroanthracene	45	Disul-sodium salt	55
Dihydrocoumarin	103, 106	1,2-Dinitrobenzene	242, 85, 84, 241	Ditalimfos	55
12,12A-Dihydro-3,9-dimethylbenz[a]anthracene	42	1,3-Dinitrobenzene	71, 241, 84, 198, 238	2,6-Di-tert-butyl-4-ethylphenol	89
2,3-Dihydro-2,2-dimethylbenzofuran-7-ol	55	3,5-Dinitrobenzyl chloride	196	2,6-Di-tert-butylphenol	89
2,2'-Dihydroxybiphenyl	20	2,2'-Dinitrobiphenyl	45, 47	Dithianon	55
2,5-Dihydroxybiphenyl	20	2,8-Dinitrodiendothiophene	45	2,2'-Dithiobis(pyridine-N-oxide)	261
4,4'-Dihydroxybiphenyl	20	2,7-Dinitrofluorene	45	Dithiopyr	55
4,4'-Dihydroxy-2,2',6,6'-tetrachlorobiphenyl	19	2,7-Dinitro-9-fluorenone	45	Dithiothreitol (DTT)	151
4,6'-Dihydroxy-2,2',4',6'-tetrachlorobiphenyl	19	1,2-Dinitroglycerin	84, 241	Di(tridecyl) adipate	82, 92
Diindenol[1,2,3-cd-1',2',3'-lm]perylene	42	1,3-Dinitroglycerin	84, 241	Diundecyl phthalate	80
Diisobutyl adipate	82, 92	1,3-Dinitronaphthalene	45	2,3-Diuron	55, 68

Organic Analyte Index

Diuron	181, 260
Divaccenin	97
2,4-D methyl ester	54, 67, 120
2,6-D methyl ester	54
DMNB	84
DMST	55
Docosane	280, 310
Dodecahydrotriphenylene	43
n-Dodecane	310
Dodecylbenzene	71
Dodemorph acetate	55
Dodine	55
Doramectin	55
Dow FR-250	40
2,4-DP ethyl hexyl	55, 122
2,4-D-PFB	120, 221, 183
Dursban	56, 122
Dyfonate	56, 122
Dysprosium	331, 335

E

Edifenphos	56
EGDN	84, 122, 241
Emamectin-benzoate	56
Empenthrin	56, 261
Endosulfan	56
Endosulfan I	56, 122, 162, 198
Endosulfan II	56, 122, 198
Endosulfan sulfate	56, 122, 198
Endothall	56, 122, 162, 168
Endothall dimethyl ester	56, 122, 162
Endothall pentafluorophenyl	122
Endothall pentafluorophenyl hydrazine derivative	162
Endrin	56, 67, 122, 148, 198
Endrin aldehyde	56, 122, 198
Endrin ketone	56, 122
Eosin Y	108
Epichlorohydrin	71, 168
EPN	56, 122, 219
EPN Oxon	56
Epoxiconazole	56
Epoxidized linseed oil	82, 92
1,2-Epoxybutane	71
1,2-Epoxypropane	71
Eprinomectin	56
EPTC	56
Erbium	331, 335
Ergocalciferol	99
Eriochrome Black A	108, 109
Erythritol tetranitrate (ETN)	84
Esfenvalerate	56, 261
Esprocarb	56
Etaconazole	56
Ethaboxam	56
Ethalfuralin	56, 122
Ethanedial dioxime	56
Ethanol	73, 122, 204, 315, 325, 261
Ethanox 323	89, 94
Ethanox 330	89, 94
Ethanox 376	90
Ethanox 702	90, 94
Ethanox 703	89, 94
Ethanox® 310	89
Ethanox® 314	89
Ethanox® 703	90
Ethaphos® 368	90
Ethephon	56, 122
Ethidimuron	56
Ethiofencarb	56
Ethiofencarb sulfone	56
Ethiofencarb sulfoxide	56
Ethiolat	56
Ethion	56, 122, 219
Ethiozin	56
Ethiprole	56
Ethirimol	56
Ethofumesate	56
Ethoprop	56, 122
2-Ethoxyethanol	103
2-Ethoxyethanol acetate	103
Ethoxyquin	56
Ethoxysulfuron	56
Ethyl acetate	71, 122, 204
Ethyl acrylate	103, 106
2,4-bis(Ethylamino)-6-diethylamino-s-triazine	68
Ethyl arachidate	99
5-Ethyl-1-aza-3,7-dioxabicyclo[3,3,0]octane	261
Ethyl behenate	99
Ethylbenzene	71, 122, 198, 205, 223
Ethylbenzene-d10	71, 122, 177
Ethyl butylacetaminopropionate	261
Ethyl caprate	99
Ethyl caprylate	99

Ethyl carbamate	56, 122
Ethylcentralite	84, 87, 99
6-Ethylchrysene	43
Ethylenediamine	77
Ethylene diamine dihydrochloride	103
Ethylene glycol	71, 73, 122, 204, 278
Ethylene glycol monostearate	82, 92
Ethylene oxide	71, 122, 101, 222, 224, 261
Ethylene thiourea	56, 151, 168
Ethyl erucate	99
Ethyl heptadecanoate	99
Ethyl hexanediol	56
2-Ethylhexyl diphenyl phosphate	41
2-Ethylhexyl epoxy tallate	82, 92
tris(2-Ethylhexyl) phosphate	41
2-Ethylhexyl salicylate	103
2-Ethylhexyl sebacate	92
2-Ethylhexyl 2,3,4,5-tetrabromobenzoate	39
2-Ethylimidazole	95
Ethyl laurate	99
Ethyl lignocerate	99
Ethyl linoleate	99
Ethyl linolenate	99
Ethyl linolenate gamma	99
Ethyl mercaptan	289
Ethyl methacrylate	71, 122, 198
Ethyl methanesulfonate	71, 122, 198
Ethyl methyl sulfide	289
Ethyl myristate	99
Ethyl nervonate	99
Ethyl oleate	99
N-Ethyl o,p-toluenesulfonamide	82, 92
Ethyl palmitate	99
Ethyl palmitoleate	99
Ethyl paraben	99, 103, 107
Ethyl parathion	219
Ethyl stearate	99
2-Ethylthiomethyl phenol	56
m-Ethyltoluene	71
o-Ethyltoluene	71
p-Ethyltoluene	71
Etobenzanid	56
Etofenprox	56, 261
Etozazole	56
Etrimfos	56
Eucalyptol	100
Eugenol	103, 106
Europium	331, 335

F

Famoxadon	56
Famphur	56, 122, 198, 219
Farnesene	100
Farnesol	104, 106
FD & C Blue 1	108
FD & C Blue 2	108
FD & C Red 3	108
FD & C Red 40	108
FD & C Yellow 5	108
Fenamidon	56
Fenamiosulf	56, 122
Fenamiphos	56, 122
Fenamiphos sulfone	56
Fenamiphos sulfoxide	56
Fenatrol	56
Fenazaquin	56
Fenbuconazole	56
Fenbutatin oxide	56
(+)-Fenchone	100
L-(-)-Fenchone	100
Fenfuram	56
Fenhexamid	56
Fenitrothion	56, 122, 261
Fenothiocarb	56
Fenoxanil	57
Fenoxaprop	57
Fenoxaprop-ethyl	57, 122
Fenoxaprop-p-ethyl	57
Fenoxycarb	57, 122, 261
Fenpropidin	57
Fenpropimorph	57, 261
Fenpyroximate	57
Fenson	57
Fensulfthion	122
Fenthion	57, 122
Fenthion-sulfone	57
Fenthion sulfoxide	57
Fentin acetate	57
Fentin hydroxide	57
Fenuuron	57, 122, 181
Fenuuron TCA	181
Fenuuron-TCA	57, 122
Fenvalerate	57, 122

Ferbam	57, 122
Fipronil	57, 68, 122, 261
Fipronil desulfinyl	57, 68
Fipronil sulfide	57, 68, 122
Fipronil sulfone	57, 68, 122
Firemaster™ 2100	40
Firemaster™ 680	40
Firemaster™ BP-6	40
Firemaster BP4A	91
Firemaster™ BP4A	40
Firemaster™ PHT4	40
Firemaster™ T23P	40
Flamprop-methyl	57, 122
Flocoumaten	261
Flonicamid	57
Florasulam	57
Fluacrypyrim	57
Fluazifop-butyl	57, 122
Fluazifop-p-butyl	57, 122
Fluazinam	57
Flubendiamide	57
Flucarbazone-sodium	57
Fluchloralin	57, 122
Flucythrinate	57
Fludioxonil	57
Flufenacet	57
Flufenoxuron	57, 261
Flumetralin	57
Flumetsulam	57
Flumiclorac-pentyl	57
Flumioxazin	57
Fluometuron	122, 57, 261
Fluopicolide	57
Flopyrim	57
Fluoranthene	42, 43, 122, 198, 238, 257
Fluorene	42, 43, 122, 198, 238, 257
Fluoride	342
2-Fluoroacetamide	71
4-Fluoroaniline	77, 122, 179
Fluorobenzene	71, 122, 146, 147, 154, 177, 201
2-Fluorobiphenyl	122, 21
4'-Fluoro-4-bromodiphenyl ether	36
2-Fluoro-4,4'-dibromodiphenyl ether	36
3'-Fluoro-2,4-dibromodiphenyl ether	36
3'-Fluoro-3,4-dibromodiphenyl ether	36
5-Fluoro-2',3,4,4',5',6'-heptabromodiphenyl ether	36
3-Fluoro-2,2',4,4',5,5'-hexabromodiphenyl ether	36
3-Fluoro-2,3',4,4',5',6'-hexabromodiphenyl ether	36
4'-Fluoro-2,3',4,5,6-hexabromodiphenyl ether	36
5-Fluoro-2',3,4,4',6-hexabromodiphenyl ether	36
1-Fluoronaphthalene	122, 179
2-Fluoronaphthalene	122, 179
4'-Fluoro-2,2',3,3',4,5,5',6,6'-nonabromodiphenyl ether	36
3-Fluoro-2,2',4,4',6-pentabromodiphenyl ether	36
3'-Fluoro-2',3,4,5,5'-pentabromodiphenyl ether	36
5'-Fluoro-2,3',4,4',5-pentabromodiphenyl ether	36
5'-Fluoro-3,3',4,4',5-pentabromodiphenyl ether	36
6'-Fluoro-2,2',4,4',5-pentabromodiphenyl ether	36
2-Fluorophenol	75, 122, 179
3-Fluoro-2,3',4',5-tetrabromodiphenyl ether	36
4'-Fluoro-2,3',4,5-tetrabromodiphenyl ether	36
4'-Fluoro-2,3',4,6-tetrabromodiphenyl ether	36
5-Fluoro-3,3',4,4'-tetrabromodiphenyl ether	36
6-Fluoro-2,2',4,4'-tetrabromodiphenyl ether	36
6-Fluoro-2,3',4,4'-tetrabromodiphenyl ether	36
2'-Fluoro-2,4,4'-tribromodiphenyl ether	36
3'-Fluoro-2,4,4'-tribromodiphenyl ether	36
4'-Fluoro-2,3',4-tribromodiphenyl ether	36
4'-Fluoro-2,3',6-tribromodiphenyl ether	36
Fluorotrichloromethane	71
Fluoxastrobin	57
Fluquinconazole	57
Flurenol methyl ester	57, 122
Fluridone	57, 122
Flurochloridon	57
Flurodifen	57
Fluroxyppy	57
Fluroxyppy-1-methylheptyl ester	57
Flurprimidol	57
Flusilazole	57
Fluthiacet-methyl	57
Flutolanil	57
Flutriafol	57
Tau-Fluvalinate	57, 122
Fluxapyroxad	57
Folic Acid	99
Folpet	57, 122, 261
Fomesafen	57
Food Yellow 3	108
Foramsulfuron	57
Forchlorfenuron	57
Formaldehyde	74, 122, 193, 104
Formaldehyde-DNPH	74, 122, 166, 193
Formamide	74, 192
Formate	339
Formetanate HCl	57

Organic Analyte Index

HMX	84, 123, 241	2-Hydroxy-2',4',5,6'-tetrachlorobiphenyl	19	Isocarbamid	58
HNS	84, 241	3-Hydroxy-2',6,6'-tetrachlorobiphenyl	19	Isocarboxphos	58
Holmium	332, 335, 366	3-Hydroxy-2',3',4',5'-tetrachlorobiphenyl	19	Isodecyl diphenyl phosphate	41
Homosalate	104, 107	3-Hydroxy-2',3',5',6'-tetrachlorobiphenyl	19	Isodrin	58, 123, 198
alpha-Humulene	100	4-Hydroxy-2,2',4',6'-tetrachlorobiphenyl	19	Isoeugenol	104, 106
Hydramethylnon	58, 261	4-Hydroxy-2',3,4,6'-tetrachlorobiphenyl	19	Isopenphos	58, 123
Hydraulic Fluid	310	4-Hydroxy-2',3,5,5'-tetrachlorobiphenyl	19	Isopenphos-methyl	58
Hydraulic oil	311	4-Hydroxy-2',3',4',5'-tetrachlorobiphenyl	19	Isonox 232	90
Hydrazine	84, 123, 241	4-Hydroxy-2',3',5',6'-tetrachlorobiphenyl	19	Isonox® 132	90
Hydrogen sulfide	289	4'-Hydroxy-3,3',4,5'-tetrachlorobiphenyl	19	Isocane	300
Hydroquinone monoethyl ether	104, 106	5-Hydroxy-2,2',4,6'-tetrachlorobiphenyl	19	Isophorone	74, 123, 198
p-Hydroxyanisole	104	2'-Hydroxy-2,4,4'-tribromodiphenyl ether	33	Isoprocab	58
2-Hydroxyatrazine	58, 68, 123	3'-Hydroxy-2,4,4'-tribromodiphenyl ether	33	Isopropalin	59, 123
4-Hydroxybenzoic acid	104, 107	3-Hydroxy-2,4,5-tribromodiphenyl ether	33	Isopropanol	73, 123, 204, 261
2-Hydroxybiphenyl	20	3'-Hydroxy-2,4,6-tribromodiphenyl ether	33	2-Isopropylamino-4,6-dichloro-s-triazine	59, 68
3-Hydroxybiphenyl	20	4'-Hydroxy-2,2',4-tribromodiphenyl ether	33	Isopropylbenzene	71, 123, 205, 223
4-Hydroxybiphenyl	20	4'-Hydroxy-2,4,6-tribromodiphenyl ether	33	Isopropyl ether	192
3-Hydroxycarbofuran	58, 123	5'-Hydroxy-2,3',4-tribromodiphenyl ether	33	Isopropyl isostearate	82, 93
2-Hydroxy-5-chlorobiphenyl	19	2-Hydroxy-2',4',6'-trichlorobiphenyl	19	2-and 4-Isopropylthioxanth-9-one	95, 250
4-Hydroxy-2-chlorobiphenyl	19	2-Hydroxy-2',5,5'-trichlorobiphenyl	19	2-Isopropyl-3-methoxy-pyrazine	110
4-Hydroxy-3-chlorobiphenyl	19	3-Hydroxy-2',4',6'-trichlorobiphenyl	19	2-Isopropyl-6-methyl-4-pyrimidinol	59
4-Hydroxy-4'-chlorobiphenyl	19	4-Hydroxy-2,2',5'-trichlorobiphenyl	19	Isopropyl myristate	82, 93
6-Hydroxychrysene	46	4-Hydroxy-2',3,5'-trichlorobiphenyl	19	Isopropyl palmitate	82, 93
Hydroxy-citronellal	104, 106	4-Hydroxy-2',4',6'-trichlorobiphenyl	19	Isopropyl paraben	104, 107
2'-Hydroxy-2,4-dibromodiphenyl ether	33	Hymexazol	58	1-(4-Isopropylphenyl)-3-methylurea	59
2'-Hydroxy-2,5-dibromodiphenyl ether	33	Icaridin	261	tris(2-Isopropylphenyl) phosphate	41
3'-Hydroxy-2,4-dibromodiphenyl ether	33	Imazail	58, 261	N,N'-bis(4-Isopropylphenyl) urea	25
2-Hydroxy-2',3'-dichlorobiphenyl	19	Imazamethabenz methyl	58	2-Isopropylthioxanth-9-one	95, 250
2-Hydroxy-2',5'-dichlorobiphenyl	19	Imazamox	58	p-Isopropyltoluene	71, 123, 205, 223
2-Hydroxy-3',4'-dichlorobiphenyl	19	Imazapic	58	Isoprothiolane	59
3-Hydroxy-2',5'-dichlorobiphenyl	19	Imazapyr	58	Isoproturon	59, 261
4-Hydroxy-2',5'-dichlorobiphenyl	19	Imazaquin	58	(-)-Isopulegol	100
4-Hydroxy-3,5-dichlorobiphenyl	19	Imazethapyr	58, 68	Isopyrazam	59
4-Hydroxy-2,2',3,4',5',6'-heptabromodiphenyl ether	33	Imazosulfuron	58	Isouquinoline	43
4-Hydroxy-2,2',3,4',5,6'-heptabromodiphenyl ether	33	Imbenconazole	58	Isosafrole	123, 198
6-Hydroxy-2,2',3,3',4,4',5'-heptabromodiphenyl ether	33	Imidacloprid	58, 261	Isovaleraldehyde-DNPH	74, 123
6-Hydroxy-2,2',3,4,4',5,5'-heptabromodiphenyl ether	33	Imidacloprid-olefin	58	Isoxaben	59
6-Hydroxy-2,2',3,4,4',5,6'-heptabromodiphenyl ether	33	Imidacloprid-urea	58	Isoxaflutole	59
3'-Hydroxy-2,2',3,4,4',5,5'-heptachlorobiphenyl	19	Imidacloprid	68	Isoxathion	59
3-Hydroxy-2,2',3,4,4',5,6'-heptachlorobiphenyl	19	Imidan	58, 123		
4'-Hydroxy-2,2',3,3',4,5,5'-heptachlorobiphenyl	19	Imidazolidinyl urea	104		
4-Hydroxy-2,2',3,3',4,4',5'-heptachlorobiphenyl	19	2-Imidazoliodone	58, 68		
5-Hydroxy-2,2',3,4,4',5,6'-heptachlorobiphenyl	19	Imiprothrin	58, 261		
3-Hydroxy-2,2',4,4',6'-hexabromodiphenyl ether	33	Indalone	58		
3'-Hydroxy-2,2',4,4',5,6'-hexabromodiphenyl ether	33	Indan	43, 110		
4-Hydroxy-2,2',3,4,4',5,5'-hexabromodiphenyl ether	33	Indanofan	58		
6-Hydroxy-2,2',3,4,4',5-hexabromodiphenyl ether	33	Indaziflam	58		
6-Hydroxy-2,2',3,4,4',6'-hexabromodiphenyl ether	33	Indene	43, 110		
6-Hydroxy-2,2',3,3',4,4',5'-hexachlorobiphenyl	19	Indeno[1,2,3-cd]pyrene	43, 44, 123, 198, 238, 257		
4-Hydroxy-2',3,3',5,5',6'-hexachlorobiphenyl	19	Indium	332, 335, 366		
5-Hydroxy-2,2',3,4,4',5'-hexachlorobiphenyl	19	Indole	43		
2-Hydroxy-4-isopropyl-2,4,6-cycloheptatrien-1-one	261	Indoxacarb	58		
2-Hydroxylamino-4,6-dinitrotoluene	84, 241	Iodide	342		
4-Hydroxylamino-2,6-dinitrotoluene	84, 241	Iodine	261		
4(5)-(Hydroxymethyl)imidazole	95	Iodofenphos	58, 123		
tris(Hydroxymethyl)nitromethane	104, 261	3-Iodo-2-propynyl butylcarbamate	261		
Hydroxymethylpentylcyclohexenecarboxaldehyde	104	Iodosulfuron-methyl-sodium	58		
N,N'-bis(Hydroxymethyl)urea (MFG)	260	alpha-Ionone	104		
2'-Hydroxy-4-monobromodiphenyl ether	33	beta-Ionone	104		
4'-Hydroxy-2,2',3,3',4,4',5,6'-octabromodiphenyl ether	33	Ioxynil	58, 123		
3-Hydroxy-2,2',4,4',6-pentabromodiphenyl ether	33	Ioxynil octanoate	58		
4-Hydroxy-2,2',3,4',5-pentabromodiphenyl ether	33	Ipcnazole	58		
4'-Hydroxy-2,2',4,4',5,5'-pentabromodiphenyl ether	33	Iprobenfos	58		
4'-Hydroxy-2,3',4,5',6-pentabromodiphenyl ether	33	Iprodione	58, 123		
5'-Hydroxy-2,2',4,4',5-pentabromodiphenyl ether	33	Iprovalicarb	58		
5-Hydroxy-2,2',4,4',6-pentabromodiphenyl ether	33	Irganox 1035	94		
6-Hydroxy-2,2',3,3',4-pentabromodiphenyl ether	33	Irganox 1081	90		
6-Hydroxy-2,2',3,4,4'-pentabromodiphenyl ether	33	Irganox 1098	90		
6-Hydroxy-2,2',3,4,5'-pentabromodiphenyl ether	33	Irganox 245	90		
6-Hydroxy-2',3,4,4',5-pentabromodiphenyl ether	33	Irganox 259	90		
6'-Hydroxy-2,2',4,4',5-pentabromodiphenyl ether	33	Irganox 3125	90		
2-Hydroxy-2',3,4',5'-pentachlorobiphenyl	19	Irganox 565	90		
2-Hydroxy-2',3',4',5,5'-pentachlorobiphenyl	19	Irganox® 1035	90		
2-Hydroxy-2',3',5,5',6'-pentachlorobiphenyl	19	Irganox E 201	90		
3-Hydroxy-2,2',4',5,5'-pentachlorobiphenyl	19	Irganox 3114 FF	90		
4-Hydroxy-2,2',3',4',5'-pentachlorobiphenyl	19	Irganox MD 1024	90		
4-Hydroxy-2,2',4',5,5'-pentachlorobiphenyl	19	Irganox 1425 WL	90		
4-Hydroxy-2',3,3',4',5'-pentachlorobiphenyl	19	Irgarol	58, 261		
4-Hydroxy-2',3,3',5',6'-pentachlorobiphenyl	19	Iridium	332, 335		
1-Hydroxypyrene	46	Iron	332, 335, 337, 368, 370		
6-Hydroxypyridine-3-carboxylic acid	68	Isazophos	58		
2'-Hydroxy-2,3',4,5'-tetrabromodiphenyl ether	33	Isobenzan	58		
3-Hydroxy-2,2',4,4'-tetrabromodiphenyl ether	33	1-Isobenzofuranone	58		
4-Hydroxy-2,2',3,4'-tetrabromodiphenyl ether	33	Isobutanol	73, 123, 198, 204		
4'-Hydroxy-2,2',4,5'-tetrabromodiphenyl ether	33	Isobutylbenzene	69, 245, 313		
4'-Hydroxy-2,2',4,5'-tetrabromodiphenyl ether	33	Isobutyl benzyl phthalate	81		
4'-Hydroxy-2,3',4,6'-tetrabromodiphenyl ether	33	Isobutylcyclohexyl phthalate	81		
4-Hydroxy-2,3',4,6'-tetrabromodiphenyl ether	33	2-Isobutyl-3-methoxy-pyrazine	110		
5-Hydroxy-2,2',4,4'-tetrabromodiphenyl ether	33	Isobutyl paraben	104, 107		
6-Hydroxy-2,2',4,4'-tetrabromodiphenyl ether	33	Isobutyraldehyde	74, 193		
6-Hydroxy-2,3,4,5-tetrabromodiphenyl ether	33	Isobutyraldehyde-DNPH	74, 193		
6'-Hydroxy-2,3',4,4'-tetrabromodiphenyl ether	33				
2-Hydroxy-2',3,5,6'-tetrachlorobiphenyl	19				
2-Hydroxy-2',3',4',5'-tetrachlorobiphenyl	19				
2-Hydroxy-2',3',5',6'-tetrachlorobiphenyl	19				

Organic Analyte Index

Lufenuron	59	4-Methoxy-3,5-dichlorobiphenyl	20	8-Methylbenz[a]pyrene	43
Lutetium	332, 335, 366	Methoxyfenozide	60	9-Methylbenz[a]pyrene	43
M		4-Methoxy-2,2',3,4',5,5',6'-heptabromodiphenyl ether	34	3-Methylbenzo[b]thiophene	289
Magnesium	332, 335, 337, 341, 368, 370	4-Methoxy-2,2',3,4',5,6,6'-heptabromodiphenyl ether	34	5-Methylbenzo[b]thiophene	289
Magnesium bis(monoperoxyphthalate) hexahydrate	261	6-Methoxy-2,2',3,3',4,4',5'-heptabromodiphenyl ether	34	1-Methylbenzo[c]phenanthrene	43
Magnesium nitrate	337	6-Methoxy-2,2',3,4,4',5,5'-heptabromodiphenyl ether	34	2-Methylbenzo[c]phenanthrene	43
Malaoxon	59	6-Methoxy-2,2',3,4,4',5,6'-heptabromodiphenyl ether	34	3-Methylbenzo[c]phenanthrene	43
Malathion	59, 123, 219	4'-Methoxy-2,2',3,3',4,5,5'-heptachlorobiphenyl	20	4-Methylbenzo[c]phenanthrene	43
Maleic hydrazide	59	5-Methoxy-2,2',3,4,4',5',6'-heptachlorobiphenyl	20	5-Methylbenzo[c]phenanthrene	43
Mancozeb	59	3-Methoxy-2,2',3,4',5,6,6'-hexabromodiphenyl ether	34	2-Methylbenzofuran	110
Mandipropamid	59	3'-Methoxy-2,2',4,4',5,6'-hexabromodiphenyl ether	34	4-Methyl-benzylidene camphor	104, 107
Maneb	59	4-Methoxy-2,2',3,4,4',5,5'-hexabromodiphenyl ether	34	Methyl Blue	108
Manganese	332, 337, 371, 370, 335, 363	6-Methoxy-2,2',3,4,4',5-hexabromodiphenyl ether	34	Methyl bromide	71
Mangosa extract	261	6-Methoxy-2,2',3,4,4',6'-hexabromodiphenyl ether	34	Methyl bromoacetate	79, 123, 164, 165
Markstat® 51	93	6-Methoxy-2,3,3',4,4',5'-hexabromodiphenyl ether	34	Methyl bromochloroacetate	79, 123, 165
Markstat® 60	90	4-Methoxy-2',3,3',4,4',5,5'-hexachlorobiphenyl	20	Methyl bromodichloroacetate	79, 123, 165
MCPA acid	59, 123, 176, 221	5-Methoxy-2,2',3,4,4',5'-hexachlorobiphenyl	20	Methyl 2-bromopropionate	71, 164
MCPA 2-ethylhexyl ester	59	2'-Methoxy-4-monobromodiphenyl ether	33	Methylcentralite	84, 87, 99
MCPA methyl ester	59, 123	4-Methoxy-m-phenylenediamine-sulfate hydrate	104	Methyl chloride	71
MCPB acid	59, 123	4'-Methoxy-2,2',3,3',4,5,6,6'-octabromodiphenyl ether	34	Methyl chloroacetate	79, 164, 165
MCPB-ethyl	59	3-Methoxy-2,2',4,4',6-pentabromodiphenyl ether	34	Methyl chlorodibromoacetate	79, 124, 165
MCPB methyl ester	59, 123	4-Methoxy-2,2',3,4',5-pentabromodiphenyl ether	34	3-Methylcholanthrene	43, 124, 198
MCPB acid	59, 123, 176, 221	4'-Methoxy-2,2',4,5,5'-pentabromodiphenyl ether	34	4-Methylchrysene	43
MCPB methyl ester	59, 123	4'-Methoxy-2,3',4,5',6-pentabromodiphenyl ether	34	5-Methylchrysene	43
Mecarbam	59	5-Methoxy-2,2',4,4',5-pentabromodiphenyl ether	34	6-Methylchrysene	43
Mecoprop, 2-Ethylhexyl ester	59	5-Methoxy-2,2',4,4',6-pentabromodiphenyl ether	34	Methyl cis-13,16-docosadienoate	96
Mecoprop-1-octyl ester	59	6-Methoxy-2,2',3,3',4-pentabromodiphenyl ether	34	Methyl cis-4,7,10,13,16,19-Docosahexenoate	96
Mecoprop-2-octyl ester	59	6-Methoxy-2,2',3,4,4'-pentabromodiphenyl ether	34	Methyl cis-7,10,13,16,19-Docosapentaenoate	96
Mecoprop-p	59	6-Methoxy-2,2',3,4,5'-pentabromodiphenyl ether	34	Methyl cis-7,10,13,16-Docosatetraenoate	96
Mefenacet	59	6-Methoxy-2',3,4,4',5-pentabromodiphenyl ether	34	Methyl cis-13,16,19-Docosatrienoate	96
Mefenpyr-diethyl	59	6'-Methoxy-2,2',4,4',5-pentabromodiphenyl ether	34	Methyl cis-13-docosenoate	96
Melamine	95	2-Methoxy-2',3,4',5',6-pentachlorobiphenyl	20	Methyl cis-11,14-eicosadienoate	96
Menadione	99	2-Methoxy-2',3',4',5,5'-pentachlorobiphenyl	20	Methyl cis-11,14,17-eicosatrienoate	96
Menaquinone	99	2-Methoxy-2',3',5,5',6'-pentachlorobiphenyl	20	Methyl cis-8,11,14-eicosatrienoate	96
(+)-cis-p-Menthane-3,8-diol	261	4-Methoxy-2,2',3,4',5'-pentachlorobiphenyl	20	Methyl cis-11-eicosenoate	96
(R)-p-Mentha-1,8-diene	261	4-Methoxy-2,2',3',5',6'-pentachlorobiphenyl	20	Methyl cis-5-eicosenoate	96
Mepaniprym	59	4-Methoxy-2,2',4',5,5'-pentachlorobiphenyl	20	Methyl cis-8-eicosenoate	96
Mephosfolan	59	4-Methoxy-2,2',4',5,5'-pentachlorobiphenyl	20	Methyl cis-9-hexadecenoate	96
Mepiquat chloride	59	4-(p-Methoxyphenyl)-3-butene-2-one	104, 106	Methyl cis-11-octadecenoate	96
MEP Oxon	59	1-(p-Methoxyphenyl)-1-penten-3-one	104, 106	Methyl cis-6-octadecenoate	96
Meptyldinocap	59	2'-Methoxy-2,3',4,5'-tetrabromodiphenyl ether	34	Methyl cis-9-octadecenoate	96
2-Mercaptobenzothiazole	261	2'-Methoxy-2,4,4',6-tetrabromodiphenyl ether	34	Methyl cis-15-tetracosenoate	96
Mercaptobenzothiazole	123, 182	3-Methoxy-2,2',4,4'-tetrabromodiphenyl ether	34	6-Methylcoumarin	104
Mercury	332, 337, 104, 330, 107, 370, 335	4-Methoxy-2,2',3,4'-tetrabromodiphenyl ether	34	7-Methylcoumarin	104, 106
Merphos	59, 123	4'-Methoxy-2,2',4,5-tetrabromodiphenyl ether	34	Methyl decanoate	96
Mesosulfuron-methyl	59	4'-Methoxy-2,2',4,5'-tetrabromodiphenyl ether	34	Methyl dibromoacetate	79, 124, 164, 165
Mesotrione	59	4'-Methoxy-2,3',4,6-tetrabromodiphenyl ether	34	Methyldibromoglutaronitrile	105
Metabromsalon	104	5-Methoxy-2,2',4,4'-tetrabromodiphenyl ether	34	Methyl 2,3-dibromopropionate	164, 165
Metaflumizone	59	5-Methoxy-2,3',4,6-tetrabromodiphenyl ether	34	Methyl-2,3-dibromopropionate	71, 123
Metalaxyl	59, 123	6-Methoxy-2,2',4,4'-tetrabromodiphenyl ether	34	Methyl dichloroacetate	79, 124, 164, 165
Metalaxyl-M	59	6-Methoxy-2,3,4,5-tetrabromodiphenyl ether	34	Methyl 3,5-dichlorobenzoate	164
Metaldehyde	59, 123	6'-Methoxy-2,3',4,4'-tetrabromodiphenyl ether	34	Methyl-3,5-dichlorobenzoate	60, 124
Metamitron	59, 123	2-Methoxy-2',3',4',5'-tetrachlorobiphenyl	20	Methyl 2,4-dichlorophenylacetate	152, 221
Metam-sodium dihydrate	60, 261	2-Methoxy-2',3',5',6'-tetrachlorobiphenyl	20	Methyl-2,4-Dichlorophenylacetate	60, 124
Metanil Yellow	108	2-Methoxy-2',4',5,6'-tetrachlorobiphenyl	20	2-Methyl-4,6-dinitroanisole	60
Metazachlor	60, 123	3-Methoxy-2,2',6,6'-tetrachlorobiphenyl	20	2-Methyl-4,6-dinitrophenol	75
Metconazole	60	3-Methoxy-2',3',4',5'-tetrachlorobiphenyl	20	Methyl disulfide	289
Methabenzthiazuron	60	3-Methoxy-2',3',5',6'-tetrachlorobiphenyl	20	Methyl docosanoate	96
Methacrifos	60	4-Methoxy-2',3,4',6'-tetrachlorobiphenyl	20	Methyl dodecanoate	96
Methacrylonitrile	71, 123, 198	4-Methoxy-2',3,5,5'-tetrachlorobiphenyl	20	Methyl eicosanoate	96
Methanol	73, 123, 204, 315, 325	4-Methoxy-2',3',4',5'-tetrachlorobiphenyl	20	Methyl 5,8,11,14,17-Eicosapentaenoate	96
Methapyrilene	123, 198, 235	4-Methoxy-2',3',5',6'-tetrachlorobiphenyl	20	4,4'-Methylenebis(2-chloroaniline)	46, 78, 109
Methidathion	60, 123	2-Methoxy-2,4,4',6'-tribromodiphenyl ether	33	N,N'-Methylenebismorpholine	261
Methiocarb	60, 123, 181	3-Methoxy-2,4,4'-tribromodiphenyl ether	33	4,4'-Methylenebis(phenyl isocyanate)	298
Methiocarb sulfone	60	3-Methoxy-2,4,5-tribromodiphenyl ether	33	Methylene chloride	105, 223
Methiocarb sulfoxide	60	3'-Methoxy-2,4,6-tribromodiphenyl ether	33	Methylene chloride-d2	146
Methomyl	60, 123, 181	4-Methoxy-2,2',4-tribromodiphenyl ether	33	Methylene dithiocyanate	261
Methoprene	60, 123	4-Methoxy-2,4,6-tribromodiphenyl ether	33	4,5-Methylenephenanthrene	43
S-Methoprene	261	5-Methoxy-2,3',4-tribromodiphenyl ether	33	1-Methyl ethyl benzene	71
Methoprotinylne	60	2-Methoxy-2',4',6'-trichlorobiphenyl	20	Methyl ethyl ketone	74, 124, 198, 204
Methoxychlor	60, 67, 123, 198	2-Methoxy-2',5,5'-trichlorobiphenyl	20	Methyleugenol	105, 106
o,p'-Methoxychlor	60, 123	3-Methoxy-2',4',6'-trichlorobiphenyl	20	2-Methylfluoranthene	43
2-Methoxy-3-chlorobiphenyl	20	4-Methoxy-2,2',5'-trichlorobiphenyl	20	Methyl g-linolenate	96
2-Methoxy-3'-chlorobiphenyl	20	4-Methoxy-2',3,5'-trichlorobiphenyl	20	Methyl heneicosanoate	96
2-Methoxy-5-chlorobiphenyl	20	4-Methoxy-2',3,5'-trichlorobiphenyl	20	Methyl heptadecanoate	96
3-Methoxy-3'-chlorobiphenyl	20	4-Methoxy-2',4',6'-trichlorobiphenyl	20	Methyl heptyne carbonate	104, 106
3-Methoxy-5-chlorobiphenyl	20	Methyl bromochloroacetate	164	Methyl hexadecanoate	96
4-Methoxy-2-chlorobiphenyl	20	2'-Methylacetophenone	110	5-Methyl-2,3-hexanedione	105, 106
4-Methoxy-3-chlorobiphenyl	20	9-Methylacridine	25	2-Methyl-2H-isothiazol-3-one	305, 261
4-Methoxy-3'-chlorobiphenyl	20	Methylamine	77, 192	Methyl 12-hydroxy-cis-9-octadecenoate	96
4-Methoxy-4'-chlorobiphenyl	20	Methylamine hydrochloride	60	Methyl 12-hydroxystearate	96
p,p'-Methoxychlor-olefin	60, 123	1-Methylanthracene	43	1-Methylimidazole	95
7-Methoxycoumarin	104, 106	2-Methylanthracene	43	2-Methylimidazole	95
2'-Methoxy-2,4-dibromodiphenyl ether	33	9-Methylanthracene	43	4-Methylimidazole	95
2'-Methoxy-2,5-dibromodiphenyl ether	33	Methyl anthranilate	261	4-Methylimidazolidine-2-thione	151
3'-Methoxy-2,4-dibromodiphenyl ether	33	Methyl arachidonate	96	Methyl iodide (iodomethane)	71, 124, 203, 198
4'-Methoxy-2,4-dibromodiphenyl ether	33	1-Methylbenz[a]anthracene	43	2-Methylisoborneol	110
2-Methoxy-2',5'-dichlorobiphenyl	20	10-Methylbenz[a]anthracene	43	Methyl isobutyl ketone	110
2-Methoxy-2',3'-dichlorobiphenyl	20	2-Methylbenz[a]anthracene	43	Methyl isothiocyanate	71, 124
2-Methoxy-3',4'-dichlorobiphenyl	20	3-Methylbenz[a]anthracene	43	Methyl isothiocyanate (MITC)	191
3-Methoxy-2',5'-dichlorobiphenyl	20	4-Methylbenz[a]anthracene	43	Methyl linoleate	96
4-Methoxy-2',5'-dichlorobiphenyl	20	5-Methylbenz[a]anthracene	43	Methyl linolealdate	96
4-Methoxy-2',5'-dichlorobiphenyl	20	6-Methylbenz[a]anthracene	43	Methyl linolenate	96
4-Methoxy-2',5'-dichlorobiphenyl	20	7-Methylbenz[a]anthracene	43	Methyl mercaptan	289
4-Methoxy-2',5'-dichlorobiphenyl	20	9-Methylbenz[a]anthracene	43	Methyl methacrylate	71, 124, 198
4-Methoxy-2',5'-dichlorobiphenyl	20	10-Methylbenz[a]anthracene	43	Methyl methacrylate monomer	105
4-Methoxy-2',5'-dichlorobiphenyl	20	7-Methylbenz[a]pyrene	43		

Organic Analyte Index

Methyl methanesulfonate	71, 124, 198
1-Methylnaphthalene	43, 124, 238, 257
2-Methylnaphthalene	43, 124, 198, 238, 257
2-Methyl-4-nitroaniline	77, 217, 86
3-Methyl-4-nitrophenol	60, 124
N-Methyl-N'-nitro-N-nitrosoguanidine	46, 47
Methyl nonadecanoate	96
Methyl nonoate	96
Methyl nonyl ketone	60, 124
Methyl O-Acetylrincinate	93
Methyl octadecadienoate	96
Methyl octadecanoate	96
Methyl octanoate	96
Methyl oleate	82, 93
Methyl paraben	99, 105, 107
Methyl paraxon	60, 124
Methyl parathion	60, 124, 198
Methylpentachlorophenyl sulfide	60
Methyl pentadecanoate	96
4-Methyl-2-pentanone	74, 124, 198, 204
1-Methylphenanthrene	43
2-Methylphenanthrene	43
3-Methylphenanthro[3,4-c]phenanthrene	43
9-Methyl-9-phenylfluorene	43
1-Methyl-1-propanethiol	289
2-Methyl-1-propanethiol	289
2-Methyl-2-propanethiol	289
1-Methylpyrene	43
Methyl sulfide	289
3-Methylsulfonyl-2,2',3',4',5,5',6'-heptachlorobiphenyl	20
4-Methylsulfonyl-2,2',3',4',5,5',6'-heptachlorobiphenyl	20
3-Methylsulfonyl-2,2',3',4',5,5'-hexachlorobiphenyl	20
3-Methylsulfonyl-2,2',3',4',5,6-hexachlorobiphenyl	20
4-Methylsulfonyl-2,2',3,3',4',6-hexachlorobiphenyl	20
4-Methylsulfonyl-2,2',3,4',5,6-hexachlorobiphenyl	20
4-Methylsulfonyl-2,2',3',4',5,5'-hexachlorobiphenyl	20
3-Methylsulfonyl-4-methyl-2',3',4',5,5'-pentachlorobiphenyl	20
3-Methylsulfonyl-2,2',3',4',5-pentachlorobiphenyl	20
3-Methylsulfonyl-2,2',3',5,6'-pentachlorobiphenyl	20
3-Methylsulfonyl-2,2',4',5,5'-pentachlorobiphenyl	20
3-Methylsulfonyl-2,2',4',5,6-pentachlorobiphenyl	20
3-Methylsulfonyl-2,3',4',5,6-pentachlorobiphenyl	20
4-Methylsulfonyl-2,2',3',4',5-pentachlorobiphenyl	20
4-Methylsulfonyl-2,2',3',5,6'-pentachlorobiphenyl	20
4-Methylsulfonyl-2,2',4',5,5'-pentachlorobiphenyl	20
4-Methylsulfonyl-2,2',4',5,6-pentachlorobiphenyl	20
4-Methylsulfonyl-2,2',4',5,6'-pentachlorobiphenyl	20
4-Methylsulfonyl-2,2',3,3',4',6-pentachlorobiphenyl	20
3-Methylsulfonyl-2,2',4',5-tetrachlorobiphenyl	20
3-Methylsulfonyl-2,2',5,5'-tetrachlorobiphenyl	20
3-Methylsulfonyl-2,3',4',5-tetrachlorobiphenyl	20
4-Methylsulfonyl-2,2',4',5-tetrachlorobiphenyl	20
4-Methylsulfonyl-2,2',5,5'-tetrachlorobiphenyl	20
4-Methylsulfonyl-2,3',4',6-tetrachlorobiphenyl	20
4-Methylsulfonyl-2,3',4',5-tetrachlorobiphenyl	20
Methyl t-butyl ether (MtBE)	173
Methyl tetraacosanoate	96
Methyl tetradecanoate	96
2-Methylthiophene	289
3-Methylthiophene	289
Methyl trans-2-butenate	105, 106
Methyl trans-13-docosenoate	96
Methyl trans-11-eicosanoate	96
Methyl trans-9-hexadecenoate	96
Methyl trans-6-octadecenoate	96
Methyl trans-9-octadecenoate	96
Methyl tri bromoacetate	79, 124, 165
Methyl trichloroacetate	79, 124, 164, 165
Methyl tricosanoate	96
Methyl tridecanoate	96
Methyl trithion	60
Methyl lundecanoate	96
Metiram	60
Metobromuron	60
Metolachlor	60, 124
S-Metolachlor	60
Metolcarb	60
Metosulam	60
Metoxuron	60
Metrafenone	60
Metribuzin	60, 124
Metsulfuron methyl	60, 124
Mevinphos	60, 124
Mexcarbate	60, 124, 181
MGK-264	60, 124
MGK-326	60, 124
Mineral Spirits	310, 311
Mirex	60, 124
Molinate	60, 124
Molybdenum	332, 337, 370, 335
Monalide	60
Monitor	60, 124
Monobenzyl phthalate	80, 105, 107
Monobromoacetic acid	79
Monobutyl phthalate	80, 105, 107
Monocaprin	96
Monochloroacetic acid	79
Monocrotophos	60, 124, 219
Monocyclohexyl phthalate	80, 105
Monoeicosadienoic acid	97
Monoeicosenoic acid	97
Monolaidin	97
Monoethanolamine	105
Monoethylhexyl phthalate	81, 105, 107
Monoethyl phthalate	80, 105, 107
Monogamma Linolenin	97
Mono-2-heptyl phthalate	81, 105
Monoethyl phthalate	81, 105
Monoisobutyl phthalate	81, 105
Monoisononyl phthalate	81, 105
Monoisopropyl phthalate	81, 105
Monolaurin	96
Monolinolein	97
Monolinolenin	97
Monolinuron	60, 261
Monomethyl phthalate	81, 105, 107
Monomethyltetrachloroterephthalate	60
Monomyristin	96
Monomyristolein	97
Mono-n-pentyl phthalate	81, 105
Monooctyl phthalate	81, 105
Monolein	97, 302, 306
Monopalmitin	96
Monopalmitolein	97
Monopetroselinin	97
Monostearin	96
Monovaccenin	97
2-Monuron	60, 68
Monuron	60, 124, 181
Monuron TCA	60, 124, 181
Morflex 190	93
Morflex 560	93
Morflex® 150	93
Morflex x-1125	93
MSTFA	302, 306
MtBE	79, 124, 204
Musk ambrette	105, 106
Myclobutanil	60, 124
beta-Myrcene	100
Myristolein	97
Myristyltrimethylammonium bromide	261
N	
Nabam	60, 124, 261
Naled	60, 124, 261
Naphtha	310, 311
Naphthalene	43, 44, 71, 124, 110, 257, 22, 238, 261, 223
1-Naphthalene acetamide	60, 124
Naphthalene-d8	124
2,3-Naphthalenediol	108
1-Naphthol	60, 124
1,4-Naphthoquinone	124, 198
1-Naphthylacetic acid	60
1-Naphthylamine	124, 198
2-Naphthylamine	78, 124, 109
Naproanilide	60
Napropamide	124, 60
Naugard 445	90
Naugard 635	90
Naugard 956	90
Naugard A	90
Naugard B-25	90
Naugard BHT	90
Naugard HM-22	90
Naugard J	90
Naugard NBC	90
Naugard PANA	90
Naugard PHR	90
Naugard PS-30	90
Naugard PS-35	90
Naugard Q Extra	90
Naugard RM-51	90
Naugard® 412S	90
Naugard Super Q	90
Naugard XL-1	90
Neburon	60, 124, 181
Neodymium	332, 335
Nerolidol	100
Nickel	332, 337, 330, 105, 107, 370, 335
Nickel nitrate	337
Niclosamide	60, 124
Nicosulfuron	60
Nicotinamide	99
Nicotinic acid	99
Niobium	332, 335
Nitenpyram	61, 68
Nitralin	61
Nitrapyrin	61
5-Nitroacenaphthene	45
2-Nitroaniline	45, 78
3-Nitroaniline	45, 78
4-Nitroaniline	45, 78
m-Nitroaniline	124, 199
o-Nitroaniline	124, 199
p-Nitroaniline	124, 199
4-Nitroanisole	61, 124
2-Nitroanthracene	45
9-Nitroanthracene	45
7-Nitrobenz[a]anthracene	45
6-Nitrobenz[a]pyrene	45
Nitrobenzene	45, 71, 241, 84, 238
Nitrobenzene-d5	71, 124, 160, 179
2-Nitrophenyl	45, 47
3-Nitrophenyl	45, 47
4-Nitrophenyl	45, 47
6-Nitrochrysene	45
3-Nitrodibenzofuran	25
2-Nitrodibenzothiophene	45
N-Nitrodimethylamine	84, 241
2-Nitrodiphenylamine	84, 87, 99
4-Nitrodiphenylamine	84, 87, 99
Nitrofen	61
3-Nitrofluoranthene	45
2-Nitrofluorene	45
Nitrogen	289
1-Nitroglycerin	84, 241
2-Nitroglycerin	84, 241
Nitroglycerin	84, 241
1-Nitroglycerine	99
2-Nitroglycerine	87, 99
Nitroguanidine	84, 124, 241
Nitromethane	84, 124, 241
1-Nitronaphthalene	45
2-Nitronaphthalene	45
5-Nitro-o-toluidine	78, 124, 199
3-Nitrophenanthrene	45
9-Nitrophenanthrene	45
2-Nitrophenol	45, 47, 75
3-Nitrophenol	75
4-Nitrophenol	45, 47, 75
o-Nitrophenol	124, 199
p-Nitrophenol	124, 199
2-Nitro-1,4-phenylenediamine	108, 109
4-Nitrophenyl phenyl ether	79
1-Nitropyrene	45
4-Nitroquinoline-1-oxide	124, 199
N-Nitrosodiethylamine	78, 124, 199
N-Nitrosodimethylamine	78, 124, 199
N-Nitrosodimethylamine-d6	154
N-Nitrosodi-n-butylamine	78, 124, 199, 204
N-Nitrosodi-n-propylamine	78, 124
N-Nitrosodiphenylamine	78, 87, 99, 124, 199, 236
N-Nitrosodipropylamine	199
N-Nitrosomethylethylamine	78, 124, 199
N-Nitrosomorpholine	124, 199
1-Nitrosopiperidine	78
N-Nitrosopiperidine	124, 199
N-Nitrosopyrrolidine	124, 199
Nitrothal-isopropyl	61
2-Nitrotoluene	45, 47, 87, 241, 84, 238
3-Nitrotoluene	87, 241, 84, 238
4-Nitrotoluene	84, 87, 99, 241, 238
3-Nitro-1,2,4-triazol-5-one	84
2,2',3,3',4,4',5,5',6'-Nonabromodiphenyl ether	30
2,2',3,3',4,4',5,6,6'-Nonabromodiphenyl ether	30
2,2',3,3',4,5,5',6,6'-Nonabromodiphenyl ether	30
cis-Nonachlor	61, 124
trans-Nonachlor	61, 125
2,2',3,3',4,4',5,5',6'-Nonachlorobiphenyl	7, 17, 214
2,2',3,3',4,4',5,6,6'-Nonachlorobiphenyl	7
2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl	7
Nonadecylbenzene	71
trans-2, cis-6-Nonadienal	110
Nonanal	74, 125, 166
Nonanal-DNPH	74, 125, 166
Nonanoic acid	261
n-Nonatriacontane	319
Nonatriacontane	310
Nonylbenzene	71
4-n-Nonylphenol	263
Nonylphenol	263
4-n-Nonylphenol diethoxylate	263
4-tert-Nonylphenol diethoxylate	263
Nonylphenol diethoxylate	263
Nonylphenol-ethylene oxide condensate	102
4-n-Nonylphenol monoethoxylate	263
Nonylphenol monoethoxylate	263
Nonylphenol triethoxylate	263
Nonylphenoxy acetic acid	263
Nonylphenoxyethoxyacetic acid	263
Norflurazone	61
Novaluron	61
Noviflumuron	61
NTO	96

Organic Analyte Index

Picene	43
Picloram	62, 125, 182
Picloram methyl ester	62, 125
Picolinafen	62
2-Picoline	125, 199, 204
Picoxystrobin	62
Picramic acid	85, 125, 241
Picric acid	85, 125, 241
Pindone	62
alpha-Pinene	100
beta-Pinene	100
Pinoxaden	62
Piperalin	62
Piperonyl butoxide	62, 262
Piperophos	62
Pirimicarb	62, 125
Pirimicarb-desmethyl	62
Pirimiphos-ethyl	62
Pirimiphos-methyl	62, 125
Pirimiphos-methyl-N-desethyl	62, 125
Plasthall® DINP	93
Plasthall® ESO	93
Platinum	332, 335
Polycizer® Butyl Oleate	93
Polycizer DP 500	93
Polyethylene glycol	73, 105
Polyethylene glycol-600	196
Polyethylene glycol 200 dibenzoate	82, 93
Polyethylene glycol nonaphenyl ether	102
Polyvinylpyrrolidone	105
Poly(vinylpyrrolidone) Iodine complex	262
Polywax 1000	275, 300
Polywax 500	275, 300
Polywax 655	275, 300
Polywax 850	300
Ponceau SX	108, 109
Potassium	333, 337, 341, 370, 335
Potassium dichromate	105, 107
Potassium dimethyl dithiocarbamate	62, 262
Potassium monopersulfate triple salt	262
Potassium n-hydroxymethyl-n-methyl dithiocarbamate	62
Potassium nitrate	99
Potassium nitrite	99
Potassium perfluorooctanesulfonate	110, 162
Potassium permanganate	262
Potassium sorbate	99, 105, 107, 262
Potassium sulfite	262
Prallethrin	62, 262
Praseodymium	333, 335
Prebane	62, 125
Pretilachlor	62
Primisulfuron-methyl	62
Probenazole	62
Prochloraz	62
Procymidone	62
Prodiamine	62
Profenofos	62, 125
Profluoralin	62, 125
Prohexadione-calcium	62
Prohydrojasmon	62
Promecarb	62, 125
Prometon	62, 68, 125, 176
Prometryne	62, 68, 125, 176, 262
Pronamide	62, 125, 199
Propachlor	62, 125
Propamocarb	62
Propamocarb hydrochloride	62
Propanal	74, 125, 166
Propanal-DNPH	125, 166
1-Propanamine	78
1,2-Propanediol	71
1-Propanethiol	289
2-Propanethiol	289
Propanil	62, 125, 181
1-Propanol	73, 125, 262
n-Propanol	204
Propaquizafop	62
Propargite	62, 125
Propargyl alcohol	73
Propazine	62, 68, 125, 176
Propetamphos	62
Propham	62, 125, 181
Propiconazole	262
Propineb	62
Propionic acid	72, 99
Propionitrile	72, 125, 199, 204
Propoxur	181, 262
Propoxycarbazone-sodium	62
n-Propylbenzene	72, 125, 205, 223
Propylene glycol	105
Propyleneglycol dinitrate	85, 125
Propylene glycol monostearate	82, 93
Propylene glycol ricinoleate	82, 93
Propylenethiourea	62
n-Propyl oleate	82, 93
Propyl paraben	105, 107
Proquinazid	62
Prosulfocarb	62
Prosulfuron	62
Prothioconazole	62
Protocatechuic acid	105, 107
Proximpham	62
Pymetrozin	62
Pyracarbolid	62
Pyraclafos	62
Pyraclostrobin	62
Pyraflufen-ethyl	62
Pyrasulfotole	62
Pyrazon	62, 125
Pyrazophos	62
Pyrazosulfuron-ethyl	62
Pyrazoxyfen	62, 126
Pyrene	43, 44, 126, 199, 238, 257
Pyrene-d10	126, 155
Pyrethrins	63, 262
Pyributicarb	62
Pyridaben	63
Pyridalyl	63
Pyridaphenthion	63
Pyridate	63
Pyridine	47, 78, 126, 199, 204
Pyridine-d5	78, 126, 179
Pyridine-2-thiol-1-oxide, sodium salt	262
Pyridoxine • HCl	99
1-(2-Pyridyl)piperazine	298
Pyrifluquinazon	63
Pyrimethanil	63
Pyrimidifen	63
(E)-Pyriminobac-methyl	63
Pyrimisulfan	63
Pyriphenox	63
Pyriproxifen	63, 262
Pyrocatechol	105
Pyroquilon	63
Pyroxsulam	63
Pyrrrole	43
PYX	85, 241
Q	
Quaternium-15	105, 262
Quinalphos	63
Quinclorac	63
Quinmerac	63
Quinoclamine	63
Quinoline	43, 95
Quinoxifen	63
Quizalofop ethyl	63, 126
R	
RDX	85, 126, 241
Regular Leaded Gasoline	310
Resimene® 3520	91
Resmethrin	63
Resorcinol	106
Resorcinol bis(diphenyl phosphate)	41
Retarder AK	93
Retinol palmitate	99
Rhenium	333, 335
Rhodamine B	108
Rhodium	333, 335, 366
Riboflavin	99
Rimsulfuron	63
Ronnell	63, 126
Rotenone	63, 126, 182, 262
Rubidium	333, 336
Ruthenium	333, 336
S	
SAE 10W30 Motor oil	311
SAE 10W40 Motor oil	311
SAE 20W50 Motor oil	311
SAE 30W Motor oil	311
SAE 40W Motor oil	311, 318
SAE 50W Motor oil	311
SAE 5W30 Motor oil	311
Saflufenacil	63
Safrole	126, 199
Salicylic acid	106, 262
Samarium	333, 336
Santanox R	94
Santicizer 148	93
Santicizer 160	93
Santicizer 261	93
Santicizer® 141	93
Santicizer® 278	93
Santoflex® IPPD	89
Santoflex 77PD	89
Saytex BT-93	40
Saytex RB-79	40
Scandium	333, 336, 366
Schradan	63
Scotchgard™ Post-2002	110, 162
Scotchgard™ Pre-2002	110, 162
Sebuthylazin	66, 68
Secbumeton	63, 126, 176
sec-Butylbenzene	69, 118, 205, 223
Selenium	333, 336, 370, 337
Sethoxydim	63
SF100	89
Siduron	63, 126, 181
Silafluofen	63
Silica	342
Silicium dioxide	262
Silicon	333, 331, 336, 280, 337, 370, 363
Silicon dioxide	262
Silquest A-1100	91
Silquest A-1102	91
Silquest A-1289	91
Silquest A-137	91
Silquest A-2171	91
Silquest® A-187	91
Silver	333, 331, 337, 262, 370, 336
Silver chloride	262
Silver nitrate	262
Silvex	63, 126, 199
Silvex 2-ethylhexyl ester	63
Silvex methyl ester	63, 67, 126
Simazine	63, 68, 126, 176
Simetryn	63, 126, 176
Sodium	333, 337, 341, 370, 336
Sodium benzoate	99, 262
Sodium bicarbonate	339
Sodium bisulfite	262
Sodium bromide	262
Sodium carbonate	339
Sodium chlorate	262
Sodium chloride	262
Sodium chlorite	262
Sodium dichloroisocyanurate dihydrate	262
Sodium diethyldithiocarbamate trihydrate	63
Sodium dimethylarsinate	262
Sodium dimethyldithiocarbamate hydrate	262
Sodium hydroxide	106
Sodium lignosulfonate (Tech)	262
Sodium metabisulfite	262
Sodium nitrate	99
Sodium nitrite	99, 106
Sodium persulfate	262
Sodium propionate	99
Sodium sulphite	262
Sodium tetraborate	262
Solvent Orange 7	108
Solvent Red 19	108
Solvent Red 23	108
Solvent Red 24	108
Solvent Red 26	299
Solvent Yellow 1	108
Solvent Yellow 14	108
Sorbic acid	99, 262
Spinosad	63
Spirodiclofen	63
Spiromesifen	63
Spirotetramat	63
Spiroxamine	63
Stearic acid	91
Stearic acid RG (rubber grade)	94
Stearic acid TP	94
Stearyl stearate	255, 313
Stoddard solvent	311
Strobane	63
Strontium	333, 337, 341, 370, 336
Styrene	72, 126, 110, 199, 223
Sudan II	108
Sulcontrione	63
Sulfalate	63
Sulfaquinoxaline	63
Sulfate	342
Sulfentrazone	63
Sulfometuron methyl ester	63
Sulfosulfuron	63
Sulfotep	63, 126, 219
Sulfoxaflo	68
Sulfoxide	64, 126
Sulfur	303, 333, 337, 336
Sumithrin	64, 126, 262
Swep	64, 126, 181
Symclosene	262

Organic Analyte Index

T

2,4,5-T	64, 126, 176, 221, 222	2,3',4,4'-Tetrabromodiphenyl ether	28	2,3,5,6-Tetrachloro-p-terphenyl	21
2,4,6-T	64, 126	2,3',4,5-Tetrabromodiphenyl ether	28	2,4,4',6-Tetrachloro-p-terphenyl	21
Talc	106	2,3',4,5'-Tetrabromodiphenyl ether	28	Tetrachlorosalicylanilide	106
TAME	79, 126	2,3',4,6-Tetrabromodiphenyl ether	28	Tetrachlorvinphos	64, 126, 251
Tantalum	333, 336	2,3',4',5-Tetrabromodiphenyl ether	28	Tetraconazole	64
Tartaric acid	280, 363	2,3',4',6-Tetrabromodiphenyl ether	28	Tetracosane	311
TATP	85, 241	2,3',5,5'-Tetrabromodiphenyl ether	28	Tetradecachloro-m-terphenyl	21, 21, 91
2,4,5-T butoxyethyl ester	64, 126	2,3',5,6-Tetrabromodiphenyl ether	28	Tetradecachloro-o-terphenyl	21, 21, 91
2,3,7,8-TCDD	168, 199	2,4,4',5-Tetrabromodiphenyl ether	28	Tetradecachloro-p-terphenyl	21, 21, 91
2,3,7,8-TCDF	199	2,4,4',6-Tetrabromodiphenyl ether	28	n-Tetradecane	311
TCMX	72, 126	2',3,4,5-Tetrabromodiphenyl ether	29, 31	Tetradecylbenzene	72
Tebuconazol	64, 126, 262	3,3',4,4'-Tetrabromodiphenyl ether	29	Tetraclonifen	64, 126
Tebufenozide	64	3,3',4,5'-Tetrabromodiphenyl ether	29	2,3,6,7-Tetraethylbiphenylene	43
Tebufenpyrad	64	3,3',5,5'-Tetrabromodiphenyl ether	29	Tetraethyl dithiopyrophosphate	199
Tebupirimfos	64	3,4,4',5-Tetrabromodiphenyl ether	29	1,1,2,2-Tetrafluoroethane	111, 126
Tebutam	64	Tetrabromo-o-chlorotoluene	40	Tetrafluoroethane	107, 111, 126
Tebuthiuron	64, 126	2,3,4,5-Tetrabromophenol	38, 207	Delta-9-Tetrahydrocannabinolic acid A (THCA-A)	100
Teflubenzuron	64	2,3,4,6-Tetrabromophenol	38, 207	Delta-8-Tetrahydrocannabinol (THC-8)	100
Tefluthrin	64, 126	2,3,5,6-Tetrabromophenol	38, 207	Delta-9-Tetrahydrocannabinol (THC-9)	100
TEGDN	85, 241	Tetrabromophthalic acid	39	1,2,3,4-Tetrahydrofluoranthene	43
Tellurium	333, 336	3,3',4,4'-Tetrachloroazobenzene	25	Tetrahydrofuran	72, 126, 196
Tembotrione	64	3,3',4,4'-Tetrachloroazoxybenzene	25	Tetrahydrofurfuryl oleate	82, 93
TEPP	64, 126, 219	1,2,3,4-Tetrachlorobenzene	64, 72	1,2,3,6-Tetrahydrophthalimide	64
Terbacil	64, 126	1,2,3,5-Tetrachlorobenzene	64, 72	cis-d4-Tetrahydrophthalimide	64
Terbium	333, 336, 366	1,2,4,5-Tetrachlorobenzene	64, 72, 126, 199, 218	3,4,5,6-Tetrahydro-2-pyrimidinethiol (THP)	151
Terbufos	64, 126, 219	2,2',3,3'-Tetrachlorobiphenyl	5	Tetramethrin	64, 262
Terbufos sulfone	64	2,2',3,4-Tetrachlorobiphenyl	5	1,2,3,4-Tetramethylbenzene	72
Terbufos sulfoxide	64	2,2',3,4'-Tetrachlorobiphenyl	5	1,2,3,5-Tetramethylbenzene	72
Terbumeton	64	2,2',3,5-Tetrachlorobiphenyl	5	1,2,4,5-Tetramethylbenzene	72
Terbuthylazine	64, 68, 126, 176, 262	2,2',3,5'-Tetrachlorobiphenyl	5, 17, 214	3,3',5,5'-Tetramethylbenzidine	78, 109
Terbuthylazine desethyl	64	2,2',3,6-Tetrachlorobiphenyl	5	Tetramethylene sulfone	304
Terbutol	64	2,2',3,6'-Tetrachlorobiphenyl	5	2,2',6,6'-Tetranitro-4,4'-azotoluene	241, 85, 238
Terbutryn	176, 262	2,2',4,4'-Tetrachlorobiphenyl	5	4,4',6,6'-Tetranitro-2,2'-azotoluene	241, 85, 238
m-Terphenyl	21, 91	2,2',4,5-Tetrachlorobiphenyl	5	2,2',6,6'-Tetranitro-4,4'-azoxytoluene	241, 85, 238
o-Terphenyl	311, 318, 315, 316, 316, 318, 91, 324, 326, 21	2,2',4,6-Tetrachlorobiphenyl	5	Tetra-n-propyl tin	240
p-Terphenyl	21, 91	2,2',4,6'-Tetrachlorobiphenyl	5	Tetrapentyltin	240
4-Terphenyl-d14	135	2,2',5,5'-Tetrachlorobiphenyl	5, 17, 214	Tetrasul	64
p-Terphenyl-d14	126, 155	2,2',5,6-Tetrachlorobiphenyl	5, 17, 214	Tetryl	85, 126, 241
alpha-Terpinene	100	2,2',6,6'-Tetrachlorobiphenyl	5	Thallium	333, 337, 370, 336
gamma-Terpinene	100	2,3,3',4-Tetrachlorobiphenyl	5	Thiabendazole	64, 126, 182, 262
Terpineol	100	2,3,3',4'-Tetrachlorobiphenyl	5	Thiacloprid	64, 68
Terpinolene	100	2,3,3',5-Tetrachlorobiphenyl	5	Thiacloprid-amide	64, 68
Terrazole	64, 126	2,3,3',5'-Tetrachlorobiphenyl	5	Thiamethoxam	64, 68, 262
2,3,4,5-Tetrabromobenzoic acid	40	2,3,3',6-Tetrachlorobiphenyl	5	Thiamine • HCl	99
2,3,5,6-Tetrabromo-1,4-benzoquinone	263	2,3,4,4'-Tetrachlorobiphenyl	5	Thianaphthene	43
3,4,5,6-Tetrabromo-1,2-benzoquinone	263	2,3,4,5-Tetrachlorobiphenyl	5	Thianthrene	43
2,2',4,5'-Tetrabromobiphenyl	37	2,3,4,6-Tetrachlorobiphenyl	5	Thiazopyr	64
2,2',5,5'-Tetrabromobiphenyl	37	2,3,4',5-Tetrachlorobiphenyl	5	Thidiazuron	64
2,2',5,6'-Tetrabromobiphenyl	37	2,3,4',5-Tetrachlorobiphenyl	5	Thifensulfuron methyl	64
3,3',4,4'-Tetrabromobiphenyl	37	2,3,4',6-Tetrachlorobiphenyl	5	Thifluzamide	64
3,3',5,5'-Tetrabromobiphenyl	37	2,3,5,6-Tetrachlorobiphenyl	5	Thimerosal	106
Tetrabromobisphenol A	39	2,3',4,4'-Tetrachlorobiphenyl	5, 17, 214	Thiobencarb	64, 126
Tetrabromobisphenol A bis(2,3-dibromopropyl) ether	39	2,3',4,5-Tetrachlorobiphenyl	5	Thiocyclam hydrogen oxalate	65
Tetrabromobisphenol A bisglycidyl ether	40	2,3',4,5'-Tetrachlorobiphenyl	5	4,4'-Thiodianiline	78, 109
Tetrabromobisphenol A bis(hydroxyethyl) ether	39	2,3',4',6-Tetrachlorobiphenyl	5	Thiodicarb	65
Tetrabromobisphenol A bismethyl ether	39	2,3',5,5'-Tetrachlorobiphenyl	5	Thiodiglycol	167, 264
Tetrabromobisphenol A diallyl ether	39	2,3',5,6-Tetrachlorobiphenyl	5	4,4'-Thiodiphenol	65, 126
Tetrabromobisphenol S	39	2,4,4',5-Tetrachlorobiphenyl	5	3,3'-Thiodipropanol	167, 264
Tetrabromobisphenol S bis(2,3-dibromopropyl) ether	39	2,4,4',6-Tetrachlorobiphenyl	5	Thiofanox	65, 126
Tetrabromobisphenol S bisglycidyl ether	40	2,4,4',6-Tetrachlorobiphenyl	5	Thiofanox sulfone	65
Tetrabromobisphenol S bismethyl ether	40	2',3,4,5-Tetrachlorobiphenyl	5	Thiofanox sulfoxide	65
1,2,5,6-Tetrabromocyclooctane	39	3,3,4,4'-Tetrachlorobiphenyl	5	Thiometon	65
1,2,3,4-Tetrabromodibenzo-p-dioxin	23	3,3',4,5-Tetrachlorobiphenyl	5	Thionazin	65, 126, 199
1,2,3,7-Tetrabromodibenzo-p-dioxin	23	3,3',4,5'-Tetrachlorobiphenyl	5	Thiophanate	65, 126
1,2,3,8-Tetrabromodibenzo-p-dioxin	23	3,3',4,5-Tetrachlorobiphenyl	5	Thiophanate-methyl	65
2,3,7,8-Tetrabromodibenzo-p-dioxin	23, 25	3,3',5,5'-Tetrachlorobiphenyl	5	Thiophene	289
Tetrabromodibenzo-p-dioxin-Mixed Isomers	23	3,4,4',5-Tetrachlorobiphenyl	5	Thiram	65, 126, 262
2,2',3,3'-Tetrabromodiphenyl ether	28	3,4,4',5-Tetrachlorobiphenyl	5	Thiuram	106
2,2',3,4-Tetrabromodiphenyl ether	28	Tetrachlorobisphenol A	41	Thorium	333, 336
2,2',3,4'-Tetrabromodiphenyl ether	28	1,2,3,4-Tetrachlorodibenzofuran	25	THPS (Tech Grade)	262
2,2',3,5-Tetrabromodiphenyl ether	28	1,3,6,8-Tetrachlorodibenzofuran	25	Thulium	334, 336
2,2',3,5'-Tetrabromodiphenyl ether	28	2,3,7,8-Tetrachlorodibenzofuran	25	Tillam	65, 126
2,2',3,6-Tetrabromodiphenyl ether	28	1,2,3,4-Tetrachlorodibenzo-p-dioxin	23	Tilt	65, 126
2,2',3,6'-Tetrabromodiphenyl ether	28	1,2,6,7-Tetrachlorodibenzo-p-dioxin	23	Timbasol Brown trans oxide	108
2,2',4,4'-Tetrabromodiphenyl ether	28, 91	1,2,6,8-Tetrachlorodibenzo-p-dioxin	23	Tin	334, 337, 370, 336
2,2',4,5-Tetrabromodiphenyl ether	28	1,2,7,8-Tetrachlorodibenzo-p-dioxin	23	Tinuvin P	94
2,2',4,5'-Tetrabromodiphenyl ether	28	1,2,8,9-Tetrachlorodibenzo-p-dioxin	23	Tinuvin® PED	94
2,2',4,6-Tetrabromodiphenyl ether	28	1,3,6,8-Tetrachlorodibenzo-p-dioxin	23	Titanium	334, 337, 370, 336
2,2',4,6'-Tetrabromodiphenyl ether	28	1,3,7,8-Tetrachlorodibenzo-p-dioxin	23	2,4,5-T methyl ester	64, 126
2,2',5,5'-Tetrabromodiphenyl ether	28	1,3,7,9-Tetrachlorodibenzo-p-dioxin	23	2,4,5-T n-butyl ester	64, 126
2,2',5,6-Tetrabromodiphenyl ether	28	2,3,7,8-Tetrachlorodibenzo-p-dioxin	23, 175	TNT	85, 126, 241
2,2',6,6'-Tetrabromodiphenyl ether	28	2,2',4,4'-Tetrachlorodiphenyl ether	22, 38	DL-a-Tocopherol	99
2,3,3',4-Tetrabromodiphenyl ether	28	3,3',4,4'-Tetrachlorodiphenyl ether	22, 38	DL-a-Tocopherol acetate	99
2,3,3',4'-Tetrabromodiphenyl ether	28	3,3',5,5'-Tetrachlorodiphenyl ether	22, 38	D-a-Tocopherol succinate	99
2,3,3',5-Tetrabromodiphenyl ether	28	1,1,1,2-Tetrachloroethane	72, 126, 199, 205, 223	Tokuthion	65, 126
2,3,3',6-Tetrabromodiphenyl ether	28	1,1,1,2-Tetrachloroethane	72, 126, 199, 205, 223	Tolclofos-methyl	65
2,3,4,4'-Tetrabromodiphenyl ether	28	Tetrachloroethene	72, 126, 205, 223, 248	o-Tolidine	46
2,3,4,5-Tetrabromodiphenyl ether	28	Tetrachloroethylene	199	Tolnafate	262
2,3,4,5-Tetrabromodiphenyl ether	28	Tetrachloro-m-xylene	17, 214	m-Tolualdehyde-DNPH	74, 126
2,3,4,6-Tetrabromodiphenyl ether	28	1,2,3,4-Tetrachloronaphthalene	22	o-Tolualdehyde-DNPH	74, 126
2,3,4,6-Tetrabromodiphenyl ether	28	1,2,3,4-Tetrachloro-5-nitrobenzene	64	p-Tolualdehyde-DNPH	74, 126
2,3,4',5-Tetrabromodiphenyl ether	28	2,3,4,5-Tetrachloronitrobenzene	47	Toluene	72, 126, 110, 199, 293, 223
2,3,4',5-Tetrabromodiphenyl ether	28	2,3,5,6-Tetrachloronitrobenzene	47, 64, 126	Toluene-d8	72
2,3,4',6-Tetrabromodiphenyl ether	28	2,3,4,5-Tetrachlorophenol	76	2,4-Toluene diisocyanate	298
2,3,5,6-Tetrabromodiphenyl ether	28	2,3,4,6-Tetrachlorophenol	76, 126, 199	2,6-Toluene diisocyanate	298
		2,3,5,6-Tetrachlorophenol	76	o,p-Toluenesulfonamide	82, 93

Organic Analyte Index

o-Toluidine	78, 126, 109, 199	2,3,5-Trichlorobiphenyl	4	4,6,8-Trimethylazulene	43
Tolylfluamide	65, 262	2,3,6-Trichlorobiphenyl	4	8,9,11-Trimethylbenz[a]anthracene	43
Total Inorganic Carbon	343	2,3',4'-Trichlorobiphenyl	4	1,2,3-Trimethylbenzene	72, 293, 294, 295, 311, 323, 324
Total Organic Carbon	343	2,3',5'-Trichlorobiphenyl	4	1,2,4-Trimethylbenzene	72, 127, 205, 223
Total Organic Nitrogen	343	2,3',6'-Trichlorobiphenyl	4	1,3,5-Trimethylbenzene	72, 127, 205, 223
Toxaphene	65, 67, 126, 140, 155, 156, 168, 176, 179, 199, 209, 229	2,4,4'-Trichlorobiphenyl	4	1,6,7-Trimethylnaphthalene	43
2,4,5-TP	126, 176, 221	2,4,5-Trichlorobiphenyl	4	Trimethylolethane trinitrate	85, 241
TP-69	40	2,4,6-Trichlorobiphenyl	4	2,2,4-Trimethyl-1,3-pentanediol-diisobutyrate	82, 93
2,4,5-TP methyl ester	126	2,4',5'-Trichlorobiphenyl	4, 17, 214	2,2,4-Trimethyl-1,3-pentanediol-isobutyrate	93
2,4,5-TP-PFB	126, 183, 221	2,4',6'-Trichlorobiphenyl	4	Trimethyl phosphate	41, 65, 127
Tralkoxydim	65	2',3,4'-Trichlorobiphenyl	4	Trimethylsulfonium iodide	65
Tralometrin	65	2',3,5'-Trichlorobiphenyl	4	Trimidal	65
Transfluthrin	65, 262	3,3',4'-Trichlorobiphenyl	4	Trinexapac-ethyl	65
n-Triacontane-d62	311, 318, 319, 326	3,3',5'-Trichlorobiphenyl	4	1,3,5-Trinitrobenzene	72, 127, 85, 230, 241
Triadimefon	65, 126	3,4,4'-Trichlorobiphenyl	4	2,4,7-Trinitro-9-fluorenone	45
Triadimenol	65	3,4,5-Trichlorobiphenyl	4	2,4,6-Trinitroresorcinol	85, 241
Triallate	65, 126	3,4',5'-Trichlorobiphenyl	4	Tri-(n-octyl, n-decyl) trimellitate	82, 93
2,4,6-Triaminotoluene trihydrochloride	85, 241	2,4,8-Trichlorodibenzofuran	25	Tri-n-propyltin chloride	240
1,3,5-Triamino-2,4,6-trinitrobenzene	85, 241	1,2,3-Trichlorodibenzo-p-dioxin	23	Tri-o-cresyl phosphate	41
Triasulfuron	65	1,2,4-Trichlorodibenzo-p-dioxin	23	Trioctadecanoic	96
s-Triazine	46, 47	1,7,8-Trichlorodibenzo-p-dioxin	23	Trioctanoic	96
1,2,4-Triazole	65, 126	2,3,7-Trichlorodibenzo-p-dioxin	23	Triolein	302, 306
Triazophos	65, 126	1,1,1-Trichloroethane	72, 127, 199, 205, 223, 248	Tri-p-cresyl phosphate	41
Tribenuron-methyl	65	1,1,2-Trichloroethane	72, 127, 199, 205, 223	Triphenyl phosphate	41
Tribomsalan	106	Trichloroethene	72, 127, 205, 223, 248	Triphenyltin chloride	240
Tribromoacetic acid	79, 127, 165	Trichloroethylene	199	Triphenylene	43
2,4,5-Tribromoanisole	38, 207	Trichlorofluoromethane	72, 107, 111, 127, 199, 205, 223	Triphenyl phosphate	41, 149
2,4,6-Tribromoanisole	38, 207	Trichloronate	65, 127	Triphenylphosphate	65, 127
1,3,5-Tribromobenzene	72, 127, 218	2,3,4-Trichloronitrobenzene	47	Triphenyltin chloride	65
2,2',5-Tribromobiphenyl	37	2,4,5-Trichloronitrobenzene	47	Tripropyl phosphate	41
2,3',5-Tribromobiphenyl	37	2,3,4-Trichlorophenol	76	Tritetradecanoic	96
2,4,5-Tribromobiphenyl	37	2,3,5-Trichlorophenol	76	Triticonazole	65
2,4,6-Tribromobiphenyl	37	2,3,6-Trichlorophenol	76	Truxene	43
2,4',5-Tribromobiphenyl	37	2,4,5-Trichlorophenol	76, 127, 140, 199, 212	Tungsten	334, 336
1,3,7-Tribromodibenzo-p-dioxin	23	2,4,6-Trichlorophenol	65, 76, 127, 164, 187, 188, 190, 199	Turbine (Jet A) Fuel	311
1,3,8-Tribromodibenzo-p-dioxin	23	3,4,5-Trichlorophenol	76, 127, 188	Turbine (Jet) fuel	311
2,3,7-Tribromodibenzo-p-dioxin	23	2,4,6-Trichlorophenol sodium salt	262	Turpentine	311
2,2',3-Tribromodiphenyl ether	28	2,3,4-Trichlorophenyl-4'-nitrophenyl ether	79		
2,2',4-Tribromodiphenyl ether	28	2,3,5-Trichlorophenyl-4'-nitrophenyl ether	79		
2,2',5-Tribromodiphenyl ether	28	2,3,6-Trichlorophenyl-4'-nitrophenyl ether	79		
2,2',6-Tribromodiphenyl ether	28	2,4,5-Trichlorophenyl-4'-nitrophenyl ether	79		
2,3,3'-Tribromodiphenyl ether	28	2,4,6-Trichlorophenyl-4'-nitrophenyl ether	79		
2,3,4-Tribromodiphenyl ether	28	3,4,5-Trichlorophenyl-4'-nitrophenyl ether	79		
2,3,4'-Tribromodiphenyl ether	28	N,N'-bis(2,4,6-Trichlorophenyl) urea	25		
2,3,5-Tribromodiphenyl ether	28	1,1,2-Trichloropropane	72, 127		
2,3,6-Tribromodiphenyl ether	28	1,2,3-Trichloropropane	72, 127, 164, 165, 199, 205, 223		
2,3',4-Tribromodiphenyl ether	28	1,1,1-Trichloro-2-propanone	74, 127		
2,3',5-Tribromodiphenyl ether	28	Tri(3-chloropropyl) phosphate	41		
2,3',6-Tribromodiphenyl ether	28	2,4,6-Trichloro-p-terphenyl	21		
2,4,4'-Tribromodiphenyl ether	28	3,5,6-Trichloro-2-pyridinol	65		
2,4,5-Tribromodiphenyl ether	28	a,a,a-Trichlorotoluene	72, 127, 177		
2,4,6-Tribromodiphenyl ether	28	1,1,1-Trichlorotrifluoroethane	111		
2,4,6-Tribromodiphenyl ether	28	1,1,2-Trichloro-1,1,2,2-trifluoroethane	107, 111, 127		
2,4',5-Tribromodiphenyl ether	28	Triclocarban	262		
2,4',6-Tribromodiphenyl ether	28	Triclopyr	65, 127		
2',3,4-Tribromodiphenyl ether	28	Triclopyr-2-butoxy ethyl ester	65		
2',3,5-Tribromodiphenyl ether	28	Triclopyr methyl ester	65, 127		
2,3',4-Tribromodiphenyl ether	28	Triclosan	107, 262		
2,3',5-Tribromodiphenyl ether	28	cis-Tricos-9-ene	262		
3,4,4'-Tribromodiphenyl ether	28	Tricresyl phosphate	41, 65, 127		
3,4,5-Tribromodiphenyl ether	28	Tricyclazole	65, 127		
3,4',5-Tribromodiphenyl ether	28	n-Tridecane	311		
Tribromoneopentyl alcohol	39	Tridecanoic	96		
tris(Tribromoneopentyl) phosphate	39, 41	Tridecylbenzene	72		
2,3,4-Tribromophenol	38, 207	Tridemorph	65		
2,3,5-Tribromophenol	38	Tridocosanoic	96		
2,3,6-Tribromophenol	38, 207	Tridodecanoic	96		
2,4,5-Tribromophenol	38, 207	cis-11,14-Trieicosadienoic	97		
2,4,6-Tribromophenol	38, 40, 76, 127, 137, 174, 179, 207, 215	Triecosanoic	96		
3,4,5-Tribromophenol	38, 207	Triecosenoic	97		
2,4,6-Tribromophenol-PFB	127, 174	Trielaidin	97		
1,2-bis(2,4,6-Tribromophenoxy)ethane	39	Trietazine	65		
2,4,6-tris(2,4,6-Tribromophenoxy)-1,3,5-triazine	39	Triethanolamine	106		
2,4,6-Tribromophenyl allyl ether	39	Triethyl phosphate	41		
Tri-butoxyethyl phosphate	82, 93	Triethylphosphate	65, 93		
Tributyl phosphate	41	O,O,O-Triethylphosphorothioate	65, 127, 199		
Tributylphosphate	93	Trifenmorph	65		
Tributyltetradecylphosphonium chloride	262	Trifloxystrobin	65		
Tricaprin	302, 306	Triflumuron	65		
Tricapryl trimellitate	82, 93	2',4',5'-Trifluoroacetophenone	74, 127, 166		
Trichlorfon	65, 127	1,1,1-Trifluoroethane	111, 127		
Trichloroacetic acid	65, 79, 127, 164, 165	Trifluoromethane	107, 111, 127		
Trichloroacetitrile	72, 127	a,a,a-Trifluorotoluene	127, 148, 173		
2,4,5-Trichloroaniline	78	Trifluralin	65, 127		
2,4,6-Trichloroanisole	110	Triflusulfuron-methyl	65		
1,2,3-Trichlorobenzene	65, 72, 127, 205, 223	Triforine	65		
1,2,4-Trichlorobenzene	65, 72, 127, 199, 205, 218, 223	Trihexadecanoic	96		
1,3,5-Trichlorobenzene	72	2,3,5-Triiodobenzoic acid	65, 127		
2,3,5-Trichlorobenzoic acid	65, 127	Triisodecyl trimellitate	82, 93		
2,2',3-Trichlorobiphenyl	4	Triisopropyl phosphate	41		
2,2',4-Trichlorobiphenyl	4	Tri-m-cresyl phosphate	41		
2,2',5-Trichlorobiphenyl	4, 17, 214	Trimellitate	93		
2,2',6-Trichlorobiphenyl	4	2,3,5-Trimethacarb	65, 127		
2,3,3'-Trichlorobiphenyl	4	3,4,5-Trimethacarb	65, 127		
2,3,4-Trichlorobiphenyl	4	2,4,5-Trimethylaniline	78, 109		
2,3,4'-Trichlorobiphenyl	4				

U

Ultranox 626	90, 94
Undecan-2-one (Methyl-nonyl-ketone)	262
Undecylbenzene	72
Unichlor™ 40-90	41
Unichlor™ 502-50	41
Unichlor™ 70AX	41
Uniconazole	66
Unleaded Gasoline	311
Uranium	334, 336
Uvinul 3008	94
Uvinul 3040	94
Uvinul 3049	94
Uvinul® 3000	94

V

Vaccenin	97
Vacor	66, 127, 181
Valencene (Tech)	100
Vamidothion	66
Vanadium	334, 337, 370, 336
Vanicide-20S	66
Verbena oil	106
Vernolate	66, 127
Victoria Blue	108, 109
Vinclozolin	66, 127
Vinsol® powder	93
Vinsol resin	93
Vinyl acetate	72, 127, 199
Vinyl chloride	72, 127, 199, 106, 223

X

Warfarin	66, 262
Warfarin sodium	262

X

XMC	66
m-Xylene	72, 127, 110, 223
o-Xylene	72, 127, 205, 223
p-Xylene	72, 127, 205, 223
Xylene	127, 199
Xylene (total)	72

Organic Analyte Index

Y

Ytterbium	334, 336
Yttrium	334, 337, 336, 370, 366

Z

Zinc	334, 337, 370, 336
Zinc borate (Tech)	262
Zinc pyrrhione	262
Zinc sulfide	262
Zineb	66, 262
Ziram	66, 127, 262
Zirconium	334, 106, 107, 370, 336
Zoxamide	66

Catalog Number Index

A-001	69	AA70N-1	337	AG-MECAL1-ASL-1	357	ALR-050N	104	ALR-110N	103	ALR-164N	106
A-002	70	AA70N-5	337	AG-MECAL1-ASL-5	357	ALR-050S-CN-10X	104, 106	ALR-110S	103, 107	ALR-164S	106
A-003	70	AE-00010	251	AG-MECAL2A-ASL-1	357	ALR-051S-CN-10X	104, 106	ALR-111N	103	ALR-165N	81, 102
A-004	70	AE-00010-10ML	251	AG-MECAL2A-ASL-5	357	ALR-052N	104	ALR-111S	103, 107	ALR-165S	81, 102
A-005	72	AE-00011	251	AG-MECAL3-ASL-R-1	357	ALR-052S-CN-10X	104, 106	ALR-113N	103	ALR-167N	106
A-006	72	AE-00011-10ML	251	AG-MECAL3-ASL-R-5	357	ALR-053N	105	ALR-113S	103, 107	ALR-167S	106
A-007	72	AE-00012	251	AG-MECAL4-ASL-R1-5	357	ALR-053S-10X	105, 106	ALR-114N	103	ALR-168N	106
A-008	72	AE-00012-10ML	251	AG-SPIKE-ASL-R1-1	356	ALR-054N	104	ALR-114S	103	ALR-168S	106
A-009	72	AE-00013	251	AG-SPIKE-ASL-R1-5	356	ALR-054S-CN-10X	104, 106	ALR-115S-W	104	ALR-169N	104
A-010	72	AE-00013-10ML	251	AG-TUN1-ASL-1	356	ALR-060N	106	ALR-117N	104	ALR-169S	104
A-011	71	AE-00014	251	AG-TUN1-ASL-5	356	ALR-060S-ET-10X	106	ALR-117S	104, 107	ALR-170S	106
A-012	71, 21	AE-00014-10ML	251	AG-TUN2-ASL-1	356	ALR-061N	105	ALR-118N	104	ALR-171N	104
A-013	75	AE-00015	251	AG-TUN2-ASL-5	356	ALR-061S-ET-10X	105, 106	ALR-118S	104	ALR-171S	104
A-014	75	AE-00015-10ML	251	AG-TUN-ASL-1-SET	356	ALR-062N	103	ALR-119S-CN	104, 107	ALR-172N	104
A-015	75	AE-00016	251	AG-TUN-ASL-5-SET	356	ALR-062S	103	ALR-120N	104	ALR-172S	104
A-016	75	AE-00016-10ML	251	AG-TUNSTOCK1-ASL-1	356	ALR-063N	103	ALR-120S	104	ALR-173N	106
A-017	75	AE-00017	251	AG-TUNSTOCK1-ASL-5	356	ALR-063S	103	ALR-121N	104	ALR-173S-W	106
A-018	75	AE-00017-10ML	251	AG-TUNSTOCK-ASL-1	356	ALR-064N	103	ALR-121S	104, 107	ALR-174S-CN	103
A-019	75	AE-00018	251	AG-TUNSTOCK-ASL-5	356	ALR-064S	103	ALR-122N	104	ALR-175N	81, 105
A-020	75	AE-00018-10ML	251	AG-VER1-ASL-R1-1	356	ALR-065N	103	ALR-122S	104, 107	ALR-175S-CN	81, 105
A-021	75	AE-00019	251	AG-VER1-ASL-R1-5	356	ALR-066N	102	ALR-123N	104	ALR-176N	81, 105
A-022	76	AE-00019-10ML	251	AK-101-IS-10X	310	ALR-066S	103	ALR-123S-A	104	ALR-176S-CN	81, 105
A-023	76	AE-00020	252	AK-103.0-SS-10X	311	ALR-067N	102	ALR-127N	105	ALR-177N	81, 105
A-024	76	AE-00020-10ML	252	ALR-001N	102	ALR-067S	102	ALR-127S	105	ALR-177S-CN	81, 105
A-025	76	AE-00021	252	ALR-001S-CN-10X	102, 106	ALR-068N	103	ALR-128N	104	ALR-178N	80, 105
A-026	76	AE-00021-10ML	252	ALR-002N	102	ALR-068S	103	ALR-128S	104	ALR-178S-CN	80, 105
A-027	76	AE-00022	252	ALR-002S-ET-10X	102, 106	ALR-069N	104	ALR-129N	105	ALR-179N	81, 105
A-028	76	AE-00022-10ML	252	ALR-003N	103	ALR-069S-CN	104, 107	ALR-129S	105	ALR-179S-CN	81, 105
A-029-10MG	76	AE-00023	252	ALR-003S-ET-10X	103, 106	ALR-070S-R1	103	ALR-130N	105	ALR-CFC-001S-2X	104, 107
A-030	76	AE-00023-10ML	252	ALR-004N	103	ALR-072N	104	ALR-130S	105, 107	ALR-CFC-002S-2X	104, 107
A-031	76	AE-00024	252	ALR-004S-CN-10X	103, 106	ALR-073N	104	ALR-132N	105	ALR-CFC-003S-2X	104, 107
AA01N-1	337	AE-00024-10ML	252	ALR-005N	103	ALR-073S	104, 107	ALR-132S	105	ALR-CFC-004S-2X	104, 107
AA01N-5	337	AE-00025	249	ALR-005S-ET-10X	103, 106	ALR-074N	102	ALR-133N	105	ALR-CFC-005S-2X	104, 107
AA02N-1	337	AE-00025-10ML	249	ALR-006N	104	ALR-074S	102	ALR-133S	105	ALR-CFC-006S-2X	104, 107
AA02N-5	337	AE-00027	252	ALR-006S-CN-10X	104, 106	ALR-075N	104	ALR-134N	80, 105	ALR-CFC-007S-2X	104, 107
AA03N-1	337	AE-0027-10ML	252	ALR-007N	104	ALR-075S	104	ALR-134S-CN	80, 105, 107	ALR-CFC-008S-2X	104, 107
AA03N-5	337	AE-00028	252	ALR-007S-ET-10X	104, 106	ALR-078N	102	ALR-135N	80, 105	ALR-CFC-009S-2X	104, 107
AA04N-1	337	AE-00028-10ML	252	ALR-008S-ET-10X	102, 106	ALR-078S	102	ALR-135S-CN	80, 105, 107	ALR-CFC-010S-2X	104, 107
AA04N-5	337	AE-00029	252	ALR-009N	102	ALR-079N	102	ALR-136N	105	ALR-CFC-011S-2X	104, 107
AA07W-1	337	AE-00029-10ML	252	ALR-009S-CN-10X	102, 106	ALR-079S	102	ALR-136S	105	ALR-CFC-012S-2X	104, 107
AA07W-5	337	AE-00030	252	ALR-010N	103	ALR-080N	102	ALR-137N	80, 105	ALR-CFC-013S-2X	104, 107
AA08N-1	337	AE-00030-10ML	252	ALR-010S-CN-10X	103, 106	ALR-080S	102	ALR-137S-CN	80, 105, 107	ALR-CFC-014S-2X	104, 107
AA08N-5	337	AE-00031	254	ALR-011N	103	ALR-081N	102	ALR-138N	81, 105	ALR-CFC-015S-2X	104, 107
AA09N-1	337	AE-00031-10ML	254	ALR-011S-CN-10X	103, 106	ALR-081S-CN	102, 107	ALR-138S-CN	81, 105, 107	ALR-CFC-SET	107
AA09N-5	337	AE-00032	249	ALR-012N	104	ALR-082S	80, 102, 107	ALR-139N	81, 105	ALR-EU24-SET	106
AA13N-1	337	AE-00032-10ML	249	ALR-012S-ET-10X	104, 106	ALR-083N	102	ALR-139S-CN	81, 105, 107	ALR-EU36-R2-SET	106
AA13N-5	337	AE-00033	249	ALR-013N	104	ALR-083S	102, 107	ALR-140N	105	ALR-MET-01S	102, 107
AA14N-1	337	AE-00033-10ML	249	ALR-013S-CN-10X	104, 106	ALR-084N	102	ALR-140S	105	ALR-MET-02S	103, 107
AA14N-5	337	AE-00039-CAL-SET	248	ALR-014N	102	ALR-084S	102	ALR-141N	81, 105	ALR-MET-03S	103, 107
AA15N-1	337	AE-00040-CAL-SET	248	ALR-014S-ET-10X	102, 106	ALR-085N	102	ALR-141S-CN	81, 105	ALR-MET-04S	104, 107
AA15N-5	337	AE-00043	255	ALR-015N	102	ALR-086S	102, 107	ALR-142N	81, 105	ALR-MET-05S	104, 107
AA22H-1	337	AE-00044	255	ALR-015S-ET-10X	102, 106	ALR-087N	102	ALR-142S-CN	81, 105	ALR-MET-06S	105, 107
AA22H-5	337	AE-00045	249	ALR-016N	104	ALR-087S	102	ALR-143N	81, 105	ALR-MET-07S	105, 107
AA27N-1	337	AE-00045-10ML	249	ALR-016S-ET-10X	104, 106	ALR-088N	102	ALR-143S-CN	81, 105	ALR-MET-08S	106, 107
AA27N-5	337	AE-00046	74, 255	ALR-017S-CN-10X	102, 106	ALR-088S	102	ALR-144N	105	ALR-MET-SET	107
AA29N-1	337	AE-00047	251	ALR-018N	104	ALR-089N	102	ALR-144S	105, 107	ALR-PAR-SET	107
AA29N-5	337	AE-00048	248	ALR-018S-ET-10X	104, 106	ALR-089S	102	ALR-145N	104	ALR-PHT-SET	107
AA30N-1	337	AE-00049-R1	250, 109	ALR-019N	102	ALR-090N	103	ALR-145S	104	ALR-SUN-SET	107
AA30N-5	337	AE-00049-R1-10ML	109	ALR-019S-ET-10X	102, 106	ALR-090S	103	ALR-146N	105	AOCS-001N	97
AA32N-1	337	AE-00049-SET	250, 109	ALR-020N	103	ALR-090S	102, 107	ALR-146S	105, 107	AOCS-002N	97
AA32N-5	337	AE-00050	253	ALR-020S-ET-10X	103, 106	ALR-091S	103	ALR-147N	105	AOCS-003N	97
AA33N-1	337	AE-00050-10ML	253	ALR-021S-ET-10X	104, 106	ALR-091S	103	ALR-147S	105	AOCS-004N	97
AA33N-5	337	AE-00051	253	ALR-022N	104	ALR-092N	102	ALR-149N-MW200	105	AOCS-005N	97
AA34N-1	337	AE-00051-10ML	253	ALR-022S-ET-10X	104, 106	ALR-092N	102	ALR-149N-MW400	105	AOCS-006N	97
AA34N-5	337	AE-00052	253	ALR-023N	104	ALR-093N	103	ALR-149N-MW600	105	AOCS-007N	97
AA35W-1	337	AE-00052-10ML	253	ALR-023S-ET-10X	104, 106	ALR-094N	103	ALR-149N-MW1500	105	AOCS-SET	97
AA35W-5	337	AE-00053	253	ALR-024S-CN-10X	103, 106	ALR-094S-T	103	ALR-149N-MW4000	105	AP-001N	99
AA37N-1	337	AE-00053-10ML	253	ALR-028N	102	ALR-097N	80, 103, 107	ALR-149S-MW200	105	AP-002N	99
AA37N-5	337	AE-00054	253	ALR-028S-ET-10X	102, 106	ALR-097S	80, 103, 107	ALR-149S-MW400	105	AP-003N	99
AA41W-1	337	AE-00054-10ML	253	ALR-029N	102	ALR-098N	80, 103, 107	ALR-149S-MW600	105	AP-004N	99
AA41W-5	337	AE-00055	253	ALR-029S-ET-10X	102, 106	ALR-098S	80, 103, 107	ALR-149S-MW1500	105	AP-005N	99
AA43N-1	337	AE-00055-10ML	253	ALR-030N	102	ALR-099N	103	ALR-149S-MW4000	105	AP-006N	99
AA43N-5	337	AE-00056	253	ALR-030S-ET-10X	102, 106	ALR-099S	80, 103, 107	ALR-150S	105	AP-007N	99
AA51N-1	337	AE-00056-10ML	253	ALR-033N	103	ALR-099S	80, 103, 107	ALR-152N	105	AP-008N	99
AA51N-5	337	AE-00057	253	ALR-033S-ET-10X	103, 106	ALR-100N	80, 103	ALR-152S	105, 107	AP-009N	99
AA52W-1	337	AE-00057-10ML	253	ALR-034N	103	ALR-100S	80, 103, 107	ALR-153N	105	AP-010N	72, 99
AA52W-5	337	AE-00059	247, 11	ALR-034S-A-10X	103, 106	ALR-101N	81, 103	ALR-153S	105, 107	AP-011N	99
AA53N-1	337	AE-00059-10ML	247, 11	ALR-038N	103	ALR-101S	81, 103, 107	ALR-154S	105	AP-012N	99
AA53N-5	337	AE-00060	247, 11	ALR-038S-ET-10X	103, 106	ALR-102N	81, 103, 107	ALR-155N	105	AP-013N	99
AA54N-1	337	AE-00060-10ML	247, 11	ALR-040N	103	ALR-102S	81, 103, 107	ALR-155S-CN	105, 107	AP-014N	99
AA54N-5	337	AE-00061	247, 11	ALR-040S-A-10X	103, 106	ALR-103N	81, 103	ALR-156N	105	AP-KIT	99
AA55N-1	337	AE-00061-10ML	247, 11	ALR-041N	103	ALR-103S	81, 103, 107	ALR-156S	105	APP-9-001	117, 198
AA55N-5	337	AE-00081-10ML	247	ALR-041S-ET-10X	103, 106	ALR-104N	103	ALR-157N	105	APP-9-001-10X	117
AA56W-1	337	AG-CAL1-ASL-1	357	ALR-042N	103	ALR-104S	103, 107	ALR-157S	105	APP-9-002	117, 198
AA56W-5	337	AG-CAL1-ASL-5	357	ALR-042S-ET-10X	103, 106	ALR-105N	103	ALR-158N	106	APP-9-002-10X	117
AA60N-1	337	AG-CAL2-ASL-1	357	ALR-044N	104	ALR-105S	103, 107	ALR-158S	106	APP-9-003	74, 117, 198
AA60N-5	337	AG-CAL2-ASL-5	357	ALR-044S-CN-10X	104, 106	ALR-106N	103	ALR-159N	106	APP-9-003-20X	74
AA63N-1	337	AG-CAL-ASL-1	357	ALR-045N	104	ALR-106S	103	ALR-159S	106	APP-9-004	74, 117, 198
AA63N-5	337	AG-CAL-ASL-5	357	ALR-045S-ET-10X	104, 106	ALR-107N-10MG	103	ALR-160N	106	APP-9-004-	

Catalog Number Index

A

APP-9-007-W 73
 APP-9-007-W-10X 73
 APP-9-008 69, 117, 198
 APP-9-008-10X 69, 117, 206
 APP-9-008-10X-PAK 206
 APP-9-009 198
 APP-9-010 69, 117, 198
 APP-9-010-20X 69, 117
 APP-9-011 76, 117, 198
 APP-9-012 76, 117, 198
 APP-9-012-10X 76, 117
 APP-9-013 117, 198
 APP-9-013-10X 117
 APP-9-014 198
 APP-9-014-D-10X 227, 236
 APP-9-015 69, 198
 APP-9-016 118, 198
 APP-9-016-10X 118
 APP-9-017 198
 APP-9-017-10X 118
 APP-9-018 118, 198
 APP-9-019 118, 198
 APP-9-019-10X 118
 APP-9-020 198
 APP-9-021 73, 118, 198
 APP-9-021-50X 73, 118
 APP-9-022 198
 APP-9-023 198
 APP-9-024 198
 APP-9-025 198
 APP-9-026 69, 198
 APP-9-026-M-10X 69
 APP-9-027 41, 79, 119, 198
 APP-9-027-40X 119, 79
 APP-9-028 119, 198
 APP-9-029 122, 198
 APP-9-029-10X 80
 APP-9-030 69, 198
 APP-9-031 198
 APP-9-032 69, 198
 APP-9-033 118, 198
 APP-9-034 118, 198
 APP-9-035 69, 118, 198
 APP-9-035-20X 69, 118
 APP-9-036 69, 198, 248
 APP-9-037 198
 APP-9-038 77, 119, 198
 APP-9-039 69
 APP-9-040 198
 APP-9-041 75, 119, 198
 APP-9-042 69
 APP-9-043 198
 APP-9-044 70, 198
 APP-9-045 119, 198
 APP-9-046 75, 119, 198
 APP-9-046-50X 75
 APP-9-046-D-20X 75, 119
 APP-9-047 41, 119, 198
 APP-9-048-R170, 119, 198, 203
 APP-9-048-R1-2X70, 203, 206, 222
 APP-9-048-R1-10X70, 119, 224
 APP-9-048-R1-20X70, 203, 224
 APP-9-049 119, 198
 APP-9-050 75, 119, 198
 APP-9-050-10X 75, 119, 198
 APP-9-051 75, 119, 198
 APP-9-051-20X 75, 119
 APP-9-052 75, 119, 198
 APP-9-052-20X 75, 119
 APP-9-053 198
 APP-9-054 198
 APP-9-055 198
 APP-9-056 198
 APP-9-057 70, 198
 APP-9-058 120, 198
 APP-9-059 120, 25
 APP-9-059-2X 25
 APP-9-060 70, 198
 APP-9-061 198
 APP-9-062 70, 198
 APP-9-063 121, 80
 APP-9-063-10X 80
 APP-9-064 70, 198
 APP-9-065 70, 198
 APP-9-066 70, 198
 APP-9-067 77, 120, 198
 APP-9-068 70, 121, 198
 APP-9-068-20X 70
 APP-9-069 70, 198
 APP-9-070 70, 198
 APP-9-071 70, 198

APP-9-072 70, 198
 APP-9-073 70, 198
 APP-9-074 70, 198, 248
 APP-9-075 75, 198
 APP-9-075-50X 75
 APP-9-076 75, 121, 198
 APP-9-076-M-50X 75
 APP-9-077 70, 198
 APP-9-078 70, 121, 198
 APP-9-079 71, 121, 198
 APP-9-080 198
 APP-9-081 121, 80
 APP-9-081-10X 80
 APP-9-082 198
 APP-9-083 77, 121, 198
 APP-9-084 121, 198
 APP-9-085 77, 121, 198
 APP-9-085-20X 77
 APP-9-086 77, 121, 198
 APP-9-086-20X 77, 121
 APP-9-087 75, 121, 198
 APP-9-087-50X 75
 APP-9-088 121, 80
 APP-9-088-10X 80
 APP-9-089 71, 198
 APP-9-089-10X 71
 APP-9-090 198
 APP-9-090-10X 75
 APP-9-091 75, 121, 198
 APP-9-091-50X 75
 APP-9-092 47, 198
 APP-9-093 47, 198
 APP-9-094 198
 APP-9-095 80, 121, 198
 APP-9-096 79, 121, 198
 APP-9-096-10X 79, 121
 APP-9-097 77, 122, 121, 87
 APP-9-098 198
 APP-9-099 198
 APP-9-100 198
 APP-9-101 198
 APP-9-102 198
 APP-9-103 198
 APP-9-104 71, 198
 APP-9-105 71, 122, 198
 APP-9-106 71, 122, 198
 APP-9-107 198
 APP-9-108 122, 198
 APP-9-109 122, 198
 APP-9-110 198
 APP-9-111 198
 APP-9-112 71, 198
 APP-9-112-D-20X 71
 APP-9-113 71, 198
 APP-9-114 71, 123, 198
 APP-9-114-10X 71
 APP-9-115 71, 123, 198
 APP-9-116 71, 123, 198
 APP-9-116-D-20X 71, 123
 APP-9-117 71, 123, 198
 APP-9-118 74, 123, 198
 APP-9-118-20X 74
 APP-9-119 123, 198
 APP-9-120 73, 123, 198
 APP-9-120-20X 73
 APP-9-121 198
 APP-9-121-10X 123
 APP-9-122 74, 123, 198
 APP-9-122-10X 74, 123
 APP-9-123 123, 198
 APP-9-124 198
 APP-9-125 71, 123, 198
 APP-9-126 123, 198
 APP-9-126-10X 123, 235
 APP-9-127 198
 APP-9-128 124, 198
 APP-9-129 74, 198
 APP-9-129-10X 74, 124
 APP-9-129-20X 74
 APP-9-130 71, 124, 198, 203
 APP-9-130-20X 71, 124
 APP-9-131 71, 124, 198
 APP-9-131-20X 71, 124
 APP-9-132 71, 124, 198
 APP-9-133 124, 198
 APP-9-134 198
 APP-9-135 74, 124, 198
 APP-9-135-20X 74
 APP-9-136 198
 APP-9-137 124, 198
 APP-9-138 124, 198
 APP-9-139 78, 124, 198
 APP-9-140 199, 78
 APP-9-141 124, 78
 APP-9-142 78, 124, 199

APP-9-143 71, 199
 APP-9-143-10X 71
 APP-9-144 75, 124, 199
 APP-9-144-50X 75
 APP-9-145 124, 75
 APP-9-145-50X 75
 APP-9-146 124, 199
 APP-9-147 78, 124, 199
 APP-9-147-20X 78
 APP-9-148 78, 124, 199
 APP-9-148-20X 78, 124
 APP-9-149 78, 124, 199
 APP-9-149-M-10X 78, 124
 APP-9-150 78, 99, 124, 87
 APP-9-150-M-10X 78, 124
 APP-9-151 78, 124, 199
 APP-9-151-25X 78
 APP-9-152 78, 124, 199
 APP-9-153 124, 199
 APP-9-154 124, 199
 APP-9-155 124, 199
 APP-9-156 78, 124, 199
 APP-9-157 199
 APP-9-158 199
 APP-9-159 199
 APP-9-160 199
 APP-9-161 199
 APP-9-162 199
 APP-9-163 199
 APP-9-164 199
 APP-9-165 199
 APP-9-166 199
 APP-9-167 23
 APP-9-168 23, 199
 APP-9-169 23, 199
 APP-9-170 25, 199
 APP-9-171 25, 199
 APP-9-172 25, 199
 APP-9-173 71, 125, 199
 APP-9-174 71, 125, 199
 APP-9-174-20X 71
 APP-9-175 199
 APP-9-176 76, 199
 APP-9-176-10X 76
 APP-9-176-D-20X 76
 APP-9-177 125, 199
 APP-9-177-10X 125
 APP-9-178 125, 199
 APP-9-179 76, 125, 199
 APP-9-180 78, 125, 199
 APP-9-180-20X 78
 APP-9-181 199
 APP-9-182 125, 199
 APP-9-183 199
 APP-9-184 72, 125, 199
 APP-9-185 126, 199
 APP-9-186-M 47, 78, 126, 199
 APP-9-186-M-20X 47, 78
 APP-9-187 126, 199
 APP-9-188 199
 APP-9-189 72, 199
 APP-9-190 199
 APP-9-191 72, 126, 199
 APP-9-191-10X 72
 APP-9-192 72, 199
 APP-9-193 72, 199
 APP-9-194 72, 199, 248
 APP-9-195 76, 126, 199
 APP-9-196 199
 APP-9-197 199
 APP-9-198 72, 199
 APP-9-199 78, 126, 199
 APP-9-200 199
 APP-9-201 72, 199
 APP-9-202 72, 199, 248
 APP-9-203 72, 199
 APP-9-204 72, 199, 248
 APP-9-205 72, 199
 APP-9-206 76, 199
 APP-9-207 76, 199
 APP-9-207-50X 76
 APP-9-208 72, 199
 APP-9-208-10X 72
 APP-9-208-10X-PAK 164
 APP-9-209 199
 APP-9-210 72, 199
 APP-9-210-D-20X 72
 APP-9-211 72, 127, 199
 APP-9-211-20X 72, 127
 APP-9-212 72, 199
 APP-9-213 72, 127, 199
 APP-9-214 70, 198
 APP-9-SET 198
 AS-E0002 73
 AS-E0003 69

AS-E0004 69
 AS-E0005 71
 AS-E0006 69
 AS-E0007 72
 AS-E0009 70
 AS-E0010 72
 AS-E0011 71
 AS-E0012 70
 AS-E0013 72
 AS-E0014 72
 AS-E0015 69
 AS-E0016 41, 79
 AS-E0022 75
 AS-E0023 70
 AS-E0025 70
 AS-E0026 77
 AS-E0028 70
 AS-E0029 75
 AS-E0030 70
 AS-E0033 47
 AS-E0034 47
 AS-E0036 71
 AS-E0038 41
 AS-E0041 69
 AS-E0042 70
 AS-E0043 71
 AS-E0044 71
 AS-E0046 69
 AS-E0047 71
 AS-E0050 71
 AS-E0052 74
 AS-E0054 71
 AS-E0058 75
 AS-E0059 78
 AS-E0060 78, 236
 AS-E0061 78
 AS-E0062 76
 AS-E0063 76
 AS-E0065 80
 AS-E0066 80
 AS-E0067 80
 AS-E0068 80
 AS-E0069 80
 AS-E0083 72
 AS-E0084 72
 AS-E0085 72
 AS-E0136 69
 AS-E0149 71
 AS-E0150 70
 AS-E0151 70
 AS-E0169 69
 AS-E0170 70
 AS-E0171 70
 AS-E0173 72
 AS-E0175 70
 AS-E0176 72
 AS-E0177 72
 AS-E0179 76
 AS-E0181 76
 AS-E0182 75
 AS-E0183 75
 AS-E0189 76
 AS-E0190 75
 AS-E0191 76
 AS-E0193 75
 AS-E0196 70
 AS-E0201 72
 AS-E0202 72
 AS-E0203 72
 AS-E0212 69
 AS-E0214 70
 AS-E0218 70
 AS-E0222 76
 AS-E0225 72
 AS-E0232 70
 AS-E0233 69
 AS-E0238 310
 AS-E0239 311
 AS-E0240 311
 AS-E0241 310
 AS-E0250 75
 AS-E0251 75
 AS-E0252 75
 AS-E0257 72
 AS-E0258 71
 AS-E0260 71
 AS-E0261 25
 AS-E0263 70
 AS-E0271 47, 78
 AS-E0275 78
 AS-E0284 74
 AS-E0286 71
 AS-E0299 71
 AS-E0300 71
 AS-E0305 77

AS-E0308 71
 AS-E0311 74
 AS-E0318 80
 AS-E0322 78
 AS-E0323 71
 AS-E0324 78
 AS-E0326 73
 AS-E0327 72
 AS-E0334 78
 AS-E0335 72
 AS-E0338 72
 AS-E0342 78
 AS-E0344 78
 AS-E0346 70
 AS-E0349 74
 AS-E0358 77
 AS-E0360 69
 AS-E0363 69
 AS-E0364 71
 AS-E0368 70
 AS-E0375 70
 AS-E0389 71
 AS-E0392 78
 AS-E0406 69
 AS-E0411 74
 AS-E0431 71
 AS-E0439 71
 AS-E0456 71
 AS-E0458 78
 AS-E0463 70
 AS-E0470 21
 AS-E0473 69
 AS-E0475 73
 AS-E0476 69
 AS-E0479 73
 AS-E0480 79
 AS-E0503 78
 AS-E0524 71
 AS-E0527 71
 AS-E0536 72
 AS-E0542 76
 AS-E0543 73
 AS-E0565 78
 AS-E0572 60
 AS-E0577 71
 AS-E0578 76
 AS-E0623 70
 AS-E0657 78
 AS-E0659 73
 AS-E0662 75
 AS-E0669 71
 AS-E0673 72
 AS-E0686 71
 AS-E0687 71
 AS-E0776 70
 AS-E0928 73
 AS-E0932 77
 AS-E0974 78
 AS-E0993 70
 AS-E1097 70
 AS-E1103 72
 AS-E1104 69
 AS-E1105 69
 AS-E1106 69
 AS-E1107 72
 AS-E1108 71
 AS-E1109 70
 AS-E1112 72
 AS-E1166 71
 AS-E1167 70
 AS-E1179 69
 AS-E1181 74
 AS-E1186 69
 ASTM-E1387 305
 ASTM-E1387-PAK 305
 ASTM-E1618 305
 ASTM-E1618-PAK 305
 ASTM-P-0010-PAK 271
 ASTM-P-0020-PAK 271
 ASTM-P-0050 275
 ASTM-P-0051N-2G 275, 300
 ASTM-P-0052 275
 ASTM-P-0052-PAK 275
 ASTM-P-0053N-2G 275, 300
 ASTM-P-0061-SET 289
 ASTM-P-0062-SET 289
 ASTM-P-0063-SET 289
 ASTM-P-0064-SET 289
 ASTM-P-0065-SET 289
 ASTM-P-0066-SET 289
 ASTM-P-0067-SET 289
 ASTM-P-0068-SET 289
 ASTM-P-0069-SET 289
 ASTM-P-0070-1X 278, 289
 ASTM-P-0070-2X 278, 289

ASTM-P-0070-4X 278, 289
 ASTM-P-0070-10X 278, 289
 ASTM-P-0070-20X 278, 289
 ASTM-P-0070-BL 278, 289
 ASTM-P-0070-SET 289
 ASTM-P-0071-01 278, 289
 ASTM-P-0071-02 278, 289
 ASTM-P-0071-03 278, 289
 ASTM-P-0071-BL 278, 289
 ASTM-P-0080 299
 ASTM-P-0080-PAK 299
 ASTM-P-0081 299
 ASTM-P-0081-PAK 299
 ASTM-P-0082 299
 ASTM-P-0082-PAK 299
 ASTM-P-0082-R1 299
 ASTM-P-0082-R1-PAK 299
 ASTM-P-0091-01-10X 289
 ASTM-P-0091-02-10X 289
 ASTM-P-0091-03-10X 289
 ASTM-P-0091-04-10X 289
 ASTM-P-0091-05-10X 289
 ASTM-P-0091-06-10X 289
 ASTM-P-0091-07-10X 289
 ASTM-P-0091-08-10X 289
 ASTM-P-0091-09-10X 289
 ASTM-P-0091-10-10X 289
 ASTM-P-0091-11-10X 289
 ASTM-P-0091-12-10X 289
 ASTM-P-0091-13-10X 289
 ASTM-P-0091-14-10X 289
 ASTM-P-0091-15-10X 289
 ASTM-P-0091-16-10X 289
 ASTM-P-0091-17-10X 289
 ASTM-P-0091-18-10X 289
 ASTM-P-0091-19-10X 289
 ASTM-P-0091-20-10X 289
 ASTM-P-0091-21-10X 289
 ASTM-P-0092-0.1X-100ML279
 ASTM-P-0092-1X-100ML 279
 ASTM-P-0092-5X-100ML 279
 ASTM-P-0092-10X-100ML279
 ASTM-P-0092-100ML-SET279
 ASTM-P-0092-100X-100ML279
 ASTM-P-0092-500X-100ML279
 ASTM-P-0092-BL-100ML 279
 ASTM-P-0102-01 371
 ASTM-P-0102-02 371
 ASTM-P-0102-03 371
 ASTM-P-0102-04 371
 ASTM-P-0102-05 371
 ASTM-P-0102-06 371
 ASTM-P-0102-07 371
 ASTM-P-0102-08 371
 ASTM-P-0102-09 371
 ASTM-P-0102-10 371
 ASTM-P-0102-11 371
 ASTM-P-0102-12 371
 ASTM-P-0102-SET 371
 ASTM-P-0103-01 371
 ASTM-P-0103-02 371
 ASTM-P-0103-03 371
 ASTM-P-0103-04 371
 ASTM-P-0103-05 371
 ASTM-P-0103-06 371
 ASTM-P-0103-07 371
 ASTM-P-0103-08 371
 ASTM-P-0103-09 371
 ASTM-P-0103-10 371
 ASTM-P-0103-11 371
 ASTM-P-0103-12 371
 ASTM-P-0103-SET 371
 ASTM-P-0104-01 371
 ASTM-P-0104-02 371
 ASTM-P-0104-03 371
 ASTM-P-0104-04 371
 ASTM-P-0104-05 371
 ASTM-P-0104-06 371
 ASTM-P-0104-07 371
 ASTM-P-0104-08 371
 ASTM-P-0104-09 371
 ASTM-P-0104-SET 371
 ASTM-P-0105-01 371
 ASTM-P-0105-02 371
 ASTM-P-0105-03 371
 ASTM-P-0105-04 371
 ASTM-P-0105-05 371
 ASTM-P-0105-06 371
 ASTM-P-0105-07 371
 ASTM-P-0105-SET 371
 ASTM-P-0106-01 371
 ASTM-P-0106-02 371
 ASTM-P-0106-03 371
 ASTM-P-0106-04 371
 ASTM-P-0106-05 371

Catalog Number Index

ASTM-P-0106-06	371	B-049N-5MG	37	BDE-043S	28	BDE-138S	29	BF-5453-B5-5X-SET	303, 309	BIOC-014N-25MG	262
ASTM-P-0106-07	371	B-049S	37	BDE-044S	28	BDE-139S	29	BF-5453-B5-10X-SET	303, 309	BIOC-015N	262
ASTM-P-0106-SET	371	B-052N	37	BDE-045S	28	BDE-140S	29	BF-5453-B5-15X-SET	303, 309	BIOC-016S-W	261
ASTM-P-0107-5	371	B-052S	37	BDE-046S	28	BDE-141S	29	BF-5453-B5-30X	303, 309	BIOC-017N	259
ASTM-P-0108-SET	372	B-053N-5MG	37	BDE-047S	28, 91	BDE-142S	29	BF-5453-B5-50X	303, 309	BIOC-018N-25MG	259
ASTM-P-0109-SET	372	B-053S	37	BDE-048S	28	BDE-143S	29	BF-5453-B5-75X	303, 309	BIOC-019N-25MG	262
ASTM-P-0110-SET	372	B-077S	37, 18	BDE-049S	28	BDE-144S	29	BF-5453-B5-100X	303, 309	BIOC-020N	260
ASTM-P-0111-SET	372	B-080S	37	BDE-050S	28	BDE-145S	29	BF-5453-B5-200X	303, 309	BIOC-021N	260
ASTM-P-0112-SET	372	B-101N	37	BDE-051S	28	BDE-146S	29	BF-5453-B5-500X	303, 309	BIOC-022N	260
ASTM-P-0113-SET	372	B-101S	37	BDE-052S	28	BDE-147S	29	BF-5453-B5-BL	303, 309	BIOC-023N	262
ASTM-P-0114-SET	373	B-103N	37	BDE-053S	28	BDE-148S	29	BF-5453-B20-5X-SET	303, 309	BIOC-024N	261
ASTM-P-0115-SET	373	B-103S	37	BDE-054S	28	BDE-149S	29	BF-5453-B20-10X-SET	303, 309	BIOC-025N	262
ASTM-P-0116-SET	373	B-114S	37	BDE-055S	28	BDE-150S	29	BF-5453-B20-15X-SET	303, 309	BIOC-028N	262
ASTM-P-0117-SET	373	B-137S	37	BDE-056S	28	BDE-151S	30	BF-5453-B20-30X	303, 309	BIOC-029N	262
ASTM-P-0118-SET	373	B-141S	37	BDE-057S	28	BDE-152S	30	BF-5453-B20-50X	303, 309	BIOC-030N-10MG	260
ASTM-P-0119-SET	374	B-153N-5MG	37	BDE-058S	28	BDE-153S	30, 91	BF-5453-B20-75X	303, 309	BIOC-030S	260
ASTM-P-0120-SET	374	B-153S	37	BDE-059S	28	BDE-154S	30, 91	BF-5453-B20-100X	303, 309	BIOC-032N	260
ASTM-P-0121-SET	374	B-155N	37	BDE-060S	28	BDE-155S	30	BF-5453-B20-200X	303, 309	BIOC-033N	261
ASTM-P-124-01-VAP	281	B-155S	37	BDE-061S	28	BDE-156S	30	BF-5453-B20-500X	303, 309	BIOC-034N-1G	262
ASTM-P-124-03-VAP	281	B-156S	37	BDE-062S	28	BDE-157S	30	BF-5453-B20-BL	303, 309	BIOC-036N-1G	262
ASTM-P-124-04-VAP	281	B-159S	37	BDE-063S	28	BDE-158S	30	BF-5453-B100-5X-SET	303, 309	BIOC-038N-1G	262
ASTM-P-124-05-VAP	281	B-169S	37	BDE-064S	28	BDE-159S	30	BF-5453-B100-10X-SET	303, 309	BIOC-039N-1G	260
ASTM-P-124-06-VAP	281	B-180S	37	BDE-065S	28	BDE-160S	30			BIOC-040N	262
ASTM-P-125-01-VAP	281	B-194S	37	BDE-066S	28	BDE-161S	30	BF-5453-B100-15X-SET	303, 309	BIOC-041N	260
ASTM-P-125-02-VAP	281	B-200S	37	BDE-067S	28	BDE-162S	30			BIOC-042N	262
ASTM-P-126-01	268	B-209N	37	BDE-068S	28	BDE-163S	30	BF-5453-B100-30X	303, 309	BIOC-043N-1G	261
ASTM-P-127-01	268	B-209S	37	BDE-069S	28	BDE-164S	30	BF-5453-B100-50X	303, 309	BIOC-044N-1G	260
ASTM-P-127-02	268	B-250S	40	BDE-070S	28	BDE-165S	30	BF-5453-B100-75X	303, 309	BIOC-045N	262
ASTM-P-0127-SET	374	B-250S-0.35X	40	BDE-071S	28	BDE-166S	30	BF-5453-B100-100X	303, 309	BIOC-046N	260
ASTM-P-128-01	268	B-600S	40	BDE-072S	28	BDE-167S	30	BF-5453-B100-200X	303, 309	BIOC-047N-1G	260
ASTM-P-128-02	268	B-600S-0.35X	40	BDE-073S	28	BDE-168S	30	BF-5453-B100-500X	303, 309	BIOC-049N	262
ASTM-P-128-03	268	BADGE-001N	92	BDE-074S	28	BDE-169S	30	BF-5453-B100-BL	303, 309	BIOC-050S-CN	261
ASTM-P-128-04	268	BADGE-001S	92	BDE-075S	28	BDE-170S	30	BF-14538-B100	303, 309	BIOC-051N-10MG	262
ASTM-P-128-05	268	BAN-01	38, 207	BDE-076S	29	BDE-171S	30	BF-BT-EE	308	BIOC-052N	259
ASTM-P-128-06	268	BAN-02	38, 207	BDE-077S	29	BDE-172S	30	BF-BT-ME	307	BIOC-053N	261
ASTM-P-129-01	269	BAN-03	38, 118, 207	BDE-078S	29	BDE-173S	30	BF-D-93-60C-250ML	309	BIOC-054N-500MG	262
ASTM-P-129-02	269	BAN-04	38, 207	BDE-079S	29	BDE-174S	30	BF-D-93-65C-250ML	309	BIOC-055N	262
ASTM-P-131-01	269	BAN-05	38, 207	BDE-080S	29	BDE-175S	30	BF-D-93-140C-250ML	309	BIOC-056S-TP	261
ASTM-P-131-02	269	BAN-06	38, 207	BDE-081S	29	BDE-176S	30	BF-D-2500-B5-250ML	309	BIOC-057N	260
ASTM-P-131-03	269	BAN-07	38, 207	BDE-082S	29	BDE-177S	30	BF-D-2500-B20-250ML	309	BIOC-058N	261
ASTM-P-131-04	269	BAN-08	38, 207	BDE-083S	29	BDE-178S	30	BF-D-2500-B100-250ML	309	BIOC-059N-50MG	261
ASTM-P-131-05	269	BAN-09	38, 207	BDE-084S	29	BDE-179S	30	BF-D-4951-B100	303, 309	BIOC-060N	262
ASTM-P-132-01	268	BAN-10	38, 207	BDE-085S	29	BDE-180S	30	BF-D-6584-01	302, 306	BIOC-061N-10MG	260
ASTM-P-132-02	268	BDD-301S	23	BDE-086S	29	BDE-181S	30	BF-D-6584-02	302, 306	BIOC-062N	260
ASTM-P-132-03	268	BDD-301S-2.5X	23	BDE-087S	29	BDE-182S	30	BF-D-6584-03	302, 306	BIOC-064N	260
ASTM-P-132-04	268	BDD-302S	23	BDE-088S	29	BDE-183S	30, 91	BF-D-6584-04	302, 306	BIOC-065N	261
ASTM-P-133-01	268	BDD-302S-2.5X	23	BDE-089S	29	BDE-184S	30	BF-D-6584-05-IS	302, 306	BIOC-066N-1G	260
ASTM-P-133-02	268	BDD-401S	23	BDE-090S	29	BDE-185S	30	BF-D-6584-06	302, 306	BIOC-067N	259
ASTM-P-133-03	268	BDD-401S-2.5X	23	BDE-091S	29	BDE-186S	30	BF-D-6584-07N	302, 306	BIOC-068N	261
ASTM-P-133-04	268	BDD-402S	23	BDE-092S	29	BDE-187S	30	BF-D-6584-MIX	302, 306	BIOC-069N-50MG	262
ASTM-P-134-PAK	268	BDD-402S-2.5X	23	BDE-093S	29	BDE-188S	30	BF-D-6584-SET	302, 306	BIOC-070N	262
ASTM-P-0135	302, 303	BDD-403S	23	BDE-094S	29	BDE-189S	30	BF-FU-029-40X	302, 306	BIOC-071N	262
ASTM-P-0135-PAK	302, 303	BDD-403S-2.5X	23	BDE-095S	29	BDE-190S	30	BF-FU-029-D	302, 306	BIOC-072N-10MG	262
ASTM-P-0136-SET	302	BDE-001S	28	BDE-096S	29	BDE-191S	30	BF-FU-030-D	302, 306	BIOC-073N-10MG	261
ASTM-P-0137N-2G	275, 300	BDE-002S	28	BDE-097S	29	BDE-192S	30	BF-FU-030-D-40X	302, 306	BIOC-074N	260
ASTM-P-0138N-2G	275, 300	BDE-003S	28	BDE-098S	29	BDE-193S	30	BF-FU-032-D	302, 306	BIOC-075N-10MG	261
ASTM-P-0140-IS	297	BDE-004S	28	BDE-099S	29, 91	BDE-194S	30	BF-FU-032-D-40X	302, 306	BIOC-076N-10MG	262
ASTM-P-0140-IS2	297	BDE-005S	28	BDE-100S	29, 91	BDE-195S	30	BF-KF-0.6X-5ML-VAP	303, 309	BIOC-077N-10MG	261
ASTM-P-0140-IS2-PAK	297	BDE-006S	28	BDE-101S	29	BDE-196S	30	BF-KF-1X-5ML-VAP	303, 309	BIOC-078N	260
ASTM-P-0140-IS-PAK	297	BDE-007S	28	BDE-102S	29	BDE-197S	30	BF-KF-10X-5ML-VAP	303, 309	BIOC-079N	260
ASTM-P-0140-PES	297	BDE-008S	28	BDE-103S	29	BDE-198S	30	BF-KF-50X-5ML-VAP	303, 309	BIOC-080N-10MG	261
ASTM-P-0140-PES-PAK	297	BDE-009S	28	BDE-104S	29	BDE-199S-0.5X	30	BF-MEOH-SET	307	BIOC-081N	260
ASTM-P-0140-QC	297	BDE-010S	28	BDE-105S	29	BDE-200S-0.5X	30	BF-PALM-EE	308	BIOC-082N	259
ASTM-P-0140-QC-PAK	297	BDE-011S	28	BDE-106S	29	BDE-201S	30	BF-PALM-ME	307	BIOC-083N-10MG	261
ASTM-SSTDA/B-SET	271	BDE-012S	28	BDE-107S	29	BDE-202S	30	BF-RAP-EE	308	BIOC-084N	262
		BDE-013S	28	BDE-108S	29	BDE-203S	30	BF-RAP-ME	307	BIOC-085N-10MG	262
		BDE-014S	28	BDE-109S	29	BDE-204S	30	BF-SOY-EE	308	BIOC-086N	261
		BDE-015S	28	BDE-110S	29	BDE-205S	30	BF-SOY-ME	307	BIOC-087N-10MG	262
		BDE-016S	28	BDE-111S	29	BDE-206S	30	BF-UOP-391-B100	303, 309	BIOC-088S	262
		BDE-017S	28	BDE-112S	29	BDE-207S-R1	30	BF-WM-B100-01-0.5X	309	BIOC-089S	260
		BDE-018S	28	BDE-113S	29	BDE-208S	30	BF-WM-B100-09-0.5X	309	BIOC-091N	262
		BDE-019S	28	BDE-114S	29	BDE-209S	30, 91	BF-WM-B100-13-0.5X	309	BIOC-092N	262
		BDE-020S	28	BDE-115S	29	BDE-705	31, 40	BF-WM-B100-15-0.5X	309	BIOC-093N	262
		BDE-021S	28	BDE-116S	29	BDE-710	31, 40	BF-WM-B100-27-0.5X	309	BIOC-095N-10MG	259
		BDE-022S	28	BDE-117S	29	BDE-710-GL	31	BF-WM-B100-29-0.5X	309	BIOC-096N	262
		BDE-023S	28	BDE-118S	29	BDE-736	31, 40	BF-WM-B100-32-0.5X	309	BIOC-097S-CN	260
		BDE-024S	28	BDE-119S	29	BDE-798	40	BF-WM-B100-41-0.5X	309	BIOC-099N-10MG	261
		BDE-025S	28	BDE-120S	29	BDE-798S	31	BF-WM-B100-43-0.5X	309	BIOC-100N-10MG	262
		BDE-026S	28	BDE-121S	29	BDE-798S-GL	31	BF-WM-B100-54-0.5X	309	BIOC-101N	262
		BDE-027S	28	BDE-122S	29	BDE-AAP-A	32, 186	BF-WM-B100-70-0.5X	309	BIOC-102S	261
		BDE-028S	28	BDE-123S	29	BDE-AAP-A-15X	32, 186	BF-WM-B100-BL-1	309	BIOC-103N	260
		BDE-029S	28	BDE-124S	29	BDE-BROMKAL	31	BF-WM-B100-BL-5	309	BIOC-104N	261
		BDE-030S	28	BDE-125S	29	BDE-CAE-1	31	BF-WM-B100-MIX	309	BIOC-105N	262
		BDE-031S	28	BDE-126S	29	BDE-CALEWS	31, 257	BIOC-002N-25MG	260	BIOC-106N-10MG	261
		BDE-032S	28	BDE-127S	29	BDE-CM	32, 186	BIOC-003N-25MG	260	BIOC-108N-10MG	261
		BDE-033S	28	BDE-128S	29	BDE-COC	32, 186	BIOC-004N-25MG	261	BIOC-109N	260
		BDE-034S	28	BDE-129S	29	BDE-CR	31	BIOC-005N-25MG	261	BIOC-110N	260
		BDE-035S	28	BDE-130S	29	BDE-CSM	32, 186	BIOC-006N-25MG	259	BIOC-111N	262
		BDE-036S	28	BDE-131S	29	BDE-EPA-SET	32, 186	BIOC-007N-25MG	261	BIOC-112N-10MG	260
		BDE-037S	28	BDE-132S	29	BDE-LMS	31	BIOC-008N-25MG	262	BIOC-113N-10MG	262
		BDE-038S	28	BDE-133S	29	BDE-MS	32, 186	BIOC-009N-25MG	262	BIOC-114N	260
		BDE-039S	28	BDE-134S	29	BDE-USE	31	BIOC-010N-25MG	260	BIOC-115N	261
		BDE-040S	28	BDE-135S	29	BDE-040S	35	BIOC-011N	262	BIOC-116N	260
		BDE-041S	28	BDE-136S	29	BDE-041S	35	BIOC-012N-25MG	260	BIOC-117N-1G	261
		BDE-042S	28	BDE-137S	29	BDE-042S	35	BIOC-013N-25MG	262	BIOC-118N	262

Catalog Number Index

BIOC-119N-10MG	261	BIOC-225N-10MG	262	C-038S-TP	4	C-070S	5	C-102N	5	C-133S-TP	6
BIOC-120N	262	BIOC-226S	261	C-039N	4	C-070S-TP	5	C-102S	5	C-134N	6
BIOC-121N	262	BIOC-227N-10MG	260	C-039S	4	C-071N	5	C-102S-TP	5	C-134S	6
BIOC-122N-10MG	260	BIOC-228S-CN	261	C-039S-TP	4	C-071S	5	C-103N	5	C-134S-TP	6
BIOC-123N-10MG	261	BIOC-229N-10MG	261	C-040N	5	C-071S-TP	5	C-103S	5	C-135N	6
BIOC-124N-10MG	260	BIOC-230N-10MG	261	C-040S	5	C-072N	5	C-103S-TP	5	C-135S	6
BIOC-125N-10MG	260	BIOC-231S-CN	261	C-040S-TP	5	C-072S	5	C-104N	5	C-135S-TP	6
BIOC-126N-10MG	260	BIOC-232N-10MG	262	C-041N	5	C-072S-TP	5	C-104S	5	C-136N	6
BIOC-127N-10MG	261	BIOC-233N	262	C-041S	5	C-073N	5	C-104S-TP	5	C-136S	6
BIOC-128N-10MG	260	BIOC-234S	261	C-041S-TP	5	C-073S	5	C-105N	5	C-136S-TP	6
BIOC-129S	261	BIOC-235N-10MG	261	C-042N	5	C-073S-TP	5	C-105S	5	C-137N	6
BIOC-130N	261	BIOC-236N-10MG	259	C-042S	5	C-074N	5	C-105S-TP	5	C-137S	6, 17, 214
BIOC-131N-10MG	262	BIOC-237N-10MG	259	C-042S-TP	5	C-074S	5	C-106N	5	C-137S-TP	6, 17, 214
BIOC-132N	261	BIOC-238N-10MG	262	C-043N	5	C-074S-TP	5	C-106S	5	C-138N	6
BIOC-133N-10MG	260	BIOC-239N-10MG	259	C-043S	5	C-075N	5	C-106S-TP	5	C-138S	6, 17, 214
BIOC-134N-10MG	260	BIOC-240N	260	C-043S-TP	5	C-075S	5	C-107N	6	C-138S-TP	6, 17, 214
BIOC-135N-10MG	261			C-044N	5	C-075S-TP	5	C-107S	6	C-139S	6
BIOC-136N	260			C-044S	5, 17, 214	C-076N	5	C-107S-TP	6	C-139S-TP	6
BIOC-138N	261			C-044S-TP	5, 17, 214	C-076S	5	C-108N	6	C-140N	6
BIOC-139N-10MG	261			C-045N	5	C-076S-TP	5	C-108S	6	C-140S	6
BIOC-140N	260			C-045S	5	C-077N	5	C-108S-TP	6	C-140S-TP	6
BIOC-141N	262			C-045S-TP	5	C-077S	5	C-109N	6	C-141N	6
BIOC-142N-10MG	260			C-046N	5	C-077S-TP	5	C-109S	6	C-141S	6, 17, 214
BIOC-143N-10MG	260			C-046S	5	C-078N	5	C-109S-TP	6	C-141S-TP	6, 17, 214
BIOC-144N-10MG	262			C-046S-TP	5	C-078S	5	C-110N	6	C-142N	6
BIOC-145N-10MG	262			C-047N	5	C-078S-TP	5	C-110S	6, 17, 214	C-142S	6
BIOC-146N-10MG	260			C-047S	5	C-079N	5	C-110S-TP	6, 17, 214	C-142S-TP	6
BIOC-147N	262			C-047S-TP	5	C-079S	5	C-111N	6	C-143N	6
BIOC-148N-10MG	261			C-048N	5	C-079S-TP	5	C-111S	6	C-143S	6
BIOC-149N-10MG	262			C-048S	5	C-080N	5	C-111S-TP	6	C-143S-TP	6
BIOC-150N	260			C-048S-TP	5	C-080S	5	C-112N	6	C-144N	6
BIOC-151N	260			C-049N	5	C-080S-TP	5	C-112S	6	C-144S	6
BIOC-153N	260			C-049S	5	C-081N	5	C-112S-TP	6	C-144S-TP	6
BIOC-154N	260			C-049S-TP	5	C-081S	5	C-113N	6	C-145N	6
BIOC-155N	260			C-050N	5	C-081S-TP	5	C-113S	6	C-145S	6
BIOC-156N-10MG	260			C-050S	5	C-082N	5	C-113S-TP	6	C-145S-TP	6
BIOC-157N-10MG	261			C-050S-TP	5	C-082S-TP	5	C-114N	6	C-146N	6
BIOC-158N-10MG	261			C-051N	5	C-083N	5	C-114S	6	C-146S	6
BIOC-159N-10MG	262			C-051S	5	C-083S	5	C-114S-TP	6	C-146S-TP	6
BIOC-161N-10MG	260			C-051S-TP	5	C-083S-TP	5	C-115N	6	C-147N	6
BIOC-162S	260			C-052N	5	C-084N	5	C-115S	6	C-147S	6
BIOC-163N	260			C-052S	5, 17, 214	C-084S	5	C-115S-TP	6	C-147S-TP	6
BIOC-164N-25MG	262			C-052S-TP	5, 17, 214	C-084S-TP	5	C-116N	6	C-148N	6
BIOC-165N-10MG	261			C-053N	5	C-085N	5	C-116S	6	C-148S	6
BIOC-166N	262			C-053S	5	C-085S	5	C-116S-TP	6	C-148S-TP	6
BIOC-167N	261			C-053S-TP	5	C-085S-TP	5	C-117N	6	C-149N	6
BIOC-168N	259			C-054N	5	C-086N	5	C-117S	6	C-149S	6
BIOC-169N	261			C-054S	5	C-086S	5	C-117S-TP	6	C-149S-TP	6
BIOC-170N	261			C-054S-TP	5	C-086S-TP	5	C-118N	6	C-150N	6
BIOC-171N	262			C-055N	5	C-087N	5	C-118S	6	C-150S	6
BIOC-172N-10MG	262			C-055S	5	C-087S	5, 17, 214	C-118S-TP	6	C-150S-TP	6
BIOC-174N	262			C-055S-TP	5	C-087S-TP	5, 17, 214	C-119N	6	C-151N	6
BIOC-175N-10MG	260			C-056N	5	C-088N	5	C-119S	6	C-151S	6, 17, 214
BIOC-176N-10MG	260			C-056S	5	C-088S	5	C-119S-TP	6	C-151S-TP	6, 17, 214
BIOC-177N-10MG	260			C-056S-TP	5	C-088S-TP	5	C-120N	6	C-152N	6
BIOC-178N-10MG	260			C-057N	5	C-089N	5	C-120S	6	C-152S	6
BIOC-179S-D	260			C-057S	5	C-089S	5	C-120S-TP	6	C-152S-TP	6
BIOC-180N-10MG	260			C-057S-TP	5	C-089S-TP	5	C-121N	6	C-153N	6
BIOC-181S	261			C-058N	5	C-090N	5	C-121S	6	C-153S	6, 17, 214
BIOC-183N-10MG	262			C-058S	5	C-090S	5	C-121S-TP	6	C-153S-TP	6, 17, 214
BIOC-184N-10MG	262			C-058S-TP	5	C-090S-TP	5	C-122N	6	C-154N	6
BIOC-185N-10MG	260			C-059N	5	C-091N	5	C-122S	6	C-154S	6
BIOC-186N	261			C-059S	5	C-091S	5	C-122S-TP	6	C-154S-TP	6
BIOC-187N	261			C-059S-TP	5	C-091S-TP	5	C-123N	6	C-155N	6
BIOC-188N	261			C-060N	5	C-092N	5	C-123S	6	C-155S	6
BIOC-189S-CN	262			C-060S	5	C-092S	5	C-123S-TP	6	C-155S-TP	6
BIOC-190N-10MG	262			C-060S-TP	5	C-092S-TP	5	C-124N	6	C-156N	6
BIOC-191S	261			C-061N	5	C-093N	5	C-124S	6	C-156S	6
BIOC-194N-10MG	262			C-061S	5	C-093S	5	C-124S-TP	6	C-156S-TP	6
BIOC-195N	261			C-061S-TP	5	C-093S-TP	5	C-125N	6	C-157N	6
BIOC-196N-10MG	260			C-062N	5	C-094N	5	C-125S	6	C-157S	6
BIOC-197N	259			C-062S	5	C-094S	5	C-125S-TP	6	C-158N	6
BIOC-199N	261			C-062S-TP	5	C-094S-TP	5	C-126N	6	C-158S	6
BIOC-200N-10MG	261			C-063N	5	C-095N	5	C-126S	6	C-158S-TP	6
BIOC-201N-10MG	260			C-063S	5	C-095S	5	C-126S-TP	6	C-159N	6
BIOC-202N	260			C-063S-TP	5	C-095S-TP	5	C-127N	6	C-159S	6
BIOC-203N	260			C-064N	5	C-096N	5	C-127S	6	C-159S-TP	6
BIOC-205N	261			C-064S	5	C-096S	5	C-127S-TP	6	C-160N	6
BIOC-207N-10MG	262			C-064S-TP	5	C-096S-TP	5	C-128N	6	C-160S	6
BIOC-209N-10MG	262			C-065N	5	C-097N	5	C-128S	6	C-160S-TP	6
BIOC-210N-10MG	262			C-065S	5	C-097S	5	C-128S-TP	6	C-161N	6
BIOC-211N-10MG	259			C-065S-TP	5	C-097S-TP	5	C-129N	6	C-161S	6
BIOC-212S	262			C-066N	5	C-098N	5	C-129S	6	C-161S-TP	6
BIOC-213N	262			C-066S	5, 17, 214	C-098S	5	C-129S-TP	6	C-162N	6
BIOC-214N-10MG	260			C-066S-TP	5, 17, 214	C-098S-TP	5	C-130N	6	C-162S	6
BIOC-215N-10MG	259			C-067N	5	C-099N	5	C-130S	6	C-162S-TP	6
BIOC-216N-10MG	260			C-067S	5	C-099S	5	C-130S-TP	6	C-163N	6
BIOC-217S	261			C-067S-TP	5	C-099S-TP	5	C-131N	6	C-163S	6
BIOC-218N-10MG	260			C-068N	5	C-100N	5	C-131S	6	C-163S-TP	6
BIOC-219N-10MG	261			C-068S	5	C-100S	5	C-131S-TP	6	C-164N	6
BIOC-220N-10MG	262			C-068S-TP	5	C-100-SET	4	C-132N	6	C-164S	6
BIOC-221N-10MG	260			C-069N	5	C-100S-TP	5	C-132S	6	C-164S-TP	6
BIOC-222N-10MG	260			C-069S	5	C-101N	5	C-132S-TP	6	C-165N	6
BIOC-223N	261			C-069S-TP	5	C-101S	5, 17, 214	C-133N	6		
BIOC-224N-10MG	261			C-038S	4	C-070N	5	C-133S	6		

C

Catalog Number Index

C-165S	6	C-197N	7	C-232S-H-10X-PAK	140, 142, 148, 174, 209, 210, 18	C-262N-50MG	18, .91	CLP-001B	129	CLP-025	140
C-165S-TP	6	C-197S	7	C-232S-M	246, 299, 18	C-262S	299, 18	CLP-003-R	226, 129	CLP-025-PAK	140
C-166N	6	C-197S-TP	7	C-232S-M-2.85X	18	C-262S-H	18	CLP-003-R-10X	130, 226, 129	CLP-025-WL	140
C-166S	6	C-198N	7	C-232S-M-PAK	18	C-262S-H-10X	140, 142, 209, 174, 299, 91, 18, 300	CLP-003-R-10X-PAK	130, 226, 129	CLP-025-WL-10ML	140
C-166S-TP	6	C-198S	7	C-232S-PAK	18	C-262S-M	246, 299, 18	CLP-004	69, 131, 226, 129	CLP-026-R2	140
C-167N	6	C-198S-TP	7	C-232-ST-1	18, 277	C-262S-M-2.85X	18	CLP-003-R-PAK	226, 129	CLP-026-R2-10X	140
C-167S	6	C-199N-R1	7	C-232-ST-1-PAK	18, 277	C-262S-M-PAK	18	CLP-004	69, 131, 226, 129	CLP-026-R2-10X-PAK	140
C-167S-TP	6	C-199S-R1	7	C-232-ST-2	18, 277	C-262S-M-2.85X	18	CLP-004-10X69	130, 131, 192, 226, 129	CLP-026-R2-PAK	140
C-168N	6	C-199S-TP-R1	7	C-232-ST-2-PAK	18, 277	C-262S-M-PAK	18	CLP-004-10X-PAK	130, 131, 192, 226, 129	CLP-026-R2-WL	140
C-168S	6	C-200N-R1	7	C-232S-TP	18	C-262S-M-PAK	18	CLP-004-100X69	130, 131, 226, 256, 129	CLP-026-R2-WL-25ML	140
C-168S-TP	6	C-200S-R1	7	C-232-WL-5X-5ML	211	C-262S-PAK	18	CLP-004-100X-PAK	131, 226, 256, 129	CLP-026-R2-WL-50ML	140
C-169N	6	C-200S-TP-R1	7	C-232-WL-5X-10ML	211	C-262-ST-1	18, 277	CLP-004-80X	69, 129	CLP-027	136
C-169S	6	C-201N-R1	7	C-232-WL-10X-5ML	211	C-262-ST-1-PAK	18, 277	CLP-004-80X-PAK	129	CLP-027-PAK	136
C-169S-TP	6	C-201S-R1	7	C-232-WL-10X-10ML	211	C-262-ST-2	18, 277	CLP-004-100X69	130, 131, 226, 256, 129	CLP-027-R2	136
C-170N	7	C-201S-TP-R1	7	C-242-CAL-SET	211	C-262-ST-2-PAK	18, 277	CLP-004-100X-PAK	131, 226, 256, 129	CLP-027-R2-PAK	136
C-170S	7, 17, 214	C-202N	7	C-242N-50MG	18, .91	C-262S-TP	18	CLP-004-1000X	69, 129, 131	CLP-027-R2-WL-10ML	141, 212, 9
C-170S-TP	7, 17, 214	C-202S	7	C-242S	299, 18	C-268S	299, 18	CLP-004-1000X	69, 129, 131	CLP-027-WL-10ML	141, 212
C-171N	7	C-202S-TP	7	C-242S-H	18	C-268S-H	18	CLP-004-PAK	131, 226, 129	CLP-028	140
C-171S	7	C-203N	7	C-242S-H-10X	140, 142, 209, 174, 299, 91, 18, 300	C-268S-H-10X91	140, 142, 148, 174, 209, 210, 299, 18	CLP-007-2	135, 138	CLP-028-PAK	140
C-171S-TP	7	C-203S	7	C-242S-M	246, 299, 18	C-268S-H-10X-PAK	140, 142, 148, 174, 209, 210, 18	CLP-007A	135, 229	CLP-028-WL	140
C-172N	7	C-203S-TP	7	C-242S-M-2.85X	18	C-268S-M	246, 299, 18	CLP-007B	135, 229	CLP-028-WL-10ML	140
C-172S	7	C-204N	7	C-242S-M-PAK	18	C-268S-M-2.85X	18	CLP-007-R-SET-PAK	135	CLP-029	136
C-172S-TP	7	C-204S	7	C-242S-PAK	18	C-268S-M-PAK	18	CLP-007-R-SET-PAK	135	CLP-029-0.75X	136
C-173N	7	C-204S-TP	7	C-242-ST-1	18, 277	C-268S-M-PAK	18	CLP-007-WL-50ML	232, 135	CLP-029-0.75X-PAK	136
C-173S	7	C-205N	7	C-242-ST-1-PAK	18, 277	C-268S-PAK	18	CLP-007-SET	135	CLP-029-PAK	136
C-173S-TP	7	C-205S	7	C-242-ST-2	18, 277	C-268-ST-1	18, 277	CLP-007-SET-PAK	229	CLP-030	136
C-174N	7	C-205S-TP	7	C-242-ST-2-PAK	18, 277	C-268-ST-1-PAK	18, 277	CLP-007-WL-50ML	232, 135	CLP-030-PAK	136
C-174S	7	C-206N	7	C-242S-TP	18	C-268-ST-2	18, 277	CLP-008A	136	CLP-031-R	136, 138
C-174S-TP	7	C-206S	7, 17, 214	C-242S-TP	18	C-268-ST-2-PAK	18, 277	CLP-008B-R	136	CLP-031-R2	136
C-175N	7	C-206S-TP	7, 17, 214	C-242-ST-1	18, 277	C-268S-TP	18	CLP-008-R-SET	136	CLP-031-R2-PAK	136
C-175S	7	C-207N	7	C-242S-M	246, 299, 18	CAR-DNPH	315, 257	CLP-009	135	CLP-031-R-PAK	136, 138
C-175S-TP	7	C-207S	7	C-242S-M-PAK	18	C-CAN-01	10, 244	CLP-009-10X	135, 138	CLP-031-R-WL-25ML	232, 138
C-176N	7	C-207S-TP	7	C-242-WL-5X-5ML	211	C-CAN-02	10, 244	CLP-010	135, 229	CLP-031-R-WL-50ML	232, 138
C-176S	7	C-208N	7	C-242-WL-5X-10ML	211	C-CAN-03	10, 244	CLP-010-10X	135, 229	CLP-032-H-5X	17, 214
C-176S-TP	7	C-208S	7	C-242-WL-10X-5ML	211	C-CAN-04	10, 244	CLP-011A	135, 229	CLP-032-R	139, 188, 209, 213
C-177N	7	C-208S-TP	7	C-242-WL-10X-10ML	211	C-CAN-SET	10, 244	CLP-011B	135, 229	CLP-032-R-01	120
C-177S	7	C-209N	7, 21	C-248-CAL-SET	211	C-CCSEC	16	CLP-011-SET	135, 229	CLP-032-R-PAK	139, 209, 213
C-177S-TP	7	C-209S	7	C-248N-50MG	18, .91	C-CCSEC-PAK	16	CLP-012	135	CLP-032R-WL-0.2X-10ML	140
C-178N	7	C-209S-H	17, 214	C-248S	299, 18	C-CCSEC-R	16	CLP-014-5ML	209	CLP-032R-WL-0.2X-50ML	140
C-178S	7	C-209S-H-10X	17, 214	C-248S-H	18	C-CCSEC-R-PAK	16	CLP-014-5X-5ML	209	CLP-032R-WL-0.2X-100ML	140
C-178S-TP	7	C-209S-TP	247, 11, 7	C-248S-H-10X	140, 142, 209, 174, 299, 91, 18, 300	CCME-CDW-CARB	245	CLP-014-5X-25ML	209	CLP-032R-WL-5X-10ML	209
C-179N	7	C-216/260-CAL-SET	211, 17, 214	C-248S-H-10X-PAK	140, 142, 148, 174, 209, 210, 18	CCME-CDW-CPEST	245	CLP-014-25ML	209	CLP-032R-WL-5X-50ML	209
C-179S	7	C-216/260-WL-5X-5ML	211, 17, 214	C-248S-M	246, 299, 18	CCME-CDW-PHERB	245	CLP-014-1000X	140	CLP-032R-WL-5X-100ML	209
C-179S-TP	7	C-216/260-WL-10X-5ML	211, 17, 214	C-248S-M-2.85X	18	CCME-EPH	245, 313	CLP-014-1000X-PAK	140	CLP-032R-WL-10ML	209
C-180N	7	C-216/260-WL-10X-10ML	211, 17, 214	C-248S-M-PAK	18	CCME-EPH/SS	245, 313	CLP-016-1000X	140	CLP-032R-WL-50ML	209
C-180S	7, 17, 214	C-216N	18, 91, 277	C-248S-PAK	18	CCME-LPF-SET	245, 313	CLP-016-1000X-PAK	140	CLP-032R-WL-100ML	209
C-180S-TP	7, 17, 214	C-216N-100MG	18	C-248S-TP	18	CCME-MHPF-SET	245, 313	CLP-017	140	CLP-033	136, 138
C-181N	7	C-216S	299, 18	C-248-ST-1	18, 277	CCME-QC	245, 313	CLP-017-PAK	140	CLP-033-PAK	136, 138
C-181S	7	C-216S-H	18	C-248-ST-1-PAK	18, 277	CCME-QC-PAK	245, 313	CLP-018-10X	139	CLP-034	139, 188, 213
C-181S-TP	7	C-216S-H-10X	140, 142, 209, 174, 299, 91, 18, 300	C-248-ST-2	18, 277	CCME-SPIKE	245, 313	CLP-018-10X-PAK	139	CLP-034-PAK	139, 213
C-182N	7	C-216S-M	246, 299, 18	C-248-ST-2-PAK	18, 277	CCME-VPH	245, 313	CLP-019-10X	139	CLP-216/260-WL	141
C-182S	7	C-216S-M-2.85X	18	C-248S-TP	18	CCME-VPH/SS	245, 313	CLP-019-10X-PAK	139	CLP-216/260-WL-5ML	141
C-182S-TP	7	C-216S-M-PAK	18	C-248-WL-5X-5ML	211	C-CS-01	14	CLP-020	226, 129	CLP-216/260-WL-10ML	141
C-186N	7	C-216S-PAK	18	C-248-WL-5X-10ML	211	C-CS-02	14	CLP-020-10X	226, 129	CLP-221-WL	141
C-186S	7	C-216-ST-1	18, 277	C-248-WL-10X-5ML	211	C-CS-03	14	CLP-020-10X-PAK	226, 129	CLP-221-WL-5ML	141
C-186S-TP	7	C-216-ST-1-PAK	18, 277	C-248-WL-10X-10ML	211	C-CS-04	14	CLP-020-PAK	226, 129	CLP-221-WL-10ML	141
C-187N	7	C-216-ST-2	18, 277	C-254-CAL-SET	212	C-CS-05	14	CLP-021	226, 129	CLP-232-WL-5ML	141
C-187S	7, 17, 214	C-216-ST-2-PAK	18, 277	C-254N-50MG	18, .91	C-CS-06	15	CLP-021-10X	226, 129	CLP-232-WL-10ML	141
C-187S-TP	7, 17, 214	C-216S-TP	18	C-254S	299, 18	C-CS-07	15	CLP-021-10X-PAK	226, 129	CLP-242-WL	141
C-188N	7	C-221-CAL-SET	211	C-254S-H	18	C-CS-08	15	CLP-021-PAK	226, 129	CLP-242-WL-5ML	141
C-188S	7	C-221N-50MG	18, .91	C-254S-H-10X	140, 142, 209, 174, 299, 91, 18, 300	C-CS-09	15	CLP-022	128	CLP-242-WL-10ML	141
C-188S-TP	7	C-221S	299, 18	C-254S-M	246, 299, 18	C-CSA-SET	15	CLP-022G	128	CLP-248-WL	141
C-189N	7	C-221S-H	18	C-254S-M-2.85X	18	C-CSN-SET	15	CLP-022G-10X	128	CLP-248-WL-5ML	141
C-189S	7	C-221S-H-10X	140, 142, 209, 174, 299, 91, 18, 300	C-254S-M-PAK	18	C-CSQ-SET	15	CLP-022G-10X-PAK	128	CLP-248-WL-10ML	141
C-189S-TP	7	C-221S-H-10X-PAK	140, 142, 148, 174, 209, 210, 18	C-254S-PAK	18	C-EU-IS-10ML	247, 12	CLP-022G-PAK	128	CLP-254-WL	141
C-190N	7	C-221S-M	246, 299, 18	C-254S-SET	18	CDE-003N	22, 38	CLP-022K-10X	128, 130	CLP-254-WL-5ML	141
C-190S	7	C-221S-M-2.85X	18	C-254S-TP	18	CDE-007N	22, 38	CLP-022K-25X	128	CLP-254-WL-10ML	141
C-190S-TP	7	C-221S-M-PAK	18	C-254-WL-5X-5ML	212	CDE-007S	22, 38	CLP-022-LC	131	CLP-AS	135, 234
C-191N	7	C-221S-M-2.85X	18	C-254-WL-5X-10ML	212	CDE-015N	22, 38	CLP-022-PART-A	128	CLP-AS-1	75
C-191S	7	C-221S-M-PAK	18	C-254-WL-10X-5ML	212	CDE-015S	22, 38	CLP-022-PART-B	128	CLP-AS-3	76
C-191S-TP	7	C-221S-PAK	18	C-254-WL-10X-10ML	212	CDE-047S	22, 38	CLP-022-R2	128	CLP-AS-10X	135
C-192N	7	C-221S-SET	18	C-260N-50MG	18, .91	CDE-077S	22, 38	CLP-022-R3	130	CLP-AS-10X-PAK	135
C-192S	7	C-221S-SET	18	C-260S	299, 18	CDE-080S	22, 38	CLP-022-SET	128	CLP-AS-PAK	135, 234
C-192S-TP	7	C-221-ST-1	18, 277	C-260S-H	18	CDE-099S	22, 38	CLP-023R	139	CLP-BLH-5	334, 337
C-193N	7	C-221-ST-1-PAK	18, 277	C-260S-H-10X	140, 142, 209, 174, 299, 91, 18, 300	CDE-100S	22, 38	CLP-023R-4X	139	CLP-BLH-L-VAP	334, 337
C-193S	7	C-221-ST-2	18, 277	C-260S-H-10X-PAK	140, 142, 148, 174, 209, 210, 18	CDE-105S	22, 38	CLP-023R-10X	139	CLP-BLMA-5	334, 337
C-193S-TP	7	C-221S-TP	18	C-260S-M	246, 299, 18	CDE-118N	22, 38	CLP-023R/024R-4X-SET	139	CLP-BLMA-L-VAP	334, 337
C-194N	7	C-221-WL-5X-5ML	211	C-260S-M-2.85X	18	CDE-118S	22, 38	CLP-023R/024R-40X-SET	139	CLP-BLN-5	334, 337
C-194S	7	C-221-WL-5X-10ML	211	C-260S-M-PAK	18	CDE-153S	22, 38	CLP-023R/024R-160X-SET	139	CLP-BLN-L-VAP	334, 337
C-194S-TP	7	C-221-WL-10X-5ML	211	C-260S-M-PAK	18	CDE-154S	22, 38	CLP-023R/024R-SET	139	CLP-BLW-5	334, 337
C-195N	7	C-221-WL-10X-10ML	211	C-260S-PAK	18	CDE-209N	22, 38	CLP-023R-30X	139	CLP-BLW-L-VAP	334, 337
C-195S	7	C-232-CAL-SET	211	C-260-ST-1	18, 277	CDE-209S	22, 38	CLP-023R-160X	139	CLP-BN-MS	138
C-195S-TP	7	C-232S	299, 18	C-260-ST-1-PAK	18, 277	C-DIOXLIK1-SET	13	CLP-023R-WL-4X-10ML	139	CLP-BN-MS-PAK	138
C-196N	7	C-232S-H	18	C-260-ST-2	18, 277	C-DIOXLIK2-SET	13	CLP-023R-WL-4X-25ML	139	CLP-BNS	135, 234
C-196S	7	C-232S-H-10X	140, 142, 209, 174, 299, 91, 18, 300	C-260-ST-2-PAK	18,						

Catalog Number Index

CLP-CAL-1-SET	349	CP-ORE-SET	101	D-408S	23	D-4420-94-PAK	278	D-5443-93-HTM	283	D-7599-SS	167, 264
CLP-CAL-02-1	349	CP-TER-001S	100	D-409N	23	D-4420-CAL-SET	278	D-5453-HL-SET	283	D-7600	167, 264
CLP-CAL-03-1	349	CP-TER-002S	100	D-409S	23	D-4629-91-HB-0.3X	278	D-5453-LL-SET	283	D-7600-SS	167, 264
CLP-CAL-04-1	349	CP-TER-003S	100	D-501N	23	D-4629-91-HB-1X	278	D-5453-ML-SET	283	D-7645	167, 264
CLP-CAL-05-1	349	CP-TER-004S	100	D-501S	23	D-4629-91-HB-10X	278	D-5480-C40-5ML	311	D-7645-MS	167, 264
CLP-CAL-06-1	349	CP-TER-005S	100	D-502N	23	D-4629-91-HB-25X	278	D-5480-C40-R1-5ML	311	D-7645-SS	167, 264
CLP-CARDL-01-1	350	CP-TER-006S	100	D-502S	23	D-4629-91-HB-50X	278	D-5501-12-SET	284	D-7645-SS-PAK	167, 264
CLP-CRDL-1-SET	350	CP-TER-007S	100	D-503N	23	D-4629-91-HB-75X	278	D-5501-94-SET	284	D-8083-LCS	343
CLP-CRDL-02-1	350	CP-TER-008S	100	D-503S	23	D-4629-91-HB-100X	278	D-5580-95-CAL-10ML-SET	285	D-8083-SET	343
CLP-FC	76, 127, 140	CP-TER-009S	100	D-504N	23	D-4629-91-HB-BL	278	D-5580-95-CAL-IS-2	285	D-8083-TN	343
CLP-FC-PAK	140	CP-TER-010S	100	D-504S	23	D-4629-91-HB-CON	278	D-5580-95-CAL-IS-SET	285	D-8083-TON	343
CLP-FC-WL-10ML	141, 212	CP-TER-011S	100	D-505N	23	D-4629-91-HB-CON-PAK	278	D-5580-QC-10ML	285	D-CAL	237, 244, 24
CLP-HC-A-R	134, 227	CP-TER-012S	100	D-505S	23	D-4629-91-LB-0.3X	278	D-5580-QC-10ML-PAK	285	D-CAL-2.5X	237, 244, 24
CLP-HC-A-R5	138	CP-TER-013S	100	D-601N	23	D-4629-91-LB-1X	278	D-5580-QC-R1-10ML	285	DIN38407-2-BENZ	248
CLP-HC-A-R5-PAK	138	CP-TER-014S	100	D-601S	23	D-4629-91-LB-10X	278	D-5580-QC-R1-10ML-PAK	285	DIN38407-2-PEST	254
CLP-HC-A-R-PAK	227	CP-TER-015S	100	D-602N	23	D-4629-91-LB-25X	278	D-5762-95-1X	289	DIN38407-8-PAH	249
CLP-HC-BN	178	CP-TER-016S	100	D-602S	23	D-4629-91-LB-50X	278	D-5762-95-5X	289	DIN38407-9-BENZ	248
CLP-HC-BN-PAK	178	CP-TER-017S	100	D-603N	23	D-4629-91-LB-75X	278	D-5762-95-10X	289	DIN38407-14-ACID	254
CLP-HC-BN-R	134, 178, 227	CP-TER-018S	100	D-603S	23	D-4629-91-LB-100X	278	D-5762-95-50X	289	DIN38407-14-ME	254
CLP-HC-BN-R-PAK	134, 178, 227	CP-TER-019S	100	D-604N	23	D-4629-91-LB-BL	278	D-5762-95-100X	289	DIN38407-17	46, 248
CLP-HC-BN-SET	134, 178, 227	CP-TER-020S	100	D-604S	23	D-4629-91-LB-CON	278	D-5762-95-500X-PAK	289	DIN38407-18	249
CLP-HC-BN-SET-PAK	134, 178, 227	CP-TER-021S	100	D-605N	23	D-4629-91-LB-CON-PAK	278	D-5762-95-BL	289	DIN38407-21-A	248, 87
CLP-HC-SV-MIX1	138	CP-TER-022S	100	D-605S	23	D-4629-HB-CAL-R1-SET	278	D-5762-95-CAL-SET	289	DIN38407-21-B	248, 87
CLP-HC-SV-MIX2	138	CP-TER-023S	100	D-611E-SET	268	D-4629-LB-CAL-R1-SET	278	D-5769-ADD-5ML	292	DIN38407-22	254
CLP-HC-SV-MIX4	138	CP-TER-024S	100	D-611S-SET	268	D-4815-10ML-SET	279	D-5769-ADD-10ML	292	DIN38407-25	250
CLP-HC-SVR-SET	138	CP-TER-025S	100	D-701N	23	D-4815/IS-SET	279	D-5769-ADD/IS	293	DIN38414-23	249
CLP-HC-X1	227	CP-TER-026S	100	D-701S	23	D-4815/IS-SET-PAK	279	D-5769-ADD/IS-R	294	DINEN-12673	254
CLP-IA-1-SET	350	CP-TER-027S	100	D-702N	23	D-4815-RT	279	D-5769-ADD/IS-R2	295	DINENISO-10301	248
CLP-IA-5-SET	350	CP-TER-028S	100	D-702S	23	D-4815-RT-PAK	279	D-5769-CAL-5ML-SET	292	DINENISO-17495	254
CLP-ICV-01-1	349	CP-TER-029S	100	D-801N	23, 21	D-4815-VT	279	D-5769-CAL-10ML-SET	292	DINV38407-11-PST	254
CLP-ICV-01-5	349	CP-TER-MIX-001	100	D-801S	21, 23	D-4815-VT-PAK	279	D-5769-CAL/IS-R2-SET	295	DINV38407-11-PST-PAK	254
CLP-ICV-01-R-1	349	CP-TER-MIX-002	100	D-2622-LL-5X-100ML	271	D-4929-94	279	D-5769-CAL/IS-R-SET	294	DRH-001S	326
CLP-ICV-01-R-5	349	CP-THCA-A-01S	100	D-2622-LL-10X-100ML	271	D-4929-94-100X	279	D-5769-CAL/IS-SET	293	DRH-001S-10X	326
CLP-LC-IS	131	CPW-100	90	D-2622-LL-30X-100ML	271	D-4929-94-100X-PAK	279	D-5769-QC-10ML	292	DRH-002N	274, 300
CLP-LC-IS-10X	131	C-QMFE-01	10, 244	D-2622-LL-30X-100ML	271	D-4929-94-PAK	279	D-5769-QC-10ML-PAK	292	DRH-002N-10X	274, 300
CLP-LC-IS-PAK	131	C-SCA-01	12	D-2622-LL-75X-100ML	271	D-5059-A-01-100ML	280	D-5769-QC/IS-5ML	293	DRH-002S	326
CLP-LCS-P-1000X	140	C-SCA-02	12	D-2622-LL-100X-100ML	271	D-5059-A-02-100ML	280	D-5769-QC/IS-5ML-PAK	293	DRH-002S-R1	274, 277
CLP-LCS-P-1000X-PAK	140	C-SCA-03	12	D-2622-LL-200X-100ML	271	D-5059-A-03-100ML	280	D-5769-QC/IS-R2-5ML	295	DRH-002S-R1-PAK	274, 277
CLP-LC-SS-1	137	C-SCA-04	12	D-2622-LL-300X-100ML	271	D-5059-A-04-100ML	280	D-5769-QC/IS-R2-5ML-PAK	295	DRH-002S-R2	274
CLP-LC-SS-1-PAK	137	C-SCA-05	12	D-2622-LL-400X-100ML	271	D-5059-A-05-100ML	280	D-5769-QC/IS-R5-5ML	294	DRH-002S-R2-PAK	274
CLP-LC-SS-2	76, 137	C-SCA-06	12	D-2622-LL-500X-100ML	271	D-5059-A-06-100ML	280	D-5769-QC/IS-R-5ML	294	DRH-003S	326
CLP-LC-SS-2-PAK	137	C-SCA-DIOXLIK	12	D-2622-LL-600X-100ML	271	D-5059-A-07-100ML	280	D-5769-QC/IS-R-5ML-PAK	294	DRH-004S-R1-5X	319, 326
CLP-LCS-SV-SET	137	C-SCA-SET	12	D-2622-LL-700X-100ML	271	D-5059-A-CAL-100ML-SET	280	D-5836-01A-DER	298	DRH-004S-R1-5X-PAK	319, 326
CLP-LCS-V	131	C-WCFS	13	D-2622-LL-800X-100ML	271	D-5059-C-01-100ML	280	D-5836-01N	298	DRH-005S-10X	326
CLP-LCS-V-PAK	131	C-WDM	16	D-2622-LL-900X-100ML	271	D-5059-C-02-100ML	280	D-5836-02N	298	DRH-005S-R1-10X	274
CLP-LCS-V-PAK	131	C-WDM-PAK	16	D-2622-LL-1000X-100ML	271	D-5059-C-03-100ML	280	D-5836-03N	298	DRH-005S-R1-10X-PAK	274
CLP-PAN-01-1	350	C-WHO-01	13	D-2622-LL-1100X-100ML	271	D-5059-C-04-100ML	280	D-5836-04A-DER	298	DRH-006-CAL-SET	320
CLP-PAN-01-5	350	C-WNN	13	D-2622-LL-1200X-100ML	271	D-5059-C-05-100ML	280	D-5836-02N	298	DRH-006S	320
CLP-PAN-02-1	350	C-WNN-PAK	13	D-2622-LL-BL-100ML	271	D-5059-C-06-100ML	280	D-5836-03A-DER	298	DRH-006S-PAK	320
CLP-PAN-02-5	350			D-2789-CTM	274	D-5059-C-07-100ML	280	D-5836-03N	298	DRH-006-SS	311, 320, 324
CLP-PES-A	139, 188			D-2789-CTM-PAK	274	D-5059-C-CAL-100ML-SET	280	D-5836-04A-DER	298	DRH-006-SS-PAK	320, 324
CLP-PES-A-20X	139			D-2887	274, 300, 326	D-5059-IS-10ML-PAK	280	D-5836-04N	298	DRH-007-CAL-R1-SET	320
CLP-PES-A-PAK	139			D-2887-REFOIL	274	D-5059-IS-100ML	280	D-5836-04N	298	DRH-007S	320
CLP-PI	192, 129			D-3120-92-CAL-SET	271, 275	D-5134-92-ALK	280	D-5836-04N	298	DRH-007S-PAK	320
CLP-PI-0.25X	129			D-3230-89-1	363	D-5134-92-CEM	280	D-5836-04N	298	DRH-007-SS	310, 320, 324
CLP-PI-0.25X-PAK	129			D-3230-89-5	363	D-5134-92-LCM-PAK	280	D-5836-04N	298	DRH-007-SS-PAK	324
CLP-PI-2.5X	129, 130			D-3237-01	363	D-5134-92-NAP	280	D-5837-01	25, 264, 298	DRH-008S-R2	274, 300, 314, 326
CLP-PI-2.5X-PAK	129, 130			D-3237-02	363	D-5134-92-REF	280	D-5837-02	25, 264, 298	DRH-008S-R2-PAK	274, 300, 314, 326
CLP-PI-3-5X	69			D-3237-03	363	D-5184-91-AL-1	280, 363	D-5863-00A-10X-1	371	DRH-009S	316
CLP-PIN-01-1	350, 354			D-3237-04	363	D-5184-91-AL-5	280, 363	D-5863-05B-10X-1	371	DRH-009S-PAK	316
CLP-PIN-01-5	350, 354			D-3237-CAL-SET	363	D-5184-91-SI-1	280, 363	D-6258-5ML-SET	299	DRH-010S	327
CLP-PIN-02-1	350, 354			D-3524-CAL-5ML-SET	275	D-5184-91-SI-5	280, 363	D-6258-CONC-5ML	300	DRH-010S-PAK	327
CLP-PIN-02-5	350, 354			D-3524-CAL-10ML-SET	275	D-5184-91-TA-5	280, 363	D-6296-BL	300	DRH-FL-SS	310, 319
CLP-PI-PAK	192, 129			D-3524-CR	275	D-5186-91-PM-0.4X	280, 310	D-6296-CAL1	300	DRH-FL-SS-3X	310, 319
CLP-PIPS	129, 130			D-3524-CR-PAK	275	D-5186-96-DLC-SET	280	D-6296-CAL2	300	DRH-FL-SS-3X-PAK	319
CLP-PIPS-PAK	129, 130			D-3524-IS-10ML	275	D-5186-96-PM	280	D-6296-CAL2-PAK	300	DRH-FL-SS-PAK	319
CLP-PS	129			D-3524-IS-10ML-PAK	275	D-5186-96-PM-PAK	280	D-6296-VER1	300	DRH-FL-SS-R1	319
CLP-PS-3	72			D-3524-QC-10ML	275	D-5307-CR	281	D-6296-VER2	300	DRH-FTRPH	310, 326
CLP-PS-3-10X	72			D-3605-91-R1-1	363	D-5307-IS-10ML	281	D-6296-VER-SET	300	DRH-FTRPH-0.1X	319
CLP-PS-4X	129			D-3606-25ML-SET	276	D-5307-IS-10ML-PAK	281	D-6379-10X-SET	301	DRH-FTRPH2	326
CLP-PS-4X-PAK	129			D-3606/IS-2ML-SET	276	D-5307-QUAL	281	D-6379-10X-SET-PAK	301	DRH-FTRPH-PAK	319, 326
CLP-PS-10X	129, 130			D-3606/IS-2ML-SET-PAK	276	D-5307-QUAL-PAK	281	D-6379-SET	301	DRH-FTRPH-SET	326
CLP-PS-10X-PAK	129, 130			D-3606/IS2-R1-SET	276	D-5307-QUANT	281	D-6379-SET-PAK	301	DRH-FTRPH-SET-PAK	326
CLP-PS-PAK	129			D-3606/IS2-SET	276	D-5307-QUANT-PAK	281	D-6379-SRS	301	DRH/GRH-FL-SS	319
CLP-TCLSV	135			D-3606/IS-SET	276	D-5441	282	D-6379-SRS-PAK	301	DRH/GRH-FL-SS-PAK	319
CLP-TS 133, 136, 155, 179, 181				D-3606-QC-25ML	276	D-5441-5ML	282	D-6379-SRS-R1	301	DRH/GRH-FL-SS-R2	319
CLP-TS-PAK133, 136, 155, 179, 181				D-3606-QC-25ML-PAK	276	D-5441-10X	282	D-6379-SRS-R1-PAK	301	DRH/GRH-FL-SS-R2-PAK	319
CLP-VOC-SET	130			D-3606-QC-IS2-25ML-PAK	276	D-5441-10X-5ML	282	D-6428-R1-SET	301	DRH-MA-FSS-10ML	320
CP-06N-10X-5	331			D-3606-QC/IS-10ML	276	D-5441-10X-5ML-PAK	282	D-6428-R2-100ML-SET	301	DRH-MA-FSS-50X	320
CP-8-THC-01S	100			D-3606-QC/IS-10ML-PAK	276	D-5441-10X-PAK	282	D-6428-R2-SET	301	DRH-MA-FSS-50X-PAK	320
CP-9-THC-01S	100			D-3710	277	D-5441-PAK	282	D-6550-CONC	301	DRH-MA-MS	320
CP-CANNA-MIX-01	100			D-3710-PAK	277	D-5441-QUAL	282	D-6550-CONC-5ML	301	DRH-MA-MS-10X	320
CP-CBC-01S	100			D-3710-QUAL	277	D-5441-QUANT-R1	282	D-7485-1	263	DRH-MA-MS-10X-PAK	320
CP-CBD-01S	100			D-3710-QUAD-PAK	277	D-5441-RES	282	D-7485-2	263	DRH-MA-MS-40X	320
CP-CBG-01S	100			D-3798-10ML	277	D-5441-RES-5ML	282	D-7485-3	263	DRH-MA-MS-40X-PAK	320
CP-NV-PEST	101			D-3798-10ML-PAK	277	D-5441-RES-PAK	282	D-7485-4	263	DRH-MA-MS-PAK	320
CP-ORE-01	101			D-3798-IS	277	D-5442	283	D-7485-5	263	DRH-MA-SS	320, 324
CP-ORE-02	101			D-3798-IS-PAK	277	D-5442-CR-PAK	283	D-7485-6	263	DRH-MA-SS-10X	320, 324
CP-ORE-03	101			D-3831-1	363	D-5442-PAK	283</				

Catalog Number Index

DRH-MS-ASL-PAK	320	DYE-028N	108	E-019S	79	FAEE-013S	99	FIA-CAL-03	269	FRS-040N	39
DRH-NJ-001S	316	DYE-028S	108	E-020S	79	FAEE-014N	99, 308	FIA-CAL-04	269	FRS-040S	39
DRH-NJ-002S	316	DYE-029S	108	EFS-A-ITX-01	95, 250	FAEE-014S	99	FIA-CAL-05	269	FRS-041N	39
DRH-PA-001	316	DYE-030N	108	EFS-A-ITX-02	95, 250	FAEE-015N	99	FIA-CAL-06	269	FRS-041S	39
DRH-PA-001-PAK	316	DYE-030S	108	EN-12916-SET	308	FAEE-015S	99	FIA-CAL-07	269	FRS-042N	39
DRH-SS	311, 319, 326	DYE-031S	108	EN-14105-01	302, 306	FAEE-016N	99, 308	FIA-CAL-SET	269	FRS-042S	39
DRH-SS-PAK	319, 326	DYE-033S	108	EN-14105-02	302, 306	FAEE-016S	99	FIA-OLE	269	FRS-043N	39
DRH-TX-001-10X	322	DYE-034S	108	EN-14105-03	302, 306	FAEE-020N	99	FIA-OLE-5ML	269	FRS-043S	39
DRH-TX-001-10X-PAK	322	DYE-045N	108	EN-14105-04	302, 306	FAEE-020S	99	FIA-PAR	269	FRS-044N	39
DRH-TX-002-10X	322	DYE-045S	108	EN-15721-A	308	FAME-001-R1-KIT	98	FIA-PAR-5ML	269	FRS-044S	39
DRH-TX-002-10X-PAK	322	DYE-049N	108	EN-15721-A-IS	308	FAME-002-R1-KIT	98	FK-W25-10X	310, 312	FRS-045N	39
DRH-TX-002-D-0.4X-10ML322		DYE-049S	108	EN-15721-A-SET	308	FAME-003-R1-KIT	98	FK-W50-10X	310, 312	FRS-045S	39
DRH-TX-002-D-40X	322	DYE-051N	108	EN-15779	307	FAME-005-R1-KIT	98	FK-W75-10X	310, 312	FRS-046N	39
DRH-TX-002-D-40X-PAK	322	DYE-051S	108	EN-15779-IS	307	FAMQ-001	98	FL-0003	263	FRS-046S	39
DRH-TX-002-D-SET	322	DYE-053S	108	ENISO9377-2-1	255, 313	FAMQ-002	98	FL-0004-CA	263	FRS-047N	39
DRH-TX-003-20X	322	DYE-055N	108	ENISO9377-2-2	255, 313	FAMQ-004	98	FL-0004-CR	263	FRS-047S	39
DRH-TX-003-20X-PAK	322	DYE-055S	108	ENISO9377-2-3	255, 313	FAMQ-005	98	FL-0005-NB	263	FRS-048S	39
DRH-TX-003-CNM	322	DYE-056N	108	ENISO9377-2-4	255, 313	FBDE-1001S	36	FL-0102	263	FRS-049S	39
DRH-TX-003-CNM-PAK	322	DYE-057N	108	ENISO10695-PEST	254	FBDE-1001S-0.5X	36	FL-OADD	263	FRS-050N	40
DRH-TX-003-FCS	322	DYE-057S	108	EPH-WA-10X	324	FBDE-2001S	36	FRACK-001N	305	FRS-050S	40
DRH-TX-003-FCS-PAK	322	DYE-058N	108	EPH-WA-10X-PAK	324	FBDE-2001S-0.5X	36	FRACK-002N	305	FRS-051N	40
DRH-TX-003-SET	322	DYE-058S	108	EPH-WA-ALI	324	FBDE-2002S	36	FRACK-003N	305	FRS-051S	40
DRH-TX-003-SS1	322	DYE-060N	108	EPH-WA-ALI-PAK	324	FBDE-2002S-0.5X	36	FRACK-004N-10MG	305	FRS-052N	39
DRH-TX-003-SS1-PAK	322	DYE-060S	108	EPH-WA-ALI-R1	324	FBDE-2003S	36	FRACK-005N	305	FRS-052S	39
DRO-AK-102/103AA-RT	318	DYE-062N	108	EPH-WA-ALI-R1-PAK	324	FBDE-2003S-0.5X	36	FRACK-006N-10MG	305	FRS-053S-0.5X	40
DRO-AK-102/103AA-RT-PAK	318	DYE-062S	108	EPH-WA-ARO	324	FBDE-3001S	36	FRACK-007N-10MG	305	FRS-054N	40
DRO-AK-102/103AA-SS	318	DYE-063N	108	EPH-WA-ARO-PAK	324	FBDE-3001S-0.5X	36	FRACK-008N-10MG	305	FRS-054S	40
DRO-AK-102/103AA-SS-PAK	318	DYE-063S	108	EPH-WA-ARO-R1	324	FBDE-3002S	36	FRACK-009N-25MG	305	FRS-057N	39
DRO-AK-102AA	318	DYE-064S	108	EPH-WA-ARO-R1-PAK	324	FBDE-3002S-0.5X	36	FRACK-010N	305	FRS-057S	39
DRO-AK-102AA-PAK	318	DYE-102N	108, 109	EPH-WA-FCS	324	FBDE-3003S	36	FRACK-011N	305	FRS-061S-0.5X	37
DRO-AK-102-IS	318	DYE-103N	108, 109	EPH-WA-FCS-PAK	324	FBDE-3003S-0.5X	36	FRACK-SET	305	FRS-062S-0.5X	37
DRO-AK-102-IS-PAK	318	DYE-103S	108, 109	EPH-WA-FCS-R1	324	FBDE-3004S	36	FRS-001N	41	FRS-063N	40
DRO-AK-102-LCS	310	DYE-104N	108, 109	EPH-WA-FCS-R1-PAK	324	FBDE-3004S-0.5X	36	FRS-001S	41	FRS-063S	40
DRO-AK-102-LCS-10X	310	DYE-104S	108, 109	EPH-WA-MS2-20ML	324	FBDE-4001S	36	FRS-002N	41	FRS-064N	39
DRO-AK-102-LCS-10X-R1310	318	DYE-106N	108, 109	EPH-WA-MS2-20ML-PAK	324	FBDE-4001S-0.5X	36	FRS-002S	41	FRS-064S-0.5X	39
DRO-AK-102-LCS-10X-R1310	318	DYE-106S	108, 109	EXP-GSS	87	FBDE-4002S	36	FRS-004N	41	FRS-065N	39
DRO-AK-102-LCS-10X-R1-PAK	318	DYE-107N	108, 109			FBDE-4002S-0.5X	36	FRS-004S	41	FRS-065S	39
DRO-AK-102-LCS-10X-R1-PAK	318	DYE-107S	108, 109			FBDE-4003S	36	FRS-005N	41	FRS-066S	40
DRO-AK-102-LCS-10X-R1-PAK	318	DYE-108N	108, 109			FBDE-4003S-0.5X	36	FRS-005S	41	FRS-067N	39
DRO-AK-102-LCS-10X-R1-PAK	318	DYE-108S	108, 109			FBDE-4004S	36	FRS-006S	40, 91	FRS-067S	39
DRO-AK-102-NAS-10X316, 318		DYE-109N	108, 109			FBDE-4004S-0.5X	36	FRS-007N	40	FRS-068N	39
DRO-AK-102-NAS-10X-PAK	316, 318	DYE-109S	108, 109			FBDE-4005S	36	FRS-007S	40	FRS-068S	39
DRO-AK-102-SS	311, 313, 318	DYE-110N	108, 109			FBDE-4005S-0.5X	36	FRS-008N	40	FRS-069N	39
DRO-AK-102-SS-10X311, 315, 318		DYE-110S	108, 109			FBDE-4006S	36	FRS-008S	40	FRS-069S	39
DRO-AK-102-SS-10X-PAK318		DYE-111N	108, 109			FBDE-4006S-0.5X	36	FRS-009S	31, 40	FRS-070N	39
DRO-AK-102-SS-PAK	318	DYE-111S	108, 109			FBDE-4007S	36	FRS-010N	40	FRS-071N	40
DRO/ORO-AZ-8015	315	DYE-112S	108, 109			FBDE-4007S-0.5X	36	FRS-010S	40	FRS-071S	40
DRO/ORO-AZ-8015-PAK	315	DYE-113N	108, 109			FBDE-5001S	36	FRS-011N	40	FRS-072N	40
DRO/ORO-AZ-8015-RTV	315	DYE-113S	108, 109			FBDE-5001S-0.5X	36	FRS-011S	40	FRS-072S	40
DRO/ORO-AZ-8015-RTV-PAK	315	DYE-114N	108, 109			FBDE-5002S	36	FRS-012N	40	FRS-073N	40
DRO/ORO-AZ-8015-SCS	315	DYE-114S	108, 109			FBDE-5002S-0.5X	36	FRS-012S	40	FRS-073S	40
DRO/ORO-AZ-8015-SCS-PAK	315	DYE-115N	108, 109			FBDE-5003S	36	FRS-013N	40	FRS-074N	39
DSMA	56	DYE-115S	108, 109			FBDE-5003S-0.5X	36	FRS-013S	40	FRS-074S	39
D-WD	237, 244, 24	DYE-116N	108			FBDE-5004S	36	FRS-014N	40	FRS-075N	39
D-WD-2.5X	237, 244, 24	DYE-116S	108			FBDE-5004S-0.5X	36	FRS-015N	41	FRS-075S	39
DYE-001S	108, 109	DYE-117N	108			FBDE-5005S	36	FRS-015S	41	FRS-076S-0.5X	41
DYE-002S	108, 109	DYE-117S	108			FBDE-5005S-0.5X	36	FRS-016S	41	FRS-077S-0.5X	41
DYE-003N	108	DYE-118S	108			FBDE-5006S	36	FRS-017S	41	FU-001	310
DYE-003S	108, 109	DYE-120N	108			FBDE-5006S-0.5X	36	FRS-018N	40	FU-001-40X	310
DYE-004S	108, 109	DYE-120S	108			FBDE-5007S	36	FRS-018S	40	FU-001-D-40X	310, 311
DYE-005S	108, 109	DYE-121N	108			FBDE-5007S-0.5X	36	FRS-019N	41	FU-002	310
DYE-006S	108, 109	DYE-121S	108			FBDE-5008S	36	FRS-019S	41	FU-002-40X	310
DYE-007S	108, 109	DYE-122N	108			FBDE-5008S-0.5X	36	FRS-020S	41	FU-002-D-40X	310, 311
DYE-008S	108, 109	DYE-122S	108			FBDE-6001S	36	FRS-021N	40	FU-003	310
DYE-009S	108, 109	DYE-123N	108			FBDE-6001S-0.5X	36	FRS-021S	40	FU-003-40X	310
DYE-010S	108, 109	DYE-123S	108			FBDE-6002S	36	FRS-022N	41	FU-003-D-40X	310, 311
DYE-011S	108, 109	DYE-124N	108			FBDE-6002S-0.5X	36	FRS-022S	41	FU-004	310
DYE-012S	108, 109	DYE-124S	108			FBDE-6003S	36	FRS-023N	40	FU-004-40X	310
DYE-013S	108, 109	DYE-125N	108			FBDE-6003S-0.5X	36	FRS-023S	40	FU-004-D-40X	310, 311
DYE-014S	108, 109	DYE-125S	108			FBDE-6004S	36	FRS-024N	41	FU-005	310
DYE-015S	108, 109	DYE-127N	108			FBDE-6004S-0.5X	36	FRS-024S	41	FU-005-40X	310
DYE-016S	108, 109	DYE-127S	108			FBDE-7001S	36	FRS-025N	41	FU-005-D-10X	310, 312
DYE-017S	108, 109	DYE-128N	108			FBDE-7001S-0.5X	36	FRS-025S	41	FU-005-D-40X	310, 311
DYE-018S	108, 109	DYE-128S	108			FBDE-8001S	36	FRS-026N	41	FU-006	311
DYE-019S	108, 109					FBDE-8001S-0.5X	36	FRS-026S	41	FU-006-40X	311
DYE-020N	108					FBDE-9001S	36	FRS-028N	37, 40	FU-006-D-40X	311
DYE-020S	108					FBDE-9001S-0.5X	36	FRS-028S	37, 40	FU-008	310
DYE-021N	108					FD2-W25-10X	310, 312	FRS-030N	39	FU-008-40X	310
DYE-021S	108					FD2-W25-R1-10X	310, 312	FRS-030S	39	FU-008-D-40X	310, 311
DYE-022N	108					FD2-W50-10X	310, 312	FRS-032N	39	FU-009	310
DYE-022S	108					FD2-W50-R1-10X	310, 312	FRS-032S	39	FU-009-40X	310
DYE-023N	108					FD2-W75-10X	310, 312	FRS-033N	37, 41	FU-009-D-10X	310, 312
DYE-023S	108					FD2-W75-R1-10X	310, 312	FRS-033S	37, 41	FU-009-D-40X	310, 311
DYE-024N	108					FDA-PROP-001A	95	FRS-034N	39	FU-010	310
DYE-024S	108					FDA-PROP-001B	95	FRS-034S	39	FU-010-40X	310
DYE-025N	108					FDA-PROP-001C	95	FRS-035N	39	FU-010-D-40X	310, 311
DYE-025S	108					FDA-PROP-001-CHK	95	FRS-035S	39	FU-011	310
DYE-026N	108					FDA-PROP-001D	95	FRS-036N	40	FU-011-40X	310
DYE-026S	108					FDA-PROP-001-IS	95	FRS-036S	40	FU-011-D-40X	310, 311
DYE-027N	108					FDA-PROP-001-SET	95	FRS-037N	39, 40	FU-012	310
DYE-027S	108					FETH-02N	70	FRS-037S	39, 40	FU-012-40X	310
						FIA-ARO	269	FRS-038N	39	FU-012-D-40X	310, 311
						FIA-ARO-SML	269	FRS-038S	39	FU-013	310
						FIA-CAL-01	269	FRS-039N	39	FU-013-40X	310
						FIA-CAL-02	269	FRS-039S	39	FU-013-D-40X	310, 311

Catalog Number Index

FU-014	310	GRH-004-SS-10X-PAK321, 323	H-115S	42	H-189S	42	HBDE-3007S-CN	33	HPCB-2005N	19
FU-014-40X	310	GRH-004-SS-100X	H-116N	42	H-190N	42	HBDE-4001S-CN-0.2X	33	HPCB-2005S	19
FU-014-D-40X	310, 311	323	H-116S	42	H-190S	42	HBDE-4002S-CN-0.2X	33	HPCB-2006N	19
FU-015	310	GRH-004-SS-100X-PAK	H-117N	42	H-191S	42	HBDE-4003S-CN	33	HPCB-2006S	19
FU-015-40X	310	321, 323	H-117S	42	H-192S	42	HBDE-4004S-CN	33	HPCB-3001N	19
FU-015-D-40X	310, 311	GRH-004-SS-PAK	H-118N	43	H-193S	42	HBDE-4005S-CN-0.2X	33	HPCB-3001S	19
FU-016	310	GRH-004S/SS	H-118S	43	H-194S	42	HBDE-4005S-T-0.2X	33	HPCB-3002N	19
FU-016-40X	310	GRH-004S/SS-PAK	H-119S	43	H-195S	42	HBDE-4006S-CN	33	HPCB-3002S	19
FU-016-D-40X	310, 311	GRH-004S/SS-R1	H-121N	43	H-197N	43	HBDE-4006S-CN-0.2X	33	HPCB-3003N	19
FU-017	310	GRH-004S/SS-R2	H-121S	43	H-197S	43	HBDE-4006S-T	33	HPCB-3003S	19
FU-017-40X	310	GRH-IS310, 316, 319, 320, 324, 326	H-122N	43	H-198N	43	HBDE-4006S-T-0.2X	33	HPCB-3004N	19
FU-017-D-10X	310, 312	GRH-IS-10X	H-122S	43	H-198S	43	HBDE-4008S-CN	33	HPCB-3004S	19
FU-017-D-40X	310, 311	GRH-IS-PAK316, 319, 320, 324	H-123N	43	H-199N	43	HBDE-4010S-CN	33	HPCB-3005N	19
FU-018-D-40X	311	GRH-PA-001	H-123S	43	H-199S	43	HBDE-4011S-CN	33	HPCB-3005S	19
FU-018-H	311	GRH-PA-001-PAK	H-124N	43	H-200N	43	HBDE-4012S-CN	33	HPCB-3006N	19
FU-018-H-40X	311	GRH-SS	H-124S	43	H-200S	43	HBDE-5001S-CN-0.2X	33	HPCB-3006S	19
FU-019-D-40X	311	GRH-SS-PAK	H-125N	42	H-201N	43	HBDE-5002S-CN-0.2X	33	HPCB-4001N	19
FU-019-H	311	GRO-AK-101AA-ARO	H-125S	42	H-201S	43	HBDE-5003S-CN-0.2X	33	HPCB-4001S	19
FU-019-H-40X	311	GRO-AK-101AA-ARO-PAK317	H-127N	42	H-202N	43	HBDE-5004S-CN-0.2X	33	HPCB-4002N	19
FU-020-D-40X	310, 311	GRO-AK-101GCS	H-127S	42	H-202S	43	HBDE-5005S-CN-0.2X	33	HPCB-4002S	19
FU-020-H	310	GRO-AK-101-GCS	H-128N	42	H-203N	43	HBDE-5006S-CN-0.2X	33	HPCB-4003N	19
FU-020-H-40X	310	GRO-AK-101-GCS-BTEX	H-128S	42	H-203S	43	HBDE-5007S-CN-0.2X	33	HPCB-4003S	19
FU-021-D-40X	311	323	H-129N	42	H-204N	43	HBDE-5008S-CN	33	HPCB-4004N	19
FU-022	310	GRO-AK-101-GCS-PAK	H-129S	42	H-204S	43	HBDE-5009S-CN	33	HPCB-4004S	19
FU-022-40X	310	GRO-AK-101-GSC-R1	H-130S	42	H-205S	43	HBDE-5010S-CN	33	HPCB-4005N	19
FU-022-D-40X	310, 311	GRO-AK-101-GSC-R1-PAK317	H-133N	42	H-206S	43	HBDE-5011S-CN	33	HPCB-4005S	19
FU-025-D-40X	311	GRO-AK-101-IS-10X	H-133S	42	H-207S	43	HBDE-6001S-CN-0.2X	33	HPCB-4006N	19
FU-025-H	311	GRO-AK-101-IS-10X-PAK	H-134N	42	H-208S	43	HBDE-6002S-CN-0.2X	33	HPCB-4006S	19
FU-025-H-40X	311	GRO-AK-101-LCS	H-134S	42	H-209S	43	HBDE-6003S-CN-0.2X	33	HPCB-4007N	19
FU-026-D-40X	311	GRO-AK-101-LCS-PAK	H-135N	42	H-210S	43	HBDE-6004S-CN-0.2X	33	HPCB-4007S	19
FU-026-H	311	GRO-AK-101-NAS-10X	H-135S	42	H-211S	43	HBDE-6006S	33	HPCB-4008N	19
FU-026-H-40X	311	GRO-AK-101-NAS-10X-PAK	H-138S	42	H-212S	43	HBDE-6006S-CN	33	HPCB-4008S	19
FU-027-D-40X	311	317	H-139S	42	H-213S	43	HBDE-6006S-CN-0.2X	33	HPCB-4009N	19
FU-027-H	311	GRO-AK-101-SS	H-140N	42	H-214S	43	HBDE-7001S-CN	33	HPCB-4009S	19
FU-027-H-40X	311	GRO-AK-101-SS-10X	H-140S	42	H-215S	43	HBDE-7002S-CN	33	HPCB-4010N	19
FU-028-D-40X	311	GRO-AK-101-SS-10X-PAK317	H-141S	42	H-216S	43	HBDE-7003S-CN	33	HPCB-4010S	19
FU-028-H	311	GRO-AK-101-SS-100X	H-142N-5MG	43	H-217S	43	HBDE-7004S-CN-0.2X	33	HPCB-4011S	19
FU-028-H-40X	311	GRO-AK-101-SS-100X-PAK	H-142S	43	H-218S	43	HBDE-7005S-CN	33	HPCB-4012S	19
FU-029-D	310	317	H-144N	43	H-219S	43	HBDE-8001S-CN	33	HPCB-4013S	19
FU-029-D-40X	310, 311	GRO-AK-101-SS-PAK	H-144S	43	H-220S	43	HBDPB-401S	35	HPCB-4014S	19
FU-030-D	310	GS-001N	H-146N	43	H-221S	43	HBDPB-402S	35	HPCB-4015S	19
FU-030-D-40X	310, 311	GS-002N	H-146S	43	H-222N	43	HBDPB-403S	35	HPCB-4016S	19
FU-032-D	310	GS-003N	H-148N	43	H-222S	43	HBDPB-404S	35	HPCB-5001N	19
FU-032-D-40X	310	GS-004N	H-148S	43	H-223N	43	HBDPB-405S	35	HPCB-5001S	19
		GS-005N	H-149N	43	H-223S	43	HBDPB-406S	35	HPCB-5002N	19
		GS-006N	H-149S	43	H-224S	43	HBDPB-407S	35	HPCB-5002S	19
		GS-007N	H-152N	22	H-225N	43	HBDPB-408S	35	HPCB-5003N	19
		GS-008N	H-152S	43	H-225S	43	HBDPB-409S	35	HPCB-5003S	19
		GS-009N	H-156N	43	H-226N	43	HBDPB-410S	35	HPCB-5004N	19
		GS-010N	H-156S	43	H-226S	43	HBDPB-501S	35	HPCB-5004S	19
		GS-011N	H-157N	43	H-227S	43	HBDPB-502S	35	HPCB-5005N	19
		GS-012N	H-157S	43	H-228S	43	HBDPB-503S	35	HPCB-5005S	19
		GS-013N	H-158N	43	H-229N	43	HBDPB-504S	35	HPCB-5006N	19
		GS-014N	H-158S	43	H-229S	43	HBDPB-505S	35	HPCB-5006S	19
		GS-015N	H-159N	42	H-230N	43	HBP-001N	20	HPCB-5007N	19
		GS-016N	H-159S	42	H-230S	43	HBP-001S	20	HPCB-5007S	19
		GS-017N	H-161N	43	H-231N	43	HBP-002N	20	HPCB-5008S	19
		GS-018N	H-161S	43	H-231S	43	HBP-002S	20	HPCB-5009S	19
		GS-019N	H-162S	43	H-232N	43	HBP-003N	20	HPCB-5010S	19
		GS-020N	H-165S	43	H-232S	43	HBP-003S	20	HPCB-6001N	19
		GS-021N	H-169N	42	H-233S	43	HBP-004N	20	HPCB-6001S	19
		GS-022N	H-169S	42	H-235N	43	HBP-004S	20	HPCB-6002N	19
		GS-023N	H-170N	43	H-235S	43	HBP-006N	20	HPCB-6002S	19
		GS-024N	H-170S	43	H-236N	43	HBP-006S	20	HPCB-6003S	19
		GS-KIT	H-171N	42	H-236S	43	HBP-009N	20	HPCB-7001S	19
			H-171S	42	H-237N	42	HBP-009S	20	HPCB-7002S	19
			H-172N	42	H-237S	42	HBQ-001S	263	HPCB-7003S	19
			H-172S	42	H-238N	42	HBQ-002S	263	HPCB-7004S	19
			H-173N	42	H-238S	43	HBQ-003S	263	H-QME-01	44, 245
			H-173S	42	H-239N	42	HBQ-004S	263	HS-001N	310
			H-174N	42	H-239S	42	HBQ-005S	263	HS-001S	310
			H-174S	42	H-241N	42	HBQ-006S	263	HS-001S-40X	310
			H-175N	43	H-242S	43	HBQ-007S	263	HS-001S-D-40X	310, 311
			H-175S	43	H-243S	43	HCBDE-4001S	34	HS-002N	310
			H-176S	42	H-244N	42	HCBDE-4001S-0.5X	34	HS-002S	310
			H-177N	42	H-244S	42	HCBDE-4002S	34	HS-002S-40X	310
			H-177S	42	H-245N	42	HCBDE-4002S-0.5X	34	HS-002S-D-40X	310, 311
			H-178N	42	H-245S	42	HCBDE-4003S	34	HS-003N	310
			H-178S	42	H-246N	43	HCBDE-4003S-0.5X	34	HS-003S	310
			H-179S	42	H-246S	43	HPCB-1001N	19	HS-003S-40X	310
			H-180N	42	H-247S	42	HPCB-1001S	19	HS-003S-D-40X	310, 311
			H-180S	42	H-264N	43	HPCB-1002N	19	HS-004N	311
			H-180S	42	H-268N-5MG	43	HPCB-1002S	19	HS-004S	311
			H-182N-5MG	43	H-268S	43	HPCB-1003N	19	HS-004S-40X	311
			H-182S	43	HBDC SP-75C	37, 40	HPCB-1003S	19	HS-004S-D-40X	311
			H-183N	42	HBDE-1001S-CN	33	HPCB-1004N	19	HS-005N	311
			H-183S	42	HBDE-2001S-CN	33	HPCB-1004S	19	HS-005S	311
			H-184S	43	HBDE-2002S-CN-0.2X	33	HPCB-2001N	19	HS-005S-10X	311
			H-185N	43	HBDE-2003S-CN	33	HPCB-2001S	19	HS-005S-40X	311
			H-185S	43	HBDE-3001S-CN	33	HPCB-2002N	19	HS-005S-D-40X	311
			H-186N	43	HBDE-3002S-CN	33	HPCB-2002S	19	HXBCD-01	37
			H-186S	43	HBDE-3003S-CN	33	HPCB-2003N	19	HXBCD-02	37
			H-187N	42	HBDE-3004S-CN	33	HPCB-2003S	19	HXBCD-03	37
			H-187S	42	HBDE-3005S-CN	33	HPCB-2004N	19		
			H-188S	42	HBDE-3006S-CN	33	HPCB-2004S	19		
			H-189N	42						

Catalog Number Index

IC-ACET-1X-1	338, 339	IC-MAN-01-1	340	ICP-06N-1	331	ICP-27N-5	332	ICP-48H-1	333	ICP-68N-10X-1	334
IC-ACET-1X-5	338, 339	IC-MAN-02-1	340	ICP-06N-5	331	ICP-27N-10X-0.5	332	ICP-48H-5	333	ICP-68N-10X-5	334
IC-ACET-10X-1	338, 339	IC-MAN-03-1	340	ICP-06N-10X-0.5	331	ICP-27N-10X-1	332	ICP-48H-10X-0.5	333	ICP-69N-1	334, 354
IC-ACET-10X-5	338, 339	IC-MAN-04-1	340	ICP-06N-10X-1	331	ICP-27N-10X-5	332	ICP-48H-10X-1	333	ICP-69N-5	334
IC-AN-1X-1-SET	338	IC-MAN-05-R1-1	340	ICP-07W-1	331	ICP-28N-1	332	ICP-49N-1	333	ICP-69N-10X-0.5	334
IC-AN-1X-5-SET	338	IC-MAN-06-R1-1	340	ICP-07W-5	331	ICP-28N-5	332	ICP-49N-5	333	ICP-69N-10X-1	334
IC-AN-2X-1-SET	338	IC-MAN-07-R1-1	340	ICP-07W-10X-0.5	331	ICP-28N-10X-0.5	332	ICP-49N-10X-0.5	333	ICP-69N-10X-5	334
IC-AN-2X-5-SET	338	IC-MAN-08-R1-1	340	ICP-07W-10X-1	331	ICP-28N-10X-1	332	ICP-49N-10X-1	333	ICP-70N-1	334
IC-AN-10X-1-SET	338	IC-MAN-09-R1-1	340	ICP-07W-10X-5	331	ICP-28N-10X-5	332	ICP-49N-10X-5	333	ICP-70N-5	334
IC-AN-10X-5-SET	338	IC-MAN-10-R1-1	340	ICP-08N-1	331	ICP-29N-1	332, 87	ICP-50N-1	333	ICP-70N-10X-0.5	334
IC-AN-R-10X-1-SET	339	IC-MAN-11-1	340	ICP-08N-5	331	ICP-29N-5	332, 87	ICP-50N-5	333	ICP-70N-10X-1	334
IC-AN-R-10X-5-SET	339	IC-MAN-12-1	340	ICP-08N-10X-0.5	331	ICP-29N-10X-0.5	332, 87	ICP-50N-10X-0.5	333	ICP-70N-10X-5	334
IC-BA-1X-1	341	IC-MAN-13-1	340	ICP-08N-10X-1	331	ICP-29N-10X-1	332, 87	ICP-50N-10X-1	333	ICP-71N-1	334
IC-BA-1X-5	341	IC-MAN-14-R2-1	340, 342	ICP-08N-10X-5	331	ICP-29N-10X-5	332, 87	ICP-50N-10X-5	333	ICP-71N-5	334
IC-BA-2X-1	341	IC-MAN-14-R3-1	340	ICP-09N-1	331	ICP-30N-1	332	ICP-51N-1	333	ICP-71N-10X-0.5	334
IC-BA-2X-5	341	IC-MAN-15-R2-1	340	ICP-09N-5	331	ICP-30N-5	332	ICP-51N-5	333	ICP-71N-10X-1	334
IC-BA-10X-1	341	IC-MAN-18-R1-1	340	ICP-09N-10X-0.5	331	ICP-30N-10X-0.5	332	ICP-51N-10X-0.5	333	ICP-71N-10X-5	334
IC-BA-10X-5	341	IC-MCA-01-1	341	ICP-09N-10X-1	331	ICP-30N-10X-1	332	ICP-51N-10X-1	333	IC-PER-10X-1	338, 339
IC-BR-1X-1	338	IC-MCA-02-1	341	ICP-09N-10X-5	331	ICP-30N-10X-5	332	ICP-51N-10X-5	333	IC-PHHT-10X-1	338
IC-BR-1X-5	338	IC-MCA-03-1	341	ICP-11N-1	331	ICP-31N-1	332	ICP-52W-1	333	ICP-MS-01N-0.01X-1	335
IC-BR-2X-1	338	IC-MCA-04-1	341	ICP-11N-5	331	ICP-31N-5	332	ICP-52W-5	333	ICP-MS-01N-1	335
IC-BR-2X-5	338	IC-MCA-05-1	341	ICP-11N-10X-0.5	331	ICP-31N-10X-0.5	332	ICP-52W-10X-0.5	333	ICP-MS-02N-0.01X-1	335
IC-BR-10X-1	338, 342	IC-MCA-06-1	341	ICP-11N-10X-1	331	ICP-31N-10X-1	332	ICP-52W-10X-1	333	ICP-MS-02N-1	335
IC-BR-10X-5	338, 342	IC-MG-1X-1	341	ICP-11N-10X-5	331	ICP-32N-1	332	ICP-52W-10X-5	333	ICP-MS-03N-0.01X-1	335
IC-BROM-10X-1	338	IC-MG-1X-5	341	ICP-12N-1	331	ICP-32N-5	332	ICP-53N-1	333	ICP-MS-04N-0.01X-1	335
IC-BROM-10X-5	338	IC-MG-2X-1	341	ICP-12N-5	331	ICP-32N-10X-0.5	332	ICP-53N-5	333	ICP-MS-04N-1	335
IC-CA-1X-1	341	IC-MG-2X-5	341	ICP-12N-10X-0.5	331	ICP-32N-10X-1	332	ICP-53N-10X-0.5	333	ICP-MS-05N-0.01X-1	335
IC-CA-1X-5	341	IC-MG-10X-1	341	ICP-12N-10X-1	331	ICP-32N-10X-5	332	ICP-53N-10X-1	333	ICP-MS-05N-1	335
IC-CA-2X-1	341	IC-MG-10X-5	341	ICP-12N-10X-5	331	ICP-33N-1	332	ICP-53N-10X-5	333	ICP-MS-06N-0.01X-1	335
IC-CA-2X-5	341	IC-NA-1X-1	341	ICP-13N-1	331	ICP-33N-5	332	ICP-54N-1	333	ICP-MS-06N-1	335
IC-CA-10X-1	341	IC-NA-1X-5	341	ICP-13N-5	331	ICP-33N-10X-0.5	332	ICP-54N-5	333	ICP-MS-07N-0.01X-1	335
IC-CA-10X-5	341	IC-NA-2X-1	341	ICP-13N-10X-0.5	331	ICP-33N-10X-1	332	ICP-54N-10X-0.5	333	ICP-MS-07N-1	335
IC-CAT-1X-1-SET	341	IC-NA-2X-5	341	ICP-13N-10X-1	331	ICP-34N-1	332	ICP-54N-10X-1	333	ICP-MS-08N-0.01X-1	335
IC-CAT-1X-5-SET	341	IC-NA-10X-1	341	ICP-13N-10X-5	331	ICP-34N-5	332	ICP-55N-1	333	ICP-MS-08N-1	335
IC-CAT-2X-1-SET	341	IC-NA-10X-5	341	ICP-14N-1	331	ICP-34N-10X-0.5	332	ICP-55N-5	333	ICP-MS-09N-0.01X-1	335
IC-CAT-2X-5-SET	341	IC-NH4-1X-1	341	ICP-14N-5	331	ICP-34N-10X-1	332	ICP-55N-10X-0.5	333	ICP-MS-09N-1	335
IC-CAT-10X-1-SET	341	IC-NH4-1X-5	341	ICP-14N-10X-0.5	331	ICP-34N-10X-5	332	ICP-55N-10X-1	333	ICP-MS-11N-0.01X-1	335
IC-CAT-10X-5-SET	341	IC-NH4-2X-1	341	ICP-14N-10X-1	331	ICP-34N-10X-5	332	ICP-55N-10X-5	333	ICP-MS-11N-1	335
IC-CHLR-1X-1	338	IC-NH4-2X-5	341	ICP-14N-10X-5	331	ICP-34N-5	332	ICP-56W-1	333	ICP-MS-12N-0.01X-1	335
IC-CHLR-1X-5	338	IC-NH4-10X-1	341	ICP-15N-1	331	ICP-34N-10X-0.5	332	ICP-56W-5	333	ICP-MS-12N-1	335
IC-CHLR-10X-1	338	IC-NH4-10X-5	341	ICP-15N-5	331	ICP-34N-10X-1	332	ICP-56W-10X-0.5	333	ICP-MS-13N-0.01X-1	335
IC-CHLR-10X-5	338	IC-NH4-N-1X-1	339	ICP-15N-10X-0.5	331	ICP-34N-10X-5	332	ICP-56W-10X-1	333	ICP-MS-13N-1	335
IC-CHLT-10X-1	338	IC-NH4-N-1X-5	339, 342	ICP-15N-10X-1	331	ICP-35W-1	332	ICP-56W-10X-5	333	ICP-MS-14N-0.1X-1	335
IC-CHRM-1X-1	338, 339	IC-NH4-N-10X-1	339, 342	ICP-15N-10X-5	331	ICP-35W-5	332	ICP-57W-1	333	ICP-MS-14N-1	335
IC-CHRM-1X-5	338, 339	IC-NH4-N-10X-5	339, 342	ICP-16N-1	331	ICP-35W-10X-0.5	332	ICP-57W-5	333	ICP-MS-15N-0.1X-1	335
IC-CHRM-10X-1	338, 339	IC-NO2-0.1X-1	340	ICP-16N-5	331	ICP-35W-10X-1	332	ICP-57W-10X-0.5	333	ICP-MS-15N-1	335
IC-CHRM-10X-5	338, 339	IC-NO2-1X-1	338, 340	ICP-16N-10X-0.5	331	ICP-35W-10X-5	332	ICP-57W-10X-1	333	ICP-MS-16N-0.01X-1	335
IC-CITR-10X-1	338	IC-NO2-1X-5	338	ICP-16N-10X-1	331	ICP-36N-1	332	ICP-57W-10X-5	333	ICP-MS-16N-1	335
IC-CL-1X-1	338	IC-NO2-2X-1	338	ICP-16N-10X-5	331	ICP-36N-5	332	ICP-58H-1	333	ICP-MS-17N-0.01X-1	335
IC-CL-1X-5	338	IC-NO2-2X-5	338	ICP-17N-1	331	ICP-36N-10X-0.5	332	ICP-58H-5	333	ICP-MS-17N-1	335
IC-CL-2X-1	338	IC-NO2-10X-1	338, 340	ICP-17N-5	331	ICP-36N-10X-1	332	ICP-58H-10X-0.5	333	ICP-MS-18N-0.01X-1	335
IC-CL-2X-5	338	IC-NO2-10X-5	338	ICP-17N-10X-0.5	331	ICP-36N-10X-5	332	ICP-58H-10X-1	333	ICP-MS-18N-1	335
IC-CL-10X-1	338, 342	IC-NO2-N-1X-1	339, 340	ICP-17N-10X-1	331	ICP-37N-1	332	ICP-58H-10X-5	333	ICP-MS-19N-0.01X-1	335
IC-CL-10X-5	338	IC-NO2-N-1X-5	339	ICP-17N-10X-5	331	ICP-37N-5	332	ICP-59N-1	333	ICP-MS-19N-1	335
IC-ELU-01-0.5	339	IC-NO2-N-10X-1	339, 342	ICP-18N-1	331	ICP-37N-10X-0.5	332	ICP-59N-5	333	ICP-MS-20N-0.01X-1	335
IC-ELU-01-0.5-PAK	339	IC-NO2-N-10X-5	339	ICP-18N-5	331	ICP-37N-10X-1	332	ICP-59N-10X-0.5	333	ICP-MS-20N-1	335
IC-ELU-01-1	339	IC-NO3-1X-1	338	ICP-18N-10X-0.5	331	ICP-37N-10X-5	332	ICP-59N-10X-1	333	ICP-MS-21W-0.01X-1	335
IC-ELU-01-1-PAK	339	IC-NO3-1X-5	338	ICP-18N-10X-1	331	ICP-38W-1	332	ICP-59N-10X-5	333	ICP-MS-21W-1	335
IC-ELU-02-0.5	339	IC-NO3-2X-1	338	ICP-18N-10X-5	331	ICP-40H-1	332	ICP-60N-1	333	ICP-MS-22H-0.01X-1	335
IC-ELU-02-0.5-PAK	339	IC-NO3-2X-5	338	ICP-19N-1	331	ICP-40H-5	332	ICP-60N-5	333	ICP-MS-22H-1	335
IC-ELU-02-1	339	IC-NO3-10X-1	338	ICP-19N-5	331	ICP-40H-10X-0.5	332	ICP-60N-10X-0.5	333	ICP-MS-23N-0.01X-1	335
IC-ELU-02-1-PAK	339	IC-NO3-10X-5	338	ICP-19N-10X-0.5	331	ICP-40H-10X-1	332	ICP-60N-10X-1	333	ICP-MS-23N-1	335
IC-ELU-03-0.5	339	IC-NO3-N-1X-1	339	ICP-19N-10X-1	331	ICP-41W-5	332	ICP-61N-1	333	ICP-MS-24N-0.01X-1	335
IC-ELU-03-0.5-PAK	339	IC-NO3-N-1X-5	339	ICP-19N-10X-5	331	ICP-41W-10X-0.5	332	ICP-61N-5	333	ICP-MS-24N-1	335
IC-ELU-03-1-PAK	339	IC-NO3-N-10X-1	339, 342	ICP-20N-1	331	ICP-41W-10X-1	332	ICP-62N-1	334	ICP-MS-25N-0.01X-1	335
IC-F-1X-1	338	IC-NO3-N-10X-5	339	ICP-20N-5	331	ICP-42H-5	332	ICP-62N-5	334	ICP-MS-25N-1	335
IC-F-1X-5	338	IC-OXAL-1X-1	338, 339	ICP-20N-10X-0.5	331	ICP-42H-10	332	ICP-62N-10X-0.5	334	ICP-MS-26H-0.01X-1	335
IC-F-2X-1	338	IC-OXAL-1X-5	338, 339	ICP-20N-10X-1	331	ICP-42H-10X-0.5	332	ICP-62N-10X-1	334	ICP-MS-26H-1	335
IC-F-2X-5	338	IC-OXAL-10X-1	338, 339	ICP-20N-10X-5	331	ICP-42H-10X-1	332	ICP-63N-1	334	ICP-MS-27N-0.01X-1	335
IC-F-10X-1	338, 342	IC-OXAL-10X-5	338, 339	ICP-21W-1	332	ICP-43N-1	333	ICP-63N-5	334	ICP-MS-27N-1	335
IC-F-10X-5	338	ICP-01N-1	331	ICP-21W-5	332	ICP-43N-5	333	ICP-63N-10X-0.5	334	ICP-MS-28N-0.01X-1	335
IC-FORM-1X-1	338, 339	ICP-01N-5	331	ICP-21W-10X-0.5	332	ICP-43N-10X-0.5	333	ICP-63N-10X-1	334	ICP-MS-28N-1	335
IC-FORM-1X-5	338, 339	ICP-01N-10X-0.5	331	ICP-21W-10X-1	332	ICP-43N-10X-1	333	ICP-63N-10X-5	334	ICP-MS-29N-0.01X-1	335
IC-FORM-10X-1	338, 339	ICP-01N-10X-1	331	ICP-22H-1	332	ICP-43N-10X-5	333	ICP-64W-1	334	ICP-MS-29N-1	335
IC-FORM-10X-5	338, 339	ICP-02N-1	87	ICP-22H-5	332	ICP-44N-1	333	ICP-64W-5	334	ICP-MS-30N-0.01X-1	335
IC-GLYC-10X-1	338	ICP-02N-5	87	ICP-22H-10X-0.5	332	ICP-44N-5	333	ICP-64W-10X-0.5	334	ICP-MS-30N-1	335
IC-I-10X-1	338, 342	ICP-02N-10X-0.5	87	ICP-22H-10X-1	332	ICP-44N-10X-0.5	333	ICP-64W-10X-1	334	ICP-MS-31N-0.01X-1	335
IC-K-1X-1	341	ICP-02N-10X-1	87	ICP-23N-1	332	ICP-44N-10X-1	333	ICP-64W-10X-5	334	ICP-MS-31N-1	335
IC-K-1X-5	341	ICP-02N-5	87	ICP-23N-5	332	ICP-44N-10X-5	333	ICP-65W-1	334	ICP-MS-32N-0.01X-1	335
IC-K-2X-1	341	ICP-03N-1	331	ICP-23N-10X-0.5	332	ICP-45W-1	333	ICP-65W-5	334	ICP-MS-32N-1	335
IC-K-2X-5	341	ICP-03N-5	331	ICP-23N-10X-1	332	ICP-45W-5	333	ICP-65W-10X-0.5	334	ICP-MS-33N-0.1X-1	335
IC-K-10X-1	341	ICP-03N-10X-0.5	331	ICP-23N-10X-5	332	ICP-45W-10X-0.5	333	ICP-65W-10X-1	334	ICP-MS-33N-1	335
IC-K-10X-5	341	ICP-03N-10X-1	331	ICP-24N-1	332	ICP-45W-10X-1	333	ICP-66N-1	334	ICP-MS-34N-0.	

Catalog Number Index

ICP-MS-41W-0.1X-1	335	ICP-MS-IS-MIX1-1	366	J-111	80	M-001B-R	170	M-502-04	69	M-502-36	71, 123
ICP-MS-41W-1	335	ICP-MS-IS-RH-1	366	J-112	80	M-001C	170	M-502-04-10X	69	M-502-36-10X	71, 123
ICP-MS-42H-0.1X-1	335	ICP-MS-IS-RH-10X-1	366	J-113	80	M-001D	170	M-502-04N	69	M-502-36N	71
ICP-MS-42H-1	335	ICP-MS-IS-SC-1	366	J-115	80	M-001D-D	170	M-502-05	69, 118	M-502-37	71, 123
ICP-MS-43N-0.1X-1	335	ICP-MS-IS-SC-10X-1	366	J-120	81	M-001E	170	M-502-05-10X	69, 118	M-502-37-10X	71, 123
ICP-MS-43N-1	335	ICP-MS-IS-TB-1	366	J-121	80	M-001E-D	170	M-502-05N	69	M-502-37N	71
ICP-MS-44N-0.1X-1	335	ICP-MS-IS-TB-10X-1	366	J-122	81	M-001F	170	M-502-06	69, 118	M-502-38	71, 123
ICP-MS-44N-1	335	ICP-MS-IS-Y-1	366	J-123	80	M-001F-D	170	M-502-06-10X	69, 118	M-502-38-10X	71, 123
ICP-MS-45W-0.1X-1	335	ICP-MS-IS-Y-10X-1	366	J-127	80	M-001G	170	M-502-07	69, 118	M-502-38N	71
ICP-MS-45W-1	335	ICP-MS-MEMCHKA-R1-SET	366	JEAM-001	256	M-001G-D	170	M-502-07-10X	69, 118	M-502-39	70, 121
ICP-MS-46H-0.1X-1	335	365	JEAM-001-PAK	256	M-001H	170, 174	M-502-07N	69	M-502-39-10X	70, 121	
ICP-MS-46H-1	335	ICP-MS-MEMCHK-R1	365	JEAM-002	256	M-001J	170, 174, 179	M-502-08	69, 118	M-502-39N	70
ICP-MS-47N-0.1X-1	336	ICP-MS-MEMCHK-R1-SET365	365	JEAM-002-PAK	256	M-001J-PAK	179	M-502-08-10X	69, 118	M-502-40	124
ICP-MS-47N-1	336	ICP-MS-QC1-1	366	JMHW-001	256	M-001K	170, 174, 179	M-502-08N	69	M-502-40-10X	71
ICP-MS-48H-0.1X-1	336	ICP-MS-QC2-1	366	JMHW-001-PAK	256	M-001L	170, 174, 179	M-502-09	69, 118	M-502-40N	71
ICP-MS-48H-1	336	ICP-MS-QC3-1	366	JMHW-002	256	M-001N	170	M-502-09-10X	69, 118	M-502-41	72, 125
ICP-MS-49N-0.1X-1	336	ICP-MS-SPIKE-1-SET	366	JMHW-002-PAK	256	M-001P	170	M-502-09N	69	M-502-41-10X	72, 125
ICP-MS-49N-1	336	ICP-MS-SPIKE-S-1	366	JMHW-003	256	M-001P-D	170	M-502-10	69, 118	M-502-41N	72
ICP-MS-50N-0.1X-1	336	ICP-MS-SPIKE-W-1	366	JMHW-003-PAK	256	M-001R147, 170, 172, 177, 201, 202, 203, 206	206	M-502-10-10X	69, 118	M-502-42	72, 126
ICP-MS-50N-1	336	ICP-MS-TUNSOL1-1	365	JP-4 Fuel	311	M-001R-0.75X	206	M-502-10N	69	M-502-42-10X	72, 126
ICP-MS-51N-0.1X-1	336	ICP-MS-TUNSOL2-1	365	JP-4 Jet Fuel	310	M-001R-0.75X-PAK	206	M-502-10X	144, 205, 223	M-502-42N	72
ICP-MS-51N-1	336	IC-PO4-1X-1	338	JP-5 Fuel	310, 311	M-001R-2	70	M-502-10X-PAK	144, 205, 223	M-502-43	72, 126
ICP-MS-52W-0.1X-1	336	IC-PO4-1X-5	338	JP-7 Fuel	310, 311	M-001R-3	69, 118	M-502-10X-SET	144, 205	M-502-43-10X	72, 126
ICP-MS-52W-1	336	IC-PO4-2X-1	338	JP-8 Fuel	310, 311	M-001R-PAK172, 177, 202, 203, 206	206	M-502-11	69	M-502-43N	72
ICP-MS-53N-0.01X-1	336	IC-PO4-2X-5	338	JP-10 Aviation Fuel	310	M-002	13	M-502-11-10X	69	M-502-44	72, 126
ICP-MS-53N-1	336	IC-PO4-10X-1	338	JP-10 Fuel	311	M-002-PAK	13	M-502-11N	69	M-502-44-10X	72, 126
ICP-MS-54N-0.01X-1	336	IC-PO4-10X-5	338	JP-TS Aviation Fuel	310	M-005A	305	M-502-12	69	M-502-44N	72
ICP-MS-54N-1	336	IC-PO4-P-1X-1	339	JY-CAL-ASL-1	360	M-005A-10X	305	M-502-12-10X	69	M-502-45	72, 126
ICP-MS-55N-0.01X-1	336	IC-PO4-P-1X-5	339	JY-CAL-ASL-5	360	M-005A-10X-PAK	305	M-502-13	70	M-502-45-10X	72, 126
ICP-MS-55N-1	336	IC-PO4-P-10X-1	339, 342	JY-QC7-ASL-5	360	M-005B-PAK	305	M-502-13-10X	70	M-502-45N	72
ICP-MS-56W-0.01X-1	336	IC-PROP-10X-1	338	JY-QC21-ASL-1	360	M-005B-10X	305	M-502-13N	70	M-502-46	72, 126
ICP-MS-56W-1	336	IC-SO4-1X-1	338	JY-QC21-ASL-5	360	M-005B-10X-PAK	305	M-502-14	70, 119	M-502-46-10X	72, 126
ICP-MS-57W-0.01X-1	336	IC-SO4-1X-5	338	JY-QC23-ASL-1	360	M-005B-PAK	305	M-502-14-10X	70, 119	M-502-46N	72
ICP-MS-57W-1	336	IC-SO4-2X-1	338	JY-QC23-ASL-5	360	M-005V-10X	305	M-502-15	70, 119	M-502-47	72, 127
ICP-MS-58H-0.01X-1	336	IC-SO4-2X-5	338	K		M-005V-10X-PAK	305	M-502-15-10X	70, 119	M-502-47-10X	72, 127
ICP-MS-58H-1	336	IC-SO4-10X-1	338, 342	K-001N	70	M-005V-PAK	305	M-502-15N	70	M-502-47N	72
ICP-MS-59N-0.01X-1	336	IC-SO4-10X-5	338	K-003N	69	M-100	67	M-502-16	70, 119	M-502-48	72, 127
ICP-MS-59N-1	336	IC-SO4-S-1X-1	339	K-004N	70	M-200.7-01-1	351	M-502-16-10X	70, 119	M-502-48-10X	72, 127
ICP-MS-60N-0.01X-1	336	IC-SO4-S-1X-5	339	K-007N	69	M-200.7-01-5	351	M-502-16N	70	M-502-48N	72
ICP-MS-60N-1	336	IC-SO4-S-10X-1	339	K-007N	69	M-200.7-02R-1	351	M-502-17	70, 120	M-502-49	72, 127
ICP-MS-61N-0.01X-1	336	IC-SO4-S-10X-5	339	K-008N	69	M-200.7-02R-5	351	M-502-17-10X	70, 120	M-502-49-10X	72, 127
ICP-MS-62N-0.01X-1	336	IC-SR-1X-1	341	K-009N	69	M-200.7-03R-1	351	M-502-17N	70	M-502-50	72, 127
ICP-MS-62N-1	336	IC-SR-1X-5	341	K-010N	70	M-200.7-03R-5	351	M-502-18	70, 120	M-502-50-10X	72, 127
ICP-MS-63N-0.01X-1	336	IC-SR-2X-1	341	KDWR-001	256	M-200.7-04-1	351	M-502-18-10X	70, 120	M-502-50N	72
ICP-MS-63N-1	336	IC-SR-2X-5	341	KDWR-001-PAK	256	M-200.7-04-5	351	M-502-18N	70	M-502-51	72, 127
ICP-MS-64W-0.01X-1	336	IC-SR-10X-1	341	KDWR-002	256	M-200.7-05-1	351	M-502-19	70, 120	M-502-51-10X	72, 127
ICP-MS-64W-1	336	IC-SR-10X-5	341	KDWR-002-PAK	256	M-200.7-05-5	351	M-502-19-10X	70, 120	M-502-51N	72
ICP-MS-65W-0.01X-1	336	IC-SUCC-10X-1	338	KDWR-003	256	M-200.7-5-R-5-SET	351	M-502-19N	70	M-502-52	72, 127
ICP-MS-65W-1	336	IC-SULF-10X-20ML	338	KDWR-003-PAK	256	M-200.7-IPC-01-1	351	M-502-20	70, 120	M-502-52-10X	72, 127
ICP-MS-66N-0.01X-1	336	IC-SULF-10X-20ML-VAP	338	KF-0.6X-5ML-VAP	269	M-200.7-IPC-01-5	351	M-502-20-10X	70, 120	M-502-52-5X	72, 127
ICP-MS-67N-0.01X-1	336	IP-391/07-01	308	KF-1X-2ML-VAP	269	M-200.7-IPC-02-1	351	M-502-20N	70	M-502-53-10X	72, 127
ICP-MS-67N-1	336	IP-391/07-02	308	KF-1X-5ML-VAP	269	M-200.7-IPC-02-5	351	M-502-21	70, 120	M-502-53N	72
ICP-MS-68N-0.01X-1	336	IP-391/07-SET	308	KF-1X-20ML-PAK	269	M-200.7-IP-01-1	351	M-502-21-10X	70, 120	M-502-54	72, 127
ICP-MS-68N-1	336	IP-585-BCS	307	KF-10X-2ML-VAP	269	M-200.7-IP-01-5	351	M-502-21N	70	M-502-54-10X	72, 127
ICP-MS-70N-0.01X-1	336	IRT-001S	74, 110	KF-50X-5ML-VAP	269	M-200.7-IP-02-1	351	M-502-22	70, 120	M-502-54N	72
ICP-MS-70N-1	336	IRT-002S	74, 110	KF-50X-20ML-PAK	269	M-200.7-IP-02-5	351	M-502-22-10X	70, 120	M-502-55	72, 127
ICP-MS-71N-0.01X-1	336	IRT-003S	74, 110	KF-50X-5ML-VAP	269	M-200.7-LFSS-01-1	352	M-502-22N	70	M-502-55-10X	72, 127
ICP-MS-71N-1	336	IRT-004S	74, 110	KF-50X-20ML-VAP	269	M-200.7-LFSS-01-5	352	M-502-23	70, 120	M-502-55N	72
ICP-MS-200.8-CAL1-1	367	IRT-005S	110	KF-50X-20ML-PAK	269	M-200.7-LFSS-02-1	352	M-502-23-10X	70, 120	M-502-56	72, 127
ICP-MS-200.8-CAL1R-1	367	ISO6468-PCB	247	KF-50X-5ML-VAP	269	M-200.7-LFSS-02-5	352	M-502-23N	70	M-502-56-10X	72, 127
ICP-MS-200.8-CAL2-1	367	ISO6468-PEST	254	KF-50X-20ML-PAK	269	M-200.7-R-1-SET	351	M-502-24	70, 121	M-502-57	72, 127
ICP-MS-200.8-CAL3-1	367	ISO22032-IS-1-5ML	31, 249	KF-50X-5ML-VAP	269	M-200.7-SP-01-R	352	M-502-24-10X	70, 121	M-502-57-10X	72, 127
ICP-MS-200.8-IS-1	367	ISO22032-IS-1-10ML	31, 249	KF-50X-20ML-PAK	269	M-200.7-SP-02-R	352	M-502-25	70, 121	M-502-57N	72
ICP-MS-200.8-IS2-1	367	ISO22032-IS-2-5ML	31, 249	KF-50X-5ML-VAP	269	M-200.7-SP-02-R-1	352	M-502-25-10X	70, 121	M-502-58	72, 127
ICP-MS-200.8-TUN-1	367	ISO22032-IS-2-10ML	31, 249	KF-50X-20ML-PAK	269	M-200.7-SP-02-R-5	352	M-502-25N	70, 121	M-502-58-10X	72, 127
ICP-MS-6020-CAL-R-1	367	ISO/DIS9377-4-1	255, 313	KF-50X-5ML-VAP	269	M-200.7-SP-03	352	M-502-26	70, 121	M-502-58N	72
ICP-MS-6020-INT1-1	367	ISO/DIS9377-4-2	255, 313	KF-50X-20ML-PAK	269	M-200.7-SP-05-R	352	M-502-26N	70, 121	M-502-59	72, 127
ICP-MS-6020-INT2-1	367	ISO/DIS22032-SET	31, 249	L		M-200.7-SP-R-SET	352	M-502-26N	70	M-502-59-10X	72, 127
ICP-MS-6020-TUN-1	367	L-001N	76	L-001N	76	M-300.1-SS	340, 342	M-502-27	70, 121	M-502-59N	72
ICP-MS-BLH-1	336, 364	L-002N	77	L-002N	77	M-314.0-CMCS-1	339	M-502-27-10X	70, 121	M-502-60	145
ICP-MS-BLH-5	336, 364	L-003N	77	L-003N	77	M-314.0-MCA-250X-1	339	M-502-27N	70	M-502-60-10X	145
ICP-MS-BLN-1	336, 364	L-004N	77	L-004N	77	M-314.0-SET	339	M-502-28	70, 121	M-502-61	70, 121
ICP-MS-BLN-5	336, 364	L-005N	77	L-005N	77	M-418	327, 344	M-502-28-10X	70, 121	M-502-61-10X	70, 121
ICP-MS-BLW-1	336, 364	L-006N	78	L-006N	78	M-418-CON	327, 344	M-502-28N	70	M-502A-R	144, 224, 258
ICP-MS-BLW-5	336, 364	L-007N	77	L-007N	77	M-418-PAK	327, 344	M-502-29	70, 121	M-502A-R2	223
ICP-MS-CAL1-1	364	L-011N	77	L-011N	77	M-465B-10X	258	M-502-29-10X	70, 121	M-502A-R2-10X	223
ICP-MS-CAL2-1	364	L-012N	77	L-012N	77	M-465B-10X-PAK	258	M-502-29N	70	M-502A-R2-10X-PAK	223
ICP-MS-CAL4-1	364	L-013N	77	L-013N	77	M-465D-ADD-R	258	M-502-30	70, 121	M-502A-R2/B-10X-SET	223
ICP-MS-CAL5-1	364	L-014N	77	L-014N	77	M-465D-SET	258	M-502-30-10X	70, 121	M-502A-R2/B-SET	223
ICP-MS-CAL-R-1-SET	364	L-015N	77	L-015N	77	M-465D-SET-PAK	258	M-502-30N	70	M-502A-R2-PAK	223
ICP-MS-INT-1-SET	365	L-016N	77	L-016N	77	M-501	144, 172, 202	M-502-31	70, 121	M-502A-R3	144
ICP-MS-INTA-1	365	L-017N	77	L-017N	77	M-501-10X	144, 172, 202	M-502-31-10X	70, 121	M-502A-R3-10X	144
ICP-MS-INTB-1	365	L-018N	77	L-018N	77	M-501-10X-PAK	144	M-502-31N	70	M-502A-R-10X	144
ICP-MS-IS-BI-1	366	L-018S-CN	77	L-018S-CN	77	M-501-PAK	144, 172, 202	M-502-32	70, 121	M-502A-R-10X-PAK	144
ICP-MS-IS-BI-10X-1	366	LFSS-01-1	351	LFSS-01-1	351	M-501-SET	144	M-502-32-10X			

Catalog Number Index

M-502C-02	145	M-508.1-X1	151	M-525-2-5X-PAK	155, 157	M-531-QC-R	161	M-552.2A-07	79, 118	M-601/602/BTEX	173
M-502C-02-PAK	145	M-508.1-X1-PAK	151	M-525.2-CP-ASL	158	M-531-REG	169	M-552.2A-08	79, 119	M-601/602/BTEX-10X	173
M-502C-03	145	M-508.1-X2	151	M-525.2-CP-ASL-PAK	158	M-531-REG-ASL	161, 169	M-552.2A-09	79, 127, 165	M-601/602-PAK	173
M-502C-03-PAK	145	M-508.1-X2-PAK	151	M-525.2-FS-ASL	158	M-531-REG-ASL-PAK	161, 169	M-552.2A-10	79, 127, 165	M-601A	172, 202
M-502C-04	145	M-508A-1	150	M-525.2-FS-ASL-PAK	158	M-531-SET	161	M-552.2A-R1	165	M-601A-10X	172, 202
M-502C-04-PAK	145	M-508A-1-PAK	150	M-525.2-IS	156, 159	M-532	161	M-552.2A-SET	165	M-601A-10X-PAK	172
M-502C-05	145	M-508A-2	150	M-525.2-IS-PAK	156, 159	M-532-CONC1	161	M-552.2-IS	165	M-601A-PAK	172, 202
M-502C-05-PAK	145	M-508A-2-PAK	150	M-525.2-IS/SS	156	M-532-CONC1-PAK	161	M-552.2-LPC	165	M-601-ASL	172
M-502C-06	145	M-508-DS-100X	150	M-525.2-IS/SS-PAK	156	M-532-CONC2	161	M-552.2-LPC-PAK	165	M-601-ASL-PAK	172
M-502C-06-PAK	145	M-508-DS-100X-PAK	150	M-525.2-NP1-ASL	158	M-532-CONC2-PAK	161	M-552.2-LPC-WL-25ML	165	M-601B	173
M-502C-07	168	M-508-IS	125, 150, 209	M-525.2-NP1-ASL-PAK	158	M-532-PAK	161	M-552.2-R1	165	M-601B-PAK	173
M-502C-08	168	M-508-IS-10X	125, 150	M-525.2-NP2-ASL	158	M-532-SS	161	M-552.2-SET	165	M-601C	119, 172, 173, 202
M-502C-09	145	M-508-IS-PAK	150, 209	M-525.2-NP2-ASL-PAK	158	M-532-SS-PAK	161	M-552.2-SS	120, 165	M-601C-10X	79, 172, 173, 202
M-502C-10	168	M-508P-A	150, 157	M-525-2-PAK	155	M-535-SET	161	M-552.2-SS2	165	M-601C-10X-PAK	172, 173
M-502C-11	168	M-508P-A-PAK	150, 157	M-525.2-SET	156	M-547	162, 168	M-552.2-SS-ME	123, 71	M-601-CHG	173
M-502D	146	M-508P-B-R	150	M-525.2-SS	156, 159	M-547-02	162	M-552.3	165	M-601-CHG-PAK	173
M-502D/E/F-SET	146	M-508P-B-R2	150, 157	M-525.2-SS2-ASL	158	M-547-10X	162	M-552.3A-R1	165	M-601C-PAK	172, 173, 202
M-502E	146	M-508P-B-R2-PAK	150, 157	M-525.2-SS2-ASL-PAK	158	M-548.1-IS	117, 162	M-552.3-R1	165	M-601-SET	172, 202
M-502F	146	M-508P-B-R-PAK	150	M-525.2-SS-PAK	156, 159	M-548.1-ME	122	M-552A-1	79	M-602	173
M-502-IS	146, 147, 154, 201	M-508-QC	150	M-525.2-SV-ASL	158	M-548A	162	M-552A-2	79, 119	M-602-GAS	173
M-502-IS-2	146, 147, 154, 201	M-508-QC-PAK	150	M-525.2-SV-ASL-PAK	158	M-548B	162	M-552A-3	79, 120	M-602-GAS-10X	173, 315, 325
M-502-IS-2-3	70, 121	M-508-SS	120, 150	M-525.2-SV-ASL-PAK	158	M-548-CAL	122, 162	M-552A-4	127	M-602-GAS-10X-PAK	173
M-502-IS-2-PAK	146, 154	M-508-SS-2	120, 150	M-525-3	155	M-548-IS	122, 162	M-552A-5	79, 120	M-602-GAS-PAK	173
M-502-IS-ASL	145, 147, 201	M-508-SS-2-PAK	150	M-525-3-5X	155	M-549.1	162	M-552A-6	121	M-602-PAK	173
M-502-IS-ASL-PAK	145	M-508-SS-PAK	150	M-525-3-5X-PAK	155	M-550-IS	121, 162	M-552A-7	76	M-602-SS	127, 148, 173
M-502-IS-PAK	146, 154	M-509	151, 168	M-525-3-PAK	155	M-550-QC	162	M-552A-R	164	M-602-SS-10X	127
M-502-IS-QC	147	M-509-IS	151	M-525-4	155	M-551.1A	163	M-552A-R-01	164	M-602-SS-100X	173
M-502-IS/SS	145, 147	M-509-PC	151	M-525-4-5X	155	M-551.1A-PAK	163	M-552A-R-02	79, 118, 164	M-602-SS-PAK	148, 173
M-502-IS/SS-PAK	145	M-509-RS-10ML	151	M-525-4-5X-PAK	155	M-551.1B	163	M-552A-R-03	164	M-603	170, 174, 223, 224
M-502-K1-SET	145	M-509-SS	151	M-525-4-PAK	155	M-551.1B-PAK	163	M-552A-R-04	164	M-603-10X	174, 206, 223
M-502-PAK	144, 205, 223	M-515.2-1	152	M-525-4-R-5X	157	M-551.1C	163	M-552A-R-05	164	M-603-M-0.1X	174, 223
M-502-R1	144	M-515.2-1-PAK	152	M-525-5	126, 155, 168	M-551.1C-PAK	163	M-552A-R-06	75, 164	M-603-M-5X	174, 223
M-502-R1-PAK	144	M-515.2-2	152	M-525-5-PAK	155	M-551.1-IS	69, 118, 163	M-552A-R-07	164	M-603-PAK	174, 223
M-502-REG	168	M-515.2-2-PAK	152	M-525-FS-1	155	M-551.1-IS-100X	69, 163	M-552A-R-08	127, 164	M-604	174
M-502-REG-10X	168	M-515.2A-1	152	M-525-FS-1-PAK	155	M-551.1-IS-100X-PAK	163	M-552A-R-SET	164	M-604.1	174, 182
M-502-REG-10X-PAK	168	M-515.2A-1-PAK	152	M-525-FS-2	126, 155	M-551.1-IS-PAK	163	M-552-IS	70, 120, 164	M-604-PAK	174
M-502-REG-PAK	168	M-515.2A-2	152	M-525-FS-2-PAK	155	M-551.1-LPC	163	M-552-IS-PAK	164	M-604-PFB	174
M-502-SET	144, 205	M-515.2A-2-PAK	152	M-525-IS	155	M-551.1-LPC-P	163	M-552-R	164	M-604-PFB-PAK	174
M-503	148	M-515.3A	153	M-525-IS-PAK	155	M-551.1-LPC-PAK	163	M-552-R-01	164	M-604-SS	76, 127, 174
M-503-PAK	148	M-515.3A-PAK	153	M-525-REG-ASL	158, 169	M-551.1-LPC-P-PAK	163	M-552-R-02	164	M-604-SS-PFB	127, 174
M-504	148, 168	M-515.3-ICS	153	M-525-REG-ASL-PAK	158, 169	M-551.1-MLPC	163	M-552-R-03	79, 123, 164	M-604-SS-PFB-PAK	174
M-504.1-CSS	148	M-515.3-ICS-PAK	153	M-525-REG-EA	158, 169	M-551.1-MLPC-P	163	M-552-R-04	79, 164	M-605-10X	174
M-504.1-CSS-PAK	148	M-515.3-LPC	153	M-525-REG-EA-5X	158, 169	M-551.1-MLPC-PAK	163	M-552-R-05	164	M-605-10X-PAK	174
M-504.1-LFB	148	M-515.3-LPC-PAK	153	M-525-SET	155	M-551.1-MLPC-P-PAK	163	M-552-R-06	164	M-606	174
M-504.1-LFB-PAK	148	M-515.4A	153	M-525-SS	126, 155	M-551.1-SS	21	M-552-R-07	164	M-606-PAK	174
M-504.1-MDL	148	M-515.4A-PAK	153	M-525-SS-PAK	155	M-551.1-SS-100X	21	M-552-R-08	164	M-607	174
M-504.1-MDL-PAK	148	M-515.4-QCS	153	M-525-TS	120, 155, 159	M-551.1-SS-100X-PAK	163	M-552-R-SET	164	M-607-PAK	174
M-504.1-SET	148	M-515.4-QCS-PAK	153	M-525-TS-PAK	155, 159	M-551.1-SS-PAK	163	M-552-SS	120, 164	M-608.1	175
M-504-10X	148, 203	M-515A-R2	152	M-526	159	M-551A	162	M-552-SS-ME	164	M-608.1-PAK	175
M-504-10X-PAK	148, 203	M-515A-R2-PAK	152	M-526-0.2X-EA	159	M-551A-PAK	162	M-552-SS-ME-PAK	164	M-608.2	175
M-504-PAK	148, 168	M-515-IS	152, 153	M-526-0.2X-EA-PAK	159	M-551B	162	M-552-SS-PAK	164	M-608.2-PAK	174
M-505-ASL	148	M-515-IS-PAK	152, 153	M-526-IS/SS	159	M-551B-1	69, 118, 162	M-553	166, 240	M-608-ASL	175
M-505-ASL-PAK	148	M-515-QC	152	M-526-IS/SS-PAK	159	M-551B-2	69, 119, 162	M-553-PC	120, 166, 240	M-608-ASL-PAK	174
M-505R-2	148	M-515-QC-PAK	152	M-526-PAK	159	M-551B-3	119, 162	M-554-01	73, 117, 166	M-608-QC	174
M-505R-2-PAK	148	M-515-QC-R	152	M-526-R	159	M-551B-4	70, 120, 162	M-554-02	73, 118, 166	M-608-QC-PAK	174
M-506	148	M-515-QC-R-PAK	152	M-526-SS-PAK	159	M-551B-5	70, 120, 162	M-554-03	73, 119, 166	M-608-SET	174
M-506-PAK	148	M-515-R	152	M-527-BDE	31	M-551B-6	74, 121, 162	M-554-04	74, 119, 166	M-609-10X-SET	216
M-506-QC	148	M-515-REG	169	M-527-PEST-A	159	M-551B-7	72, 162	M-554-05	73, 120, 166	M-609A-10X	216
M-506-QC-PAK	148	M-515-REG-ME	169	M-527-PEST-B	159	M-551B-8	74, 127, 162	M-554-06	74, 122, 166	M-609A-R	175
M-507A	149, 156	M-515-REG-ME-1000X	169	M-528-AFS	160	M-551B-SET	162	M-554-07	74, 123, 166	M-609B-10X	216
M-507A-PAK	149, 156	M-515-R-PAK	152	M-528-AFS-PAK	160	M-552.1	164	M-554-08	74, 123, 166	M-609B-R	175
M-507B	149, 156	M-515-SS	79, 152, 221, 222	M-528-CONC	160	M-552.1-01	120, 164	M-554-09	74, 125, 166	M-609-QC	175, 216
M-507B-PAK	149, 156	M-515-SS-50X	79, 152	M-528-CONC-PAK	160	M-552.1-02	79, 123, 164	M-554-10	74, 125, 166	M-609-R-SET	175
M-507C	149, 156	M-515-SS-PAK	152, 221, 222	M-528-IS	160	M-552.1-03	79, 123, 164	M-554-11	74, 125, 166	M-610	175
M-507C-PAK	149, 156	M-521	154	M-528-IS-PAK	160	M-552.1-04	79, 164	M-554-12	74, 125, 166	M-610A	175
M-507D	149, 156	M-521-IS	154	M-528-PTF	160	M-552.1-05	79, 124, 164	M-554-DNPH	166	M-610-MS	175, 238, 257
M-507D-PAK	149, 156	M-521-IS-PAK	154	M-528-PTF-PAK	160	M-552.1-06	79, 124, 164	M-554-DNPH-01	73, 117, 166	M-610-MS-PAK	175, 238, 257
M-507E	149, 156	M-521-SS	154	M-528-SS	160	M-552.1-07	79, 124, 164	M-554-DNPH-02	73, 118, 166	M-610-QC	175, 238
M-507E-PAK	149, 156	M-521-SS-PAK	154	M-528-SS2	160	M-552.1A	164	M-554-DNPH-03	73, 119, 166	M-610-QC-FL	238, 257
M-507F	126	M-524-FS	146, 147, 154, 201	M-528-SS2-PAK	160	M-552.1A-SET	164	M-554-DNPH-04	74, 119, 166	M-610-QC-FL-PAK	238, 257
M-507F-R2	149, 156	M-524-FS-PAK	146, 154	M-528-SS-PAK	160	M-552.1-IS	72, 164	M-554-DNPH-05	73, 120, 166	M-611	175
M-507F-R2-PAK	149, 156	M-524-IS	146, 147, 154, 256	M-529-IS	86	M-552.1-IS-PAK	164	M-554-DNPH-06	74, 122, 166	M-611-10X	217
M-507G	149	M-524-IS-2	71, 122, 146, 147, 154, 201	M-529-ISFS	86	M-552.1-SET	164	M-554-DNPH-07	74, 123, 166	M-612	175
M-507G-PAK	149	M-524-IS-2-10X	71, 122, 154	M-529-MS-SET	86	M-552.1-SS	118, 164	M-554-DNPH-08	74, 123, 166	M-613	23
M-507H	149	M-524-IS-2-PAK	146, 154	M-529-SAFS	86	M-552.1-SS-ME	71, 164	M-554-DNPH-09	74, 125, 166	M-613-PAK	175
M-507H-PAK	149	M-524-IS-2-PAK	146, 154	M-529-SIM-SET	86	M-552.1-SS-ME-PAK	164	M-554-DNPH-10	74, 125, 166	M-614	175
M-507-IS	127, 149	M-524-PAK	146, 154, 256	M-529-SS1	86	M-552.1-SS-PAK	164	M-554-DNPH-11	74, 125, 166	M-614.1	175
M-507-IS-10X	127, 149	M-524-R-B	154	M-529-SS1-PAK	86	M-552.2	165	M-554-DNPH-12	74, 125, 166	M-614.1-ASL	175
M-507-IS-PAK	149	M-524-R-B-PAK	154	M-529-SS2	86	M-552.2-01	165	M-554-DNPH-SET	166	M-615A-ASL	176
M-507-QC	149	M-524-R-C	154	M-529-SS2-PAK	86	M-552.2-02	79, 165	M-554-R1	166	M-615A-ASL-PAK	176
M-507-QC-PAK	149	M-524-R-C-IS	154	M-531-01	117, 161	M-552.2-03	79, 165	M-555A	166	M-615-ASL-PAK	176
M-507-R-SET	149	M-524-R-C-IS-PAK	154	M-531-02	117, 161	M-552.2-04	79, 123, 165	M-555B	166	M-615-ASL-PAK	176
M-507-SS	71, 121, 149	M-524-R-C-IS/SS	154	M-531-03	125, 161	M-552.2-05	79, 165	M-556-DER-10ML	166	M-617-2	176
M-507-SS-4X	71, 121, 149	M-524-R-C-IS/SS-PAK	154	M-531-04	123, 161	M-552.2-06	79, 124, 165	M-556-DER-10ML-PAK	166	M-618	176
M-507-SS-PAK</											

Catalog Number Index

M-619-11	176	M-1653B	188	M-1673-PAK	196	M-8033-PAK	206	M-8080-WL-10X-10ML	210
M-619M	176	M-1653B-R	188	M-1673-SS	196	M-8040-01	75	M-8080-WL-10X-25ML	210
M-619-SET	176	M-1653C	188	M-1673-SS-PAK	196	M-8040-02	75	M-8080-WL-10X-50ML	210
M-620	77, 122, 176	M-1653C-R	188	M-8010-01	69, 118	M-8040-03	75	M-8080-WL-25X-10ML	210
M-622.1	177	M-1653D-AC	188	M-8010A	202	M-8040-04	75	M-8080-WL-25X-25ML	210
M-622-06	120	M-1653D-R	188	M-8010B	203	M-8040-05	75	M-8080-WL-25X-50ML	210
M-622-19	125	M-1653-IIS	188, 21	M-8010-IS/SS147, 201, 202, 203		M-8040-06	75	M-8081A-SC	213
M-622-SET	177	M-1653-IIS-R	188, 21	M-8010-IS/SS-PAK	202, 203	M-8040-07	75, 121	M-8081A-SC-PAK	213
M-624	177	M-1653-IS	76, 127, 188	M-8010R-1	202	M-8040-08	75, 121	M-8081A-SC-R	213
M-624-SS-01	69, 118, 177	M-1653-IS-R	76, 127, 188	M-8010R-1-04	70, 119	M-8040-09	75, 121	M-8081A-SC-R-PAK	213
M-624-SS-01-10X	69, 118	M-1653-TS	120, 188, 191	M-8010R-1-04-10X	70, 119	M-8040-10	75	M-8081-DC	213
M-624-SS-02	177	M-1656-01-CAL-SET	189	M-8015A	204	M-8040-11	121	M-8081-DS	213
M-624-SS-03	69, 118, 177	M-1656-02-CAL-SET	189	M-8015A-10X	204	M-8040-12	75	M-8081-DS-PAK	213
M-624-SS-03-10X	69, 154	M-1656-03-CAL-SET	189	M-8015-ASL	204	M-8040-13	75	M-8081-IS	213
M-624-SS-04	69, 118, 177	M-1656-04-CAL-SET	189	M-8015B/5031-01	74, 117, 204	M-8040-14	75	M-8081-IS-DC	69, 118, 213
M-624-SS-05	70, 120, 177	M-1656-05-CAL-SET	189	M-8015B/5031-02	69, 204	M-8040-15	76, 125	M-8081-IS-DC-PAK	213
M-624-SS-06	70, 121	M-1656-06-CAL-SET	189	M-8015B/5031-03	73, 204	M-8040-16	125	M-8081-IS-PAK	213
M-624-SS-06-10X	70, 121	M-1656-07-CAL-SET	189	M-8015B/5031-04	69, 204	M-8040-17	76	M-8081-IS-X	70, 120, 213
M-624-SS-07	71, 121, 177	M-1656-CAL-SET	189	M-8015B/5031-05	73, 117, 204	M-8040-18	76, 127	M-8081-IS-X-PAK	213
M-624-SS-07-10X	71, 121	M-1656-DS	188	M-8015B/5031-06	73, 118, 204	M-8040-19	76, 127	M-8081-SC	213
M-624-SS-08	71, 122, 177	M-1657-01-R1-1X	190	M-8015B/5031-07	73, 118, 204	M-8040A-ASL	207	M-8081-SC-PAK	213
M-624-SS-09	71, 177	M-1657-01-R1-5X	190	M-8015B/5031-08	73, 204	M-8040A-ASL-20X	207	M-8081-SS-DC	119, 213
M-624-SS-10	71, 125, 177	M-1657-01-R1-20X	190	M-8015B/5031-09	79, 121, 204	M-8040A-ASL-PAK	207	M-8081-SS-DC-PAK	213
M-624-SS-11	70, 120	M-1657-01-R1-CAL-SET	190	M-8015B/5031-10	79, 204	M-8040A-R	207	M-8081-SS-X	37, 118, 213
M-624-SS-11-10X	70, 120	M-1657-02-1X	190	M-8015B/5031-11	73, 122, 204, 315, 325	M-8040A-R-PAK	207	M-8081-SS-X-PAK	213
M-624-SS-12	69, 118, 177	M-1657-02-5X	190	M-8015B/5031-12	71, 122, 204	M-8040A-R-PFB	207	M-8081-T	213
M-624-SS-13	119, 69	M-1657-02-20X	190	M-8015B/5031-13	73, 122, 204	M-8040A-R-PFB-PAK	207	M-8081-T-R	213
M-624-SS-14	72, 127, 177	M-1657-02-CAL-SET	190	M-8015B/5031-14	73, 122, 204	M-8040B-R	207	M-8082	17, 214
M-624-SS-M	147, 177, 201	M-1657-03-1X	190	M-8015B/5031-14-R1	71, 122, 204, 224	M-8040B-R-PAK	207	M-8082A	17, 214
M-625-01	76, 117, 179	M-1657-03-5X	190	M-8015B/5031-15	73, 123, 204	M-8040B-R-PFB	207	M-8082A-PAK	17, 214
M-625-01-10X	76, 117	M-1657-03-20X	190	M-8015B/5031-16	73, 123, 204	M-8040B-R-PFB-PAK	207	M-8082-ISC-WL-10ML	17, 214
M-625-02	117, 179	M-1657-03-CAL-SET	190	M-8015B/5031-17	73, 123, 204, 315, 325	M-8040-PFB-SET	207	M-8082-ISC-WL-10ML-PAK17, 214	
M-625-03	118, 179	M-1657-04-1X	190	M-8015B/5031-18	74, 124, 204	M-8040-SET	207	M-8082-PAK	17, 214
M-625-03-10X	118	M-1657-04-5X	190	M-8015B/5031-18	74, 124, 204	M-8040-SS	207	M-8082-SS	17, 17, 214
M-625-04	120, 21	M-1657-04-20X	190	M-8015B/5031-19	74, 124, 204	M-8040-SS-PFB	207	M-8082-SS-10X	17, 17, 214
M-625-04-10X	21	M-1657-04-CAL-SET	190	M-8015B/5031-19	74, 124, 204	M-8040-SS-PFB-PAK	207	M-8082-SSA-WL-10ML	17, 214
M-625-05	120, 21	M-1657-CAL-SET	190	M-8015B/5031-20	78, 124, 204	M-8041	208	M-8082-SSA-WL-10ML-PAK17, 214	
M-625-05-10X	21	M-1657-SS	190	M-8015B/5031-21	74, 125, 204	M-8041-IS	208	M-8082-SSC-WL-10ML	17, 214
M-625-06	120, 21	M-1658-CAL-SET	191	M-8015B/5031-22	74, 125, 204	M-8041-IS-10X	208	M-8082-SSC-WL-10ML-PAK17, 214	
M-625-06-10X	21	M-1659-CAL-1X	191	M-8015B/5031-23	125, 204	M-8041-IS-10X-PAK	208	M-8085-C1	215
M-625-07	121, 21	M-1659-CAL-5X	191	M-8015B/5031-24	73, 125, 204	M-8041-IS-20X-PAK	208	M-8085-C2	215
M-625-07-10X	191, 21	M-1659-CAL-25X	191	M-8015B/5031-25	72, 125, 204	M-8041-PAK	208	M-8085-H1-M	215
M-625-08	77, 122, 179	M-1659-CAL-SET	191	M-8015B/5031-26	47, 78, 126, 204	M-8041-SS-10X	75, 208	M-8085-H2-M	215
M-625-08-10X	77, 122	M-1659-MS	120, 191	M-8015B/5031-27	78, 126, 204	M-8041-SS-10X-PAK	208	M-8085-IB	76, 215
M-625-09	122, 21	M-1659-RPS	71, 124, 191	M-8015B/5031-R-SET	204	M-8041-SS-100X	75, 208	M-8085-N1	215
M-625-09-10X	21	M-1664-5ML	327, 344	M-8015B-IS-10X	204	M-8041-SS-100X-PAK	208	M-8085-N2	215
M-625-10	122, 179	M-1664-5ML-PAK	327, 344	M-8020	204	M-8041-SS-625X	75, 208	M-8085-N3	215
M-625-10-10X	122	M-1664-20ML	327, 344	M-8020-10X	204	M-8041-SS-625X-PAK	208	M-8085-P1	215
M-625-11	122, 179	M-1665	191	M-8020-10X-PAK	204	M-8041-SS-PAK	208	M-8085-P2	215
M-625-12	124	M-1665-LAB	191	M-8020B-R1	204	M-8041-X1	208	M-8085-PEST-SS	215
M-625-13	71, 124, 179	M-1665-SET	191	M-8020B-R1-PAK	204	M-8041-X1-PAK	208	M-8085-PEST-SS2	215
M-625-13-10X	71, 124	M-1666A-DI-LAB	192	M-8020B-R1-PAK	204	M-8060	208	M-8090-10X	216
M-625-14	125, 179	M-1666A-DI-R1	192	M-8020B-SS	147, 201, 204	M-8060-PAK	208	M-8090-10X-SET	216
M-625-15	78, 126, 179	M-1666A-DI-R1-SET	192	M-8020-SS-1	69, 118, 204	M-8060-QC	208	M-8090-QC	216
M-625-15-10X	78, 126	M-1666A-DI-R-ADD1	77, 192	M-8020-SS-2	69, 118, 204	M-8060-QC-PAK	208	M-8091	216
M-625-16	75, 122, 179	M-1666A-DI-R-ADD2	74, 192	M-8020-SS-PAK	204	M-8061A	208	M-8091-IS-20X	71, 123, 216
M-625-16-10X	75, 122	M-1666A-LAB	192	M-8021A-SS	147, 201, 206	M-8061A-MS	208	M-8091-IS-20X-PAK	216
M-625-17	76, 125, 179	M-1666A-R2-SET	192	M-8021B-AV	205	M-8061A-MS-PAK	208	M-8091-SS-100X	69, 216
M-625-18	76, 125, 179	M-1666A-RES	192	M-8021B-AV-PAK	205	M-8061A-PAK	208	M-8091-SS-100X-PAK	216
M-625-18-10X	76, 125	M-1666A-RES-PAK	192	M-8021B-IS	206	M-8061-IS	118, 208	M-8091-X1	216
M-625-19	76, 127, 179	M-1666A-SSA-ADD	192	M-8021B-IS-10X	206	M-8061-IS-PAK	208	M-8095-SS-01	71, 217, 86, 218
M-625-20	119, 75	M-1666A-SSA-R2	192	M-8021B-IS-10X-PAK	206	M-8061-R1	208	M-8095-SS-02	77, 217, 86
M-625A	179	M-1666A-SSB	192	M-8020-SS	69, 118, 204	M-8061-R1-PAK	208	M-8095-SS-02-PAK	217, 86
M-625A-PAK	179	M-1666A-SSC	192	M-8021A-SS	147, 201, 206	M-8061-SS	208	M-8095-SS-03	71, 217, 86
M-625-BN	178	M-1667A-01	193	M-8021A-SS-PAK	206	M-8061-SS-10X-PAK	208	M-8095-SS-03-PAK	217, 86
M-625-BN-1	178	M-1667A-02	193	M-8021B-AV	205	M-8070	208	M-8095-SSA-100X	217, 86
M-625-BN-1-PAK	178	M-1667A-03	193	M-8021B-AV-PAK	205	M-8070-PAK	208	M-8095-SSB-100X	217, 86
M-625-BN-2	178	M-1667A-DERV-10ML121, 193		M-8021B-IS	206	M-8080	209	M-8100-QC	217
M-625-BN-2-PAK	178	M-1667A-DERV-10ML-PAK193		M-8021B-IS-10X	206	M-8080A-ASL	209	M-8100-QC-PAK	217
M-625-BN-3	178	M-1667A-DNPH	193	M-8021B-IS-10X-PAK	206	M-8080A-ASL-PAK	209	M-8100-R	217
M-625-BN-3-PAK	178	M-1667A-DNPH-01	74, 193	M-8021B-IS-100X	206	M-8080-CAL-SET	210	M-8100-SS	217
M-625-BN-4	178	M-1667A-DNPH-02	74, 193	M-8021B-IS-100X-PAK	206	M-8080-OP	209	M-8100-SS-PAK	217
M-625-BN-4-PAK	178	M-1667A-DNPH-03	74, 193	M-8021B-NAV	205	M-8080-OP-PAK	209	M-8111	218
M-625-BN-5X	178	M-1667A-DNPH-PAK	193	M-8021B-NAV-PAK	205	M-8080-QC-R	209	M-8111-IS-20X	218, 21
M-625-BN-5X-PAK	178	M-1667A-DNPH-SET	193	M-8021B-NAV-PAK	205	M-8080-QC-R-PAK	209	M-8111-IS-20X-PAK	218
M-625-BN-PAK	179	M-1667A-M	193	M-8021B-SS	206	M-8080-R2-WL-10X-25ML210		M-8111-PAK	218
M-625C-1	77, 118, 133, 179	M-1667A-M-PAK	193	M-8021B-SS-10X	206	M-8080-R2-WL-10X-50ML210		M-8111-SS-50X	218
M-625C-1-40X	77, 232	M-1667A-SET	193	M-8021B-SS-10X-PAK	206	M-8080-R2-WL-25X-25ML210		M-8120-01	119, 218
M-625C-2	76, 125, 133, 179	M-1668A-01X-SET	194, 8	M-8021B-SS-100X	206	M-8080-R2-WL-10X-25ML210		M-8120-02	70, 218
M-625C-2-10X	76	M-1668A-1-0-01X	8	M-8021B-SS-100X-PAK	206	M-8080-R2-WL-10X-50ML210		M-8120-03	70, 218
M-625C-3	120, 133, 179, 232	M-1668A-2-0-01X	8	M-8021B-SS-PAK	206	M-8080-R2-WL-25X-10ML210		M-8120-04	70, 218
M-625C-3-2X	137	M-1668A-3-0-01X	8	M-8021B-X1	203, 205	M-8080-R2-WL-25X-50ML210		M-8120-05	71, 123, 218
M-625C-3-PAK	232	M-1668A-4-0-01X	9	M-8021B-X2	203, 205	M-8080-R2-WL-10X-50ML210		M-8120-06	71, 218
M-625C-4	133, 179	M-1668A-5-0-01X	9	M-8021-SS	147, 201, 206	M-8080-WL-5X-25ML	210	M-8120-07	71, 123, 218
M-625C-5	133, 179	M-1668A-C-NT-LOC-WD195, 9		M-8021-SS-M	147, 201, 206	M-8080-WL-5X-50ML	210	M-8120-08	71, 123, 218
M-625C-SET	133	M-1668A-C-NT-LOC-WD-PAK	9	M-8021-SS-M-PAK	206	M-8111	218	M-8120-09	72, 126, 218
M-625-MOD	178	M-1668A-LOC-SET	195, 9	M-8032B	69, 117, 168, 206				
M-625-MOD-PAK	178	M-1668A-QC	195	M-8032B-PAK	206				
M-625P	179	M-1668A-QC-PAK	195	M-8032-IS	80				
M-625P-PAK	179	M-1671A-IS	72, 126, 196	M-8032-PAK	206				
M-625-TS	133, 179, 181, 232	M-1671A-IS-PAK	196	M-8033	69, 206				
M-625-TS-20X	179, 229	M-1673	73, 196						
M-625-TS-20X-PAK	179	M-1673-DERV-5ML	196						
M-625-TS-PAK	133, 179, 181,								

Catalog Number Index

M-8120-10	218	M-8150/51-WL-10X-25ML	220	M-8260-SS-PAK	225	M-8310-FL-SET	238, 257	M-8330-ADD-14-DMF	85, 241	M-GRA-MSR-PAK	293
M-8120-QC	218	M-8150/51-WL-10X-50ML	220	M-8270-01	228	M-8310-FL	238	M-8330-ADD-15	85, 241, 238	M-GRA-QC-10ML290, 291, 298	
M-8121	218	M-8150/51-WL-25X	220	M-8270-01-ASL	233	M-8310-QC-ATI	238, 257	M-8330-ADD-17	85, 241, 238	M-GRA-QC-10ML-PAK	290, 291, 298
M-8121-IS	72, 127, 218	M-8150/51-WL-25X-10ML	220	M-8270-02	228	M-8310-QC-ATI-PAK	238, 257	M-8330-ADD-18	84, 241	M-GRA-QC/IS-5ML	290
M-8121-IS-M	218	M-8150/51-WL-25X-25ML	220	M-8270-02-ASL	233	M-8310-SFE-IS-100X	238	M-8330-ADD-19	85, 241, 238	M-GRA-QC/IS-5ML-PAK	290
M-8121-IS-M-PAK	218	M-8150/51-WL-25X-50ML	220	M-8270-03	228	M-8310-SFE-IS-100X-PAK238		M-8330-ADD-20	84, 241	M-GRA-QC/IS-R-5ML	291
M-8121-IS-PAK	218	M-8150/51-WL-35X	220	M-8270-03-ASL	208, 233	M-8310-SS	238, 21	M-8330-ADD-21	84, 121, 241	M-GRA-QC/IS-R-5ML-PAK291	
M-8121-QC	218	M-8150/51-WL-50X	220	M-8270-04A	228	M-8310-SS-PAK	238	M-8330-ADD-22	85, 125, 241	M-GRA-QC-R-10ML	296
M-8121-SS	218	M-8150A	176, 221	M-8270-04-ASL	233	M-8315	239	M-8330-ADD-23N-5MG	85, 96, 241	M-GRA-QC-R-10ML-PAK	296
M-8121-SS-PAK	218	M-8150A-PAK	221	M-8270-04B	228	M-8315-01	73, 117, 239	M-8330-ADD-24	85, 241	M-GRA-QC-R-10ML-PAK	296
M-8131	218	M-8150A-SET	176, 221	M-8270-04B-R1	228	M-8315-02	74, 122, 239	M-8330-ADD-25	84, 241	M-GRA-QC-R/IS-5ML	296
M-8140-01	117	M-8150B-SS121, 153, 221, 222		M-8270-05	228	M-8315-DNPH-10ML	239	M-8330-ADD-26	84, 241	M-GRA-QC-R/IS-5ML-PAK296	
M-8140-02	118	M-8150B-SS-10X121, 221, 222		M-8270-05-ASL	233	M-8315-PAK	239	M-8330-ADD-27	84, 241	M-GRA-QCR/IS-R-5ML	296
M-8140-03	119	M-8150B-SS-PAK153, 221, 222		M-8270-06	228	M-8315-R1	239	M-8330-ADD-28	85, 241	M-GRA-QCR/IS-R-5ML-PAK	296
M-8140-04	119	M-8150M	187, 221	M-8270-06-ASL	233	M-8315-R1-DNPH	239	M-8330-ADD-29	85, 241	M-GRA-RES	293, 294, 295
M-8140-07	121	M-8150M-2	187, 221	M-8270-07-ASL	233	M-8315-R2	239	M-8330-ADD-30	84, 99, 87, 241	M-GRA-RES-PAK293, 294, 295	
M-8140-08	122	M-8150M-2-PAK	187, 221	M-8270-07-R1	227, 236	M-8315-R2-DNPH	239	M-8330-ADD-31	84, 99, 87, 241	M-GRA-SCS-AS	285, 310
M-8140-09	122	M-8150M-A	221	M-8270-07-SET	227, 236	M-8315-R2-DNPH-02	74, 117	M-8330-ADD-32	84, 99, 87, 241	M-GRA-SCS-AS	285, 310
M-8140-10	122	M-8150M-A-PAK	221	M-8270-08	227	M-8315-R3-10X-SET	239	M-8330-ADD-33	84, 241	M-GRA-SCS-AS	285
M-8140-11	122	M-8150M-PAK	187, 221	M-8270-08-ASL	233	M-8315-R-DNPH-01	73, 117	M-8330-ADD-34	84, 241	M-GRA-ST-PAK	290, 291, 293, 294, 295
M-8140-12	123	M-8150M-SET	221	M-8270-09	227	M-8315-R-DNPH-03	73, 117	M-8330-ADD-35	85, 125	M-GRA-VT-AS	285
M-8140-14	124	M-8150S-A-01	119, 176, 221	M-8270-09-ASL	233	M-8315-R-DNPH-03-10X	117	M-8330-ADD-36	84, 241	M-GRA-VT/IS-AS-PAK	285
M-8140-15	124	M-8150S-A-02	120, 176, 221	M-8270-10	72, 230	M-8315-R-DNPH-04	73, 118	M-8330-ADD-37	84, 241	M-GRO-BLNK/IS-10ML	287
M-8140-16	125	M-8150S-A-03	176, 221	M-8270-10-ASL	233	M-8315-R-DNPH-05	73, 118	M-8330-ADD-38	84, 241	M-GRO-BLNK/IS-10ML-PAK	287
M-8140-17	126	M-8150S-A-04	126, 176, 221	M-8270-10-R	230	M-8315-R-DNPH-06	73, 119	M-8330-ADD-39	84, 241	M-GRO-CAL-IS-EPA-10ML-SET	288
M-8140-18	126	M-8150S-A-05	120, 176, 221	M-8270-11-ASL	233	M-8315-R-DNPH-07	74, 119	M-8330-ADD-40	84, 241	M-GRO-CAL-IS/EPA-SET	286
M-8140-19	126	M-8150S-A-06	120, 176, 221	M-8270-12-ASL	234	M-8315-R-DNPH-08	73, 120	M-8330-ADD-41-R185, 96, 241		M-GRO-CAL-IS-SET-PAK	286
M-8140-20	127	M-8150S-A-07	121, 176, 221	M-8270-13A-R	236	M-8315-R-DNPH-09	73, 121	M-8330-ADD-42	84, 97	M-GRO-CAL-SET	286
M-8140M	219	M-8150S-A-08	176, 221	M-8270-13A-R2	234	M-8315-R-DNPH-10	74, 122	M-8330-ADD-43	84, 97	M-GRO-EPA-CC-10ML	288
M-8140M-5X	219	M-8150S-A-09	123, 176, 221	M-8270-13-ASL	234	M-8315-R-DNPH-11	74, 123	M-8330-ADD-44	84, 96	M-GRO-EPA-CC-10ML-PAK	288
M-8140M-5X-PAK	219	M-8150S-A-10	123, 176, 221	M-8270-13B-R	230, 234, 236	M-8315-R-DNPH-12	74, 123	M-8330-ADD-45	84	M-GRO-EPA-CC-10ML-PAK	288
M-8140M-PAK	219	M-8150-SET	176, 221	M-8270-13-SET	230	M-8315-R-DNPH-13	74, 123	M-8330-ADD-46-10X	84	M-GRO-EPA-CC-10ML-PAK	288
M-8140-SET	219	M-8151	222	M-8270-14A	230	M-8315-R-DNPH-14	74, 125	M-8330-ADD-47-10X	84	M-GRO-EPA-CC-10ML-PAK	288
M-8141-01	121, 219	M-8151A	222	M-8270-14A-R1	234, 236	M-8315-R-DNPH-15	74, 125	M-8330A-R-10X	242, 85	M-GRO-EPA-CC-10ML-PAK	288
M-8141-02	122, 219	M-8151A-PAK	222	M-8270-14-ASL	234	M-8315-R-DNPH-16	74, 125	M-8330B	242, 85	M-GRO-EPA-SP-5ML	288
M-8141-03	123, 219	M-8151-IS	220, 221, 222	M-8270-14B	230, 234, 236	M-8315-R-DNPH-17	74, 125	M-8330B-10X	242, 85	M-GRO-EPA-SP-5ML-PAK288	
M-8141-04	124, 219	M-8151-IS-2	70, 220, 222	M-8270-14C	230, 234, 236	M-8315-R-DNPH-18	74, 126	M-8330B-R2	242, 85	M-GRO-IS-5ML	279, 287, 288
M-8141-05	219	M-8151-IS-2-PAK	220, 222	M-8270-14-SET	230	M-8315-R-DNPH-19	74, 126	M-8330B-R2-10X	242, 85	M-GRO-IS-5ML-PAK	279, 287, 288
M-8141-06	126, 219	M-8151-IS-PAK	220, 221, 222	M-8270-15	230, 234, 236	M-8315-R-DNPH-20	74, 126	M-8330B-R-10X	242, 85	M-GRO-MSR-PAK	293
M-8141-07	126, 219	M-8240/60-IS	147, 201, 226	M-8270-16	230, 234, 236	M-8315-R-DNPH-SET	239	M-8330B-R-10X	242, 85	M-GRO-MSR-PAK	293
M-8141A-1-01	117	M-8240/60-IS-10X	226	M-8270-17	230, 234, 236	M-8316	239	M-8330B-10X	242, 85	M-GRO-MSR-PAK	293
M-8141A-1-02	118	M-8240/60-IS-10X-PAK	226	M-8270-18	230, 234, 236	M-8318-02	117	M-8330B-10X	242, 85	M-GRO-MSR-PAK	293
M-8141A-1-03	119	M-8240/60-IS-PAK	226	M-8270-19	230, 235, 236	M-8318-05	121	M-8330B-10X	242, 85	M-GRO-MSR-PAK	293
M-8141A-1-04	122	M-8240/60-IS/SS147, 201, 226		M-8270-20	230, 235, 236	M-8318-06	123	M-8330B-10X	242, 85	M-GRO-MSR-PAK	293
M-8141A-1-05	122	M-8240/60-IS/SS-10X	226	M-8270-21	235	M-8318-07	123	M-8330B-R2	242, 85	M-GRO-MSR-PAK	293
M-8141A-1-06	122	M-8240/60-IS/SS-10XPAK226		M-8270-22	235, 236	M-8318-09	125	M-8330B-R2-10X	242, 85	M-GRO-MSR-PAK	293
M-8141A-1-07	123	M-8240/60-IS/SS-PAK	226	M-8270-23-R1	236	M-8318M	239	M-8330B-R-10X	242, 85	M-GRO-MSR-PAK	293
M-8141A-1-08	123	M-8240/60-SS	147, 201, 226	M-8270-24	236	M-8318-SET	239	M-8330B-10X	242, 85	M-GRO-MSR-PAK	293
M-8141A-1-09	125	M-8240/60-SS-10X	226	M-8270-AG01-ASL	235	M-8321-HERB	240	M-8330B-10X	242, 85	M-GRO-MSR-PAK	293
M-8141A-1-10	126	M-8240/60-SS-10X-PAK	226	M-8270-AG02-ASL	235	M-8321-OP	240	M-8330B-10X	242, 85	M-GRO-MSR-PAK	293
M-8141A-1M	219	M-8240/60-SS-PAK	226	M-8270-ASL-SET	233	M-8330-01	84, 121	M-8330B-10X	242, 85	M-GRO-MSR-PAK	293
M-8141A-1-SET	219	M-8240A	199, 222	M-8270-CAL-IS-SET	231	M-8330-01-0.1X	84, 241, 238	M-8330B-10X	242, 85	M-GRO-MSR-PAK	293
M-8141A-2M	219	M-8240C	199, 223	M-8270-CAL-SET	231	M-8330-02	84, 87, 121	M-8330B-10X	242, 85	M-GRO-MSR-PAK	293
M-8141A-2-SET	219	M-8240C-R3	223	M-8270-IS-WL-2.5X-5ML	231	M-8330-02-0.1X	84, 241, 87, 238	M-8330B-10X	242, 85	M-GRO-MSR-PAK	293
M-8141A-IC	219	M-8240C-R3-10X	223, 224	M-8270-IS-WL-2.5X-10ML231		M-8330-03	84, 87, 121	M-8330B-10X	242, 85	M-GRO-MSR-PAK	293
M-8141A-IS	219	M-8240C-R6	223	M-8270-R-SET	228	M-8330-03-0.1X	84, 241, 87, 238	M-8330B-10X	242, 85	M-GRO-MSR-PAK	293
M-8141A-IS-PAK	219	M-8240E-R-13-10X	168	M-8270-SET	228	M-8330-04	84, 123	M-8330B-10X	242, 85	M-GRO-MSR-PAK	293
M-8141A-SS	219	M-8260/5031-IS-FID	204	M-8270-SS	229	M-8330-04-0.1X	84, 123, 241	M-8330B-10X	242, 85	M-GRO-MSR-PAK	293
M-8141A-SS-01	127	M-8260A/B-IS	147, 225	M-8270-SS-PAK	229	M-8330-05	85, 126	M-8330B-10X	242, 85	M-GRO-MSR-PAK	293
M-8141A-SS-PAK	219	M-8260A/B-IS-10X	225	M-8270-SS-R	229, 232	M-8330-05-0.1X	85, 126, 241	M-8330B-10X	242, 85	M-GRO-MSR-PAK	293
M-8141A-SS-X	219	M-8260A/B-IS-10X-PAK	225	M-8270-SS-R-PAK	229, 232	M-8330-06	84, 124	M-8330B-10X	242, 85	M-GRO-MSR-PAK	293
M-8141A-SS-X-PAK	219	M-8260A/B-IS-PAK	225	M-8270-SS-R-WL-PAK	232	M-8330-06-0.1X	84, 241, 238	M-8330B-10X	242, 85	M-GRO-MSR-PAK	293
M-8141A-SH	219	M-8260A/B-IS/SS147, 201, 225		M-8270-SS-R-WL-VAP	232	M-8330-07	84, 87, 121	M-8330B-10X	242, 85	M-GRO-MSR-PAK	293
M-8141A-SH-PAK	219	M-8260A/B-IS/SS-10X	225	M-8270-WL-2.5X-5ML	231	M-8330-07-0.1X	84, 241, 238	M-8330B-10X	242, 85	M-GRO-MSR-PAK	293
M-8141M	219	M-8260A/B-IS/SS-10XPAK225		M-8270-WL-2.5X-10ML	231	M-8330-08	84, 87, 124	M-8330B-10X	242, 85	M-GRO-MSR-PAK	293
M-8141M-PAK	219	M-8260A/B-IS/SS-PAK	225	M-8272	237	M-8330-08-0.1X	84, 241, 238	M-8330B-10X	242, 85	M-GRO-MSR-PAK	293
M-8141-SET	219	M-8260A/B-SS	225	M-8272-IS	237	M-8330-09	84, 87, 124	M-8330B-10X	242, 85	M-GRO-MSR-PAK	293
M-8150	176	M-8260A/B-SS-10X	225	M-8275	237	M-8330-09-0.1X	84, 241, 238	M-8330B-10X	242, 85	M-GRO-MSR-PAK	293
M-8150-01	120, 176, 221	M-8260A/B-SS-10X-PAK	225	M-8280A	237, 24	M-8330-10	85, 126	M-8330B-10X	242, 85	M-GRO-MSR-PAK	293
M-8150-02	120, 176, 221	M-8260A/B-SS-PAK	225	M-8280A-PAK	237, 24	M-8330-10-0.1X	85, 126, 241	M-8330B-10X	242, 85	M-GRO-MSR-PAK	293
M-8150-02-PFB	120, 221, 183	M-8260-ADD	223	M-8280B	237, 24	M-8330-11	85, 126	M-8330B-10X	242, 85	M-GRO-MSR-PAK	293
M-8150-03	126, 176, 221	M-8260-ADD-10X	223	M-8280B-PAK	237, 24	M-8330-11-0.1X	85, 126, 241	M-8330B-10X	242, 85	M-GRO-MSR-PAK	293
M-8150-04	126, 176, 221	M-8260-ADD-10X-PAK	223	M-8280C-PCP	237, 24, 237	M-8330-12	85, 127	M-8330B-10X	242, 85	M-GRO-MSR-PAK	293
M-8150-04-PFB	126, 183, 221	M-8260B-01	224	M-8280C-PCP-PAK	24	M-8330-12-0.1X	85, 127, 241	M-8330B-10X	242, 85	M-GRO-MSR-PAK	293
M-8150-05	120, 176, 221	M-8260B-01-PAK	224	M-8310	238	M-8330-13	84, 117	M-8330B-10X	242, 85	M-GRO-MSR-PAK	293
M-8150-06	120, 176, 221	M-8260B-02	224	M-8310-FL	238, 257	M-8330-13-0.1X	84, 117, 241	M-8330B-10X	242, 85	M-GRO-MSR-PAK	293
M-8150-07	121, 176, 221	M-8260B-02-PAK	224	M-8310-FL-01	238, 257	M-8330-14	84, 117	M-8330B-10X	242, 85	M-GRO-MSR-PAK	293
M-8150-08	79, 121, 176, 221	M-8260B-03	224	M-8310-FL-02	238, 257	M-8330-14-					

Catalog Number Index

MES-12-5-SET	361	MOBDPB-408S	35	M-REF-X-08	111	P-001N	50	P-031S	54	P-069S	65, 126
MES-13-1-SET	361	MOBDPB-409S	35	M-REF-X-09	111	P-001S	50, 117	P-032N	60	P-070N	61
MES-13-5-SET	361	MOBDPB-410S	35	M-REF-X-R1-SET	111	P-002N	50	P-032S	60	P-070S	61, 125
MES-14-1	361	MOBDPB-501S	35	MSCB-3049	20	P-002S	50, 117	P-033N	54	P-071N	54
MES-14-5	361	MOBDPB-502S	35	MSCB-3052	20	P-002S-1	67	P-033S	54, 120	P-071S	54, 120
MES-16-1	362	MOBDPB-503S	35	MSCB-3070	20	P-002S-2	67	P-034N	60	P-072S-CN	52
MES-16-5	362	MOBDPB-504S	35	MSCB-3087	20	P-002S-10X	117	P-034S	60, 124	P-073N	66
MES-17-1	362	MOBDPB-505S	35	MSCB-3091	20	P-003N	50, 68	P-035N	54	P-073S	66
MES-17-5	362	MOCBDE-4001S	34	MSCB-3095	20	P-003S	68, 117	P-035S	54, 120	P-074N	60
MES-18-R1-1	362	MOCBDE-4001S-0.5X	34	MSCB-3101	20	P-003S-10X	117	P-035S-10X	120	P-074S	60, 124
MES-18-R1-5	362	MOCBDE-4002S	34	MSCB-3110	20	P-004N	57	P-036N	55	P-075N	62
MES-21-1-SET	362	MOCBDE-4002S-0.5X	34	MSCB-3132	20	P-004S	57, 122	P-036S	55, 121	P-075S	62, 125
MES-21-5-SET	362	MOCBDE-4003S	34	MSCB-3141	20	P-005N	50, 68	P-037N	55	P-076N	66
MES-22-1	362	MOCBDE-4003S-0.5X	34	MSCB-3149	20	P-005S	68, 50	P-037S	55, 121	P-076S	66
MES-22-5	362	MOCOMP-D-40X	311	MSCB-3174	20	P-005S-10X	117	P-037S-1	67	P-077N	68
MES-24-1	362	MOD-02-0.5	337	MSCB-4049	20	P-006N	57	P-037S-2	67	P-077S	62, 68
MES-24-5	362	MOD-02-1	337	MSCB-4052	20	P-006S	57, 122	P-037S-10X	121	P-078N	62, 68
MISA-01-1	348	MOD-03-0.5	337	MSCB-4064	20	P-007N	51	P-038N	59	P-078S	62, 68
MISA-1-SET	348	MOD-03-1	337	MSCB-4070	20	P-008N	54	P-038S	59, 123	P-079N	62, 68
MISA-02-1	348	MOD-07-0.5	337	MSCB-4087	20	P-008S	54, 120	P-039N	49, 55	P-079S	62, 68
MISA-03-1	348	MOD-07-1	337	MSCB-4091	20	P-008S-CN	54	P-039S	49, 55	P-080N	63
MISA-04-1	348	MOD-08-0.5	337	MSCB-4095	20	P-009N	51, 117	P-039S-10X	121	P-080S	63, 126
MISA-05-1	348	MOD-08-1	337	MSCB-4101	20	P-010N	51	P-040N	59	P-081N	51
MISA-06-1	348	MOD-09A-0.5	337	MSCB-4103	20	P-010S	51, 118	P-040S	59, 123	P-081S	51, 118
MISA-A	246	MOD-09A-1	337	MSCB-4110	20	P-010S-10X	118	P-041N	60	P-082N	60
MISA-A-PAK	246	MOD-09C-0.5	337	MSCB-4132	20	P-011N	51	P-041S	60, 124	P-082S	60, 124
MISA-BN-1	246	MOD-09C-1	337	MSCB-4141	20	P-011S	51, 118	P-042N	55	P-083N	52
MISA-BN-2	246	MOPCB-1001S	20	MSCB-4149	20	P-011S-10X	118	P-042S	55, 122	P-083S	52, 118
MISA-BN-3	246	MOPCB-1002S	20	MSCB-4174	20	P-012N	51	P-043N	61	P-083S-10X	118
MISA-NC	246	MOPCB-1003S	20	MSCB-IS	20	P-012S	51, 118	P-043S	61, 125	P-084N	63
MISA-PEST	246	MOPCB-1004S	20			P-012S-10X	118	P-044N	65	P-084S	63, 126
MISA-PEST-PAK	246	MOPCB-2001S	20			P-013N	51	P-044S	65, 127	P-084S-10X	126
MISA-VH-1	246	MOPCB-2002S	20			P-013S	51, 118	P-045N	56	P-084S-CN	63
MISA-VH-1-PAK	246	MOPCB-2003S	20			P-014N	57	P-045S	56, 122, 148	P-085N	63, 68
MISA-VH-1/VH-2-SET	246	MOPCB-2004S	20			P-014S	57	P-045S-1	67	P-085S	63, 68, 126
MISA-VH-2	246	MOPCB-2005S	20			P-015N	58	P-045S-2	67	P-086N	51
MISA-VH-2-PAK	246	MOPCB-2006S	20			P-015W	58	P-045S-10X	122	P-086S	51, 118
MISA-VNH	246	MOPCB-3001S	20			P-015S-W	58	P-046S	56, 122	P-087N	56
MISA-VNH-PAK	246	MOPCB-3002S	20			P-015S-W-10X	122	P-046S-10X	122	P-087S	56, 122
MISA-VWS	246	MOPCB-3003S	20			P-016N	58	P-047N	62	P-087S-H	56
MOBDE-1001S	33	MOPCB-3004S	20			P-016S-A	58, 123	P-047S	62, 125	P-088N	52
MOBDE-2001S	33	MOPCB-3005S	20			P-016S-CN	58, 123	P-048N	56	P-088S	52, 118
MOBDE-2002S-0.2X	33	MOPCB-3006S	20			P-017-CAL-SET	212	P-048S	56, 122	P-088S-10X	118, 258
MOBDE-2003S	33	MOPCB-4001S	20			P-017N	52	P-049N	62	P-089N	60
MOBDE-3001S	33	MOPCB-4002S	20			P-017R-WL-5X-5ML	212	P-049S	62	P-089S	60, 124
MOBDE-3002S	33	MOPCB-4003S	20			P-017R-WL-5X-10ML	212	P-050N	64	P-089S-10X	124
MOBDE-3003S	33	MOPCB-4004S	20			P-017R-WL-10X-5ML	212	P-050S	64, 126	P-090N	65
MOBDE-3004S	33	MOPCB-4005S	20			P-017R-WL-10X-10ML	212	P-051N	61	P-090S	65, 127
MOBDE-3005S	33	MOPCB-4007S	20			P-017S	52, 119	P-051S	61, 125	P-091N	56
MOBDE-3006S	33	MOPCB-4008S	20			P-017S-1	67	P-052N	62	P-091S	56, 122
MOBDE-3007S	33	MOPCB-4009S	20			P-017S-2	67	P-052S	62, 125	P-092N	56
MOBDE-4001S-0.2X	34	MOPCB-4010S	20			P-017S-10X	119	P-053N	58	P-092S	56, 122
MOBDE-4002S-0.2X	34	MOPCB-4012S-0.5X	20			P-017S-20X	176	P-053S	58, 123	P-092S-10X	122
MOBDE-4003S	34	MOPCB-5001S	20			P-017S-H-10X	140, 148, 179, 209, 229	P-053S-1	67	P-093-CAL-SET	212
MOBDE-4004S	34	MOPCB-5002S	20			P-017S-H-10X-PAK	140, 148, 179, 209, 229	P-053S-2	67	P-093N	65
MOBDE-4005S-0.2X	34	MOPCB-5003S	20			P-018N	58	P-053S-10X	123	P-093S	65
MOBDE-4006S-0.2X	34	MOPCB-5004S	20			P-018S	58, 123	P-054N	58	P-093S-1	67
MOBDE-4007S	34	MOPCB-5009S	20			P-019N	53	P-054S	58, 123	P-093S-10X	126
MOBDE-4008S	34	MOPCB-5010S	20			P-019S	53, 119	P-054S-10X	123	P-093S-H-10X	140, 148, 179, 209, 229
MOBDE-4009S	34	MOPCB-6001S	20			P-020N	53	P-055N	58	P-093S-H-10X-PAK	140, 148, 179, 209, 229
MOBDE-4009S-0.2X	34	MOPCB-6003S	20			P-020S	53, 119	P-055S	58, 123	P-093-WL-5X-5ML	212
MOBDE-4010S	34	MOPCB-7001S-0.5X	20			P-020S-CN	53	P-056N	63	P-093-WL-5X-10ML	212
MOBDE-4011S	34	MOPCB-7004S-0.5X	20			P-021N	54	P-056S	63, 126	P-093-WL-10X-5ML	141, 212
MOBDE-4012S	34	MOPCP-5007S	20			P-021S	54, 120	P-057N	59	P-093-WL-10X-10ML	212
MOBDE-5001S-0.2X	34	MOSOL-75	368			P-021S-1	67	P-058N	56	P-094N	56
MOBDE-5002S-0.2X	34	M-PAPCLUS	188			P-022N	59	P-058S	56, 122	P-094S	56, 122
MOBDE-5003S-0.2X	34	M-PAPCLUS-PAK	188			P-022S	59, 123	P-059N	59	P-094S-10X	122
MOBDE-5004S	34	M-PCBL	16			P-023N	60	P-059S	59, 123	P-095N	52
MOBDE-5005S-0.2X	34	M-PCBL-PAK	16			P-023S	60, 124	P-059S-1	67	P-095S	52, 118
MOBDE-5006S-0.2X	34	M-REF	111			P-024N	54	P-059S-2	67	P-096N	64
MOBDE-5007S-0.2X	34	M-REF-01	111			P-024S	54, 120	P-059S-10X	123	P-096S	64, 126
MOBDE-5008S	34	M-REF-02	111			P-025N	54	P-060N	59	P-097N	61
MOBDE-5009S	34	M-REF-03	111			P-025S	54, 120	P-060S	59, 123	P-097S	61, 125
MOBDE-5010S	34	M-REF-04	111			P-026N	54	P-061N	64	P-097S-10X	125
MOBDE-5011S	34	M-REF-05	111			P-026S	54, 120	P-061S	64, 126	P-098N	66
MOBDE-6001S-0.2X	34	M-REF-06	111			P-027N	54	P-062N	50	P-099N	62
MOBDE-6002S-0.2X	34	M-REF-07	111			P-027S	54, 120	P-062S	50	P-099S	62, 125
MOBDE-6003S-0.2X	34	M-REF-08	111			P-027S-1	67	P-063N	63	P-099S-10X	125
MOBDE-6004S-0.2X	34	M-REF-09	111			P-027S-2	67	P-063S	63, 126	P-100N	59
MOBDE-6005S	34	M-REF-10	111			P-028N	54	P-064N	60	P-100S	59, 123
MOBDE-6005S-0.2X	34	M-REF-11	111			P-028S	54, 120	P-064S	60, 123	P-101N	50
MOBDE-6006S-0.2X	34	M-REF-12	111			P-029N	54	P-064S-1	67	P-101S	50
MOBDE-7001S	34	M-REF-13	111			P-029S	54, 120	P-064S-2	67	P-102N	50
MOBDE-7002S	34	M-REF-14	111			P-029S-1	67	P-064S-10X	123	P-102S	50, 117
MOBDE-7003S	34	M-REF-14-10X	111			P-029S-2	67	P-065N	60	P-102S-10X	117
MOBDE-7004S-0.2X	34	M-REF-15	111			P-030N	60	P-065S	60, 124	P-103N	50
MOBDE-7005S-TP	34	M-REF-SET	111			P-030S	60, 124	P-066N	60	P-103S	50
MOBDE-8001S	34	M-REF-X	111			P-031N	54	P-066S	60, 124	P-104N	51
MOBDPB-401S	35	M-REF-X-01	111					P-067N	64	P-104S-CN	51, 117
MOBDPB-402S	35	M-REF-X-02	111					P-067S	64, 126	P-105N	65
MOBDPB-403S	35	M-REF-X-03	111					P-068N	64	P-105S	65, 126
MOBDPB-404S	35	M-REF-X-04	111					P-068S	64, 126	P-105S-10X	126
MOBDPB-405S	35	M-REF-X-05	111					P-069N	65	P-106N	52
MOBDPB-406S	35	M-REF-X-06	111								
MOBDPB-407S	35	M-REF-X-07	111								

Catalog Number Index

Catalog Number Index

P-106S	52, 118	P-150S	54, 120	P-195S	60, 123	P-239N	56	P-284S-CN	52, 119	P-332S	58
P-107N	52	P-152N	59	P-196N	54	P-239S	56, 122	P-285S	58, 68	P-333N	52
P-107S	52, 119	P-152S	59, 123	P-196S	54, 120	P-240N	66	P-285S-CN	58	P-333S	52
P-107S-10X	119	P-152S-10X	123	P-197N	65	P-240S	66, 127	P-286S	53	P-334N	65
P-108N	51	P-153N	59	P-197S	65, 127	P-241N	51	P-287N	50	P-334S	65, 126
P-108S	51, 118	P-153S	59, 123	P-197S-10X	127	P-241S	51, 118	P-287S-H	50, 117	P-335N	65
P-109N	54	P-153S-CN	59	P-198N	62	P-242N	54	P-288N	55	P-335S	65, 127
P-109S	54, 120	P-154N	59	P-198S	62, 125	P-242S	54, 120	P-288S	55, 121	P-336N	63
P-110N	57	P-154S	59	P-199N	61	P-242S-10X	120, 164	P-289N	65	P-337N	59
P-110S	57, 122	P-154S-CN	59, 123	P-199S	61, 125	P-242S-10X-PAK	164	P-289S	65, 127	P-337S	59
P-111N	66	P-155N	60	P-200N	50	P-242S-CN	54	P-289S-CN	65, 127	P-338N	52
P-111S	66, 127	P-155S	60, 124	P-200S-A	50, 117	P-243N	52	P-290S	61, 125	P-338S	52
P-112N	60	P-156N	60	P-200S-A-10X	117	P-243S	52, 119	P-291S	65, 127	P-339N	63
P-112S	60, 124	P-156S	60	P-201N	50	P-244N	54	P-292N	53	P-339S	63
P-113N	61	P-157N	60	P-201S	50, 117	P-244S	54, 152	P-292S	53, 119	P-340N	51
P-113S	61	P-157S	60, 123	P-202N	51	P-244S-CN	54	P-293N	63	P-340S	51
P-114N	56	P-158N	60	P-202S	51, 117	P-245N	50	P-293S-CN	63, 126	P-341N	57
P-114S	56, 122	P-158S	60, 124	P-203N	51	P-245S	50, 117	P-294S	58, 123	P-341S	57
P-115N	63	P-158S-10X	124	P-203S	51, 117	P-245S-10X	117	P-295N	54	P-342N	60
P-115S	63, 126	P-159N	60	P-204N	51	P-245S-CN	50	P-295S	54, 120	P-342S	60, 124
P-115S-1	67	P-159S	60, 124	P-204S	51, 118	P-246N	50	P-295S-10X	120	P-343N	50, 68
P-116S	64	P-160N	60	P-205N	58	P-246S	50, 117	P-296N	53	P-343S	50, 68
P-117N	65	P-160S	60, 124	P-205S	58	P-246S-10X	117	P-296S	53, 119	P-344N	66, 68
P-117S	65, 126	P-161N	61	P-206N	59	P-247N	60	P-297N	61	P-344S-MC	68
P-117S-10X	126	P-161S	61, 125	P-206S	59, 123	P-247S	60, 124	P-297S	61, 124	P-345N	50, 68
P-118N	65	P-162N	61	P-207N	64	P-247S-10X	124, 164	P-297S-10X	124	P-345S	50, 68, 117
P-118S	65, 126	P-162S	61, 125	P-208N	64	P-247S-10X-PAK	164	P-298S-A	59, 123	P-346N	54
P-118S-10X	126	P-163N	62	P-208S	64, 126	P-248N	53	P-299N	55	P-346S	54, 120
P-119N	62	P-163S	62, 125	P-209N	65	P-248S	53, 119	P-299S	55, 121	P-346S-CN	54, 120
P-119S	62, 125	P-164N	62	P-209S	65, 127	P-249N	60	P-300N	65	P-347N	51
P-120N	59	P-164S	62, 125	P-210N	65	P-249S	60, 123	P-300S	65	P-347S	51, 117
P-120S	59, 123	P-165N	63	P-210S	65, 127	P-251N	62	P-301N	52	P-348N	62
P-121N	61	P-165S	63	P-211N	54	P-251S	62, 125	P-301S	52	P-348S	62
P-121S	61, 125	P-166N	63	P-211S	54, 120	P-252N	59	P-302N	59	P-349N	65
P-121S-10X	125	P-166S	63	P-212N	52	P-252S	59, 123	P-302S	59	P-349S	65
P-122N	66	P-167N	63	P-212S	52	P-253N	54	P-303N	55	P-350N	66
P-122S	66, 127	P-167S	63, 126	P-213N	53	P-253S	54, 120	P-303S	55, 121	P-350S	66
P-122S-10X	127	P-168N	64	P-213S	53, 119	P-254N	52	P-304N	62	P-351N	51
P-123N	58	P-168S	64, 126	P-214N	60	P-254S	52, 118	P-304S	62, 125	P-351S	51, 118
P-123S	58, 123	P-168S-10X	126	P-214S	60	P-255N	54	P-305N	62	P-352N	50
P-123S-10X	123	P-168S-CN	64	P-215N	62	P-255S	54, 120	P-305S	62, 125	P-352S	50, 117
P-124N	59	P-169N	64, 68	P-215S	62, 125	P-256N	51	P-306N	63	P-353N	51
P-124S	59	P-169S	64, 68	P-215S-10X	125	P-256S	51, 118	P-306S-CN	63	P-353S	51
P-125N	64	P-170N	61	P-216N	52	P-257N	51	P-307N	65	P-354N	53
P-125S	64, 126	P-170S	61, 125	P-216S	52, 118	P-257S	51, 118	P-307S	65	P-354S	53
P-126N	65	P-171S	65, 126	P-217N	61	P-258N	57	P-308N	65	P-355N	54
P-126S	65, 126	P-172N	65	P-217S	61	P-258S	57, 122	P-308S	65	P-355S	54, 120
P-127N	65	P-172S	65, 127	P-218S	53	P-259N	56	P-309S	50	P-356N	57
P-127S	65, 127	P-172S-H-10X	127	P-219N	55	P-259S	56, 122	P-310N	57	P-356S	57, 122
P-128N	61	P-173N	55	P-219S	55, 122	P-260N	62	P-310S	57, 122	P-356S-CN	57, 122
P-128S	61, 125	P-173S	55, 122	P-220N	56	P-260S	62, 125	P-311N	60	P-357N	62
P-129N	56	P-174N	50	P-220S-A	56, 122	P-261N	64	P-311S	60, 124	P-357S	62
P-129S	56, 122	P-174S	50	P-221N	53	P-261S	64, 126	P-312N	62	P-358N	61
P-130N	50	P-175N	53, 68	P-221S	53, 119	P-262N	53	P-312S	62	P-358S	61
P-131N	50	P-175S	53, 68	P-222N	53	P-262S-CN	53, 119	P-313N	53	P-359N	62
P-131S	50, 117	P-176N	60	P-222S	53, 119	P-263N	54	P-313S	53	P-359S	62
P-132S	50, 117	P-176S	60, 124	P-222S-10X	119	P-263S	54, 120	P-314N	52	P-361N	65
P-133N	52	P-177N	51	P-223N	53	P-263S-10X	120	P-314S	52	P-361S	65
P-133S-CN	52, 119	P-177S-A	51, 118	P-223S	53, 119	P-264N	55	P-315N	55	P-363N	61
P-133S-CN-10X	119	P-177S-CN	51	P-224N	59	P-264S	55	P-315S	55	P-363S	61
P-134N	52	P-178N	55	P-224S	59, 123	P-265N	62	P-316N	51	P-364N	56
P-134S	52, 119	P-178S	55, 121	P-225N	53	P-265S	62	P-316S	51	P-364S	56
P-134S-H	52, 119	P-179N	60	P-225S	53, 119	P-266N	65	P-317N	58	P-365N	57
P-135N	52	P-179S	60	P-225S-10X	119	P-266S	65, 126	P-317S	58	P-365S	57, 122
P-135S	52, 119	P-180N	64	P-226N	54	P-267N	50	P-318N	59	P-366N	57
P-135S-10X	119	P-180S	64, 126	P-226S	54	P-267S	50, 117	P-318S	59	P-366S	57, 122
P-136N	52	P-180S-10X	126	P-227N	59	P-268N	65	P-319N	56	P-367N	59
P-136S	52, 119	P-181N	51	P-227S	59, 123	P-268S	65, 126	P-319S	56	P-367S	59
P-139N	52	P-181S	51, 118	P-228N	54	P-269N	56	P-320N	54	P-368N	56
P-139S	52, 119	P-182N	52	P-228S	120	P-269S	56, 122	P-320S	54, 120	P-368S	56
P-140N	54	P-182S	52, 118	P-229N	55	P-270N	57	P-320S-CN	54, 120	P-369N	64
P-140S	54	P-183N	56	P-229S	55, 121	P-270S	57, 122	P-321N	65	P-369S	64
P-140S-CN	54	P-183S	56, 122, 162, 168	P-230N	55	P-271N	54	P-321S	65, 126	P-370N	59
P-141N	54	P-183S-10X	122	P-230S	55, 121	P-271S	54, 120	P-321S-CN	65, 126	P-370S	59, 123
P-141S	54, 120	P-184N	61	P-231N	55	P-272N	52	P-322N	59	P-371N	59
P-141S-CN	54	P-184S	61, 125	P-231S	55, 122, 168	P-272S	52, 119	P-323S	58	P-371S	59, 123
P-142N	54	P-186S	58	P-231S-10X	122	P-273N	61	P-324N	66	P-372N	51
P-142S	54, 120	P-187N	63	P-232N	54	P-273S	61, 124	P-324S	66, 127	P-372S	51, 118
P-143N	55	P-187S	63	P-232S	54, 121	P-274N	50	P-325N	63	P-372S-10X	118
P-143S	55, 121	P-188N	64	P-233N	56	P-274S	50, 117	P-325S	63	P-373N	53
P-143S-CN	55	P-188S	64, 126	P-233S	56, 122	P-275N	54	P-326S	58, 123	P-373S	53, 119
P-144N	55	P-189N	58, 68	P-233S-10X	122	P-275S	54, 120	P-326S-MC	68	P-375N	53
P-144S	55, 121	P-189S	58, 68	P-234N	62	P-276N	50	P-327N	63	P-375S	53
P-145N	56	P-190N	64	P-234S	62, 125	P-276S	50, 117	P-327S	63	P-376N	54
P-145S	56, 122	P-190S	64, 126	P-234S-10X	125	P-277N	61	P-328N	62	P-376S	54
P-145S-10X	122	P-191N	52	P-235N	54	P-277S	61, 125	P-328S	62	P-377N	55
P-146N	56	P-191S	52, 118	P-235S	54, 120	P-278N	52	P-329N	52	P-377S	55
P-146S	56, 122	P-191S-10X	118	P-235S-H-10X	120	P-278S	52	P-329S	52	P-378S	57
P-147N	56	P-192N	65	P-236N	61	P-279N	52	P-330N	60	P-379N	58
P-147S	56, 122	P-192S	65	P-236S	61, 125	P-279S	52, 118	P-330S	60, 124	P-379S	58, 123
P-148N	57	P-193N	57	P-236S-10X	125	P-280N	65	P-330S-10X	124	P-380N	59
P-148S	57, 122	P-193S	57, 122	P-237N	51	P-280S	65, 126	P-331S	61, 125	P-380S	59
P-149N	57	P-194N	57	P-237S	51, 117	P-282N	59	P-331S-0.1X	61	P-381N	60
P-149S-CN	57, 122	P-194S	57, 122	P-238N	56	P-283N	58	P-331S-H	61, 125	P-381S	60
P-150N	54	P-195N	60	P-238S	56	P-283S	58	P-332N	58	P-382N	60

Catalog Number Index

P-382S	60	P-432N	63.68	P-480N	56	P-531S	53	P-587S	57	P-645S	56
P-383N	60	P-432S	63.68	P-480S	56	P-532N	57	P-588N	56	P-646N	51
P-383S	60, 124	P-433N	61	P-481N	56	P-532S	57	P-588S	56	P-646S	51
P-384N	55	P-433S	61	P-481S-A	56	P-533N	59	P-589N	58	P-647N	57
P-384S	55, 121	P-434N	53	P-482N	54	P-533S	59	P-589S	58	P-647S	57
P-384S-10X	121	P-434S	53	P-482S	54, 120	P-534N	55	P-589S-CN	58	P-648N	58
P-385N	55	P-435N	56	P-483N	55	P-534S	55	P-591N	60	P-648S	58
P-385S	55	P-435S	56	P-483S	55	P-535S	60	P-591S-CN	60	P-649N	59
P-386N	55	P-436N	60	P-484N	51	P-535S-TP	60	P-592N	65	P-649S	59
P-386S	55	P-436S	60	P-484S	51	P-536N	68	P-592S-CN	65	P-650N	60
P-387N	56	P-437N	60	P-485N	62	P-536S-MC	68	P-593N	55	P-650S	60
P-387S	56	P-437S	60	P-485S	62	P-537N	52, 68	P-593S	55	P-652S	60
P-388N	56	P-438N	53, 120	P-486N	65	P-537S-MC	52, 68	P-594N	51	P-653S-TP-0.1X	61
P-388S-CN	56	P-439N	53	P-486S	65	P-538N	54, 68	P-594S	51	P-655S-H	61, 125
P-389N	56	P-439S-H	53, 120	P-487N	54	P-538S-MC	54, 68	P-595N	52	P-656N	62
P-389S	56	P-440N	64	P-487S	54	P-539N	52, 68	P-595S	52	P-658N	58
P-391N	61	P-440S-CN	64, 126	P-488S	53, 119	P-539S-MC	52, 68	P-596N	58, 68	P-658S	58
P-391S	61, 125	P-441N	64	P-489N	61	P-540N	52, 68	P-596S	58, 68	P-659N	57
P-392N	61	P-441S-CN	64, 126	P-489S	61	P-540S-MC	52, 68	P-597N	51	P-659S	57
P-392S	61	P-442N	55	P-490N	51	P-541N	52, 68	P-597S	51, 117	P-660N	56
P-393N	61	P-442S	55	P-490S	51	P-541S-MC	52, 68	P-598N	56	P-660S	56
P-393S	61	P-443N	55	P-491N	57	P-544S	50	P-598S	56	P-661N	59
P-394N	62	P-443S	55, 121	P-491S	57	P-545N	53	P-599N	55	P-661S	59
P-394S	62	P-444N	54	P-492N	65	P-545S	53	P-599S	55	P-662S	56
P-395N	62	P-444S	54, 120	P-492S	65	P-546N	55	P-600N	59	P-663N	62
P-395S	62, 125	P-445N	51	P-493N	53	P-546S	55	P-600S	59, 123	P-664N	51
P-395S-10X	125	P-445S	51, 118	P-493S	53	P-547N	58	P-601N	57	P-664S	51
P-396N	64	P-445S-10X	118	P-494N	60	P-547S	58	P-601S	57, 122	P-665N	51
P-396S	64, 126	P-446N	52	P-494S	60	P-548N	53	P-602N	53	P-665S	51
P-397N	51	P-446S	52, 118	P-495S-W	53	P-548S-CN	53	P-602S-CN	53, 119	P-666N	65
P-397S	51, 117	P-447N	55	P-496N	58	P-549N	62	P-602S-CN-10X	119	P-666S-CN	65
P-398N	52	P-447S	55	P-496S	58, 122	P-549S	62	P-603N	56	P-667S	62
P-398S	52, 119	P-448N	56	P-496S-CN	58, 122	P-550N	52	P-603S	56	P-668S	63
P-399N	52	P-448S	56	P-497N	58	P-550S	52	P-604N	55	P-669N	51
P-399S-A	52	P-449N	58	P-497S	58, 122	P-551N	57	P-604S	55	P-669S	51
P-401N	52	P-449S	58	P-498N	50	P-551S	57	P-605N	57	P-670N	50
P-401S	52, 119	P-450N	61	P-498S	50	P-552N	64	P-605S	57	P-670S	50
P-401S-10X	119	P-450S	61	P-499N	51	P-552S	64	P-606N	55	P-671N	51
P-402N	53	P-451N	64	P-499S	51	P-553N	65	P-606S	55	P-671S	51
P-402S	53	P-451S	64, 126	P-500N	58	P-553S	65	P-607S	57	P-672N	52
P-403N	58	P-452N	64	P-500S	58	P-554N	54	P-608N	62	P-672S	52
P-403S	58	P-452S	64	P-501N	63	P-554S	54	P-609N	58	P-673N	53
P-404N	63	P-453N	61	P-501S	63	P-555S	53	P-609S	58	P-673S	53
P-404S-CN	63	P-453S	61, 125	P-502N	59	P-556N	60	P-610S	63	P-674S	53
P-405N	65	P-453S-10X	125	P-502S	59	P-556S	60	P-611N	60	P-675N	54
P-405S	65	P-454N	51	P-504N	64	P-557N	65	P-611S	60	P-675S	54, 120
P-406N	64	P-454S	51, 117	P-504S	64	P-557S	65	P-612S	58	P-676N	57
P-406S	64	P-454S-10X	117	P-505N	63	P-558N	52	P-613N	64	P-676S	57
P-407N	50	P-455N	65	P-505S-W	63	P-558S	52	P-613S	64	P-677N	51
P-407S	50, 117	P-455S	65	P-506N	59	P-559N	51	P-615N	50	P-677S	51
P-408N	52	P-457N	51	P-506S	59	P-559S	51	P-615S	50	P-678N	51
P-408S	52, 119	P-457S	51	P-507N	65	P-560S	61	P-617S	56	P-678S	51
P-409N	50	P-458N	53	P-507S	65, 127	P-561N	53	P-618N	62	P-679N	51
P-409S-CN	50	P-459S	65	P-507S-CN	65, 127	P-561S	53	P-618S	62, 126	P-679S	51
P-410N	50	P-459S-CN	65	P-508N	65	P-562N	52	P-620N	52	P-680N	57
P-410S	50	P-460N	61	P-508S	65, 127	P-562S	52	P-620S	52	P-680S	57
P-411N	53	P-460S	61, 125	P-508S-CN	127	P-563N	60	P-621N	64	P-681S	53
P-411S	53	P-461N	60	P-509N	60	P-563S	60	P-621S	64	P-683S-CN	63
P-412N	57	P-461S	60	P-509S	60, 124	P-564N	60	P-622N	56	P-684S	53
P-412S	57, 122	P-462N	63	P-510N	50	P-564S	60	P-622S	56	P-686N	57
P-414N	58	P-462S	63	P-510S	50	P-565N	55	P-623N	56	P-686S	57, 122
P-414S	58	P-463N	60	P-511N	51	P-565S	55	P-623S	56	P-687N	57
P-415N	60	P-463S	60, 124	P-511S	51	P-566N	54	P-624N	60	P-687S	57
P-415S	60, 124	P-464N	64	P-512N	60	P-566S	54	P-624S	60	P-688S	65
P-415S-CN	60, 124	P-464S	64	P-512S	60, 124	P-567N	60	P-625N	50	P-689N	65
P-416N	60	P-465N	50	P-513N	55	P-567S	60	P-625S-W	50	P-689S	65
P-417N	62	P-465S	50, 117, 120	P-513S	55	P-568S	64, 126	P-626N	65	P-690N	53
P-417S	62	P-466S	60, 123	P-514N	55	P-569N	57, 68	P-626S	65	P-690S	53, 119
P-418N	63	P-466S-10X	123	P-514S	55	P-569S	57, 68	P-627N	65	P-690S-CN	53, 119
P-418S	63	P-467N	64	P-515N	65	P-570N	60	P-627S	65, 126	P-691N	54
P-419N	56	P-467S	64, 126	P-515S	65, 127	P-570S-CN	60	P-628N	55	P-691S	54
P-419S	56, 122	P-468N	64	P-516N	65	P-571S	58	P-628S	55	P-692N	63
P-420N	53	P-468S	64	P-516S	65, 127	P-572S	55	P-630S	52	P-692S	63
P-420S	53, 119	P-469N	54	P-518N	52	P-573N	51	P-631N	59	P-692S-CN	63
P-420S-H	53, 119	P-469S	54	P-518S	52	P-573S	51	P-631S	59	P-693N	63
P-422N	65	P-470N	53	P-520N	52	P-574N	52	P-632N	55, 68	P-693S	63
P-422S	65	P-470S	53, 121	P-520S	52	P-574S	52	P-632S	55, 68	P-694N	57
P-423S	56	P-470S-CN	53, 121	P-521S	57	P-575N	55	P-633N	60, 68	P-694S	57
P-424N	54	P-471N	58	P-522N	58	P-575S	55	P-633S	60, 68	P-695N	61
P-424S	54, 120	P-471S	58	P-522S	58, 123	P-577S	52	P-635N	59, 68	P-695S	61
P-425N	61	P-472N	53	P-523N	64	P-578N	57	P-635S	59, 68	P-696N	63
P-425S	61	P-472S	53	P-523S	64, 126	P-578S	57	P-636N	53	P-696S	63
P-426N	54	P-473N	53	P-523S-CN	64, 126	P-579N	61	P-636S	53, 120	P-697N	58
P-426S	54	P-473S	53	P-524S	55	P-579S	61	P-637S-EA-0.1X	52	P-697S	58
P-427N	55	P-474N	54	P-525N	56	P-580N	55	P-640N	54	P-698N	57
P-427S	55, 121	P-474S	54	P-525S	56	P-580S	55	P-640S-A	54	P-698S	57
P-427S-10X	121, 235	P-475N	58	P-526N	65	P-582N	55	P-641N	55	P-699N	57
P-428N	50	P-475S	58	P-526S	65	P-582S	55, 122	P-641S-CN	55	P-699S	57
P-428S	50	P-476N	61	P-528N	58	P-583N	61	P-642N	55	P-700N	53
P-429N	55	P-476S	61, 125	P-528S	58	P-583S	61	P-642S	55	P-700S	53
P-429S	55, 122	P-477N	65	P-529N	59	P-584N	53	P-643N	55	P-701N	52
P-430N	62	P-477S	65	P-529S	59	P-584S	53	P-643S	55	P-701S	52
P-430S	62	P-478N	65	P-530N	50	P-586N	57	P-644N	56	P-702N	65
P-431N	57	P-478S	65	P-530S	50	P-586S	57	P-644S	56	P-702S	65
P-431S	57	P-479S-CN	65	P-531N	53	P-587N	57	P-645N	56	P-703N	65

Catalog Number Index

P-703S-CN	65	P-785N	56	P-865S-CN-0.1X	63	P-993N	57	P-1052S-D	57	P-1329S-CN	58
P-704N	59	P-785S-CN	56	P-866N	64.68	P-993S	57	P-1053N	59	P-1330S	55
P-704S	59	P-787S-H	56	P-866S-CN	64.68	P-995N	61	P-1053S-A	59	P-1331S-CN	62
P-705N	57	P-788N	61	P-867N	65	P-995S	61	P-1054N	53	P-1332S	62
P-705S	57	P-789S-CN	57	P-867S-CN	65	P-996N-5MG	56	P-1054S	53	P-1342S	62
P-707N	60	P-791S-CN	53	P-868S-TP-0.1X	65	P-996S	56	P-1055N	64	P-1343S-A	60
P-707S-A	60	P-792S-CN	62	P-869N	63	P-997N	57	P-1055S	64	P-1344S	59
P-708N	56	P-794N	52	P-869S-CN	63	P-997S	57	P-1056S	57	P-1345S-A	56
P-709N	53	P-794S	52	P-874N	59	P-998S	50	P-1057S-A	55	P-1346S	65
P-709S	53	P-795N	63	P-874S	59	P-999N	64	P-1059S	51	P-1347S-CN	59
P-710N	62	P-795S-CN	63	P-875N	61	P-999S	64	P-1060N	63	P-1348N	55
P-710S-A	62	P-798N	63	P-875S-CN	61	P-1000N	64	P-1060S	63	P-1348S	55
P-711S	50	P-798S-CN	63	P-877N	64	P-1000S	64	P-1061N	62	P-1365S-CN	58
P-712N	53	P-801S-CN	51	P-877S	64	P-1001N	64	P-1061S	62	P-1366S-CN	58
P-712S	53	P-802N	57	P-878N	57	P-1001S-TP	64	P-1062N	59	P-1368S-CN	53
P-713N	55	P-802S	57	P-878S-CN	57	P-1002N	65	P-1062S	59	PC-001S	21
P-713S	55	P-804S-CN	58	P-879S	64	P-1002S-TP	65	P-1063N	58	PC-002S	21
P-714S-CN	62	P-806N	58	P-880S-CN	58	P-1003N	64	P-1063S	58	PCB-DUTCH7	12
P-715S-CN	62	P-806S-CN	58	P-882N-5MG	63	P-1003S	64	P-1064N	64	PCB-DUTCH7-SET	12
P-716S	62	P-807N	52	P-882S	63	P-1004N	65	P-1064S-A	54	PCB-SIM	16
P-717N	63	P-807S	52	P-884N	57	P-1004S	65	P-1065N-5MG	53	PCB-SIM-PAK	16
P-717S	63	P-808N	64	P-884S	57	P-1005N	54	P-1065S-A	53	PCB-W22	247.13
P-718N	59	P-808S	64	P-890S-CN	50	P-1005S-T	54	P-1066S	61	PCB-W22-PAK	247.13
P-718S	59	P-810S-CN	57	P-893N	58	P-1006N	65	P-1068N	62	PCB-W22-SET	247.13
P-719N	51	P-811N	51	P-893S-CN	58	P-1006S	65	P-1069N	53	PCC-001N	107
P-719S	51	P-811S	51	P-895N	50	P-1007N	60	P-1069S	53	PCC-001S	107
P-720N	53	P-820N	50.68	P-895S	50	P-1007S	60.124	P-1070N	56	PCC-001S-10X	107
P-720S	53	P-820S-CN	50.68	P-896N	56	P-1008N	54	P-1070S	56	PE-CAL1-ASL-1	357
P-721N	64	P-821N	50	P-896S	56	P-1008S	54	P-1071N	53	PE-CAL1-ASL-5	357
P-721S	64	P-821S-CN	50	P-900S-CN	60	P-1009N	53	P-1074N	53	PE-CAL2-ASL-1	357
P-722N	55	P-822N	52	P-902S-CN	57	P-1009S	53	P-1074S	53	PE-CAL2-ASL-5	357
P-722S	55	P-822S-CN	52	P-904N	55	P-1010N	59	P-1075N	55	PE-CAL3-ASL-1	357
P-723N	63	P-823N	53	P-904S	55	P-1010S	59	P-1075S	55	PE-CAL3-ASL-5	357
P-723S	63	P-823S-CN	53	P-905S-CN	55	P-1012S	51	P-1076N	52	PE-CAL4-ASL-1	357
P-724N	57	P-824S-CN	56	P-907N	57	P-1013N	60	P-1077N	63	PE-CAL4-ASL-5	357
P-724S	57	P-825S-CN	56	P-907S	57	P-1013S	60	P-1077S-CN	63	PE-CHK1-ASL-1	358
P-725N	55	P-827S-CN-0.1X	57	P-908N	62	P-1014N	62	P-1078N	63	PE-CHK1-ASL-5	358
P-725S-A	55	P-828S-CN	57	P-908S	62	P-1014S-W-0.5X	62	P-1078S	63	PE-CHK3-ASL-1	358
P-726N	64	P-829N	58	P-926N	57	P-1015N	62	P-1079N	52	PE-CHK3-ASL-5	358
P-726S	64	P-829S-CN	58	P-926S	57	P-1015S-A	62	P-1079S	52	PE-CHK4-ASL-1	358
P-727N	64	P-830N	58	P-927N	57	P-1016N	65	P-1080N	51	PE-CHK4-ASL-5	358
P-727S	64	P-830S-CN	58	P-927S	57	P-1016S	65	P-1080S	51	PE-CHK5-ASL-1	358
P-728N	63	P-831N	58	P-929N	53	P-1017N	52	P-1081N	62	PE-CHK5-ASL-5	358
P-728S	63	P-831S-CN	58	P-929S	53	P-1017S-CN	52	P-1081S	62	PE-ICS5-ASL-1	358
P-729S	64	P-832N	59	P-934S	55	P-1018S-CN	61	P-1082N	59	PE-ICS5-ASL-5	358
P-730N	64	P-832S-CN	59	P-935N	55	P-1018S-T-0.1X	61	P-1082S	59	PE-ICS18-ASL-1-SET	358
P-730S	64	P-833N	62	P-935S-CN	55	P-1019S-CN-0.5X	58	P-1085N	66	PE-ICS18-ASL-5-SET	358
P-732N	62	P-833S-CN	62	P-938N	63	P-1020S-A-0.5X	55	P-1085S	66	PE-INT-ASL-1	358
P-732S	62	P-834N	62	P-940N	52	P-1021S	56	P-1086S	53	PE-INT-ASL-5	358
P-734N	61	P-834S-CN	62	P-940S	52	P-1021S-0.5X	56	P-1087S-CN	54	PE-MECAL1-ASL-1	358
P-734S	61	P-835N	62	P-944N-5MG	53	P-1022N	58	P-1089S-CN	58	PE-MECAL1-ASL-5	358
P-735N	53	P-835S-CN	62	P-944S	53	P-1022S	58	P-1090S-CN	59	PE-MECAL2-ASL-1	358
P-735S	53	P-836N	63	P-947N	53.68	P-1023N	59	P-1092S-CN	66	PE-MECAL2-ASL-5	358
P-737N	60	P-836S-CN	63	P-947S	53.68	P-1023S-CN	59	P-1093S-CN	63	PE-MECAL3-ASL-1-SET	358
P-737S	60	P-837N	63	P-949N	52	P-1024N	57	P-1094S	57	PE-MECAL3-ASL-5-SET	358
P-738N	57.68	P-837S-CN	63	P-951N	63	P-1024S-A	57	P-1095S-CN	57	PE-MECAL4-ASL-R1-1	358
P-738S	57.68, 122	P-838N	64.68	P-951S	63	P-1025N	57	P-1096N	59	PE-MECAL4-ASL-R1-5	358
P-738S-A	57.68, 122	P-838S-CN	64.68	P-952N	52	P-1025S-CN	57	P-1096S-CN	59	PE-MECAL5-ASL-1	358
P-739N	62	P-839S-CN-0.1X	65	P-952S	52	P-1026N	52	P-1100S-CN	55	PE-MECAL5-ASL-5	358
P-739S	62	P-840N	65	P-953S-CN	57	P-1026S	52	P-1109N	64	PEO-001S	263
P-740N	59	P-840S-CN	65	P-957S-CN	52	P-1027N	54	P-1109S-CN	64	PEO-002S	263
P-740S	59	P-842S-CN	50	P-958S-CN	58	P-1027S-CN	54	P-1115S-CN	56	PEO-003S	263
P-741N	55	P-843N	52	P-959S-CN	56	P-1028S-CN	59	P-1124N	57	PEO-004S	263
P-741S	55	P-843S-CN	52	P-960S-CN	63	P-1029N	59	P-1124S-CN	57	PEO-005S	263
P-742N	62	P-844S-CN	55	P-962S-CN	59	P-1029S-CN	59	P-1131S-CN	61	PEO-006S	263
P-742S	62	P-845N	55	P-964N	56	P-1030S-0.5X	63	P-1133N	68	PEO-007S	263
P-743N	65	P-845S-CN	55	P-964S-CN	56	P-1031N	61	P-1133S	68	PEO-008S	263
P-743S	65	P-847N	56	P-965S-CN	62	P-1031S-CN	61	P-1135S-CN	53	PEO-009S	263
P-744N	55	P-847S-CN	56	P-966N-5MG	61	P-1032N	60	P-1136S-CN	56	PEO-010S	263
P-744S	55	P-848N	56	P-966S	61	P-1032S-CN	60	P-1137S-CN	62	PEO-011S	263
P-745N	59	P-848S-CN	56	P-967S-CN	61	P-1034N	65	P-1139S-CN	62	PEO-012S	263
P-745S	59	P-849S-CN	56	P-969N	53	P-1034S	65	P-1144S-CN	62	PEO-013S	263
P-746N	58	P-850N	56	P-969S	53	P-1035N	54	P-1150S-CN	57	PEO-014S	263
P-746S	58	P-850S-CN	56	P-970S-CN	66	P-1035S	54	P-1151S-CN	55	PEO-015S-IS	263
P-747N	55	P-852N	57	P-971N	50	P-1036S-CN-0.5X	50	P-1152S-CN	50	PEO-016S	263
P-747S	55	P-852S-CN	57	P-971S-CN	50	P-1037N	50	P-1153S-CN	61	PEO-017S	263
P-749N	63	P-853S-CN-0.1X	58	P-973S-CN	50	P-1037S-CN	50	P-1154N	62	PEO-018S	263
P-749S	63	P-855N	59	P-975S-CN	53	P-1038N	54	P-1154S-CN	62	PEO-019S	263
P-753N	57	P-855S-CN	59	P-979N	59	P-1038S	54	P-1155N	57	PEO-020S	263
P-753S	57	P-856S-CN	60	P-979S-CN	59	P-1039S	50	P-1156S-CN	62	PE-QC7-ASL-1	359
P-755N	53	P-856S-CN-0.1X	60	P-981S-CN	53	P-1040S	59	P-1159S-CN	59	PE-QC7-ASL-5	359
P-755S-CN	53	P-857N	60	P-982S-CN	53	P-1041N	51	P-1161S-CN	61	PE-QC21-ASL-1	359
P-771S-CN	52	P-857S-CN	60	P-983S-CN	58	P-1041S	51	P-1162S-CN	52	PE-QC21-ASL-5	359
P-772N-5MG	51	P-858N	61.68	P-984S	58	P-1043S	59	P-1168S-CN	58	PE-SETUP1-ASL-1	359
P-772S	51	P-858S-CN	61.68	P-985N	63	P-1044N	59	P-1191S	63	PE-SETUP1-ASL-5	359
P-779N	55	P-859N	61	P-985S	63	P-1044S	59	P-1203S-CN	63	PE-SETUP2-ASL-1	359
P-779S	55	P-859S-CN	61	P-986S-CN	68	P-1045S-A	61	P-1223N	64.68	PE-SETUP2-ASL-5	359
P-780S-A	57.68, 122	P-860N	62	P-987S	63	P-1046S	61	P-1223S	68	PE-SMTUNE2-ASL-1	359
P-781N-5MG	57.68	P-860S-CN	62	P-988N	58	P-1047N	61	P-1224N	58.68	PE-SMTUNE2-ASL-5	359
P-781S-A	57.68, 122	P-861N	62	P-988S	58	P-1047S	61	P-1224S	58.68	PE-SMTUNE-ASL-1	359
P-782S-A	57.68	P-861S-CN	62	P-989S	63	P-1048N	50	P-1226N	68	PE-SMTUNE-ASL-5	359
P-783N	56	P-863N	62	P-990N	63	P-1048S	50	P-1226S	68	PES-PU-001	68
P-783S	56	P-863S-CN	62	P-990S	63	P-1050S-0.1X	58	P-1266S	68	PES-PU-001-PAK	68
P-784N	56	P-864N	63	P-991S	56	P-1051S-0.1X	61	P-1267N	68	PES-PU-SS	68
P-784S	56	P-864S-CN	63	P-992S-D	57	P-1052N	57	P-1267S	68	PES-PU-SS-PAK	68

Catalog Number Index

PE-STAB-ASL-1	359	PLAS-AX-013N	89	PLAS-AX-090N	89	PLAS-PL-017N	93	PLAS-PL-113S	82 93	PS-121C-R1-SET	112
PE-STAB-ASL-5	359	PLAS-AX-013S	89	PLAS-AX-091N	89	PLAS-PL-017S	93	PLAS-PL-114S	82 92	PS-131C-R1-SET	112
E-TUNSOL-ASL-1	359	PLAS-AX-014N	90	PLAS-AX-092N	89	PLAS-PL-018N	93	PLAS-PL-115S-T	82 92	PS-211C-R1-SET	113
PE-TUNSOL-ASL-5	359	PLAS-AX-014S	90	PLAS-AX-093N	89	PLAS-PL-018S	93	PLAS-PL-116S	82 93	PS-261C-R1-SET	113
PE-UV-ASL-1	359	PLAS-AX-016N	90	PLAS-AX-094N	89	PLAS-PL-019N	92	PLAS-RT-001N	93	PS-590D-R1-SET	113
PE-UV-ASL-5	359	PLAS-AX-016S	90	PLAS-AX-095N	90	PLAS-PL-019S	92	PLAS-RT-001S	93	PS-651C-R1-SET	113
PE-UVWAVE-ASL-R1-1	359	PLAS-AX-017N	90	PLAS-AX-096N	89	PLAS-PL-020N	93	PLAS-RT-002N	93	PS-920CX-R1-SET	112
PE-UVWAVE-ASL-R1-5	359	PLAS-AX-017S	90	PLAS-AX-097N	90	PLAS-PL-020S	93	PLAS-RT-002S	93	PS-CP-01-1ML	112, 113
PE-VER1-ASL-1	359	PLAS-AX-018N	90	PLAS-AX-098N	90	PLAS-PL-021N	93	PLAS-RT-003N	93	PS-CP-02-1ML	112
PE-VER1-ASL-5	359	PLAS-AX-018S	90	PLAS-AX-099N	89	PLAS-PL-021S	93	PLAS-RT-004N	93	PS-CP-03-1ML	112
PE-VER2-ASL-R1-1	359	PLAS-AX-019N	89	PLAS-AX-103N	89	PLAS-PL-022N	93	PLAS-RT-004S	93	PS-CP-04-1ML	112
PE-VER2-ASL-R1-5	359	PLAS-AX-019S-M	89	PLAS-AX-105N	89	PLAS-PL-022S	93	PLAS-RT-005N	93	PS-CP-05A-1ML	112
PE-VISWAVE-ASL-1	359	PLAS-AX-020N	90	PLAS-AX-106N	90	PLAS-PL-024N	92	PLAS-RT-005S	93	PS-CP-06A-1ML	112
PE-VISWAVE-ASL-5	359	PLAS-AX-020S	90	PLAS-AX-107N	89	PLAS-PL-024S	92	PLAS-RT-006N	93		
PE-WPTM1-ASL-1-SET	360	PLAS-AX-021N	89	PLAS-AX-108N	89	PLAS-PL-025N	92	PLAS-RT-006S	93		
PE-WPTM1-ASL-5-SET	360	PLAS-AX-021S	89	PLAS-AX-109N	90	PLAS-PL-025S	92	PLAS-RT-007N	93		
PE-WPTM2-ASL-1	360	PLAS-AX-022N	90	PLAS-AX-110N	89	PLAS-PL-026N	93	PLAS-RT-007S	93		
PE-WPTM2-ASL-5	360	PLAS-AX-022S	90	PLAS-AX-111N	89	PLAS-PL-026S	93	PLAS-RT-008N	93		
PE-WPTM3-ASL-1	360	PLAS-AX-024N	90	PLAS-AX-112N	89	PLAS-PL-027N	93	PLAS-RT-008S	93		
PE-WPTM3-ASL-5	360	PLAS-AX-024S	90	PLAS-AX-113N	90	PLAS-PL-027S	93	PLAS-RT-009N	93		
P-FIP-MET-KIT	68	PLAS-AX-025N	90	PLAS-AX-114N	89	PLAS-PL-028N	92	PLAS-RT-010S	93		
PFOA-001N	110, 162	PLAS-AX-025S	90	PLAS-AZ-001N	90	PLAS-PL-028S	92	PLAS-RT-011N	93		
PFOA-001S	110, 162	PLAS-AX-026N	90	PLAS-AZ-001S	90	PLAS-PL-029N	93	PLAS-ST-001N	94		
PFOS-001S	110, 162	PLAS-AX-026S	90	PLAS-BA-001N	90	PLAS-PL-029S	92	PLAS-ST-001S	94		
PFOS-002N	110, 162	PLAS-AX-027N	90	PLAS-BA-001S	90	PLAS-PL-030N	93	PLAS-ST-002N	94		
PFOS-002S	110, 162	PLAS-AX-027S	90	PLAS-BA-002N	90	PLAS-PL-030S	92	PLAS-ST-002S	94		
PFOS-SCG-001S	110, 162	PLAS-AX-028N	90	PLAS-BA-002S-DMSO	90	PLAS-PL-031N	93	PHTH-012N	81		
PFOS-SCG-002S	110, 162	PLAS-AX-028S	90	PLAS-CA-001N	91	PLAS-PL-031S	93	PHTH-012S	81		
PFRS-001S	41	PLAS-AX-030N	90	PLAS-CA-001S	91	PLAS-PL-032N	93	PHTH-013N	81		
PFRS-002S	41	PLAS-AX-030S	90	PLAS-CA-002N	91	PLAS-PL-032S	93	PHTH-013S	81		
PFRS-003S	41	PLAS-AX-031N	90	PLAS-CA-002S	91	PLAS-PL-033N	93	PHTH-014N	81		
PFRS-004S	41	PLAS-AX-031S	90	PLAS-CA-003N	91	PLAS-PL-033S	93	PHTH-014S	81		
PFRS-005S	41	PLAS-AX-032N	89	PLAS-CA-003S	91	PLAS-PL-035N	93	PHTH-015N	81		
PFRS-006S	41	PLAS-AX-033N	90	PLAS-CA-004N	91	PLAS-PL-036N	93	PHTH-015S	81		
PFRS-007S	41	PLAS-AX-033S	90	PLAS-CA-004S	91	PLAS-PL-036S-D	93	PHTH-016N	81		
PFRS-008S	41	PLAS-AX-034N	90	PLAS-CA-005N	91	PLAS-PL-037N	93	PHTH-016S	81		
PFRS-009S	41	PLAS-AX-034S	90	PLAS-CA-005S	91	PLAS-PL-037S-D	93	PHTH-017N	81		
PFRS-010S	41	PLAS-AX-038N	90	PLAS-CA-006N	91	PLAS-PL-038N	92	PHTH-017S	81		
PFRS-011S	41	PLAS-AX-038S	90	PLAS-CA-006S	91	PLAS-PL-038S	92	PHTH-018N	80		
PFRS-012N	41	PLAS-AX-041N	89	PLAS-CAL-001	94	PLAS-PL-043N	92	PHTH-018S	80		
PFRS-012S	41	PLAS-AX-041S	89	PLAS-CAL-001-PAK	94	PLAS-PL-053N	92	PHTH-019N	80		
PFRS-013S	41	PLAS-AX-044N	89	PLAS-CAL-002-1	94	PLAS-PL-059N	92	PHTH-019S	80		
PFRS-014S	41	PLAS-AX-044S	89	PLAS-CAL-002-2	94	PLAS-PL-060N	93	PHTH-020N	80		
PFRS-015S	41	PLAS-AX-045N	90	PLAS-CAL-002-3	94	PLAS-PL-061N	92	PHTH-020S	80		
PFRS-016S	41	PLAS-AX-045S	90	PLAS-CAL-002-4	94	PLAS-PL-062N	92	PHTH-021N	80		
PFRS-017S	41	PLAS-AX-046N	90	PLAS-CAL-002-5	94	PLAS-PL-063N	93	PHTH-021S	80		
PFRS-018S	41	PLAS-AX-046S	90	PLAS-CAL-002-6	94	PLAS-PL-064N	92	PHTH-022N	80		
PFRS-019S-H	41	PLAS-AX-047N	89	PLAS-CAL-002-7	94	PLAS-PL-065N	92	PHTH-022S	80		
PFRS-020S	41	PLAS-AX-047S	89	PLAS-CL-001N	91	PLAS-PL-066N	93	PHTH-D4-001S	81 94		
PFRS-021S	41	PLAS-AX-048N	90	PLAS-CL-001S	91	PLAS-PL-067N	93	PHTH-D4-002S	81 94		
PFRS-022S	41	PLAS-AX-048S	90	PLAS-CL-002N	91	PLAS-PL-068N	93	PHTH-D4-003S	81 94		
PFRS-023S	41	PLAS-AX-050N	90	PLAS-CL-002S	91	PLAS-PL-069N	92	PHTH-D4-004S	81 94		
PFRS-024S	41	PLAS-AX-050S	90	PLAS-CL-003N	91	PLAS-PL-070N	92	PHTH-D4-005S	81 94		
PFRS-025S	41	PLAS-AX-051N	90	PLAS-CL-003S	91	PLAS-PL-071N	92	PHTH-D4-006S	81 94		
PFRS-026S	41	PLAS-AX-051S	90	PLAS-CL-004N	91	PLAS-PL-072N	93	PHTH-D4-007S	81 94		
PFRS-027S	41	PLAS-AX-054N	90	PLAS-CL-004S	91	PLAS-PL-072S	93	PHTH-D4-008S	81 94		
PFRS-028S	41	PLAS-AX-054S	90	PLAS-CL-005N	91	PLAS-PL-074N	93	PHTH-D4-009S	81 94		
PFRS-029S	41	PLAS-AX-057N	89	PLAS-CL-005S	91	PLAS-PL-075S-A	82	PHTH-D4-010S	81 94		
PFRS-030S	41	PLAS-AX-057S	89	PLAS-CL-006N	91	PLAS-PL-076S-A	82 92	PHTH-D4-011S	81 94		
PLAS-AC-001N	89	PLAS-AX-058N	90	PLAS-CL-006S-D	91	PLAS-PL-077S-A	82 92	PHTH-D4N-SET	81 94		
PLAS-AC-001S	89	PLAS-AX-058S	90	PLAS-CL-007N	91	PLAS-PL-078S-A	82 92	PHTH-D4S-SET	81 94		
PLAS-AC-002N	89	PLAS-AX-059N	90	PLAS-CL-007S	91	PLAS-PL-079S-A	82 92	PLAS-UV-001N	94		
PLAS-AC-002S	89	PLAS-AX-059S	90	PLAS-CPSC-R1	94	PLAS-PL-080S	82 92	PLAS-UV-001S	94		
PLAS-AC-003N	89	PLAS-AX-060N	90	PLAS-CRC-BOOK2	88	PLAS-PL-081S-A	82 92	PLAS-UV-002N	94		
PLAS-AC-003S	89	PLAS-AX-060S-T	90	PLAS-IS-001	94	PLAS-PL-082S	82 92	PLAS-UV-002S	94		
PLAS-AC-004N	89	PLAS-AX-061N	90	PLAS-IS-001-PAK	94	PLAS-PL-083S	82 92	PLAS-UV-003N	94		
PLAS-AC-004S	89	PLAS-AX-061S	90	PLAS-PA-001N	93	PLAS-PL-084S	82 93	PLAS-UV-003S	94		
PLAS-AC-005N	89	PLAS-AX-063N	90	PLAS-PA-001S	93	PLAS-PL-085S-T	82 92	PLAS-UV-004N	94		
PLAS-AC-005S-A	89	PLAS-AX-063S	90	PLAS-PA-002N	93	PLAS-PL-086S	82 92	PLAS-UV-004S	94		
PLAS-AC-006N	89	PLAS-AX-069N	90	PLAS-PL-001N	92	PLAS-PL-087S	82 92	PLAS-UV-005N	94		
PLAS-AC-006S	89	PLAS-AX-069S	90	PLAS-PL-001S	92	PLAS-PL-088S	82 92	PLAS-UV-005S	94		
PLAS-AC-007N	89	PLAS-AX-070N	90	PLAS-PL-002N	92	PLAS-PL-089S	82 93	PLAS-UV-006N	94		
PLAS-AC-008N	89	PLAS-AX-070S	90	PLAS-PL-002S	92	PLAS-PL-090S	82 92	PLAS-UV-006S-CN	94		
PLAS-AC-009N	89	PLAS-AX-074N	90	PLAS-PL-003N	93	PLAS-PL-091S	82 92	PLAS-UV-007N	94		
PLAS-AC-010N	89	PLAS-AX-074S	90	PLAS-PL-003S	93	PLAS-PL-092S	82 93	PLAS-UV-007S-CN	94		
PLAS-AD-001N	89	PLAS-AX-076N	90	PLAS-PL-004N	93	PLAS-PL-093S	82 93	PLAS-UV-008N	94		
PLAS-AD-001S	89	PLAS-AX-076S	90	PLAS-PL-004S	93	PLAS-PL-094S	82 93	PLAS-UV-008S-CN	94		
PLAS-AD-002N	89	PLAS-AX-077N	89	PLAS-PL-005N	93	PLAS-PL-095S	82 93	PLAS-UV-009N	94		
PLAS-AD-002S	89	PLAS-AX-077S	89	PLAS-PL-005S	93	PLAS-PL-096S	82 92	PLAS-UV-009S-CN	94		
PLAS-AD-003N	89	PLAS-AX-078N	90	PLAS-PL-007N	93	PLAS-PL-097S	82 93	PLAS-UV-010N	94		
PLAS-AD-003S	89	PLAS-AX-078S	90	PLAS-PL-007S	93	PLAS-PL-098S	82 93	PLAS-UV-010S-CN	94		
PLAS-AF-001N	89	PLAS-AX-079N	90	PLAS-PL-008N	93	PLAS-PL-099S	82 93	PLAS-UV-011N	94		
PLAS-AF-001S	89	PLAS-AX-080N	90	PLAS-PL-008S	93	PLAS-PL-100S	82 93	PLAS-UV-011S-CN	94		
PLAS-AX-001N	90	PLAS-AX-080S	90	PLAS-PL-009N	92	PLAS-PL-101S	82 92	PLAS-UV-012N	94		
PLAS-AX-001S	90	PLAS-AX-082N	89	PLAS-PL-009S	92	PLAS-PL-102S	82 93	PLAS-UV-012S-CN	94		
PLAS-AX-002N	90	PLAS-AX-082S	89	PLAS-PL-011N	93	PLAS-PL-103S	82 92	PLAS-UV-013N	94		
PLAS-AX-002S	90	PLAS-AX-084N	89	PLAS-PL-011S	93	PLAS-PL-104S	82 93	PLAS-UV-013S-CN	94		
PLAS-AX-003N	90	PLAS-AX-084S	89	PLAS-PL-013N	92	PLAS-PL-105S	82 92	PLAS-UV-014S-CN	94		
PLAS-AX-003S	90	PLAS-AX-085N	89, 90	PLAS-PL-013S	92	PLAS-PL-106S	82 92	PLAS-UV-015N	94		
PLAS-AX-005N	89	PLAS-AX-085S	89, 90	PLAS-PL-014N	93	PLAS-PL-107S	82 92	PLAS-UV-015S-CN	94		
PLAS-AX-005S	89	PLAS-AX-086N	89	PLAS-PL-014S	93	PLAS-PL-108S	82 93	PLAS-UV-STAB-SET	94		
PLAS-AX-008N	90	PLAS-AX-086S	89	PLAS-PL-015N	92	PLAS-PL-109S	82 92	PLAS-VA-001N	94		
PLAS-AX-008S	90	PLAS-AX-087N	89	PLAS-PL-015S	92	PLAS-PL-110S	82 93	PLAS-VA-002N	94		
PLAS-AX-012N	89	PLAS-AX-088N	89	PLAS-PL-016N	93	PLAS-PL-111S	82 92	PS-71C	113		
PLAS-AX-012S	89	PLAS-AX-089N	89	PLAS-PL-016S	93	PLAS-PL-112S	82 92	PS-111C-R1-SET	112		

Q

QCS-01-1	345, 353
QCS-01-5	345, 353
QCS-1-SET	345
QCS-02-1	345, 353
QCS-02-5	345, 353
QCS-02-R1-1	345, 353
QCS-02-R1-5	345, 353
QCS-03-1	345
QCS-03-5	345
QCS-04-1	345
QCS-05-1	345
QCS-5-SET	345
QCS-06-1	345
QCS-ASL-7-1	345
QCS-ASL-7-5	345
QCS-ASL-19-1	345
QCS-ASL-19-5	345
QCS-ASL-21-1	345
QCS-ASL-21-5	345
QCS-R1-1-SET	345
QCS-R1-5-SET	345

R

Catalog Number Index

R-048N	45, 47	R-097N	45	RRO-AK-103-LCS-5X-PAK318	318	SDWA-02-1	347	SWMO-4X-100ML	270	TCLP-02-5	351, 353
R-048S	45, 47	R-097S	45	RRO-AK-103-LCS-PAK 318	318	SDWA-02-5	347	SWMO-5X-20ML-PAK	270	TCLP-A	183
R-049N	45, 47	R-098N	45	RRO-AK-103-RCS 318	318	SDWA-03-1	347	SWMO-5X-100ML	270	TCLP-A-PAK	183
R-049S	45, 47	R-098S	45	RRO-AK-103-RCS-10X 318	318	SDWA-03-5	347	SWMO-7.5X-20ML-PAK	270	TCLP-BN	183
R-050N	45, 47	R-099N	45	RRO-AK-103-RCS-10X-PAK 318	318	SDWA-04-1	347	SWMO-7.5X-100ML	270	TCLP-BNA	183
R-050S	45, 47	R-099S	45	RRO-AK-103-RCS-10X-PAK 318	318	SDWA-04-5	347	SWMO-10X-20ML-PAK	270	TCLP-BNA-1312	184
R-051N	45, 47, 75	R-105N	45	RRO-AK-103-RCS-PAK 318	318	SDWA-05-1	347	SWMO-10X-100ML	270	TCLP-BNA-1312-PAK	184
R-051S	45, 47, 75	R-105S	45	RRO-AK-103-RCS-PAK 318	318	SDWA-05-5	347	SWMO-15X-20ML-PAK	270	TCLP-BNA-PAK	183
R-052N	45, 47, 75	R-115N	45	RRO-AK-103-SS2 318	318	SDWA-5-SET	347	SWMO-15X-100ML	270	TCLP-BNA-QC	184
R-052S	45, 47, 75	R-115S	45	RRO-AK-103-SS2-PAK 318	318	SDWA-06-MS-1	347	SWMO-30X-20ML-PAK	270	TCLP-BNA-SET	183
R-053S	45, 47	RAC-01	76, 109	RRO-AK-103-SS2-PAK 318	318	SDWA-06-MS-5	347	SWMO-30X-100ML	270	TCLP-BN-PAK	183
R-054N	45, 78	RAC-01-10X	76, 109	RRO-AK-103-SS-PAK 318	318	SDWA-07-1	347	SWMO-50X-20ML-PAK	270	TCLP-HERB	183
R-054S	45, 78	RAC-01-EA-0.1X-10ML	109			SDWA-07-5	347	SWMO-50X-100ML	270	TCLP-HERB-ME	183
R-055N	45	RAC-02	76, 109			SDWA-08-1	347	SWMO-70X-20ML-PAK	270	TCLP-HERB-ME-PAK	183
R-055S	45, 78	RAC-02-10X	76, 109			SDWA-08-5	347	SWMO-70X-100ML	270	TCLP-HERB-ME-QC	184
R-056N	45, 78	RAC-02-EA-0.1X-10ML	109			SDWA-09-1	347	SWMO-100X-20ML-PAK	270	TCLP-HERB-ME-QC-PAK	184
R-056S	45, 78	RAC-03	76, 109			SDWA-09-5	347	SWMO-100X-100ML	270	TCLP-HERB-PAK	183
R-057N	45, 75	RAC-03-10X	76, 109			SK-1X-20ML-PAK	270	SWMO-150X-20ML-PAK	270	TCLP-HERB-PFB	183
R-057S	45, 75	RAC-03-EA-0.1X-10ML	109			SK-1X-100ML	270	SWMO-150X-100ML	270	TCLP-PES	183
R-058N	46	RAC-04	77, 109			SK-3X-20ML-PAK	270	SWMO-200X-20ML-PAK	270	TCLP-PES-1	183
R-058S	46	RAC-04-10X	77, 109			SK-3X-100ML	270	SWMO-200X-100ML	270	TCLP-PES-1/2-QC-SET	184
R-059N	46	RAC-04-EA-0.1X-10ML	109			SK-5X-20ML-PAK	270	SWMO-300X-20ML-PAK	270	TCLP-PES-1/2-SET	183
R-059S	46	RAC-05	77, 109			SK-5X-100ML	270	SWMO-300X-100ML	270	TCLP-PES-1-PAK	183
R-060N	46	RAC-05-10X	77, 109			SK-7.5X-20ML-PAK	270	SWMO-400X-20ML-PAK	270	TCLP-PES-1-QC	184
R-060S	46	RAC-05-EA-0.1X-10ML	109			SK-7.5X-100ML	270	SWMO-400X-100ML	270	TCLP-PES-1-QC-PAK	184
R-061N	46	RAC-06	77, 109			SK-10X-20ML-PAK	270	SWMO-500X-20ML-PAK	270	TCLP-PES-2	183
R-061S	46	RAC-06-10X	77, 109			SK-10X-100ML	270	SWMO-500X-100ML	270	TCLP-PES-2-PAK	183
R-062N	46, 76	RAC-06-EA-0.1X-10ML	109			SK-20X-20ML-PAK	270	SWMO-600X-20ML-PAK	270	TCLP-PES-2-QC	184
R-062S	46, 76	RAC-07	77, 109			SK-20X-100ML	270	SWMO-600X-100ML	270	TCLP-PES-2-QC-PAK	184
R-063N	46, 76	RAC-07-10X	77, 109			SK-30X-20ML-PAK	270	SWMO-BL-20ML-PAK	270	TCLP-PES-PAK	183
R-063S	46, 76	RAC-07-EA-0.1X-10ML	109			SK-30X-100ML	270	SWMO-BL-100ML	270	TCLP-QC	184
R-065N	46	RAC-08	77, 250, 109			SK-40X-20ML-PAK	270	SWMO-CAL-100ML-SET	270	TCLP-QC-PAK	184
R-065S	46	RAC-08-10X	77, 109			SK-40X-100ML	270	SWMO-LT-1X-20ML-PAK	270	TCLP-VOC	183
R-066N	46	RAC-08-EA-0.1X-10ML	109			SK-50X-20ML-PAK	270	SWMO-LT-1X-100ML	270	TELE-CHK1-ASL-1-SET	360
R-066S	46	RAC-09	77, 109			SK-50X-100ML	270	SWMO-LT-2X-20ML-PAK	270	TELE-CHK1-ASL-5-SET	360
R-067N	46	RAC-09-10X	77, 109			SK-100X-20ML-PAK	270	SWMO-LT-2X-100ML	270	TK-102-08N	70
R-067S	46	RAC-09-EA-0.1X-10ML	109			SK-100X-100ML	270	SWMO-LT-3X-20ML-PAK	270	TK-102-08S-10X	70
R-068N	46	RAC-10	77, 109			SK-200X-20ML-PAK	270	SWMO-LT-3X-100ML	270	TPH-002-R1-SET	311
R-068S	46	RAC-10-10X	77, 109			SK-200X-100ML	270	SWMO-LT-4X-20ML-PAK	270	TPH-003-SET	311
R-069N	46	RAC-10-EA-0.1X-10ML	109			SK-20ML-20ML-PAK	270	SWMO-LT-4X-100ML	270	TPH-004-SET	311
R-069S	46	RAC-11	77, 109			SK-BL-100ML	270	SWMO-LT-5X-20ML-PAK	270	TPH-006-10X	255, 313
R-070N	46	RAC-11-10X	77, 109			SK-CAL-100ML-SET	270	SWMO-LT-5X-100ML	270	TPH-006-10X-PAK	255, 313
R-070S	46	RAC-11-EA-0.1X-10ML	109			SK-HD-1X-100ML	270	SWMO-LT-7.5X-20ML-PAK270	270	TPH-R3-SET	311
R-071N	46	RAC-12	77, 109			SK-HD-2X-100ML	270	SWMO-LT-7.5X-100ML	270	T-W130	18
R-071S	46	RAC-12-10X	77, 230, 109			SK-HD-3X-100ML	270	SWMO-LT-10X-20ML-PAK270	270		
R-072N	46	RAC-12-EA-0.1X-10ML	109			SK-HD-4X-100ML	270	SWMO-LT-10X-100ML	270		
R-072S	46	RAC-13	77, 109			SK-HD-5X-100ML	270	SWMO-LT-15X-20ML-PAK270	270		
R-073N	46	RAC-13-10X	77, 109			SK-HD-7.5X-100ML	270	SWMO-LT-15X-100ML	270		
R-073S	46	RAC-13-EA-0.1X-10ML	109			SK-HD-10X-100ML	270	SWMO-LT-30X-20ML-PAK270	270		
R-074N	46, 77	RAC-14	77, 109			SK-HD-15X-100ML	270	SWMO-LT-30X-100ML	270		
R-074S	46, 77	RAC-14-10X	77, 109			SK-HD-20X-100ML	270	SWMO-LT-50X-20ML-PAK270	270		
R-075N	46, 77	RAC-14-EA-0.1X-10ML	109			SK-HD-30X-100ML	270	SWMO-LT-50X-100ML	270		
R-075S	46, 77	RAC-15	78, 109			SK-HD-40X-100ML	270	SWMO-LT-70X-20ML-PAK270	270		
R-076N	46, 77	RAC-15-10X	78, 109			SK-HD-50X-100ML	270	SWMO-LT-70X-100ML	270		
R-076S	46, 77	RAC-15-EA-0.1X-10ML	109			SK-HD-70X-100ML	270	SWMO-LT-100X-20ML-PAK 270			
R-077N	46, 77	RAC-16	78, 109			SK-HD-100X-100ML	270				
R-077S	46, 77	RAC-16-10X	78, 109			SK-HD-150X-100ML	270	SWMO-LT-100X-100ML	270		
R-078N	46, 77	RAC-16-EA-0.1X-10ML	109			SK-HD-200X-100ML	270	SWMO-LT-150X-20ML-PAK 270			
R-078S	46, 77	RAC-17	78, 109			SK-HD-300X-100ML	270				
R-079N	46, 77	RAC-17-10X	78, 109			SK-HD-400X-100ML	270	SWMO-LT-150X-100ML	270		
R-079S	46, 77	RAC-17-EA-0.1X-10ML	109			SK-HD-500X-100ML	270	SWMO-LT-200X-20ML-PAK 270			
R-080N	46, 78	RAC-18	78, 109			SK-HD-600X-100ML	270				
R-080S	46, 78	RAC-18-10X	78, 109			SK-HD-BL-100ML	270	SWMO-LT-200X-100ML	270		
R-081N	46, 47	RAC-18-EA-0.1X-10ML	109			SK-HD-CAL-100ML-SET	270	SWMO-LT-300X-20ML-PAK 270			
R-081S	46, 47	RAC-19	78, 109			SQS-01-1	346				
R-082N	46	RAC-19-10X	78, 109			SQS-03-1	346	SWMO-LT-300X-100ML	270		
R-082S	46	RAC-19-EA-0.1X-10ML	109			SRO-35X-100ML	271	SWMO-LT-400X-20ML-PAK 270			
R-083N	46, 47	RAC-20	78, 109			SRO-70X-100ML	271				
R-083S	46, 47	RAC-20-10X	78, 109			SRO-100X-100ML	271	SWMO-LT-400X-100ML	270		
R-084N	46	RAC-20-EA-0.1X-10ML	109			SRO-150X-100ML	271	SWMO-LT-500X-20ML-PAK 270			
R-084S	46	RAC-21	76, 109			SRO-200X-100ML	271				
R-085N-10MG	45	RAC-21-10X	76, 109			SRO-300X-100ML	271	SWMO-LT-500X-100ML	270		
R-085S	45	RAC-21-EA-0.1X-10ML	109			SRO-400X-100ML	271	SWMO-LT-600X-20ML-PAK 270			
R-086N	47	RAC-22	76, 109			SRO-CAL-100ML-SET	271				
R-086S	47	RAC-22-10X	76, 109			STP-1X-100ML	271	SWMO-LT-600X-100ML	270		
R-087N	47	RAC-22-EA-0.1X-10ML	109			STP-2X-100ML	271	SWMO-LT-BL-20ML-PAK	270		
R-087S	47	RAC-23	76, 109			STP-3X-100ML	271	SWMO-LT-BL-100ML	270		
R-088N	47	RAC-23-10X	76, 109			STP-5X-100ML	271	SWMO-LT-CAL-100ML-SET	270		
R-088S	47	RAC-23-EA-0.1X-10ML	109			STP-10X-100ML	271				
R-089N	47	RAC-24	77, 109			STP-20X-100ML	271				
R-089S	47	RAC-24-10X	77, 109			STP-30X-100ML	271				
R-090N	47	RAC-24-EA-0.1X-10ML	109			STP-40X-100ML	271				
R-090S	47	RAC-IS	78, 109			STP-60X-100ML	271				
R-091N	47	RAC-IS-EA	78, 109			STP-100X-100ML	271				
R-091S	47	RAC-R1-10X-SET	109			STP-200X-100ML	271	T-001N	21, 91		
R-092N	47	RAC-R1-SET	109			STP-300X-100ML	271	T-002N	21, 91		
R-092S	47	RFA-BLNK-10ML	279, 288			STP-BL-100ML	271	T-003N	21, 91		
R-093N	46	RFA-BLNK-10ML-PAK279, 288	279, 288			STP-CAL-100ML-SET	271	T-004S	21, 91, 150		
R-093S	46	RFA Gasoline	279, 287, 289, 310, 311			SWMO-1X-20ML-PAK	270	T-005S	21, 91, 150		
R-094N	45	RGS-001	257, 315			SWMO-1X-100ML	270	T-006S	21, 91, 150		
R-094S	45	RRO-AK-103AA	318			SWMO-2X-20ML-PAK	270	T-432S	21, 91		
R-095N	46	RRO-AK-103AA-PAK	318			SWMO-2X-100ML	270	T-442S	21, 91, 150		
R-095S	46	RRO-AK-103-LCS	311, 318			SWMO-3X-20ML-PAK	270	T-460S	21		
R-096N	46	RRO-AK-103-LCS-5X311, 318	318			SWMO-3X-100ML	270	T-6050S	91, 21		
R-096S	46	RRO-AK-103-LCS-5X311, 318	318			SWMO-4X-20ML-PAK	270	TCLP-02-1	351, 353		

Catalog Number Index

Safety, Storage, Packaging

Safety

All products come with Safety Data Sheets (SDS) and Certificates of Analysis (COA) which are also available on AccuStandard.com.



GHS-07

- Irritant
- Skin Sensitizer
- Acute toxicity (harmful)
- Narcotic Effects
- Respiratory Tract Irritant



GHS-02

GHS Symbols

- Flammables
- Self Reactives
- Pyrophorics
- Self-Heating
- Emits Flammable Gas
- Organic Peroxides



GHS-08

- Carcinogen
- Respiratory Sensitizer
- Reproductive Toxicity
- Mutagenicity
- Aspiration Toxicity



GHS-05

- Corrosives
- Skin corrosion/burns
- Eye Damage
- Corrosive to Metals



GHS-06

- Acute Toxicity (fatal or toxic)



GHS-03

- Oxidizers



GHS-09

- Aquatic Toxicity

Storage

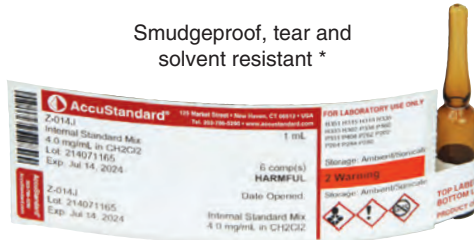
Expiration dates are determined by short-term and long-term stability studies, experience and knowledge of chemical interactions. As part of our long-term studies, standards are analyzed at the end of their assigned period and sometimes can be recertified for an additional length of time.

All products come with storage conditions listed on the label of the ampule or bottle. Some chemical formulations require refrigeration or freezer storage to inhibit adverse reactions among the components. It is imperative that these conditions are followed to preserve the integrity of the material.

Organic Products (Usage, Handling)

Amber ampules are used to ensure the integrity of the contents. The ampule contains at least 120% of the stated volume of a solution, allowing easy transfer. Transfer the required amount using a pipet or clean gastight syringe. Excess solution can be stored in a tightly capped vial.

Smudgeproof, tear and solvent resistant *



Organic 2-Part Labels (ampules or vials)

Part One can be placed into a laboratory journal to document the standard used for the analysis. This label section includes the catalog number, description, lot number, expiration date, safety information, proper storage conditions and documents AccuStandard as the manufacturer.

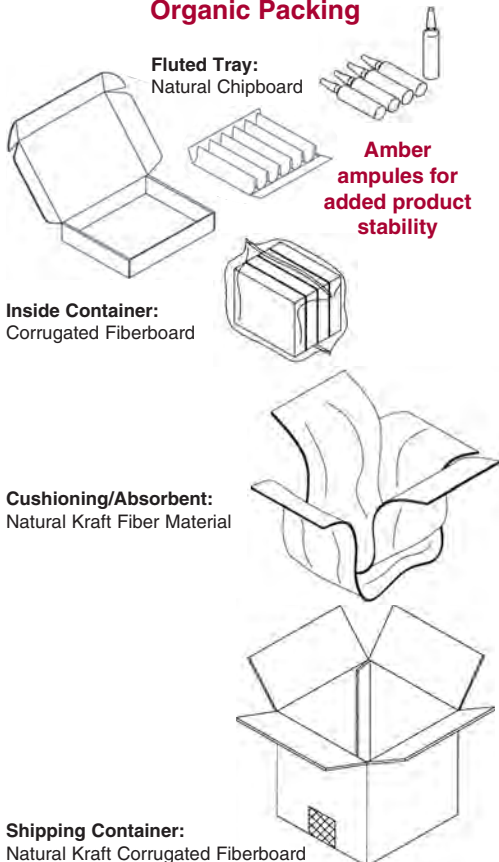
Part Two duplicates required information for labeling transfer vial(s) with correct information.



* Includes the most common solvents: Methylene chloride, Methanol and Acetone

For your protection an ampule opener is included with every order.

Organic Packing



Amber ampules for added product stability

Inorganic Products (Usage, Handling)

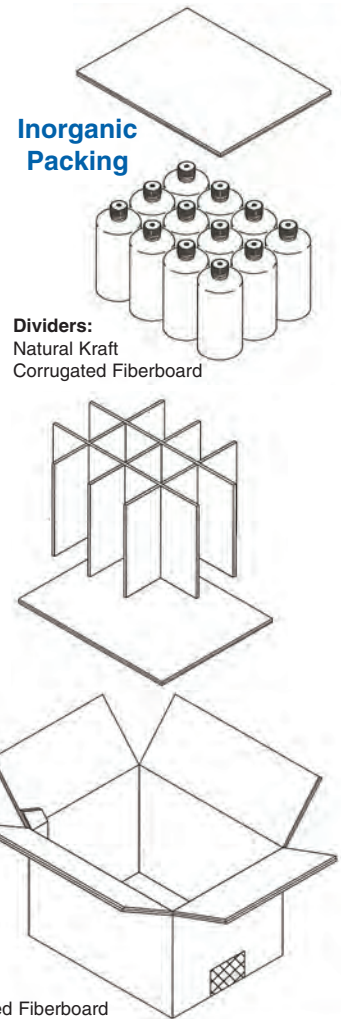
- Shake bottle prior to use and do not pipette directly out of the bottle.
- Use only cleaned Class A volumetric glassware.
- Keep bottles tightly capped when not being used and store under normal laboratory conditions.

ColdPAK *

ColdPAKs may be recommended or required with certain temperature sensitive products. Some standards are susceptible to change at room temperature or higher. In some of these cases, we may recommend or require that these products ship in a "ColdPAK" (a styrofoam container that has an ice pack in it). The purpose is to delay the exposure of the product to higher temperatures, and NOT to keep the product frozen. The product will not immediately go out of specifications when the ColdPAK melts or when the product reaches room temperature. It simply delays exposure to higher temperatures.

Fast and efficient shipping

Multiple shipping options available for fast delivery. Packaging maximizes space and keeps dimensions and weight down to minimize shipping charges. Designed and tested to meet DOT and IATA shipping regulations. Made with recyclable and biodegradable materials.



Inorganic Packing

Dividers:
Natural Kraft
Corrugated Fiberboard

Shipping Container:
Natural Kraft Corrugated Fiberboard

Technical Reference

Solvent Miscibility Table, Density and Boiling Point

	Acetic acid (1.049 g/mL) (117-118°C)	
	Acetone (0.791 g/mL) (56°C)	
	Acetonitrile (AcCN) (0.786 g/mL) (81-82°C)	
	Benzene (0.874 g/mL) (80°C)	
	2-Butanol (0.808 g/mL) (98°C)	
	Butyl alcohol (0.81 g/mL) (116-118°C)	
	tert-Butylmethyl ether (MtBE) (0.74 g/mL) (55-56°C)	
	Carbon tetrachloride (1.594 g/mL) (76-77°C)	
	Chloroform (1.492 g/mL) (60.5-61.5°C)	
	Cyclohexane (0.779 g/mL) (80.7°C)	
	Cyclopentane (0.751 g/mL) (50°C)	
	Dichloroethane (1.256 g/mL) (83°C)	
	N,N-Dimethylformamide (DMF) (0.944 g/mL) (153°C)	
	1,4-Dioxane (1.034 g/mL) (100-102°C)	
	Dipropyl ether (0.736 g/mL) (88-90°C)	
	Ethyl acetate (EtOAc) (0.902 g/mL) (76.5-77.5°C)	
	Ethyl alcohol (EtOH) (0.789 g/mL) (78°C)	
	Ethyl ether (0.706 g/mL) (34.6°C)	
	n-Heptane (0.684 g/mL) (98°C)	
	n-Hexane (0.659 g/mL) (69°C)	
	Isooctane (0.692 g/mL) (98-99°C)	
	Isopropyl alcohol (0.785 g/mL) (82°C)	
	Methanol (MeOH) (0.791 g/mL) (64.7°C)	
	Methylene chloride (CH ₂ Cl ₂) (1.325 g/mL) (39.8-40°C)	
	Methyl sulfoxide (DMSO) (1.10 g/mL) (189°C)	
	n-Pentane (0.626 g/mL) (35-36°C)	
	1,1,2,2-Tetrachloroethane (1.586 g/mL) (147°C)	
	Tetrahydrofuran (THF) (0.889 g/mL) (65-67°C)	
	Toluene (0.865 g/mL) (110-111°C)	
	Trichloroethane (1.336 g/mL) (74-76°C)	
	Water (1 g/mL) (100°C)	
	Xylene (0.868 g/mL) (138-139°C)	

Miscible
 Immiscible
 Read down column and across for solvent miscibility
 Density @ 25°C
 Boiling Point

For technical information including: methods, papers, FAQs and helpful hints



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Alchemist Art Gallery

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The Alchemist

Francois-Marius Granet
 French, 19th century,
 Courtesy of the Science History
 Institute Collections, and
 Roy Eddleman
 Photograph by Will Brown

A bearded man reading a book is standing in a great vaulted interior. A large window illuminates the room, with glassware sparsely placed on the shelves.



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Periodic Table of Elements

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Periodic Table of Elements

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 Solvent Miscibility Table, Density and Boiling Point

With references, such as unit conversions, general constants, element symbols, atomic weights and solvent miscibility table with densities and boiling points.

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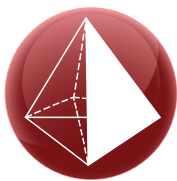
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