AccuStandard®

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Petrochemical 265-327

Inorganic 328-374

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

Sheila
Organic Tech. Service

Tom
Inorganic Product Manager

Bob
Organic Tech. Service

Dolly
Organic Tech. Service

Phil
Organic Tech. Service

Lee
Organic Tech Service

Danielle
Inorganic Tech. Service

Brandon
Inorganic Tech. Service

Mary
Document Control

Customer Service

Susan
Customer Service Manager

Lakshmi
International Coordinator

Patty
Customer Service Rep.

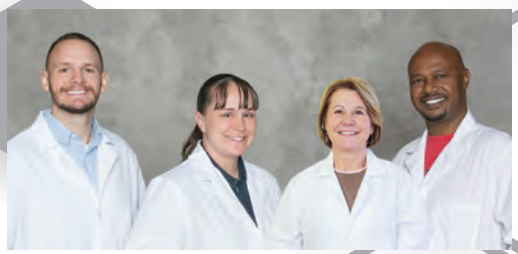
Mike
Customer Service Rep.

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.

Tel (203)786-5290
Fax (203)786-5287
www.AccuStandard.com

CERTIFICATE OF ANALYSIS

Catalog No: PCB-DUTCH7
Description: Dutch Seven PCBs Standard
Lot: 216071187
Solvent: Isooctane
Hazards: **HIGHLY FLAMMABLE** - *Refer to SDS for safety info*

Date Certified: Jul 19, 2016
Expiration: Jul 19, 2026
Sample Size: 1 mL
Components: 7
Storage Condition: Ambient (>5 °C)

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

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.

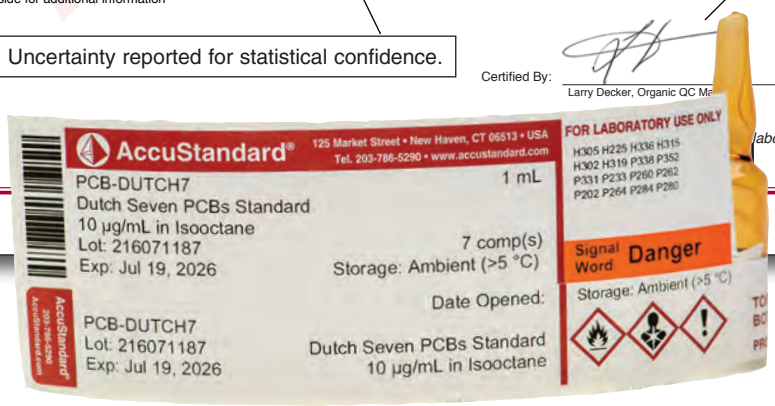
Labels and certificates follow U.S. Conventions in reporting numerical values: A comma (,) is used to separate units of one-thousand or greater. A period (.) is used as a decimal place marker.

See reverse side for additional information

Certified By: Larry Decker, Organic QC Ma

Page 1 of 1 *laboratory analysis.*

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



GHS safety information

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

Uncertainty reported for statistical confidence.

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

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Visit our website for the latest New Products
www.accustandard.com

Reference Information

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.

Chlorobiphenyl Congeners (PCBs)

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

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PCBs

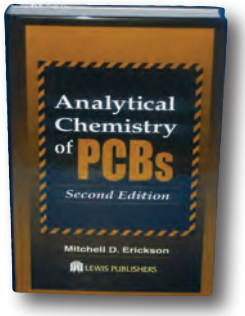
Technical Literature

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

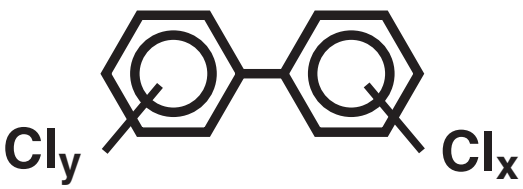


Analytical Chemistry of PCBs

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	**209 x 1 mL**
C-100-SET	100 µg/mL in Isooctane	**209 x 1 mL**

Purity 99+%

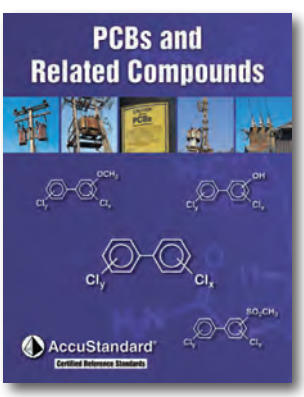
Other solvents, concentrations and quantities are available upon request.

Chlorobiphenyl Congeners (PCBs)

			NEAT		SOLUTION			
					35 µg/mL	1 mL	100 µg/mL	1 mL
No.	**Compound**	**CAS No.**	**Cat. No.**	**Unit**	**Cat. No.**		**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

PCBs

Chlorobiphenyl Congeners (PCBs)

No.	Compound	CAS No.	NEAT Cat. No.	NEAT Unit	SOLUTION 35 µg/mL 1 mL Cat. No.	SOLUTION 100 µg/mL 1 mL Cat. No.
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

Chlorobiphenyl Congeners (PCBs)
continued on next page

Chlorobiphenyl Congeners (PCBs)

Chlorobiphenyl Congeners (PCBs)

No.	Compound	CAS No.	NEAT Cat. No.	NEAT Unit	SOLUTION 35 µg/mL 1 mL Cat. No.	SOLUTION 100 µg/mL 1 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-Pentachlorobiphenyl	76842-07-4	C-122N	5 mg	C-122S	C-122S-TP
123	2',3,4,4',5-Pentachlorobiphenyl	65510-44-3	C-123N	5 mg	C-123S	C-123S-TP
124	2',3,4,5,5'-Pentachlorobiphenyl	70424-70-3	C-124N	5 mg	C-124S	C-124S-TP
125	2',3,4,5,6'-Pentachlorobiphenyl	74472-39-2	C-125N	5 mg	C-125S	C-125S-TP
126	3,3',4,4',5-Pentachlorobiphenyl	57465-28-8	C-126N	5 mg	C-126S	C-126S-TP
127	3,3',4,5,5'-Pentachlorobiphenyl	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

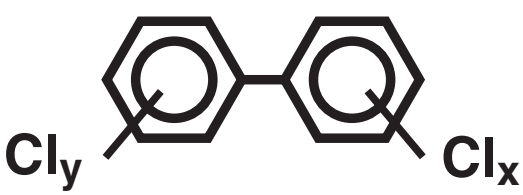
Significant discounts are available on larger quantities of selected congeners.

Chlorobiphenyl Congeners (PCBs)

Purity 99+% | **NEATS as stated, SOLUTIONS in Isooctane**

Chlorobiphenyl Congeners (PCBs)

No.	Compound	CAS No.	NEAT Cat. No.	NEAT Unit	SOLUTION 35 µg/mL 1 mL Cat. No.	SOLUTION 100 µg/mL 1 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',3,3',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



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 — **1 x 1 mL**

At stated conc. (µg/mL) in Isooctane — 83 comps.

2	3-Chlorobiphenyl	2.5	120	2,3',4,5,5'-Pentachlorobiphenyl	5.0
10	2,6-Dichlorobiphenyl	2.5	124	2',3,4,5,5'-Pentachlorobiphenyl	5.0
9	2,5-Dichlorobiphenyl	2.5	106	2,3,3',4,5-Pentachlorobiphenyl	5.0
6	2,3'-Dichlorobiphenyl	2.5	122	2',3,3',4,5-Pentachlorobiphenyl	5.0
8	2,4'-Dichlorobiphenyl	2.5	105	2,3,3',4,4'-Pentachlorobiphenyl	5.0
14	3,5-Dichlorobiphenyl	2.5	127	3,3',4,5,5'-Pentachlorobiphenyl	5.0
11	3,3'-Dichlorobiphenyl	2.5	152	2,2',3,5,6,6'-Hexachlorobiphenyl	5.0
30	2,4,6-Trichlorobiphenyl	2.5	136	2,2',3,3',6,6'-Hexachlorobiphenyl	5.0
27	2,3',6-Trichlorobiphenyl	2.5	148	2,2',3,4',5,6'-Hexachlorobiphenyl	5.0
32	2,4',6-Trichlorobiphenyl	2.5	151	2,2',3,5,5',6-Hexachlorobiphenyl	5.0
34	2',3,5-Trichlorobiphenyl	2.5	144	2,2',3,4,5',6-Hexachlorobiphenyl	5.0
26	2,3',5-Trichlorobiphenyl	2.5	143	2,2',3,4,5,6'-Hexachlorobiphenyl	5.0
31	2,4',5-Trichlorobiphenyl	2.5	142	2,2',3,4,5,6-Hexachlorobiphenyl	5.0
33	2',3,4-Trichlorobiphenyl	2.5	133	2,2',3,3',5,5'-Hexachlorobiphenyl	5.0
36	3,3',5-Trichlorobiphenyl	2.5	161	2,3,3',4,5',6-Hexachlorobiphenyl	5.0
38	3,4,5-Trichlorobiphenyl	2.5	153	2,2',4,4',5,5'-Hexachlorobiphenyl	5.0
35	3,3',4-Trichlorobiphenyl	2.5	130	2,2',3,3',4,5'-Hexachlorobiphenyl	5.0
50	2,2',4,6-Tetrachlorobiphenyl	5.0	129	2,2',3,3',4,5-Hexachlorobiphenyl	5.0
45	2,2',3,6-Tetrachlorobiphenyl	5.0	166	2,3,4,4',5,6-Hexachlorobiphenyl	5.0
52	2,2',5,5'-Tetrachlorobiphenyl	5.0	159	2,3,3',4,5,5'-Hexachlorobiphenyl	5.0
49	2,2',4,5'-Tetrachlorobiphenyl	5.0	167	2,3',4,4',5,5'-Hexachlorobiphenyl	5.0
75	2,4,4',6-Tetrachlorobiphenyl	5.0	156	2,3,3',4,4',5-Hexachlorobiphenyl	5.0
41	2,2',3,4-Tetrachlorobiphenyl	5.0	179	2,2',3,3',5,6,6'-Heptachlorobiphenyl	5.0
72	2,3',5,5'-Tetrachlorobiphenyl	5.0	176	2,2',3,3',4,6,6'-Heptachlorobiphenyl	5.0
57	2,3,3',5-Tetrachlorobiphenyl	5.0	178	2,2',3,3',5,5',6-Heptachlorobiphenyl	5.0
63	2,3,4',5-Tetrachlorobiphenyl	5.0	175	2,2',3,3',4,5',6-Heptachlorobiphenyl	5.0
66	2,3',4,4'-Tetrachlorobiphenyl	5.0	183	2,2',3,4,4',5',6-Heptachlorobiphenyl	5.0
79	3,3',4,5'-Tetrachlorobiphenyl	5.0	177	2,2',3,3',4',5,6-Heptachlorobiphenyl	5.0
78	3,3',4,5-Tetrachlorobiphenyl	5.0	171	2,2',3,3',4,4',6-Heptachlorobiphenyl	5.0
81	3,4,4',5-Tetrachlorobiphenyl	5.0	172	2,2',3,3',4,5,5'-Heptachlorobiphenyl	5.0
96	2,2',3,6,6'-Pentachlorobiphenyl	5.0	191	2,3,3',4,4',5',6-Heptachlorobiphenyl	5.0
103	2,2',4,5',6-Pentachlorobiphenyl	5.0	170	2,2',3,3',4,4',5-Heptachlorobiphenyl	5.0
95	2,2',3,5',6-Pentachlorobiphenyl	5.0	190	2,3,3',4,4',5,6-Heptachlorobiphenyl	5.0
88	2,2',3,4,6-Pentachlorobiphenyl	5.0	201	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	7.5
89	2,2',3,4,6'-Pentachlorobiphenyl	5.0	204	2,2',3,4,4',5,6,6'-Octachlorobiphenyl	7.5
92	2,2',3,5,5'-Pentachlorobiphenyl	5.0	200	2,2',3,3',4,5,6,6'-Octachlorobiphenyl	7.5
113	2,3,3',5',6-Pentachlorobiphenyl	5.0	198	2,2',3,3',4,5,5',6-Octachlorobiphenyl	7.5
83	2,2',3,3',5-Pentachlorobiphenyl	5.0	196	2,2',3,3',4,4',5,6'-Octachlorobiphenyl	7.5
119	2,3',4,4',6-Pentachlorobiphenyl	5.0	195	2,2',3,3',4,4',5,6-Octachlorobiphenyl	7.5
87	2,2',3,4,5'-Pentachlorobiphenyl	5.0	194	2,2',3,3',4,4',5,5'-Octachlorobiphenyl	7.5
85	2,2',3,4,4'-Pentachlorobiphenyl	5.0	207	2,2',3,3',4,4',5,6,6'-Nonachlorobiphenyl	7.5
82	2,2',3,3',4-Pentachlorobiphenyl	5.0			

PCB Congener Mix #3

M-1668A-3-0.01X — **1 x 1 mL**

At stated conc. (µg/mL) in Isooctane — 29 comps.

13	3,4'-Dichlorobiphenyl	2.5	86	2,2',3,4,5-Pentachlorobiphenyl	5.0
17	2,2',4-Trichlorobiphenyl	2.5	116	2,3,4,5,6-Pentachlorobiphenyl	5.0
29	2,4,5-Trichlorobiphenyl	2.5	107	2,3,3',4',5-Pentachlorobiphenyl	5.0
20	2,3,3'-Trichlorobiphenyl	2.5	154	2,2',4,4',5,6'-Hexachlorobiphenyl	5.0
46	2,2',3,6'-Tetrachlorobiphenyl	5.0	147	2,2',3,4',5,6-Hexachlorobiphenyl	5.0
65	2,3,5,6-Tetrachlorobiphenyl	5.0	140	2,2',3,4,4',6'-Hexachlorobiphenyl	5.0
59	2,3,3',6-Tetrachlorobiphenyl	5.0	146	2,2',3,4',5,5'-Hexachlorobiphenyl	5.0
40	2,2',3,3'-Tetrachlorobiphenyl	5.0	141	2,2',3,4,5,5'-Hexachlorobiphenyl	5.0
67	2,3',4,5-Tetrachlorobiphenyl	5.0	164	2,3,3',4',5',6-Hexachlorobiphenyl	5.0
76	2',3,4,5-Tetrachlorobiphenyl	5.0	158	2,3,3',4,4',6-Hexachlorobiphenyl	5.0
80	3,3',5,5'-Tetrachlorobiphenyl	5.0	182	2,2',3,4,4',5,6'-Heptachlorobiphenyl	5.0
93	2,2',3,5,6-Pentachlorobiphenyl	5.0	174	2,2',3,3',4,5,6'-Heptachlorobiphenyl	5.0
84	2,2',3,3',6-Pentachlorobiphenyl	5.0	173	2,2',3,3',4,5,6-Heptachlorobiphenyl	5.0
101	2,2',4,5,5'-Pentachlorobiphenyl	5.0	193	2,3,3',4',5,5',6-Heptachlorobiphenyl	5.0
112	2,3,3',5,6-Pentachlorobiphenyl	5.0			

PCB Congener Mix #2

M-1668A-2-0.01X — **1 x 1 mL**

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

Method 1668A/1668 Combined Congener Standards

M-1668A-C-NT-LOC-WD — **1 x 1 mL**

M-1668A-C-NT-LOC-WD-PAK — ***SAVE*** — **5 x 1 mL**

20 µg/mL each in Isooctane — 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',4,5,5',6,6'-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 — **1 x 10 mL**

At stated conc. (mg/mL) in CH_2Cl_2 — 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 — **2 x 1 mL**

M-1668A-NAT, M-1668A-PAR

Technical Note

Determination of Chlorobiphenyl content at each level of chlorination

Native PCB Calibration Mix

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 — **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',4,5,5',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

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

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.

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	2,3',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).

PCB Congener Mix for West Coast Fish Studies

C-WCFS **1 x 1 mL**
25 µg/mL each in Isooctane 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 **1 x 1 mL**
C-WNN-PAK ***SAVE*** **5 x 1 mL**
10 µg/mL each in Isooctane 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 **1 x 1 mL**
2.0 µg/mL each in Isooctane 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 **1 x 1 mL**
M-002-PAK ***SAVE*** **5 x 1 mL**
At stated conc. (µg/mL) in Hexane 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 **1 x 1 mL**
10 µg/mL each in Isooctane 15 comps.
PCB-W22-PAK ***SAVE*** **5 x 1 mL**

PCB-W22-SET **15 x 1 mL**
Each at 100 µg/mL in Isooctane

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 Europeen 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-DIOXLIK-02, C-DIOXLIK-04, C-DIOXLIK-06, C-DIOXLIK-08, C-DIOXLIK-10

C-DIOXLIK2-SET **5 x 1 mL**
C-DIOXLIK-03, C-DIOXLIK-05, C-DIOXLIK-07, C-DIOXLIK-09, C-DIOXLIK-11

C-DIOXLIK3-SET **5 x 1 mL**
C-DIOXLIK-04, C-DIOXLIK-06, C-DIOXLIK-08, C-DIOXLIK-10, C-DIOXLIK-12

Individual Levels 4, 6, 8, 10, 12

C-DIOXLIK3-04	**1 mL**
C-DIOXLIK3-06	**1 mL**
C-DIOXLIK3-08	**1 mL**
C-DIOXLIK3-10	**1 mL**
C-DIOXLIK3-12	**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 ¤
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 #4

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

13	3,4'-Dichlorobiphenyl
14	3,5-Dichlorobiphenyl ¤
35	3,3',4-Trichlorobiphenyl
51	2,2',4,6'-Tetrachlorobiphenyl
53	2,2',5,6'-Tetrachlorobiphenyl
54	2,2',6,6'-Tetrachlorobiphenyl ¤
73	2,3',5',6-Tetrachlorobiphenyl ¤
75	2,4,4',6-Tetrachlorobiphenyl
81	3,4,4',5-Tetrachlorobiphenyl ¤
90	2,2',3,4',5-Pentachlorobiphenyl ¤
100	2,2',4,4',6-Pentachlorobiphenyl ¤
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 ¤
163	**2,3,3',4',5,6-Hexachlorobiphenyl**
165	2,3,3',5,5',6-Hexachlorobiphenyl ¤
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 #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 #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 ¤
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

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 ¤
92	2,2',3,5,5'-Pentachlorobiphenyl
93	2,2',3,5,6-Pentachlorobiphenyl ¤
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 ¤
208	2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl
209	Decachlorobiphenyl ¤

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

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 ¤

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		

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 ¤

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

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-d_{12} Phenanthrene-d_{10}

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

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 CH_2Cl_2

Decafluorotriphenylphosphine (DFTPP)

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

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-d_{12}

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

EPA 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 — 19 comps.

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 — 19 comps.

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 — 2 comps.

Decachlorobiphenyl — Tetrachloro-*m*-xylene

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-*m*-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-*m*-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-*m*-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 — 2 comps.

Decachlorobiphenyl — Tetrachloro-*m*-xylene

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-*m*-xylene

Aroclors
(Industrial PCBs)

Aroclors

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

Aroclor #	Isooctane 35 µg/mL 1 mL	SAVE PAK 5 x 1 mL	Isooctane 100 µg/mL 1 mL	Methanol 35 µg/mL 1 mL	SAVE PAK 5 x 1 mL	Methanol 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 100 µg/mL 1 mL	Hexane 1000 µg/mL 1 mL	SAVE PAK 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	----------	----------

Aroclor-free Transformer Oil

T-W130 **1 x 1 mL**

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 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

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.

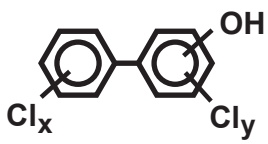
3,3',4,4'-Tetrabromobiphenyl is used as an Internal Standard to identify and quantify the coplanar components of Aroclors [1].

(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 Cat. No.	Unit	100 µg/mL in Isooctane 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'-tetrachlorobipheny		----------	----------	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.

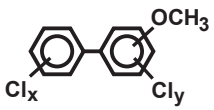
The problem with these newly found pollutants is that they are not commercial chemicals. This means that they are not readily available as reference materials. Not having a reference material makes the identification and quantification of these materials extremely difficult. In order to support the research 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

Methoxy PCBs

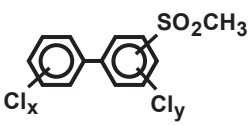
Compound	Cat. No.	100 µg/mL in Isooctane 1 mL
2-Methoxy-5-chlorobiphenyl	MOPCB-1001S	
4-Methoxy-2-chlorobiphenyl	MOPCB-1002S	
4-Methoxy-3-chlorobiphenyl	MOPCB-1003S	
4-Methoxy-4'-chlorobiphenyl	MOPCB-1004S	
2-Methoxy-3-chlorobiphenyl	MOPCB-1005S	
3-Methoxy-5-chlorobiphenyl	MOPCB-1006S	
2-Methoxy-3'-chlorobiphenyl	MOPCB-1007S	
3-Methoxy-3'-chlorobiphenyl	MOPCB-1008S	
4-Methoxy-3'-chlorobiphenyl	MOPCB-1009S	
2-Methoxy-2',5'-dichlorobipheny	MOPCB-2001S	
3-Methoxy-2',5'-dichlorobiphenyl	MOPCB-2002S	
4-Methoxy-2',5'-dichlorobiphenyl	MOPCB-2003S	
4-Methoxy-3,5-dichlorobiphenyl	MOPCB-2004S	
2-Methoxy-2',3'-dichlorobiphenyl	MOPCB-2005S	
2-Methoxy-3',4'-dichlorobiphenyl	MOPCB-2006S	
2-Methoxy-2',4',6'-trichlorobiphenyl	MOPCB-3001S	
2-Methoxy-2',5,5'-trichlorobiphenyl	MOPCB-3002S	
3-Methoxy-2',4',6'-trichlorobiphenyl	MOPCB-3003S	
4-Methoxy-2,2',5'-trichlorobiphenyl	MOPCB-3004S	
4-Methoxy-2',3,5'-trichlorobiphenyl	MOPCB-3005S	
4-Methoxy-2',4',6'-trichlorobiphenyl	MOPCB-3006S	

Compound	Cat. No.	100 µg/mL in Isooctane, * at 50 µg/mL, 1 mL
2-Methoxy-2',3',4',5'-tetrachlorobiphenyl	MOPCB-4001S	
2-Methoxy-2',3',5',6'-tetrachlorobiphenyl	MOPCB-4002S	
2-Methoxy-2',4',5,6'-tetrachlorobiphenyl	MOPCB-4003S	
3-Methoxy-2',3',4',5'-tetrachlorobiphenyl	MOPCB-4004S	
3-Methoxy-2',3',5',6'-tetrachlorobiphenyl	MOPCB-4005S	
4-Methoxy-2',3',4',5'-tetrachlorobiphenyl	MOPCB-4007S	
4-Methoxy-2',3,4',6'-tetrachlorobiphenyl	MOPCB-4008S	
4-Methoxy-2',3,5,5'-tetrachlorobiphenyl	MOPCB-4009S	
4-Methoxy-2',3',5',6'-tetrachlorobiphenyl	MOPCB-4010S	
3-Methoxy-2,2',6,6'-tetrachlorobiphenyl	MOPCB-4012S-0.5X *	
2-Methoxy-2',3',4',5,5'-pentachlorobiphenyl	MOPCB-5001S	
2-Methoxy-2',3',5,5',6'-pentachlorobiphenyl	MOPCB-5002S	
4-Methoxy-2,2',3',4',5'-pentachlorobiphenyl	MOPCB-5003S	
4-Methoxy-2,2',3',5',6'-pentachlorobiphenyl	MOPCB-5004S	
4-methoxy-2',3,4',5,6'-pentachlorobiphenyl	MOPCP-5007S	
4-Methoxy-2,2',4',5,5'-pentachlorobiphenyl	MOPCB-5009S	
2-Methoxy-2',3,4',5',6-pentachlorobiphenyl	MOPCB-5010S	
4-Methoxy-2',3,3',4',5,5'-hexachlorobiphenyl	MOPCB-6001S	
5-Methoxy-2,2',3,4,4',5'-hexachlorobiphenyl	MOPCB-6003S	
4'-Methoxy-2,2',3,3',4,5,5'-heptachlorobiphenyl	MOPCB-7001S-0.5X *	
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	

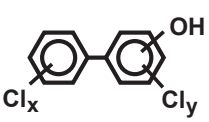


Technical Note

Only the 3- and 4-MeSO$_2$-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 Cat. No.	Unit	100 µg/mL in MeOH 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 enviromental impact of these pollutants.

Polychlorinated Terphenyls (PCTs)

Compound	CAS No.	NEAT Cat. No.	Unit	In Toluene Conc.	Cat. No.	1 mL
o-Terphenyl	84-15-1	T-001N	100 mg	------	----	--
m-Terphenyl	92-06-8	T-002N	100 mg	------	----	--
p-Terphenyl	92-94-4	T-003N	100 mg	------	----	--
Tetradecachloro-*o*-terphenyl		------	----------	35 µg/mL	T-004S	
Tetradecachloro-*m*-terphenyl	42429-88-9	------	----------	35 µg/mL	T-005S	
Tetradecachloro-*p*-terphenyl		------	----------	35 µg/mL	T-006S	
4-Chloro-*o*-terphenyl		------	----------	50 µg/mL	T-007S	
4-Chloro-*p*-terphenyl	1762-83-0	------	----------	50 µg/mL	T-008S	
2,4-Dichloro-*p*-terphenyl	61576-83-8	------	----------	50 µg/mL	T-009S	
2,5-Dichloro-*o*-terphenyl	61577-02-4	------	----------	50 µg/mL	T-010S	
2,5-Dichloro-*m*-terphenyl		------	----------	50 µg/mL	T-011S	
2,5-Dichloro-*p*-terphenyl	61576-86-1	------	----------	50 µg/mL	T-012S	
2,4,6-Trichloro-*p*-terphenyl	57346-61-9	------	----------	50 µg/mL	T-013S	
2,3,5,6-Tetrachloro-*p*-terphenyl	61576-99-6	------	----------	50 µg/mL	T-014S	
2,4,4",6-Tetrachloro-*p*-terphenyl	61576-97-4	------	----------	50 µg/mL	T-015S	
2,3,4,5,6-Pentachloro-*p*-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-*p*-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 p,p'-DDE		------	----------	35 µg/mL	PC-002S	
Tetradecachloro-*o*-terphenyl		------	----------	35 µg/mL	T-004S	
Tetradecachloro-*m*-terphenyl	42429-88-9	------	----------	35 µg/mL	T-005S	
Tetradecachloro-*p*-terphenyl		------	----------	35 µg/mL	T-006S	

Halogenated Aromatics (other than PCBs)

Compound	CAS No.	Conc	Matrix	Cat. No.	1 mL
Decafluorobiphenyl	434-90-2	10 µg/mL	Acetone	M-551.1-SS	
		0.1 mg/mL	AcCN	M-8310-SS	
		0.2 mg/mL	CH_2Cl_2	M-625-04	
		1 mg/mL	Acetone	M-551.1-SS-100X	
		2 mg/mL	CH_2Cl_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_2Cl_2	M-625-05	
		1 mg/mL	Acetone	M-8111-IS-20X	
		2 mg/mL	CH_2Cl_2	M-625-05-10X	
4,4'-Dibromooctafluorobiphenyl	10386-84-2	0.2 mg/mL	CH_2Cl_2	M-625-06	
		2 mg/mL	CH_2Cl_2	M-625-06-10X	
2,2'-Difluorobiphenyl	388-82-9	0.2 mg/mL	CH_2Cl_2	M-625-07	
		1 mg/mL	MeOH	M-1653-IIS	
		2 mg/mL	CH_2Cl_2	M-625-07-10X	
		5 mg/mL	Acetone	M-1653-IIS-R	
2-Fluorobiphenyl	321-60-8	0.2 mg/mL	CH_2Cl_2	M-625-09	
		2 mg/mL	CH_2Cl_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-Dichorodiphenyl 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 Cat. No.	Conc.	Solvent	1 mL
1-Chlorodibenzo-*p*-dioxin	39227-53-7	D-101N	25 mg	D-101S	50 µg/mL	Isooctane	
2-Chlorodibenzo-*p*-dioxin	39227-54-8	D-102N	50 mg	D-102S	50 µg/mL	Isooctane	
Dibenzo-*p*-dioxin	262-12-4	D-100N	10 mg	D-100S	50 µg/mL	Isooctane	
1,2-Dichlorodibenzo-*p*-dioxin		------	----------	D-207S	50 µg/mL	Isooctane	
1,3-Dichlorodibenzo-*p*-dioxin		D-205N	10 mg	D-205S	50 µg/mL	Isooctane	
1,4-Dichlorodibenzo-*p*-dioxin		D-206N	10 mg	D-206S	50 µg/mL	Isooctane	
1,6-Dichlorodibenzo-*p*-dioxin	38178-38-0	D-201N	5 mg	D-201S	50 µg/mL	Isooctane	
2,3-Dichlorodibenzo-*p*-dioxin	29446-15-9	D-202N	5 mg	D-202S	50 µg/mL	Isooctane	
2,7-Dichlorodibenzo-*p*-dioxin	33857-26-0	D-203N	25 mg	D-203S	50 µg/mL	Isooctane	
2,8-Dichlorodibenzo-*p*-dioxin	38964-22-6	------	----------	D-204S	50 µg/mL	Isooctane	
1,2,3-Trichlorodibenzo-*p*-dioxin	54536-17-3	D-301N	5 mg	D-301S	50 µg/mL	Isooctane	
1,2,4-Trichlorodibenzo-*p*-dioxin	39227-58-2	D-302N	10 mg	D-302S	50 µg/mL	Isooctane	
1,7,8-Trichlorodibenzo-*p*-dioxin	82306-65-8	D-303N	5 mg	D-303S	50 µg/mL	Isooctane	
2,3,7-Trichlorodibenzo-*p*-dioxin	33857-28-2	D-304N	5 mg	D-304S	50 µg/mL	Isooctane	
1,2,3,4-Tetrachlorodibenzo-*p*-dioxin	30746-58-8	D-401N	50 mg	D-401S	50 µg/mL	Toluene	
1,2,7,8-Tetrachlorodibenzo-*p*-dioxin	34816-53-0	D-402N	5 mg	D-402S	50 µg/mL	Toluene	
1,3,7,8-Tetrachlorodibenzo-*p*-dioxin	50585-46-1	D-403N	5 mg	D-403S	50 µg/mL	Toluene	
2,3,7,8-Tetrachlorodibenzo-*p*-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-*p*-dioxin	33423-92-6	D-405N	5 mg	D-405S	50 µg/mL	Toluene	
1,2,8,9-Tetrachlorodibenzo-*p*-dioxin	116889-69-1	D-406N	5 mg	D-406S	50 µg/mL	Toluene	
1,3,7,9-Tetrachlorodibenzo-*p*-dioxin	116889-70-4	D-407N	5 mg	D-407S	50 µg/mL	Toluene	
1,2,6,8-Tetrachlorodibenzo-*p*-dioxin	67323-56-2	D-408N	1 mg	D-408S	50 µg/mL	Toluene	
1,2,6,7-Tetrachlorodibenzo-*p*-dioxin	41903-57-5	D-409N	5 mg	D-409S	50 µg/mL	Toluene	
1,2,3,4,7-Pentachlorodibenzo-*p*-dioxin	39227-61-7	D-503N	1 mg	D-503S	50 µg/mL	Toluene	
1,2,3,7,8-Pentachlorodibenzo-*p*-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-*p*-dioxin	71925-18-3	D-504N	1 mg	D-504S	50 µg/mL	Toluene	
1,2,4,7,8-Pentachlorodibenzo-*p*-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-*p*-dioxin	71998-76-0/ 82291-37-0	D-505N	1 mg	D-505S	50 µg/mL	Toluene	
1,2,3,4,6,7-Hexachlorodibenzo-*p*-dioxin	58200-66-1	D-603N	1 mg	D-603S	50 µg/mL	Toluene	
1,2,3,4,7,8-Hexachlorodibenzo-*p*-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-*p*-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-*p*-dioxin	39227-62-8/ 58802-09-8	D-604N	1 mg	D-604S	50 µg/mL	Toluene	
1,2,3,7,8,9-Hexachlorodibenzo-*p*-dioxin	19408-74-3	D-605N	1 mg	D-605S	50 µg/mL	Toluene	
1,2,3,4,6,7,8-Heptachlorodibenzo-*p*-dioxin	35822-46-9	D-701N	1 mg	D-701S	50 µg/mL	Toluene	
1,2,3,4,6,7,9-Heptachlorodibenzo-*p*-dioxin	58200-70-7	D-702N	5 mg	D-702S	50 µg/mL	Toluene	
Octachlorodibenzo-*p*-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-*p*-dioxin	BDD-301S	10 µg/mL	Toluene	
	BDD-301S-2.5X	25 µg/mL	Toluene	
1,3,8-Tribromodibenzo-*p*-dioxin	BDD-302S	10 µg/mL	Toluene	
	BDD-302S-2.5X	25 µg/mL	Toluene	
2,3,7-Tribromodibenzo-*p*-dioxin	BDD-303S	10 µg/mL	Toluene	
	BDD-303S-2.5X	25 µg/mL	Toluene	
1,2,3,7-Tetrabromodibenzo-*p*-dioxin	BDD-401S	10 µg/mL	Toluene	
	BDD-401S-2.5X	25 µg/mL	Toluene	
1,2,3,8-Tetrabromodibenzo-*p*-dioxin	BDD-402S	10 µg/mL	Toluene	
	BDD-402S-2.5X	25 µg/mL	Toluene	
Tetrabromodibenzo-*p*-dioxin-Mixed Isomers 1,2,4,7-Tretrabromodibenzo-*p*-dioxin / 1,2,4,8-Tretrabromodibenzo-*p*-dioxin	BDD-403S	10 µg/mL	Toluene	
	BDD-403S-2.5X	25 µg/mL	Toluene	
1,2,3,4-Tetrabromodibenzo-*p*-dioxin	BDD-404S	10 µg/mL	Toluene	
	BDD-404S-2.5X	25 µg/mL	Toluene	
2,3,7,8-Tetrabromodibenzo-*p*-dioxin	X-001	1 mg	NEAT	

Chlorodibenzo-p-dioxin Congeners

Canadian Method, Method 1613, 8280

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 — ***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**
M-8280-CPC-PAK — ***SAVE*** — **5 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

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 — ***SAVE*** — **5 x 1 mL**
At stated conc. (ng/mL) in Nonane — 17 comps.

Calibration Set

M-1613-CAL-SET — **5 x 1 mL**

M-1613-CAL	-01	-02	-03	-04	-05
2,3,7,8-Tetrachlorodibenzo-*p*-dioxin	0.5	2	10	**40**	200
2,3,7,8-Tetrachlorodibenzofuran	0.5	2	10	**40**	200
1,2,3,7,8-Pentachlorodibenzo-*p*-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-*p*-dioxin	2.5	10	50	**200**	1000
1,2,3,6,7,8-Hexachlorodibenzo-*p*-dioxin	2.5	10	50	**200**	1000
1,2,3,7,8,9-Hexachlorodibenzo-*p*-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-*p*-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-*p*-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 Cat. No.	Conc.	Solvent	1 mL
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	

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 — 5 comps.

- 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 — 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-*p*-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-*o*-toluidine	7477-94-3	X-002	10 mg
1,4-Dioxino(2,3,b,5,6,b')dipyridine (Dipyridine analog of dibenzo-*p*-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-*p*-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

Flame Retardant Standards

Table of Contents

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

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	

Technical Note

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

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',3,4,4'-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	

This guide includes chemical structures, formulas, and molecular weights.

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PBDE Congeners continued on next page

Polybrominated Diphenyl Ether (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'-Cl-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 2,4,4'-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 2,4,4'-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 2,4,4'-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 /sooctane 9 comps.

28 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 2,4,4'-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'-Hexabromobiphenyl

Calibration Curve

ISO/DIS 22032 Calibration Curve Set

ISO/DIS-22032-SET **7 x 1 mL**

At stated conc. (ng/mL) in Isooctane 8 comps. each

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

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

PBDEs Standard Solution for Accuracy and Precision

		BDE-AAP-A 1 mL	BDE-AAP-A-15X 1 mL
At stated conc. in Isooctane	39 comps.	(ng/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

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',4,5',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	Isooctane	MOBDE-7005S-TP	
4'-MeO-BDE-201	4'-Methoxy-2,2',3,3',4,5',6,6'-octabromodiphenyl ether	50 µg/mL	MeOH	MOBDE-8001S	

Mixed Bromo/Chloro Hydroxylated Diphenyl Ethers

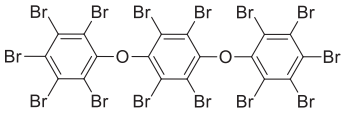
The abundance of PBDEs in the environment led to the increased detection of hydroxylated PBDEs (OH-PBDEs) as well as their chlorinated derivatives (OH-PBCDEs), especially in aquatic environments.

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	HCBDE-4001S-0.5X	
	50 µg/mL	AcCN	HCBDE-4001S	
3,5-Dichloro-6-hydroxy-2,2',4,4'-tetrabromodiphenyl ether (3,5-Cl2-6-OH-BDE-047)	25 µg/mL	AcCN	HCBDE-4002S-0.5X	
	50 µg/mL	AcCN	HCBDE-4002S	
5-Chloro-6-hydroxy-2,2',4,4'-tetrabromodiphenyl ether (5-Cl-6-OH-BDE-047)	25 µg/mL	AcCN	HCBDE-4003S-0.5X	
	50 µg/mL	AcCN	HCBDE-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

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 ^{13}C 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 µg/mL	Toluene	HXBCD-01	
β-Hexabromocyclododecane	134237-51-7	100 µg/mL	Toluene	HXBCD-02	
γ-Hexabromocyclododecane	134237-52-8	100 µg/mL	Toluene	HXBCD-03	
HBCD SP-75C (Great Lakes)	3194-55-6	10 mg	NEAT	FRS-028N	
		100 µg/mL	Toluene	FRS-028S	

Dechlorane Plus Isomers

Compound	CAS No.	Conc.	Matrix	Cat. No.	1 mL
Dechlorane Plus "Anti"	135821-74-8	50 µg/mL	Toluene	FRS-061S-0.5X	
Dechlorane Plus "Syn"	135821-03-3	50 µg/mL	Toluene	FRS-062S-0.5X	
Dechlorane Plus (Mixed isomers)	13560-89-9	10 mg	NEAT	FRS-033N	
		100 µg/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 µg/mL	Isooctane	B-001S	
		1 mg/mL	Acetone	M-8081-SS-X	
3-Bromobiphenyl	2113-57-7	50 mg	NEAT	B-002N	
		35 µg/mL	Isooctane	B-002S	
4-Bromobiphenyl	92-66-0	50 mg	NEAT	B-003N	
		35 µg/mL	Isooctane	B-003S	
2,2'-Dibromobiphenyl	13029-09-9	10 mg	NEAT	B-004N	
		35 µg/mL	Isooctane	B-004S	
2,4-Dibromobiphenyl	53592-10-2	10 mg	NEAT	B-007N-10MG	
		35 µg/mL	Isooctane	B-007S	
2,5-Dibromobiphenyl	57422-77-2	25 mg	NEAT	B-009N	
		35 µg/mL	Isooctane	B-009S	
2,6-Dibromobiphenyl	59080-32-9	5 mg	NEAT	B-010N-5MG	
		35 µg/mL	Isooctane	B-010S	
4,4'-Dibromobiphenyl	92-86-4	10 mg	NEAT	B-015N	
		35 µg/mL	Isooctane	B-015S	
2,2',5-Tribromobiphenyl	59080-34-1	10 mg	NEAT	B-018N	
		35 µg/mL	Isooctane	B-018S	
2,3',5-Tribromobiphenyl	59080-35-2	10 mg	NEAT	B-026N	
		35 µg/mL	Isooctane	B-026S	
2,4,5-Tribromobiphenyl	115245-07-3	35 µg/mL	Isooctane	B-029S	
2,4,6-Tribromobiphenyl	59080-33-0	25 mg	NEAT	B-030N	
		35 µg/mL	Isooctane	B-030S	
2,4',5-Tribromobiphenyl	59080-36-3	10 mg	NEAT	B-031N	
		35 µg/mL	Isooctane	B-031S	
2,2',4,5'-Tetrabromobiphenyl	60044-24-8	5 mg	NEAT	B-049N-5MG	
		35 µg/mL	Isooctane	B-049S	
2,2',5,5'-Tetrabromobiphenyl	59080-37-4	10 mg	NEAT	B-052N	
		35 µg/mL	Isooctane	B-052S	
2,2',5,6'-Tetrabromobiphenyl	60044-25-9	5 mg	NEAT	B-053N-5MG	
		35 µg/mL	Isooctane	B-053S	
3,3',4,4'-Tetrabromobiphenyl	77102-82-0	35 µg/mL	Isooctane	B-077S	
3,3',5,5'-Tetrabromobiphenyl	16400-50-3	35 µg/mL	Isooctane	B-080S	
2,3,4,4',5-Pentabromobiphenyl	96551-70-1	35 µg/mL	Isooctane	B-114S	
2,2',4,5,5'-Pentabromobiphenyl	67888-96-4	5 mg	NEAT	B-101N	
		35 µg/mL	Isooctane	B-101S	
2,2',4,5',6-Pentabromobiphenyl	59080-39-6	5 mg	NEAT	B-103N	
		35 µg/mL	Isooctane	B-103S	
2,2',3,4,4',5-Hexabromobiphenyl	81381-52-4	35 µg/mL	Isooctane	B-137S	
2,2',3,4,5,5'-Hexabromobiphenyl	120991-47-1	35 µg/mL	Isooctane	B-141S	
2,2',4,4',5,5'-Hexabromobiphenyl	59080-40-9	5 mg	NEAT	B-153N-5MG	
		35 µg/mL	Isooctane	B-153S	
2,2',4,4',6,6'-Hexabromobiphenyl	59261-08-4	5 mg	NEAT	B-155N	
		35 µg/mL	Isooctane	B-155S	
2,3,3',4,4',5-Hexabromobiphenyl	77607-09-1	35 µg/mL	Isooctane	B-156S	
2,3,3',4,5,5'-Hexabromobiphenyl	120991-48-2	35 µg/mL	Isooctane	B-159S	
3,3',4,4',5,5'-Hexabromobiphenyl	60044-26-0	35 µg/mL	Isooctane	B-169S	
2,2',3,4,4',5,5'-Heptabromobiphenyl	67733-52-2	35 µg/mL	Isooctane	B-180S	
2,3,3',4,4',5,5'-Heptabromobiphenyl	88700-06-5	35 µg/mL	Isooctane	B-189S	
2,2',3,3',4,4',5,5'-Octabromobiphenyl	67889-00-3	35 µg/mL	Isooctane	B-194S	
2,2',3,3',4,5',6,6'-Octabromobiphenyl	119264-60-7	35 µg/mL	Isooctane	B-200S	
Decabromobiphenyl	13654-09-6	25 mg	NEAT	B-209N	
		35 µg/mL	Isooctane : Acetone (98:2)	B-209S	

Bromophenols, Bromoanisoles, Chlorinated Diphenyl Ethers

Bromophenols

Compound	CAS No.	Each at 100 µg/mL in Toluene Cat. No.	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.	Each at 50 µg/mL in MeOH Cat. No.	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-Dichorodiphenyl 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

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	FRS-052N	
		100 µg/mL	Toluene	FRS-052S	
Tetrabromobisphenol A	79-94-7	100 mg	NEAT	FRS-074N	
		100 µg/mL	Toluene	FRS-074S	
Tetrabromobisphenol A bis(2,3-dibromopropyl) ether	21850-44-2	50 mg	NEAT	FRS-034N	
		100 µg/mL	Toluene	FRS-034S	
Tetrabromobisphenol A bis(hydroxyethyl) ether	4162-45-2	50 mg	NEAT	FRS-032N	
		100 µg/mL	Toluene	FRS-032S	
Tetrabromobisphenol A bismethyl ether	37853-61-5	10 mg	NEAT	FRS-069N	
		100 µg/mL	Toluene	FRS-069S	
Tetrabromobisphenol A diallyl ether	25327-89-3	10 mg	NEAT	FRS-045N	
		100 µg/mL	Toluene	FRS-045S	
Tetrabromobisphenol S	39635-79-5	10 mg	NEAT	FRS-070N	
		100 µg/mL	AcCN	FRS-070S-CN	
Tetrabromobisphenol S bis(2,3-dibromopropyl) ether	42757-55-1	10 mg	NEAT	FRS-075N	
		100 µg/mL	Toluene	FRS-075S	
1,2,5,6-Tetrabromocyclooctane	3194-57-8	10 mg	NEAT	FRS-068N	
		100 µg/mL	Toluene	FRS-068S	
Tetrabromophthalic acid	13810-83-8	10 mg	NEAT	FRS-065N	
		100 µg/mL	Toluene	FRS-065S	
Tribromoneopentyl alcohol	1522-92-5	10 mg	NEAT	FRS-046N	
		100 µg/mL	Toluene	FRS-046S	
tris(Tribromoneopentyl) phosphate	19186-97-1	10 mg	NEAT	FRS-047N	
		100 µg/mL	Toluene	FRS-047S	
1,2-bis(2,4,6-Tribromophenoxy)ethane	37853-59-1	50 mg	NEAT	FRS-037N	
		100 µg/mL	Toluene	FRS-037S	
2,4,6-tris(2,4,6-Tribromophenoxy)-1,3,5-triazine	25713-60-4	100 µg/mL	Toluene	FRS-049S	
2,4,6-Tribromophenyl allyl ether	3278-89-5	10 mg	NEAT	FRS-043N	
		100 µg/mL	Toluene	FRS-043S	

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

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	

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	
Paroil™ 179-HV	634493-98-4	Chlorinated Paraffin	10 mg	NEAT	FRS-015N	
			100 µg/mL	Toluene	FRS-015S	
Paroil™ 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	
Tripentyl 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, TDCP)	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)dichloroisopentyldiphosphate (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 Quanitites, 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	Benz[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

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-Methylanthracene		610-48-0	H-222N	10 mg	H-222S	
2-Methylanthracene		613-12-7	H-148N	10 mg	H-148S	
9-Methylanthracene		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-Phenylanthracene		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	
Pyrrole		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	

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

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

- 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 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[a]anthracene	CH_2Cl_2	Z-013-04	
Benz[a]pyrene	CH_2Cl_2	Z-013-05	
Benzo[b]fluoranthene	MeOH	Z-013-06	
Benzo[g,h,i]perylene	CH_2Cl_2	Z-013-07	
Benzo[k]fluoranthene	CH_2Cl_2	Z-013-08	
Chrysene	CH_2Cl_2	Z-013-09	
Dibenz[a,h]anthracene	CH_2Cl_2	Z-013-10	
Fluoranthene	CH_2Cl_2	Z-013-11	
Fluorene	MeOH	Z-013-12	
Indeno[1,2,3-cd]pyrene	MeOH	Z-013-13	
Naphthalene	MeOH	Z-013-14	
Phenanthrene (98%)	CH_2Cl_2	Z-013-15	
Pyrene	CH_2Cl_2	Z-013-16	

Z-013-17 **1 x 1 mL**
0.2 mg/mL each in MeOH:CH_2Cl_2 (50:50) 16 comps.

PAH Mix (Quebec Ministry of Environmental)

H-QME-01 **1 x 1 mL**
500 µg/mL each in CH_2Cl_2:Benzene (50:50) 24 comps.

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

Nitro-Polynuclear Aromatic Hydrocarbons

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

Scientists have found Nitro-PAHs in diesel particulates[2], carbon black[3,4] and ambient air particulates[5]. 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 Cat. No.	Unit	100 µg/mL in Toluene SOLUTION 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 Cat. No.	Unit	100 µg/mL in Toluene SOLUTION 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 Cat. No.	Unit	100 µg/mL in Toluene Solution 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 — **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

Nitrogen Containing Compounds

Compound	CAS No.	Conc.	Matrix	Cat. No.	Unit
Azobenzene	103-33-3	2 mg/mL	CH_2Cl_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
Pyridine	110-86-1	100 µg/mL	MeOH	APP-9-186-M	1 mL
		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
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

Pesticide Product Information

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

Catalog Numbers Solvents Key

in Acetone (-A)	in Hexane (-H)	in Toluene (-T)
in Acetonitrile (-CN)	in Isooctane (-TP)	in Water (-W)
in Ethyl acetate (-EA)	in Methyl cellosolve (-MC)	

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
- Oxychlordane and o,p'-Methoxychlor
- Fipronyl sulfone, sulfoxide and desulfinyl
- DDT by-products

Table of Contents

Over 1000 Individual Pesticide Standards

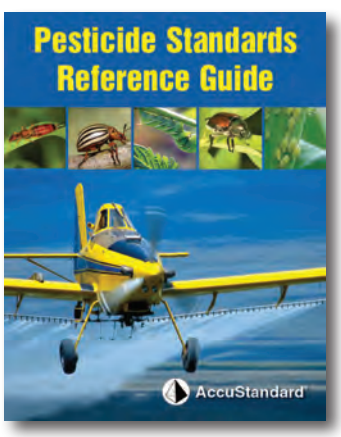
Same Low Price in Neat (10 mg) or Solution (100 µg/mL) form

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



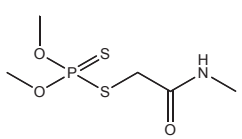
Includes formulations for over 50 EPA and international pesticide methods.

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** $C_5H_{12}NO_3PS_2$ **MW** 229.26 **PS** S
SG 1.31 g/cm^3 **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		Solubility Key (SOL)	
CAS	Chemical Abstract Service Number	**A**	Acetone
		CN	Acetonitrile (AcCN)
MF	Molecular Formula	**D**	Methlyene chloride
MW	Molecular Weight	**DMSO**	Dimethyl sulfoxide
PS	Physical State (Solid, Liquid)	**EA**	Ethyl acetate
		H	Hexane
SOL	Solubility	**IPA**	Isopropanol
SG	Specific Gravity (g/cm^3)	**MeOH**	Methanol
		MC	Methyl cellosolve
MP	Melting Point (°C)	**T**	Toluene
BP	Boiling Point (°C)	**TP**	Isooctane
FP	Flash Point (°C)	**W**	Water

Download Pesticide Standards Reference Guide at AccuStandard.com

Pesticides

Pesticide Standards

Compound	Synonym / CAS No.	Matrix	Cat. No.
AAtrex	see Atrazine		
Abamectin	71751-41-2	NEAT	P-615N
		MeOH	P-615S
Abaphos	see Abate		
Abar	see Leptophos		
Abate	3383-96-8	NEAT	P-101N
		MeOH	P-101S
Abathion	see Abate		
Acalarate	see Chloropropylate		
Acarben	see Chlorobenzilate		
Acclaim	see Fenoxaprop-p-ethyl		
Acephate	30560-19-1	NEAT	P-200N
		Acetone	P-200S-A
Acequinocyl	57960-19-7	NEAT	P-1037N
		AcCN	P-1037S-CN
Acetamiprid	135410-20-7	NEAT	P-820N
		AcCN	P-820S-CN
Acetochlor	34256-82-1	NEAT	P-465N
		MeOH	P-465S
Acibenzolar-S-methyl	135158-54-2	NEAT	P-895N
		MeOH	P-895S
Acifluorfen ✦	50594-66-6	NEAT	P-245N
		MeOH	P-245S
		AcCN	P-245S-CN
Acifluorfen methyl ester	50594-67-7	NEAT	P-246N
		MeOH	P-246S
Aclonifen	74070-46-5	AcCN	P-890S-CN
Acrinathrin	101007-06-1	AcCN	P-842S-CN
Actellic	see Pirimphos methyl ester		
Acti-Aid	see Cycloheximide		
Actosin C	see Chlorophacinone		
Admire	see Imidacloprid		
Afalon	see Linuron		
Affirm	see Abamectin		
Afugan	see Pyrazophos		
Agritox	see Trichloronate		
Agroxone	see MCPA acid		
Aimsan	see Phenthoate		
Akar	see Chlorobenzilate		
Alachlor	15972-60-8	NEAT	P-102N
		MeOH	P-102S
Alanap	132-66-1	NEAT	P-274N
		MeOH	P-274S
Alar	1596-84-5	NEAT	P-174N
		MeOH	P-174S
Albendazole	54965-21-8	NEAT	P-498N
		MeOH	P-498S
Aldicarb	116-06-3	NEAT	P-001N
		MeOH	P-001S
Aldicarb sulfone	1646-88-4	NEAT	P-130N
		MeOH	P-130S
Aldicarb sulfoxide	1646-87-3	NEAT	P-131N ❄
		MeOH	P-131S
Aldoxycarb	see Aldicarb sulfone		
Aldrin	309-00-2	NEAT	P-002N ❖
		MeOH	P-002S
Alfa-tox	see Diazinon		
Allethrin	584-79-2	NEAT	P-267N
		MeOH	P-267S
Allidochlor	93-71-0	NEAT	P-670N
		MeOH	P-670S
Allisan	see Botran		
Altosid	see Methoprene		
Alloxydim-sodium	55635-13-7	NEAT	P-510N
		MeOH	P-510S
Amaze	see Isofenphos		
Ambush	see Permethrine		
Amdro	see Hydramethylnon		
Ametoctradin	865318-97-4	MeOH	P-1039S
Ametryn	834-12-8	NEAT	P-003N
		MeOH	P-003S

Compound	Synonym / CAS No.	Matrix	Cat. No.
Amicarbazone	129909-90-6	AcCN	P-1152S-CN
Amidosulfuron	120923-37-7	NEAT	P-821N
		AcCN	P-821S-CN
Amigol	see Amitrole		
Aminocarb	2032-59-9	NEAT	P-062N
		MeOH	P-062S
Aminomethylphosphonic acid	1066-51-9	NEAT	P-625N
		Water	P-625S-W
Aminopyralid	150114-71-9	NEAT	P-1048N
		MeOH	P-1048S
4-Aminopyridine	504-24-5	NEAT	P-407N
		MeOH	P-407S
Aminotriazole	see Amitrole		
Aminozide	see Alar		
Amiral	see Triadimefon		
Amisulbrom	348635-87-0	MeOH	P-998S
Amitraz	33089-61-1	NEAT	P-409N
		AcCN	P-409S-CN
Amitrole (ATA)	61-82-5	NEAT	P-103N
		MeOH	P-103S
Amizine	see Simazine		
Amizol	see Amitrole		
Ammonium sulfamate	7773-06-0	NEAT	P-530N
		MeOH	P-530S
AMS	see Ammonium sulfamate		
Ancymidol	12771-68-5	NEAT	P-410N
		MeOH	P-410S
Anilazine	101-05-3	NEAT	P-287N
		Hexane	P-287S-H
Anilofos	64249-01-0	AcCN	P-973S-CN
Antiphen	see Dichlorophen		
Apl-Luster	see Thiabendazole		
Aprocarb	see Baygon		
Aracide	see Aramite		
Aracnol F	see Cyhexatin		
Aramite	140-57-8	MeOH	P-132S
A-Rest	see Ancymidol		
Arisan	see Buturon		
Arresin	see Monolinuron		
Aspon	3244-90-4	MeOH	P-309S
Assure	see Quizalofop ethyl		
Asulam	3337-71-1	NEAT	P-276N
		MeOH	P-276S
ATA	see Amitrole		
Athrombine-K	see Warfarin		
Atratol	see Atrazine		
Atraton	see Gesatamin		
Atrazine	1912-24-9	NEAT	P-005N
		MeOH	P-005S
	1000 µg/mL	Acetone	P-005S-A-10X
Atrazine desethyl	6190-65-4	NEAT	P-343N
		MeOH	P-343S
Atrazine-desethyl-desisopropyl	3397-62-4	NEAT	P-428N
		MeOH	P-428S
Atrazine-desethyl-2-hydroxy	19988-24-0	MeOH	P-544S
Atrazine-desisopropyl	1007-28-9	NEAT	P-345N
		MeOH	P-345S
Atrazine-desisopropyl-2-hydroxy	7313-54-4	NEAT	P-344N
		MeOH	P-344S
Avadex	see Diallate		
Avid	see Abamectin		
Axial	see Pinoxaden		
Azaconazole	60207-31-0	NEAT	P-971N
		AcCN	P-971S-CN
Azaditrachtin	11141-17-6	MeOH	P-711S
Azamethiphos	35575-96-3	NEAT	P-352N
		MeOH	P-352S
Azimsulfuron	120162-55-2	50 µg/mL AcCN	P-1036S-CN-0.5X
Azinphos-ethyl	2642-71-9	NEAT	P-201N
		MeOH	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.
Azinphos-methyl	86-50-0	NEAT	P-007N
		MeOH	P-007S
Azocyclotin	41083-11-8	NEAT	P-353N
		MeOH	P-353S
Azoxystrobin	131860-33-8	NEAT	P-719N
		MeOH	P-719S
Banvel	see Dicamba		
Barbamate	101-27-9	NEAT	P-202N
		MeOH	P-202S
Barban	see Barbamate		
Barben	see Azinphos-methyl		
Barnon	52756-22-6	NEAT	P-646N
		MeOH	P-646S
Basagran	see Bentazon		
Basalin	see Fluchloralin		
Basudin	see Diazinon		
Baythroid	see Cyfluthrin		
Baycarb	3766-81-2	NEAT	P-347N
		MeOH	P-347S
Baycor	See Bitertanol		
Bayfidan	see Triadimenol		
Baygon	114-26-1	NEAT	P-009N
		MeOH	P-009S
Bayleton	see Triadimefon		
Bayluscid	see Niclosamide		
Baytan	see Triadimenol		
Baytex	see Fenthion		
Baythion	see Phoxim		
Beam	see Tricyclazole		
Beflubutamid	113614-08-7	NEAT	P-1041N
		MeOH	P-1041S
Benalaxyl	71626-11-4	NEAT	P-559N
		MeOH	P-559S
Benazolin	3813-05-6	NEAT	P-397N
		MeOH	P-397S
Bendiocarb	22781-23-3	NEAT	P-203N
		MeOH	P-203S
Benefin	see Benfluralin		
Benelux	see Thiofanox		
Benfluralin	1861-40-1	NEAT	P-237N
		MeOH	P-237S
Benfuracarb	82560-54-1	NEAT	P-454N
		MeOH	P-454S
Benfuresate	68505-69-1	NEAT	P-1080N
		MeOH	P-1080S
Benlate	see Benomyl		
Benodanil	15310-01-7	NEAT	P-671N
		MeOH	P-671S
Benomyl	17804-35-2	NEAT	P-104N
		AcCN	P-104S-CN ❄
Benoxacor	98730-04-2	NEAT	P-490N
		MeOH	P-490S
Bensulfuron-methyl	83055-99-6	NEAT	P-597N
		MeOH	P-597S
Bensulide	741-58-2	NEAT	P-204N
		MeOH	P-204S
Bensultap	17606-31-4	NEAT	P-678N
		MeOH	P-678S
Bentazon ✦	25057-89-0	NEAT	P-177N
		Acetone	P-177S-A
		AcCN	P-177S-CN
Bentazon methyl	61592-45-8	NEAT	P-241N
		MeOH	P-241S
Benthiavalicarb-isopropyl	177406-68-7	10 µg/mL Acetone	P-1049S-A-0.1X
Benthiocarb	see Thiobencarb		
Benzofuroline	see Resmethrin		
Benzoximate	29104-30-1	AcCN	P-801S-CN
Benzoylprop ethyl	22212-55-1	NEAT	P-340N
		MeOH	P-340S
Betasan	see Bensulide		
Bethrodine	see Benfluralin		
BHC Tech	608-73-1	NEAT	P-081N
		MeOH	P-081S
α-BHC	319-84-6	NEAT	P-010N
		MeOH	P-010S
β-BHC	319-85-7	NEAT	P-011N
		MeOH	P-011S
δ-BHC	319-86-8	NEAT	P-012N
		MeOH	P-012S
γ-BHC	see Lindane		
Bidrin	see Dicrotophos		
Bifenazate	149877-41-8	5 mg	P-772N-5MG
		MeOH	P-772S
Bifenox	42576-02-3	NEAT	P-257N
		MeOH	P-257S
Bifenthrin	82657-04-3	NEAT	P-445N
		MeOH	P-445S
Biflex	see Bifenthrin		
Binapacryl	485-31-4	NEAT	P-499N
		MeOH	P-499S
Bioallethrin	28057-48-9	NEAT	P-665N
		MeOH	P-665S
S-Bioallethrin	28424-00-6	NEAT	P-664N
		MeOH	P-664S
Bioresmethrin	28434-01-7	NEAT	P-594N
		MeOH	P-594S
Bitertanol	55179-31-2	NEAT	P-351N
		MeOH	P-351S
Bitrex	3734-33-6	NEAT	P-679N
		MeOH	P-679S
Bladafum	see Sulfotep		
Bladan	see Parathion		
Blattanex	see Baygon		
Bloc	60168-88-9	NEAT	P-086N
		MeOH	P-086S
B-Nine	see Alar		
Bolero	see Thiobencarb		
Bolstar	35400-43-2	NEAT	P-108N
		MeOH	P-108S
Bonzi	76738-62-0	NEAT	P-669N
		MeOH	P-669S
Boscalid	188425-85-6	NEAT	P-811N
		MeOH	P-811S ❄
Botran	99-30-9	NEAT	P-013N
		MeOH	P-013S
BPMC	see Baycarb		
Bravo	see Chlorothalonil		
Brigade	see Bifenthrin		
Brodifacoum	56073-10-0	NEAT	P-677N
		MeOH	P-677S
Bromacil	314-40-9	NEAT	P-181N
		MeOH	P-181S
Bromadiolone	28772-56-7	NEAT	P-316N
		MeOH	P-316S ❄
Bromex	see Naled		
Brominal	1689-84-5	NEAT	P-256N
		MeOH	P-256S
Bromobutide	74712-19-9	MeOH	P-1059S
Bromofenoxim	13181-17-4	NEAT	P-511N
		MeOH	P-511S
Bromophos-ethyl	4824-78-6	NEAT	P-372N
		MeOH	P-372S
Bromophos-methyl	2104-96-3	NEAT	P-484N
		MeOH	P-484S
Bromopropylate	18181-80-1	NEAT	P-457N
		MeOH	P-457S
Bromoxynil	see Brominal		
Bromoxynil-heptanoate	56634-95-8	MeOH	P-1012S
Bromoxynil methyl ether	3336-39-8	NEAT	P-573N
		MeOH	P-573S

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❄ ColdPAK required to maintain integrity of product.

Pesticides

Pesticide Standards

Compound	Synonym / CAS No.	Matrix	Cat. No.
Bromoxynil octanoate	1689-99-2	NEAT	P-550N
		MeOH	P-550S
Bromuconazol	116255-48-2	NEAT	P-843N
		AcCN	P-843S-CN
Bueno	2163-80-6	NEAT	P-279N
		MeOH	P-279S
Bupirimate	41483-43-6	NEAT	P-672N
		MeOH	P-672S
Buprofezin	69327-76-0	NEAT	P-595N
		MeOH	P-595S
Busan ✦	21564-17-0	AcCN	P-072S-CN
Butachlor	23184-66-9	NEAT	P-191N
		MeOH	P-191S
Butafenacil	134605-64-4	NEAT	P-940N
		MeOH	P-940S
Butisan S	see Metazachlor		
Butocarboxim	34681-10-2	NEAT	P-518N
		MeOH	P-518S
Butocarboxim sulfoxide	34681-24-8	NEAT	P-701N
		MeOH	P-701S
Butoflin	see Deltamethrin		
Butox	see Deltamethrin		
Butoxycarboxim	34681-23-7	NEAT	P-822N
		AcCN	P-822S-CN
Butralin	33629-47-9	NEAT	P-574N
		MeOH	P-574S
Buturon	3766-60-7	NEAT	P-301N
		MeOH	P-301S
Butylate	2008-41-5	NEAT	P-088N
		MeOH	P-088S
Cadusafos	95465-99-9	NEAT	P-794N ❖
		MeOH	P-794S
Calcium arsenate	7778-44-1	NEAT	P-1076N
Calixin	see Tridemorph		
Camphechlor	see Toxaphene		
Caparol	see Prometryne		
Captafol	2425-06-1	NEAT	P-254N
		MeOH	P-254S
Captan	133-06-2	NEAT	P-182N
		MeOH	P-182S ❄
Capture	see Bifenthrin		
Carbamult	see Promecarb		
Carbaryl	63-25-2	NEAT	P-083N
		MeOH	P-083S
Carbendazim	10605-21-7	NEAT	P-278N
		MeOH	P-278S
Carbetamide	16118-49-3	NEAT	P-562N
		MeOH	P-562S
Carbexsin	see Oxycarboxin		
Carbicron	see Dicrotophos		
Carbofuran	1563-66-2	NEAT	P-106N
		MeOH	P-106S
Carbofuran phenol-3-ketone	17781-16-7	MeOH	P-630S
Carbophenothion	786-19-6	NEAT	P-095N
		MeOH	P-095S
Carbophenothion methyl-o-analog		10 µg/mL in EtOAc	P-637S-EA-0.1X
Carbosulfan	55285-14-8	NEAT	P-446N
		MeOH	P-446S
Carboxin	5234-68-4	NEAT	P-216N
		MeOH	P-216S
Carbyne	see Barbamate		
Carfentrazone-ethyl	128639-02-1	AcCN	P-957S-CN ❄
Carpropamid	104030-54-8	AcCN	P-1162S-CN
Cartap	15263-53-3	MeOH	P-577S
Cartap hydrochloride	22042-59-7	NEAT	P-949N
CDEC	see Sulfallate		
Cekumethion	see Methyl parathion		
Chemathion	see Malathion		
Chinomethionate	2439-01-2	NEAT	P-399N
		Acetone	P-399S-A
Chloramben	133-90-4	NEAT	P-243N
		MeOH	P-243S

Compound	Synonym / CAS No.	Matrix	Cat. No.
Chloramben methyl ester	7286-84-2	NEAT	P-272N
		MeOH	P-272S
Chlorantraniliprole	500008-45-7	NEAT	P-952N
		MeOH	P-952S
Chlorbenside	103-17-3	NEAT	P-107N
		MeOH	P-107S
Chlorbromuron	13360-45-7	NEAT	P-520N
		MeOH	P-520S
Chlorbufam	1967-16-4	NEAT	P-558N
		MeOH	P-558S
Chlordane (Tech)	12789-03-6	NEAT	P-017N
		MeOH	P-017S
α-Chlordane	5103-71-9	NEAT	P-134N
		MeOH	P-134S
		Hexane	P-134S-H
γ-Chlordane	5103-74-2	NEAT	P-135N
		MeOH	P-135S
cis-Chlordane	see α-Chlordane		
trans-Chlordane	see γ-Chlordane		
Chlordecone	see Kepone		
Chlordene	3734-48-3	NEAT	P-136N
		MeOH	P-136S
Chlordimeform	6164-98-3	NEAT	P-333N
		MeOH	P-333S
Chlorethoxyfos	54593-83-8	NEAT	P-1017N
		AcCN	P-1017S-CN
Chlorfenac	see Fenatrol		
Chlorfenson	see Ovex		
Chlorfenapyr	122453-73-0	NEAT	P-807N
		MeOH	P-807S
Chlorfenvinphos	470-90-6	NEAT	P-139N ❖
		MeOH	P-139S
Chlorfluazuron	71422-67-8	AcCN	P-771S-CN ❄
Chlorflurecol-methyl ester	2536-31-4	NEAT	P-401N
		MeOH	P-401S
Chlorflurenol	see Chlorflurecol-methyl ester		
Chloridazon	see Pyrazon		
Chlorimuron-ethyl	90982-32-4	AcCN	P-284S-CN
Chlormephos	24934-91-6	NEAT	P-329N
		MeOH	P-329S
Chlormequat chloride	999-81-5	NEAT	P-338N
		MeOH	P-338S
Chlornitrofen	1836-77-7	5 mg	P-816N-5MG
		AcCN	P-816S-CN
Chlorobenzilate ✦	510-15-6	NEAT	P-133N
		AcCN	P-133S-CN
Chloroea	see Monuron		
2-Chloro-2',6'-diethylacetanilide	6967-29-9	NEAT	P-620N
		MeOH	P-620S
2-Chloro-4-ethylamino-6-methylethylamino-s-triazine		NEAT	P-539N
		MC	P-539S-MC
2-Chloro-4-ethylamino-6-propylamino-s-triazine		NEAT	P-537N
	90952-64-0	MC	P-537S-MC
2-Chloro-4-methylamino-6-diethylamino-s-triazine		NEAT	P-541N
		MC	P-541S-MC
2-Chloro-4-methylamino-6-sec-butylamino-s-triazine		NEAT	P-540N
		MC	P-540S-MC
Chloroneb	2675-77-6	NEAT	P-212N
		MeOH	P-212S
Chlorophacinone	3691-35-8	NEAT	P-314N
		MeOH	P-314S
[3(2-Chlorophenyl)]-1,1-dimethylurea	see 2-Monuron		
4-Chlorophenoxyacetic acid	see 4-CPA		
Chloropicrin	76-06-2	NEAT	P-398N ❖❖
		MeOH	P-398S
4-Chloro-2-methylphenol	1570-64-5	NEAT	P-1026N
		MeOH	P-1026S
3-Chloro-1,2-propanediol	96-24-2	NEAT	P-408N
		MeOH	P-408S
2-Chloroethanol	107-07-3	NEAT	P-1079N
		MeOH	P-1079S

❖ 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.
1,1-bis(4-Chlorophenyl)ethylene	2642-81-1	NEAT	P-1054N
		MeOH	P-1054S
Chloropropylate	5836-10-2	NEAT	P-213N
		MeOH	P-213S
Chlorothalonil	1897-45-6	NEAT	P-222N
		MeOH	P-222S
Chlorotoluron	22175-22-0	AcCN	P-1368S-CN
Chloroxuron	1982-47-4	NEAT	P-402N
		MeOH	P-402S
Chlorpropham	101-21-3	NEAT	P-221N
		MeOH	P-221S
Chlorpyrifos	see Dursban		
Chlorpyrifos-methyl	5598-13-0	NEAT	P-223N
		MeOH	P-223S
Chlorpyrifos-oxon	5598-15-2	NEAT	P-700N
		MeOH	P-700S
Chlorsulfuron	64902-72-3	NEAT	P-262N
		AcCN	P-262S-CN
Chlorthal	see DCPA diacid		
Chlorthiamid	1918-13-4	NEAT	P-673N
		MeOH	P-673S
Chlorthion	500-28-7	MeOH	P-674S
Chlorthiophos	60238-56-4	NEAT	P-545N
		MeOH	P-545S
Chlortoluron	15545-48-9	NEAT	P-434N
		MeOH	P-434S
Chlozolinate	84332-86-5	AcCN	P-683S-CN
Cinosulfuron	94593-91-6	NEAT	P-823N
		AcCN	P-823S-CN
Ciodrin	7700-17-6	MeOH	P-218S
CIPC	see Chlorpropham		
Clarity	104040-79-1	H_2O	P-495S-W
Classic	see Chlorimuron-ethyl		
Clethodim	99129-21-2	NEAT	P-602N
		AcCN	P-602S-CN ❄
Clodinafop	114420-56-3	NEAT	P-1009N
		MeOH	P-1009S
Clodinafop-propargyl	105512-06-9	NEAT	P-755N
		AcCN	P-755S-CN
Clofentezine	74115-24-5	NEAT	P-472N
		MeOH	P-472S
Clomazon	81777-89-1	MeOH	P-286S
Clomeprop	84496-56-0	5 mg	P-1065N-5MG
		Acetone	P-1065S-A
Clopyralid	see Lontrel		
Clopyralid methyl ester	1532-24-7	MeOH	P-488S
Cloquintocet-mexyl	99607-70-2	NEAT	P-929N
		MeOH	P-929S
Cloransulam methyl	147150-35-4	AcCN	P-981S-CN
Clothianidin	210880-92-5	NEAT	P-947N
		MeOH	P-947S
CMU	see Monuron		
Comite	see Propargite		
Command	see Clomazone		
Confidor	see Imidacloprid		
Contrac	see Bromadiolone		
Copper(II)carbonate	12069-69-1	NEAT	P-1074N
		MeOH	P-1074S
Copper oxychloride	1332-40-7	NEAT	P-458N
Cornox	see MCPA acid		
Cotoran	see Fluometuron		
Coumachlor	81-82-3	MeOH	P-684S
Coumaphene	see Warfarin		
Coumaphos	56-72-4	NEAT	P-019N
		MeOH	P-019S
Coumatetralyl	5836-29-3	NEAT	P-313N
		MeOH	P-313S
Counter	see Terbufos		
4-CPA	122-88-3	NEAT	P-373N
		MeOH	P-373S
Crimidine	535-89-7	NEAT	P-561N
		MeOH	P-561S
Crotoxyphos	see Ciodrin		
Crufomate	299-86-5	NEAT	P-292N
		MeOH	P-292S
Cryolite	15096-52-3	NEAT	P-1071N
Cumyluron	99485-76-4	AcCN	P-1135S-CN ❄
Curacron	see Profenofos		
Cyanazine	21725-46-2	NEAT	P-175N
		MeOH	P-175S
Cyanofenphos	13067-93-1	NEAT	P-584N
		MeOH	P-584S
Cyanophos	2636-26-2	NEAT	P-531N
		MeOH	P-531S
Cyazofamid	120116-88-3	NEAT	P-969N
		MeOH	P-969S
Cyclanilide	113136-77-9	AcCN	P-982S-CN
Cycloate	1134-23-2	NEAT	P-248N
		MeOH	P-248S
Cycloheximide	66-81-9	MeOH	P-411N
		MeOH	P-411S
2-Cyclohexyl-4,6-dinitrophenol	see Dinex		
Cycloprate	54460-46-7	NEAT	P-1069N
		MeOH	P-1069S
Cyclosulfamuron	136849-15-5	MeOH	P-1086S
Cycloxydime	101205-02-1	NEAT	P-735N
		MeOH	P-735S ❄
Cycluron	2163-69-1	AcCN	P-791S-CN ❄
Cyflufenamide	180409-60-3	AcCN	P-975S-CN ❄
Cyfluthrin - Mix of Isomers	68359-37-5	NEAT	P-354N
		MeOH	P-354S ❄
Cygon	see Dimethoate		
Cyhalofop-butyl	122008-85-9	5 mg	P-944N-5MG
		MeOH	P-944S
λ-Cyhalothrin	91465-08-6	NEAT	P-473N
		MeOH	P-473S ❄
Cyhexatin	13121-70-5	NEAT	P-375N
		MeOH	P-375S
Cyolane	see Phosfolan		
Cymoxanil	57966-95-7	NEAT	P-493N
		MeOH	P-493S ❄
Cypermethrin	52315-07-8	NEAT	P-225N
		MeOH	P-225S ❄
α-Cypermethrin	67375-30-8	NEAT	P-548N
		AcCN	P-548S-CN
cis-Cypermethrin	see a-Cypermethrin		
Cyphenothrin	39515-40-7	NEAT	P-709N
		MeOH	P-709S
Cypona	see Dichlorvos		
Cyprazine	22936-86-3	NEAT	P-420N
		MeOH	P-420S
		Hexane	P-420S-H
Cyproconazole	94361-06-5	MeOH	P-555S
Cyprodinil	121552-61-2	NEAT	P-720N
		MeOH	P-720S
Cyromazine	66215-27-8	NEAT	P-296N
		MeOH	P-296S
Cythion	see Malathion		
2,3-D acid ✦	2976-74-1	NEAT	P-470N
		MeOH	P-470S
		AcCN	P-470S-CN
2,4-D acid ✦	94-75-7	NEAT	P-020N
		MeOH	P-020S
		AcCN	P-020S-CN
2,6-D acid ✦	575-90-6	NEAT	P-690N
		MeOH	P-690S
		AcCN	P-690S-CN
2,4-D butoxyethyl ester	1929-73-3	NEAT	P-438N
2,4-D butyl ester	94-80-4	NEAT	P-712N
		MeOH	P-712S ❄
2,4-D ethyl ester	533-23-3	NEAT	P-636N
		MeOH	P-636S
2,4-D ethylhexyl ester	1928-43-4	NEAT	P-439N
		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.

❄ ColdPAK required to maintain integrity of product.

Pesticides

Pesticide Standards

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

✦ 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.
2,4-Dichlorophenylacetic acid Me	see Methyl-2,4-dichlorophenylacetate		
Dichlorprop ✦	120-36-5	NEAT	P-143N
		MeOH	P-143S
		AcCN	P-143S-CN
Dichlorprop methyl ester	57153-17-0	NEAT	P-229N
		MeOH	P-229S
Dichlorvos	62-73-7	NEAT	P-036N
		MeOH	P-036S
Diclobutrazol	75736-33-3	NEAT	P-641N
		AcCN	P-641S-CN
Diclofop	40843-25-2	NEAT	P-514N
		MeOH	P-514S
Diclofop methyl	51338-27-3	NEAT	P-303N
		MeOH	P-303S
Diclosulam	145701-21-9	NEAT	P-904N
		MeOH	P-904S
o,p'-Dicofol	10606-46-9	NEAT	P-606N
		MeOH	P-606S
Dicofol	see Kelthane		
Dicrotophos	141-66-2	NEAT	P-178N
		MeOH	P-178S
Dieldrin	60-57-1	NEAT	P-037N ❖
		MeOH	P-037S
Dieltamid	see Deet		
Diethatyl ethyl	38727-55-8	NEAT	P-599N
		MeOH	P-599S
Diethofencarb	87130-20-9	NEAT	P-744N
		MeOH	P-744S
Diethyl phosphate	598-02-7	NEAT	P-534N
		MeOH	P-534S
Diethyl phosphate (mono- & di-)		NEAT	P-443N
		MeOH	P-443S
Difenacoum	56073-07-5	AcCN	P-1151S-CN
Difenoconazole	119446-68-3	NEAT	P-447N
		MeOH	P-447S
Difenoxuron	14214-32-5	NEAT	P-604N
		MeOH	P-604S
Difenzoquat methyl sulfate	43222-48-6	MeOH	P-1330S
Diflubenzuron	35367-38-5	NEAT	P-377N
		MeOH	P-377S
Diflufenican	83164-33-4	NEAT	P-722N
		MeOH	P-722S
2,3-Dihydro-2,2-dimethylbenzofuran-7-ol	1563-38-8	NEAT	P-628N
		MeOH	P-628S
Dimecron	see Phosphamidon		
Dimefox	115-26-4	NEAT	P-299N
		MeOH	P-299S
Dimefuron	34205-21-5	NEAT	P-565N
		MeOH	P-565S
Dimepax	22936-75-0	NEAT	P-643N
		MeOH	P-643S
Dimepiperate	61432-55-1	50 µg/mL Acetone	P-1020S-A-0.5X
Dimetate	see Dimethoate		
Dimethachlor	50563-36-5	NEAT	P-642N
		MeOH	P-642S
Dimethenamid	87674-68-8	NEAT	P-747N
		MeOH	P-747S
Dimethenamide-P	163515-14-8	NEAT	P-934S
		MeOH	P-934S
Dimethipin	55290-64-7	NEAT	P-483N
		MeOH	P-483S
Dimethoate	60-51-5	NEAT	P-039N
		MeOH	P-039S
Dimethomorph	110488-70-5	NEAT	P-713N
		MeOH	P-713S
Dimethylarsinic acid	75-60-5	NEAT	P-1075N
		MeOH	P-1075S
N-(2,4-Dimethylphenyl)formamide	60397-77-5	AcCN	P-1100S-CN ❄

Compound	Synonym / CAS No.	Matrix	Cat. No.
Dimethyl phosphate	813-78-5	NEAT	P-442N
		MeOH	P-442S
Dimethylvinphos (Z type)	67628-93-7	Acetone	P-1057S-A
Dimetilan	644-64-4	AcCN	P-905S-CN
Dimoxystrobin	149961-52-4	AcCN	P-844S-CN
Dinex	131-89-5	NEAT	P-427N
		MeOH	P-427S
Diniconazol	83657-24-3	NEAT	P-845N
		AcCN	P-845S-CN
Dinitramine	29091-05-2	NEAT	P-575N
		MeOH	P-575S
4,6-Dinitro-o-cresol	534-52-1	NEAT	P-384N
		MeOH	P-384S
Dinocap	39300-45-3	NEAT	P-288N
		MeOH	P-288S
Dinoseb ✦	88-85-7	NEAT	P-144N
		MeOH	P-144S
Dinoseb acetate	2813-95-8	NEAT	P-779N
		MeOH	P-779S
Dinoseb methyl ether	6099-79-2	NEAT	P-230N
		MeOH	P-230S
Dinoterb	1420-07-1	MeOH	P-524S
Dioxacarb	6988-21-2	NEAT	P-264N
		MeOH	P-264S
Dioxathion	78-34-2	NEAT	P-219N
		MeOH	P-219S
Diphacinone	82-66-6	NEAT	P-315N
		MeOH	P-315S ❄
Diphenamid	957-51-7	NEAT	P-173N
		MeOH	P-173S
Dipropetryn	4147-51-7	NEAT	P-580N
		MeOH	P-580S
Diquat dibromide monohydrate	6385-62-2	NEAT	P-231N
		MeOH	P-231S
Disul-sodium salt	136-78-7	NEAT	P-513N
		MeOH	P-513S
Disulfoton	298-04-4	NEAT	P-042N ❖
		MeOH	P-042S
Disulfoton sulfone	2497-06-5	NEAT	P-582N
		MeOH	P-582S
Disulfoton sulfoxide	2497-07-6	NEAT	P-593N
		MeOH	P-593S
Disyston	see Disulfoton		
Ditalimfos	5131-24-8	NEAT	P-546N
		MeOH	P-546S
Dithane D-14	see Nabam		
Dithianon	3347-22-6	NEAT	P-725N
		Acetone	P-725S-A
Dithiopyr	97886-45-8	NEAT	P-741N
		MeOH	P-741S
Diuron	see Karmex		
2,3-Diuron	10290-37-6	NEAT	P-632N
		MeOH	P-632S
DMST	66840-71-9	MeOH	P-572S
DNBP	see Dinoseb		
DNOC	see 4,6-Dinitro-o-cresol		
DNTP	see Parathion		
Dodemorph acetate	31717-87-0	NEAT	P-385N
		MeOH	P-385S
Dodine	2439-10-3	NEAT	P-386N
		MeOH	P-386S
Doguadine	see Dodine		
Doramectin	117704-25-3	NEAT	P-935N
		AcCN	P-935S-CN
Dowpon	see Dalapon acid		
Dozer	see Fenuron-TCA		
2,4-DP ethyl hexyl	79270-78-3	NEAT	P-429N
		MeOH	P-429S
DPA Sodium	127-20-8	NEAT	P-1348N
		MeOH	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.
Dropp	see Thidiazuron		
DSMA	144-21-8	NEAT	P-598N
		MeOH	P-598S
DTMC	see Kelthane		
Dual	see Metolachlor		
Dursban	2921-88-2	NEAT	P-094N
		MeOH	P-094S
Dybar	see Fenuron		
Dyfonate	944-22-9	NEAT	P-087N
		MeOH	P-087S
		Hexane	P-087S-H
Dylox	see Trichlorfon		
Dymid	see Diphenamid		
Dyrene	see Anilazine		
EDDP	see Edifenphos		
Edifenphos	17109-49-8	NEAT	P-368N
		MeOH	P-368S
Ektafos	see Dicrotophos		
Elgetol	see 4,6-Dinitro-o-cresol		
Eloncron	see Dioxacarb		
Emamectin-benzoate	155569-91-8	5 mg	P-996N-5MG
		MeOH	P-996S
Empenthrin	54406-48-3	NEAT	P-708N
Endosulfan I	959-98-8	NEAT	P-091N
		MeOH	P-091S
Endosulfan II	33213-65-9	NEAT	P-092N
		MeOH	P-092S
α-*Endosulfan*	see Endosulfan I		
β-*Endosulfan*	see Endosulfan II		
Endosulfan, mixed isomers	115-29-7	NEAT	P-435N
		MeOH	P-435S
Endosulfan sulfate	1031-07-8	NEAT	P-145N
		MeOH	P-145S
Endothall ✦	145-73-3	NEAT	P-183N
		MeOH	P-183S
Endothall dimethyl ester		NEAT	P-603N
		MeOH	P-603S
Endrin	72-20-8	NEAT	P-045N
		MeOH	P-045S
Endrin aldehyde	7421-93-4	MeOH	P-046S
Endrin ketone	53494-70-5	NEAT	P-146N
		MeOH	P-146S
Enide	see Diphenamid		
EPN	2104-64-5	NEAT	P-220N ❖
		Acetone	P-220S-A
EPN Oxon	2012-00-2	Acetone	P-1345S-A
Epoxiconazole	133855-98-8	NEAT	P-784N
		MeOH	P-784S
Eprinomectin	123997-26-2	AcCN	P-959S-CN
Eptam	see EPTC		
Eptapur	see Buturon		
EPTC	759-94-4	NEAT	P-238N
		MeOH	P-238S
Esfenvalerate	66230-04-4	NEAT	P-525N
		MeOH	P-525S ❄
Esprocarb	85785-20-2	MeOH	P-617S
Etaconazole	60207-93-4	NEAT	P-644N
		MeOH	P-644S
Etazine	see Secbumeton		
Ethaboxam	162650-77-3	AcCN	P-1115S-CN
Ethalfluralin	55283-68-6	NEAT	P-269N
		MeOH	P-269S
Ethanedial dioxime	557-30-2	NEAT	P-1070N
		MeOH	P-1070S
Ethephon	16672-87-0	NEAT	P-239N
		MeOH	P-239S
Ethidimuron	30043-49-3	NEAT	P-364N
		MeOH	P-364S
Ethiofencarb	29973-13-5	NEAT	P-448N
		MeOH	P-448S
Ethiofencarb sulfone	53380-23-7	AcCN	P-824S-CN
Ethiofencarb sulfoxide	53380-22-6	AcCN	P-825S-CN
Ethiofencarb metabolite	see 2-Ethylthiomethyl phenol		

Compound	Synonym / CAS No.	Matrix	Cat. No.
Ethiolat	2941-55-1	NEAT	P-785N
		AcCN	P-785S-CN
Ethion	563-12-2	NEAT	P-048N
		MeOH	P-048S
Ethiprole	181587-01-9	NEAT	P-964N
		AcCN	P-964S-CN
Ethiozin	64529-56-2	NEAT	P-660N
		MeOH	P-660S
Ethirimol	23947-60-6	NEAT	P-645N
		MeOH	P-645S
Ethofumesate	26225-79-6	NEAT	P-387N
		MeOH	P-387S
Ethoprop	13194-48-4	NEAT	P-129N
		MeOH	P-129S
Ethoxyquin	91-53-2	NEAT	P-388N
		AcCN	P-388S-CN
Ethoxysulfuron	126801-58-9	NEAT	P-847N
		AcCN	P-847S-CN
Ethyl carbamate	51-79-6	NEAT	P-419N
		MeOH	P-419S
Ethylene bisdithiocarbamate, disodium	see Nabam		
Ethylene thiourea	96-45-7	NEAT	P-588N
		MeOH	P-588S
Ethyl hexanediol (mixed isomers)	94-96-2	NEAT	P-389N
		MeOH	P-389S
bis(2-Ethylhexyl)adipate	103-23-1	NEAT	P-233N
		MeOH	P-233S
Ethyl parathion	see Parathion		
2-Ethylthiomethyl phenol		MeOH	P-423S
Etobenzanid	79540-50-4	AcCN	P-1136S-CN ❄
Etofenprox	80844-07-1	NEAT	P-848N
		AcCN	P-848S-CN
Etoxazole	153233-91-1	MeOH	P-991S
Etridiazole	see Terrazole		
Etrimfos	38260-54-7	NEAT	P-480N
		MeOH	P-480S
Etrolene	see Ronnel		
ETU	see Ethylene thiourea		
Expand	see Sethoxlydim		
Famophos	see Famphur		
Famoxadon	131807-57-3	AcCN	P-849S-CN
Famphur	52-85-7	NEAT	P-147N
		MeOH	P-147S
Fargo	see Triallate		
Fenac	see Fenatrol		
Fenamidone	161326-34-7	NEAT	P-850N
		AcCN	P-850S-CN
Fenaminosulf	140-56-7	NEAT	P-058N
		MeOH	P-058S
Fenamiphos	22224-92-6	NEAT	P-114N
		MeOH	P-114S
Fenamiphos sulfone	31972-44-8	NEAT	P-623N
		MeOH	P-623S
Fenamiphos sulfoxide	31972-43-7	NEAT	P-622N
		MeOH	P-622S
Fenarimol	see Bloc		
Fenatrol	85-34-7	NEAT	P-319N
		MeOH	P-319S
Fenazaquin	120928-09-8	Hexane	P-787S-H
Fenbuconazole	114369-43-6	NEAT	P-662N
		MeOH	P-662S
Fenbutatin oxide	13356-08-6	NEAT	P-481N
		Acetone	P-481S-A
Fenchlorphos	see Ronnel		
Fenfuram	24691-80-3	NEAT	P-896N
		MeOH	P-896S
Fenhexamid	126833-17-8	NEAT	P-783N
		MeOH	P-783S
Fenitrothion	122-14-5	NEAT	P-259N
		MeOH	P-259S
Fenoprop	see Silvex		
Fenothiocarb	62850-32-2	MeOH	P-1021S
		50 µg/mL	P-1021S-0.5X

✦ 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.
Fenoxanil	115852-48-7	NEAT	P-997N
		MeOH	P-997S
Fenoxaprop	95617-09-7	NEAT	P-884N
		MeOH	P-884S
Fenoxaprop-ethyl	66441-23-4	NEAT	P-365N
		MeOH	P-365S
Fenoxaprop-p-ethyl	71283-80-2	NEAT	P-694N
		MeOH	P-694S
Fenoxycarb	72490-01-8	NEAT	P-686N
		MeOH	P-686S
Fenpropathrin	see Danitol		
Fenpropidin	67306-00-7	NEAT	P-802N
		MeOH	P-802S
Fenpropimorph	67564-91-4	NEAT	P-705N
		MeOH	P-705S
Fenpyroximate	111812-58-9	NEAT	P-724N
		MeOH	P-724S
Fenson	80-38-6	NEAT	P-551N
		MeOH	P-551S
Fensulfothion	see Dasanit		
Fenthion	55-38-9	NEAT	P-148N
		MeOH	P-148S
Fenthion-sulfone	3761-42-0	AcCN	P-953S-CN
Fenthion sulfoxide	3761-41-9	NEAT	P-1052N
		CH_2Cl_2	P-1052S-D
Fentin acetate	900-95-8	NEAT	P-680N
		MeOH	P-680S
Fentin chloride	see Triphenyltin chloride		
Fentin hydroxide	76-87-9	NEAT	P-1042N
		AcCN	P-1042S-CN
Fenuron	101-42-8	NEAT	P-004N
		MeOH	P-004S
Fenuron-TCA	4482-55-7	NEAT	P-006N
		MeOH	P-006S
Fenvalerate	51630-58-1	NEAT	P-194N
		MeOH	P-194S ❄
Ferbam	14484-64-1	NEAT	P-110N
		MeOH:A	P-110S
Ferber K	see Ferbam		
Ficam	see Bendiocarb		
Fipronil	120068-37-3	NEAT	P-738N
See Technical Data, page 68		MeOH	P-738S ❄
		Acetone	P-738S-A
Fipronil desulfinyl	205650-65-3	Acetone	P-782S-A
Fipronil sulfide	120067-83-6	Acetone	P-781S-A
		5 mg	P-781N-5MG
Fipronil sulfone	120068-36-2	Acetone	P-780S-A
Flamprop-methyl	52756-25-9	NEAT	P-366N
		MeOH	P-366S
Flonicamid	158062-67-0	NEAT	P-926N
		MeOH	P-926S
Florasulam	145701-23-1	AcCN	P-827S-CN-0.1X
Fluacrypyrim	229977-93-9	MeOH	P-1056S
Fluazifop-butyl	69806-50-4	NEAT	P-310N
		MeOH	P-310S
Fluazifop-p-butyl	79241-46-6	NEAT	P-601N
		MeOH	P-601S
Fluazinam	79622-59-6	NEAT	P-586N
		MeOH	P-586S
Flubendiamide	272451-65-7	NEAT	P-1025N
		AcCN	P-1025S-CN
Flucarbazone-sodium	181274-17-9	NEAT	P-1124N
		AcCN	P-1124S-CN
Fluchloralin	33245-39-5	NEAT	P-270N
		MeOH	P-270S
Flucythrinate	70124-77-5	MeOH	P-378S ❄
Fludioxonil	131341-86-1	NEAT	P-698N
		MeOH	P-698S
Flufenacet	142459-58-3	AcCN	P-902S-CN
Flufenoxuron	101463-69-8	NEAT	P-687N
		MeOH	P-687S
Flumetralin	62924-70-3	NEAT	P-491N
		MeOH	P-491S
Flumetsulam	98967-40-9	NEAT	P-659N
		MeOH	P-659S
Flumiclorac-pentyl	87546-18-7	NEAT	P-993N
		MeOH	P-993S
Flumioxazin	103361-09-7	CH_2Cl_2	P-992S-D
Fluometuron	2164-17-2	NEAT	P-014N
		MeOH	P-014S
Fluopicolide	239110-15-7	NEAT	P-1024N
		Acetone	P-1024S-A
Fluopyram	658066-35-4	MeOH	P-1094S
Fluoxastrobin	361377-29-9	AcCN	P-963S-CN ❄
Fluquinconazole	136426-54-5	NEAT	P-878N
		AcCN	P-878S-CN
Flurenol methyl ester	1216-44-0	NEAT	P-412N
		MeOH	P-412S
Fluridone	59756-60-4	NEAT	P-193N
		MeOH	P-193S
Flurochloridon	61213-25-0	NEAT	P-647N
		MeOH	P-647S
Flurodifen	15457-05-3	NEAT	P-676N
		MeOH	P-676S
Fluroxypyr	69377-81-7	NEAT	P-521N
		MeOH	P-521S
Fluroxypyr-1-methylheptyl ester	81406-37-3	NEAT	P-927N
		MeOH	P-927S
Flurprimidol	56425-91-3	NEAT	P-1155N
Flusilazole	85509-19-9	NEAT	P-578N
		MeOH	P-578S
Fluthiacet-methyl	117337-19-6	AcCN	P-1095S-CN ❄
Flutolanil	66332-96-5	NEAT	P-587N
		MeOH	P-587S
Flutriafol	76674-21-0	NEAT	P-699N
		MeOH	P-699S
Tau-Fluvalinate	102851-06-9	NEAT	P-356N
		MeOH	P-356S
		AcCN	P-356S-CN
Fluxapyroxad	907204-31-3	AcCN	P-1150S-CN
Folbex	see Chlorobenzilate		
Folex	see Merphos		
Folosan	see Pentachloronitrobenzene		
Folpet	133-07-3	NEAT	P-258N
		MeOH	P-258S ❄
Fomesafen	72178-02-0	NEAT	P-907N
		MeOH	P-907S
Fonofos	see Dyfonate		
Foramsulfuron	173159-57-4	NEAT	P-852N
		AcCN	P-852S-CN
Forchlorfenuron	68157-60-8	NEAT	P-753N
		MeOH	P-753S
Formetanate HCl	23422-53-9	NEAT	P-431N
		MeOH	P-431S
Formothion	2540-82-1	NEAT	P-149N
		AcCN	P-149S-CN ❄
Fosetyl aluminum	39148-24-8	NEAT	P-532N
		MeOH	P-532S
Fosthiazate	98886-44-3	AcCN	P-828S-CN
Frescon	see Trifenmorph		
Frumidor	see Thiophanate-methyl		
Fuberidazole	3878-19-1	AcCN	P-789S-CN ❄
Fumazone	96-12-8	NEAT	P-341N
		MeOH	P-341S
Furadan	see Carbofuran		
Furalaxyl	57646-30-7	NEAT	P-605N
		MeOH	P-605S
Furathiocarb	65907-30-4	NEAT	P-569N
		MeOH	P-569S
Furilazole	121776-33-8	AcCN	P-810S-CN
Furmecyclox	60568-05-0	MeOH	P-607S
Furore	see Fenoxaprop-ethyl		
Fusilade	see Fluazifop-butyl		

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.
Galtak	see Benazolin		
Gardona	see Tetrachlorvinphos		
Gardoprim	see Terbuthylazine		
Garlon	see Triclopyr		
Garrathion	see Carbophenothion		
Gesafram	see Prometon		
Gesagard	see Prometryne		
Gesamil	see Propazine		
Gesapax	see Ametryn		
Gesaprim	see Atrazine		
Gesatamine	1610-17-9	NEAT	P-189N
		MeOH	P-189S
Gesatop	see Simazine		
Gexane	see Lindane		
Glufosinate, ammonium salt	77182-82-2	NEAT	P-475N
		MeOH	P-475S
Glyodin	556-22-9	NEAT	P-528N
		MeOH	P-528S
Glyphosate	1071-83-6	NEAT	P-015N
		Water	P-015S-W
Goal	see Oxyfluorfen		
Goltix	see Metamitron		
Grasidin	see Sethoxydim		
Grasp	see Tralkoxydim		
Guazatine acetate	115044-19-4	MeOH	P-612S
Gusathion M	see Azinphos-methyl		
Guthion	see Azinphos-methyl		
Gy-bon	see Simetryn		
Halfenprox	111872-58-3	10 µg/mL MeOH	P-1050S-0.1X
Halofenozide	112226-61-6	AcCN	P-804S-CN ❄
Halosulfuron methyl	100784-20-1	AcCN	P-1089S-CN ❄
Haloxyfop ✦	69806-34-4	NEAT	P-496N
		MeOH	P-496S
		AcCN	P-496S-CN
Haloxyfop-methyl	69806-40-2	NEAT	P-497N
		MeOH	P-497S
Hanane	see Dimefox		
Hedonal	see MCPP acid		
Helothion	see Bolstar		
HEOD	see Dieldrin		
Heptachlor	76-44-8	NEAT	P-053N
		MeOH	P-053S
Heptachlor epoxide (Isomer A)	28044-83-9	MeOH	P-294S
Heptachlor epoxide (Isomer B)	1024-57-3	NEAT	P-054N
		MeOH	P-054S
2-Hepta-decyl-2-imidazoline	see Glyodin		
Heptamul	see Heptachlor		
Heptenophos	23560-59-0	NEAT	P-547N
		MeOH	P-547S
Heptox	see Heptachlor		
Herald	see Danitol		
Herb-All	see MSMA		
Herkol	see Dichlorvos		
Hexaconazole	79983-71-4	NEAT	P-500N
		MeOH	P-500S
Hexaflumuron	86479-06-3	NEAT	P-697N
		MeOH	P-697S ❄
Hexamethylphosphoramide	680-31-9	NEAT	P-205N
		MeOH	P-205S
Hexazinone	51235-04-2	NEAT	P-123N
		MeOH	P-123S
Hexylthiocarbam	see Cycloate		
Hexythiazox	78587-05-0	NEAT	P-658N
		MeOH	P-658S
Hoe 2810	see Linuron		
Hoelon	see Dichlofop methyl		
Horbadox	see Pendimethalin		
Hostathion	see Triazophos		
Hoxan	see Dichlofop methyl		
Hydramethylnon	67485-29-4	NEAT	P-403N
		MeOH	P-403S
2-Hydroxyatrazine	2163-68-0	MeOH	P-326S

Compound	Synonym / CAS No.	Matrix	Cat. No.
3-Hydroxycarbofuran	16655-82-6	MeOH	P-186S
Hymexazol	10004-44-1	MeOH	P-571S
Hyvar	see Bromacil		
Illoxan	see Dichlofop methyl		
Imazalil	35554-44-0	NEAT	P-332N
		MeOH	P-332S
Imazamethabenz methyl	81405-85-8	NEAT	P-414N
		MeOH	P-414S
Imazamox	114311-32-9	NEAT	P-806N
		AcCN	P-806S-CN
Imazapic	104098-48-8	NEAT	P-1063N
		MeOH	P-1063S
Imazapyr ✦	81334-34-1	NEAT	P-589N
		MeOH	P-589S
		AcCN	P-589S-CN
Imazaquin	81335-37-7	NEAT	P-283N
		MeOH	P-283S ❄
Imazethapyr	81335-77-5	MeOH	P-285S
		AcCN	
Imazosulfuron	122548-33-8	AcCN 10 µg/mL	P-853S-CN-0.1X
Imibenconazole	86598-92-7	AcCN 50 µg/mL	P-1019S-CN-0.5X
Imidacloprid	138261-41-3	NEAT	P-596N
		MeOH	P-596S
Imidan	732-11-6	NEAT	P-055N
		MeOH	P-055S
2-Imidazolidone	120-93-4	NEAT	P-1224N
		MeOH	P-1224S
Imiprothrin	72963-72-5	AcCN	P-983S-CN ❄
Indalone	532-34-3	NEAT	P-648N
		MeOH	P-648S
Indanofan	133220-30-1	NEAT	P-988N
		MeOH	P-988S
Indaziflam	950782-86-2	AcCN	P-1168S-CN
Indoxacarb	144171-61-9	NEAT	P-829N
		AcCN	P-829S-CN
Ingran 80W	see Prebane		
INPC	see Propham		
Iodofenphos	18181-70-9	NEAT	P-379N
		MeOH	P-379S
Iodosulfuron-methyl-sodium	144550-36-7	NEAT	P-830N
		AcCN	P-830S-CN
Ioxynil	1689-83-4	NEAT	P-522N
		MeOH	P-522S
Ioxynil octanoate	3861-47-0	AcCN	P-1329S-CN
IPB	see Iprobenfos		
IPC	see Propham		
Ipconazole	125225-28-7	AcCN	P-958S-CN ❄
Iprobenfos	26087-47-8	NEAT	P-609N
		MeOH	P-609S
Iprodione	36734-19-7	NEAT	P-016N
		Acetone	P-016S-A
		AcCN	P-016S-CN
Iprovalicarb	140923-17-7	NEAT	P-831N
		AcCN	P-831S-CN
Irgarol	28159-98-0	NEAT	P-746N
		MeOH	P-746S
Isazophos	42509-80-8	NEAT	P-449N
		MeOH	P-449S
Isobenzan	297-78-9	MeOH	P-323S
1-Isobenzofuranone	87-41-2	NEAT	P-1022N
		MeOH	P-1022S
Isocarbamid	30979-48-7	AcCN	P-880S-CN
Isocarbophos	24353-61-5	NEAT	P-893N
		AcCN	P-893S-CN
Isodrin	465-73-6	NEAT	P-471N
		MeOH	P-471S
Isofenphos	25311-71-1	NEAT	P-018N
		MeOH	P-018S
Isofenphos-methyl	99675-03-3	MeOH	P-984S
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.
Isopropalin	33820-53-0	NEAT	P-100N
		MeOH	P-100S
2-Isopropylamino-4,6-dichloro-s-triazine	3703-10-4	NEAT	P-635N
		MeOH	P-635S
2-Isopropyl-6-methyl-4-pyrimidinol	2814-20-2	NEAT	P-631N
		MeOH	P-631S
1-(4-Isopropylphenyl)-3-methylurea	34123-57-4	MeOH	P-1040S
Isoprothiolane	50512-35-1	NEAT	P-661N
		MeOH	P-661S
Isoproturon	34123-59-6	NEAT	P-302N
		MeOH	P-302S
Isopyrazam	881685-58-1	AcCN	P-1159S-CN
Isoxaben	82558-50-7	NEAT	P-533N
		MeOH	P-533S
Isoxaflutole	141112-29-0	NEAT	P-832N
		AcCN	P-832S-CN
Isoxathion	18854-01-8	NEAT	P-1096N
		AcCN	P-1096S-CN
Jodfenphos	see Iodofenphos		
Kadethrine	58769-20-3	NEAT	P-367N
		MeOH	P-367S
Karbutilate	4849-32-5	NEAT	P-337N
		MeOH	P-337S
Karmex	330-54-1	NEAT	P-227N
		MeOH	P-227S
Kelthane	115-32-2	NEAT	P-057N
		MeOH	P-057S
Kepone	143-50-0	NEAT	P-152N
		MeOH	P-152S
Kerb	see Pronamide		
3-Ketocarbofuran	16709-30-1	Acetone	P-298S-A
Kilprop	see MCPP acid		
Kothar	see Oxyfluorfen		
Kresoxim-methyl	143390-89-0	NEAT	P-740N
		MeOH	P-740S
Lactofen	77501-63-4	NEAT	P-979N
		AcCN	P-979S-CN
Lannate	see Methomyl		
Larvadex	see Cyromazine		
Lasso	see Alachlor		
Lazo	see Alachlor		
Lenacil	2164-08-1	NEAT	P-649N
		MeOH	P-649S
Lentagran	see Pyridate		
Lepton	see Leptophos		
Leptophos	21609-90-5	NEAT	P-206N
		MeOH	P-206S
Lesan	see Fenaminosulf		
Lethane 384	112-56-1	NEAT	P-506N
		MeOH	P-506S
Lindane (γ-BHC)	58-89-9	NEAT	P-059N
		MeOH	P-059S
Linuron	330-55-2	NEAT	P-022N
		MeOH	P-022S
Liphadione	see Chlorophacinone		
Lonacol	see Zineb		
Lontrel	1702-17-6	NEAT	P-224N
		MeOH	P-224S
Lorox	see Linuron		
Lufenuron	103055-07-8	NEAT	P-704N
		MeOH	P-704S
Machete	see Butachlor		
Malaoxon	1634-78-2	NEAT	P-529N
		MeOH	P-529S
Malaspray	see Malathion		
Malathion	121-75-5	NEAT	P-060N
		MeOH	P-060S
Maleic hydrazide	123-33-1	NEAT	P-380N
		MeOH	P-380S
Mancozan	see Zineb		
Mancozeb	8018-01-7	NEAT	P-322N
Mandipropamid	374726-62-2	NEAT	P-1023N
		AcCN	P-1023S-CN
Maneb	12427-38-2	NEAT	P-282N
Manzeb	see Mancozeb		
Marathon	see Imidacloprid		
Marlate	see Methoxychlor		
Matacil	see Aminocarb		
Mataven	see Flamprop-methyl		
Mavrik	see Fluvalinate		
Maxforce	see Hydramethylnon		
MCPA acid ✦	94-74-6	NEAT	P-153N
		MeOH	P-153S
		AcCN	P-153S-CN
MCPA 2-ethylhexyl ester	29450-45-1	NEAT	P-1082N
		MeOH	P-1082S
MCPA methyl ester	2436-73-9	NEAT	P-038N
		MeOH	P-038S
MCPB acid	94-81-5	NEAT	P-370N
		MeOH	P-370S
MCPB-ethyl	10443-70-6	AcCN	P-1347S-CN
MCPB methyl ester	57153-18-1	NEAT	P-371N
		MeOH	P-371S
MCPP acid ✦	7085-19-0	NEAT	P-154N
		MeOH	P-154S
		AcCN	P-154S-CN
MCPP methyl ester	23844-56-6	NEAT	P-040N
		MeOH	P-040S
Mecarbam	2595-54-2	NEAT	P-318N
		MeOH	P-318S
Mecoprop	see MCPP acid		
Mecoprop, 2-ethylhexyl ester	71526-69-7	NEAT	P-502N
		MeOH	P-502S
Mecoprop-1-octyl ester	161922-37-8	AcCN	P-1028S-CN
Mecoprop-2-octyl ester	28473-03-2	NEAT	P-1029N
		AcCN	P-1029S-CN
Mecoprop-p	16484-77-8	NEAT	P-1053N
		Acetone	P-1053S-A
Mediben	see Dicamba		
Mefenacet	73250-68-7	NEAT	P-745N
		MeOH	P-745S
Mefenpyr-diethyl	135590-91-9	NEAT	P-1010N
		MeOH	P-1010S
Meltatox	see Dodemorph acetate		
Menaphace	see MCPA acid		
MEP Oxon	2255-17-6	MeOH	P-1344S
Mepanipyrim	110235-47-7	NEAT	P-855N
		AcCN	P-855S-CN
Mephosfolan	950-10-7	NEAT	P-718N
		MeOH	P-718S
Mepiquat chloride	24307-26-4	NEAT	P-1062N
		MeOH	P-1062S
Mepro	see MCPP acid		
Meptyldinocap	131-72-6	MeOH	P-1043S
2-Mercaptobenzothiazole monoethanolamine salt	see Vanicide-20S		
Mercaptodimethur	see Methiocarb		
Mercaptophos	see Fenthion		
Mercuram	see Thiram		
Merge 823	see MSMA		
Merphos	150-50-5	NEAT	P-124N
		MeOH	P-124S
Mesosulfuron-methyl	208465-21-8	NEAT	P-1044N
		MeOH	P-1044S
Mesotrione	104206-82-8	AcCN	P-962S-CN ❄
Metacide	see Methyl parathion		
Metaflumizone	139968-49-3	AcCN	P-1090S-CN ❄
Metalaxyl	57837-19-1	NEAT	P-120N
		MeOH	P-120S
Metalaxyl-M	70630-17-0	NEAT	P-874N
		MeOH	P-874S
Metaldehyde ✦	9002-91-9	NEAT	P-600N
		MeOH	P-600S
		AcCN	P-600S-CN
Metamitron	41394-05-2	NEAT	P-252N
		MeOH	P-252S

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.
Metam-sodium	see Metam-sodium dihydrate		
Metam-sodium dihydrate	6734-80-1	NEAT	P-381N
		MeOH	P-381S
Metasystox R	see Oxydemeton methyl		
Metazachlor	67129-08-2	NEAT	P-249N
		MeOH	P-249S
Metconazole	125116-23-6	NEAT	P-856N
		AcCN	P-856S-CN
Methabenzthiazuron	18691-97-9	NEAT	P-563N
		MeOH	P-563S
Methacrifos	62610-77-9	NEAT	P-556N
		MeOH	P-556S
Methamidophos	see Monitor		
Methfuroxam	28730-17-8	AcCN	P-881S-CN ❄
Methidathion	950-37-8	NEAT	P-195N ❖
		MeOH	P-195S
Methiocarb	2032-65-7	NEAT	P-156N
		MeOH	P-156S
Methiocarb sulfone	2179-25-1	NEAT	P-570N
		AcCN	P-570S-CN
Methiocarb sulfoxide	2635-10-1	NEAT	P-650N
		MeOH	P-650S
Methomyl	16752-77-5	NEAT	P-032N
		MeOH	P-032S
	1000 µg/mL	MeOH	P-032S-10X
Methoprene	40596-69-8	NEAT	P-157N
		MeOH	P-157S
Methoprotryne	841-06-5	NEAT	P-564N
		MeOH	P-564S
Methoxychlor	72-43-5	NEAT	P-064N
		MeOH	P-064S
o,p'-Methoxychlor	30667-99-3	MeOH	P-535S
		Isooctane	P-535S-TP
p,p'-Methoxychlor-olefin	2132-70-9	MeOH	P-466S
Methoxy-DDT	see Methoxychlor		
Methoxyfenozide	161050-58-4	NEAT	P-857N
		AcCN	P-857S-CN
Methylamine hydrochloride	593-51-1	NEAT	P-624N
		MeOH	P-624S
Methyl-3,5-dichlorobenzoate	2905-67-1	NEAT	P-247N
		MeOH	P-247S
Methyl-2,4-dichlorophenylacetate		NEAT	P-214N
	55954-23-9	MeOH	P-214S
2-Methyl-4,6-dinitroanisole	29027-13-2	NEAT	P-611N
		MeOH	P-611S
2-Methyl-4,6-dinitrophenol methyl ether	see 2-Methyl-4,6-dinitroanisole		
Methyl dursban	see Chlorpyrifos-methyl ester		
3-Methyl-4-nitrophenol	2581-34-2	NEAT	P-509N
		MeOH	P-509S
Methyl nonyl ketone ✦	112-12-9	NEAT	P-415N
		MeOH	P-415S
		AcCN	P-415S-CN
Methyl paraoxon	950-35-6	NEAT	P-311N
		MeOH	P-311S
Methyl parathion	298-00-0	NEAT	P-065N ❖
		MeOH	P-065S
Methylpentachlorophenyl sulfide	1825-19-0	NEAT	P-567N
		MeOH	P-567S
Methyl tiofanato	see Thiophanate-methyl		
Methyl trithion	953-17-3	MeOH	P-652S
Metiram	9006-42-2	NEAT	P-416N
Metobromuron	3060-89-7	NEAT	P-436N
		MeOH	P-436S
Metolachlor	51218-45-2	NEAT	P-158N
		MeOH	P-158S
S-Metolachlor	87392-12-9	NEAT	P-1013N
		MeOH	P-1013S
Metolcarb	1129-41-5	NEAT	P-494N
		MeOH	P-494S
Metosulam	139528-85-1	AcCN	P-900S-CN
Metoxuron	19937-59-8	NEAT	P-437N
		MeOH	P-437S
Metrafenone	220899-03-6	NEAT	P-1032N
		AcCN	P-1032S-CN
Metribuzin	21087-64-9	NEAT	P-089N
		MeOH	P-089S
Metron	see Methyl parathion		
Metsulfuron methyl	74223-64-6	NEAT	P-463N
		MeOH	P-463S ❄
Mevinphos	7786-34-7	NEAT	P-074N ❖
		MeOH	P-074S
Mexacarbate	315-18-4	NEAT	P-030N
		MeOH	P-030S
MGK-264	113-48-4	NEAT	P-082N
		MeOH	P-082S
MGK-326	136-45-8	NEAT	P-342N
		MeOH	P-342S
Milogard	see Propazine		
MIPC	see Isoprocarb		
Mirex	2385-85-5	NEAT	P-066N
		MeOH	P-066S
Mitac	see Amitraz		
Mocap	see Ethoprop		
Molinate	2212-67-1	NEAT	P-176N
		MeOH	P-176S
Monalide	7287-36-7	NEAT	P-737N
		MeOH	P-737S
Monceren	see Pencycuron		
Monitor	10265-92-6	NEAT	P-155N
		MeOH	P-155S
Monocrotophos	6923-22-4	NEAT	P-112N
		MeOH	P-112S
Monolinuron	1746-81-2	NEAT	P-382N
		MeOH	P-382S
Monomethyltetrachloroterephthalate	887-54-7	NEAT	P-707N
		Acetone	P-707S-A
Monuron	150-68-5	NEAT	P-023N
		MeOH	P-023S
Monuron TCA	140-41-0	NEAT	P-034N
		MeOH	P-034S
2-Monuron		NEAT	P-633N
		MeOH	P-633S
Morestan	see Chinomethionate		
Moxidectin	113507-06-5	AcCN	P-961S-CN ❄
MSMA	see Bueno		
Myclobutanil	88671-89-0	NEAT	P-330N
		MeOH	P-330S
Nabam	142-59-6	NEAT	P-383N
		MeOH	P-383S
Naled	300-76-5	NEAT	P-159N
		MeOH	P-159S
1-Naphthalene acetamide	86-86-2	NEAT	P-512N
		MeOH	P-512S
1-Naphthol	90-15-3	NEAT	P-1007N
		MeOH	P-1007S
Naptalam	see Alanap		
1-Naphthylacetic acid	86-87-3	NEAT	P-461N
		MeOH	P-461S
Naproanilide	52570-16-8	Acetone	P-1343S-A
Napropamide	15299-99-7	NEAT	P-179N
		MeOH	P-179S
Navadel	see Dioxathion		
Neburon	555-37-3	NEAT	P-041N
		MeOH	P-041S
Neguvon	see Trichlorfon		
Nemacur R	see Fenamiphos		
Neocidol	see Diazinon		
Netrazine	see Cyromazine		
Niagaramite	see Aramite		
Nialate	see Ethion		
Niclosamide	50-65-7	NEAT	P-160N
		MeOH	P-160S
Nicosulfuron	111991-09-4	NEAT	P-591N
		AcCN	P-591S-CN
Nifos	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.
Nitenpyram	150824-47-8	NEAT	P-858N
		AcCN	P-858S-CN
Nitralin	4726-14-1	NEAT	P-583N
		MeOH	P-583S
Nitrapyrin	1929-82-4	NEAT	P-489N
		MeOH	P-489S
4-Nitroanisole	100-17-4	NEAT	P-273N
		MeOH	P-273S
Nitrofen	1836-75-5	NEAT	P-363N
		MeOH	P-363S
Nitrothal-isopropyl	10552-74-6	NEAT	P-695N
		MeOH	P-695S
Nix-Scald	see Ethoxyquin		
Nomersan	see TEPP		
cis-Nonachlor	5103-73-1	NEAT	P-297N
		MeOH	P-297S
trans-Nonachlor	39765-80-5	NEAT	P-184N
		MeOH	P-184S
Norflurazon	27314-13-2	NEAT	P-217N
		MeOH	P-217S
Norflurazon-desmethyl	23576-24-1	AcCN	P-1129S-CN ❄
Novaluron	116714-46-6	5 mg	P-966N-5MG
		MeOH	P-966S
Noviflumuron	121451-02-3	AcCN	P-967S-CN ❄
Nuarimol	see Trimidal		
Nucidol	see Diazinon		
Nuvacron	see Monocrotophos		
Nuvanol	see Iodofenphos		
Octachlor	see Chlordane		
Octacide 264	see MGK 264		
Octalox	see Dieldrin		
Octamethylpyrophosphoramide	see Schradan		
Octhilinone	26530-20-1	NEAT	P-788N
OFF	see Deet		
Oftanol	see Isofenphos		
Ofurace	58810-48-3	10 µg/mL Isooctane	P-653S-TP-0.1X
Omethoate	1113-02-6	NEAT	P-121N
		MeOH	P-121S
Omite	see Propargite		
OMPA	see Schradan		
Omtan	see Isobenzan		
Option	see Fenoxaprop-ethyl		
Orbencarb	34622-58-7	NEAT	P-433N
		MeOH	P-433S
Orbit	see Tilt		
Ordram	see Molinate		
Ornamec	see Fluazifop-p-butyl		
Orthene	see Acephate		
Orthocide	see Captan		
Orthosulfamuron	213464-77-8	Acetone	P-1045S-A
Oryzalin	19044-88-3	NEAT	P-043N
		MeOH	P-043S
Outfox	see Cyprazine		
Ovex	80-33-1	NEAT	P-425N
		MeOH	P-425S
Ovochlor	see Ovex		
Oxabetrinil	74782-23-3	NEAT	P-995N
		MeOH	P-995S
Oxadiargyl	39807-15-3	NEAT	P-1031N
		AcCN	P-1031S-CN
Oxadiazon	19666-30-9	NEAT	P-236N
		MeOH	P-236S
Oxadixyl	77732-09-3	NEAT	P-560N
		MeOH	P-560S
Oxamyl	23135-22-0	NEAT	P-161N
		MeOH	P-161S
Oxamyl oxime	30558-43-1	AcCN	P-1138S-CN
Oxasulfuron	144651-06-9	NEAT	P-859N
		AcCN	P-859S-CN
Oxaziclomefone	153197-14-9	MeOH	P-1066S
Oxycarboxin	5259-88-1	NEAT	P-391N
		MeOH	P-391S
Oxychlordane Isomer	27304-13-8 10 µg/mL in	MeOH	P-331S
		MeOH	P-331S-0.1X
		Hexane	P-331S-H
Oxydemeton-methyl	301-12-2	MeOH	P-290S
Oxyfluorfen	42874-03-3	NEAT	P-277N
		MeOH	P-277S
Oxythioquinox	see Chinomethionate		
Paarlan	see Isopropalin		
Paraoxon	311-45-5	NEAT	P-453N
		MeOH	P-453S
Paraquat dichloride tetrahydrate	1910-42-5	NEAT	P-051N ❖
		MeOH	P-051S
Parathion	56-38-2	NEAT	P-070N
		MeOH	P-070S
Paridol	see Methyl parathion		
PCA	see Pyrazon		
PCNB	see Pentachloronitrobenzene		
PCP methyl ether	see Pentachloroanisole		
PDU	see Fenuron		
PEBC	see Tillam		
Pebulate	see Tillam		
Penconazole	66246-88-6	NEAT	P-450N
		MeOH	P-450S
Pencycuron	66063-05-6	NEAT	P-358N
		MeOH	P-358S
Pendimethalin	40487-42-1	NEAT	P-097N
		MeOH	P-097S
Penoxalin	see Pendimethalin		
Penoxsulam	219714-96-2	MeOH	P-1046S
Pentachloroaniline	527-20-8	NEAT	P-875N
		AcCN	P-875S-CN
Pentachloroanisole	1825-21-4	NEAT	P-199N
		MeOH	P-199S
Pentachloronitrobenzene	82-68-8	NEAT	P-113N
		MeOH	P-113S
Pentanochlor	2307-68-8	NEAT	P-1067N
		MeOH	P-1067S
Penthiopyrad	183675-82-3	AcCN	P-1131S-CN ❄
Pentoxazone	110956-75-7	MeOH	P-1051S-0.1X
Permethrin (cis/trans)	52645-53-1	NEAT	P-128N
		MeOH	P-128S
Perthane	72-56-0	NEAT	P-162N
		MeOH	P-162S
Peropal	see Azocyclotin		
Pestox III	see Schradan		
Pethoxamid	106700-29-2	NEAT	P-1047N
		MeOH	P-1047S
Phenacide	see Toxaphene		
Phenamiphos	see Fenamiphos		
Phenmedipham	13684-63-4	NEAT	P-392N
		MeOH	P-392S
Phenothiazine	92-84-2	NEAT	P-579N
		MeOH	P-579S
Phenothrin	see Sumithrin		
Phenthoate	2597-03-7	NEAT	P-476N
		MeOH	P-476S
Phenyl mercury acetate	62-38-4	NEAT	P-393N
		MeOH	P-393S
o-Phenylphenol	90-43-7	NEAT	P-460N
		MeOH	P-460S
Phenyl valerate	20115-23-5	NEAT	P-734N
		MeOH	P-734S
Phorate	298-02-2	NEAT	P-170N ❖
		MeOH	P-170S
Phorate-oxon	2600-69-3	AcCN	P-1018S-CN
		10 µg/mL Toluene	P-1018S-T-0.1X
Phorate-oxon sulfone	2588-06-9	AcCN	P-1161S-CN
Phorate-oxon sulfoxide	2588-05-8	AcCN	P-1153S-CN
Phorate sulfone	2588-04-7	Hexane	P-655S-H

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.

Pesticide Standards

Compound	Synonym / CAS No.	Matrix	Cat. No.
Phorate sulfoxide	2588-03-6	NEAT	P-732N
		MeOH	P-732S
Phosalone	2310-17-0	NEAT	P-163N
		MeOH	P-163S
Phosdrin	see Mevinphos		
Phosethoprop	see Ethoprop		
Phosfolan	947-02-4	NEAT	P-234N
		MeOH	P-234S
Phosmet	see Imidan		
Phosphamidon	13171-21-6	NEAT	P-075N
		MeOH	P-075S
Phosphothion	see Malathion		
Phosvel	see Leptophos		
Phoxim	14816-18-3	NEAT	P-357N
		MeOH	P-357S
Phthalide	see 1-Isobenzofuranone		
Phthalthrin	see Tetramethrin		
Picloram	1918-02-1	NEAT	P-047N
		MeOH	P-047S
Picloram methyl ester	14143-55-6	NEAT	P-198N
		MeOH	P-198S
Picolinafen	137641-05-5	NEAT	P-1061N
		MeOH	P-1061S
4-Picoline	see 4-Aminopyridine		
Picoxystrobin	117428-22-5	NEAT	P-860N
		AcCN	P-860S-CN
Pindone	83-26-1	NEAT	P-394N
		MeOH	P-394S
Pinoxaden	243973-20-8	NEAT	P-1154N
		AcCN	P-1154S-CN
Piperalin	3478-94-2	NEAT	P-663N
		AcCN	P-663S-CN
Piperonyl butoxide	51-03-6	NEAT	P-348N
		MeOH	P-348S
Piperophos	24151-93-7	NEAT	P-656N
Pirimicarb	23103-98-2	NEAT	P-304N
		MeOH	P-304S
Pirimicarb-desmethyl	30614-22-3	AcCN	P-1139S-CN
Pirimiphos-ethyl	23505-41-1	NEAT	P-328N
		MeOH	P-328S
Pirimiphos-methyl	29232-93-7	NEAT	P-305N
		MeOH	P-305S
Pirimiphos-methyl-N-desethyl	67018-59-1	AcCN	P-1331S-CN
Pirimor	see Pirimicarb		
Pival	see Pindone		
PMA	see Phenyl mercury acetate		
Polytrin	see Cypermethrin		
Potassium dimethyl dithiocarbamate	128-03-0	AcCN	P-714S-CN ❄
Potassium n-hydroxymethyl-n-methyl dithiocarbamate	51026-28-9	AcCN	P-715S-CN ❄
Prallethrin	23031-36-9	MeOH	P-667S
Pramitol	see Prometon		
Prebane	886-50-0	NEAT	P-119N
		MeOH	P-119S
Preeglone	see Paraquat CL		
Prefar	see Bensulide		
Premerg	see Trichlorfon		
Pretilachlor	51218-49-6	NEAT	P-485N
		MeOH	P-485S
Primatol P	see Propazine		
Primatol Q	see Prometryne		
Primatol S	see Simazine		
Primaze	see Prometryne		
Primicid	see Pirimphos-ethyl		
Primisulfuron-methyl	86209-51-0	NEAT	P-833N
		AcCN	P-833S-CN
Princep	see Simazine		
Probenazole	27605-76-1	NEAT	P-710N
		Acetone	P-710S-A
Prochloraz	67747-09-5	NEAT	P-549N
		MeOH	P-549S
Procymidone	32809-16-8	NEAT	P-430N
		MeOH	P-430S
Prodiamine	29091-21-2	NEAT	P-739N
		MeOH	P-739S
Profenofos	41198-08-7	NEAT	P-260N
		MeOH	P-260S
Profluoralin	26399-36-0	NEAT	P-099N
		MeOH	P-099S
Prohexadione-calcium	127277-53-6	NEAT	P-1068N
Prohydrojasmon (Tech)	158474-72-7	MeOH	P-1342S
Prolate	see Imidan		
Promecarb	2631-37-0	NEAT	P-265N
		MeOH	P-265S
Prometon	1610-18-0	NEAT	P-077N
		MeOH	P-077S
Prometryne	7287-19-6	NEAT	P-078N
		MeOH	P-078S
Pronamide	23950-58-5	NEAT	P-164N
		MeOH	P-164S
Propachlor	1918-16-7	NEAT	P-215N
		MeOH	P-215S
Propamocarb	24579-73-5	NEAT	P-312N
		MeOH	P-312S
Propamocarb hydrochloride	25606-41-1	AcCN	P-1137S-CN ❄
Propanil	709-98-8	NEAT	P-049N
		MeOH	P-049S
Propaquizafop	111479-05-1	NEAT	P-908N
		MeOH	P-908S
Propargite	2312-35-8	NEAT	P-251N
		MeOH	P-251S
Propazine	139-40-2	NEAT	P-079N
		MeOH	P-079S
Propetamphos	31218-83-4	NEAT	P-417N
		MeOH	P-417S
Propham	122-42-9	NEAT	P-052N
		MeOH	P-052S
Prophos	see Ethoprop		
Propiconazole	see Tilt		
Propineb	12071-83-9	NEAT	P-608N
Propoxur	see Baygon		
Propoxycarbazone-sodium	181274-15-7	NEAT	P-1014N
	50 µg/mL in	Water	P-1014S-W-0.5X
Propylenethiourea (PTU)	2122-19-2	NEAT	P-861N
		AcCN	P-861S-CN
Propyzamide	see Pronamide		
Proquinazid	189278-12-4	AcCN	P-1156S-CN
Prosulfocarb	52888-80-9	NEAT	P-742N
		MeOH	P-742S
Prosulfuron	94125-34-5	NEAT	P-834N
		AcCN	P-834S-CN
Protector 3L	see Busan		
Protex	see Rotenone		
Prothioconazole	178928-70-6	AcCN	P-965S-CN
Prothiophos	see Tokuthion		
Prowl	see Pendimethalin		
Proximpham	2828-42-4	NEAT	P-1081N
		MeOH	P-1081S
Pursuit	see Imazethapyr		
Pymetrozin	123312-89-0	NEAT	P-835N
		AcCN	P-835S-CN
Pynamin	see Allethrin		
Pyracarbolid	24691-76-7	AcCN	P-792S-CN ❄
Pyraclofos	77458-01-6	MeOH	P-716S
Pyraclostrobin	175013-18-0	NEAT	P-863N
		AcCN	P-863S-CN
Pyraflufen-ethyl	129630-19-9	NEAT	P-1015N
		Acetone	P-1015S-A
Pyrasulfotole	365400-11-9	AcCN	P-1144S-CN
Pyrazon	1698-60-8	NEAT	P-395N
		MeOH	P-395S
Pyrazophos	13457-18-6	NEAT	P-359N
		MeOH	P-359S
Pyrazosulfuron-ethyl	93697-74-6	MeOH	P-1332S
Pyrazoxyfen	71561-11-0	NEAT	P-618N
		MeOH	P-618S

✦ 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.
Pyrethrins	8003-34-7	NEAT	P-187N
		MeOH	P-187S
Pyrethrum	see Pyrethrins		
Pyributicarb	88678-67-5	MeOH	P-987S
Pyridaben	96489-71-3	NEAT	P-693N
		MeOH	P-693S
Pyridalyl	179101-81-6	NEAT	P-990N
		MeOH	P-990S
Pyridaphenthion	119-12-0	MeOH	P-610S
Pyridate	55512-33-9	NEAT	P-404N
		AcCN	P-404S-CN
Pyrifluquinazon	337458-27-2	AcCN	P-1093S-CN
Pyrimethanil	53112-28-0	NEAT	P-723N
		MeOH	P-723S
Pyrimidifen	105779-78-0	MeOH	P-989S
Pyriminil	see Vacor		
(E)-Pyriminobac-methyl	147411-69-6	MeOH	P-1030S-0.5X
		50 µg/mL	
Pyrimisulfan	221205-90-9	AcCN	P-1203S-CN
Pyriphenox	88283-41-4	MeOH	P-668S
Pyriproxyfen	95737-68-1	NEAT	P-795N
		AcCN	P-795S-CN
Pyron	see Pyridate		
Pyroquilon	57369-32-1	NEAT	P-696N
		MeOH	P-696S
Pyroxsulam	422556-08-9	NEAT	P-1060N
		MeOH	P-1060S
Queletox	see Fenthion		
Quinalphos	13593-03-8	NEAT	P-462N
		MeOH	P-462S
Quinclorac ✦	84087-01-4	NEAT	P-692N
		MeOH	P-692S
		AcCN	P-692S-CN
Quinmerac	90717-03-6	NEAT	P-836N
		AcCN	P-836S-CN
Quinoclamine	2797-51-5	NEAT	P-985N
		MeOH	P-985S
Quinoxyfen	124495-18-7	5 mg	P-882N-5MG
		MeOH	P-882S
Quintozene	see Pentachloronitrobenzene		
Quizalofop ethyl	76578-14-8	NEAT	P-293N
		AcCN	P-293S-CN
Racumin	see Coumatetralyl		
Radapon	see Dalapon acid		
Ramrod	see Propachlor		
Reglone	see Diquat dibromide		
Resmethrin	10453-86-8	NEAT	P-325N
		MeOH	P-325S
Rezifilm	see Thiram		
Rimsulfuron	122931-48-0	NEAT	P-837N
		AcCN	P-837S-CN ❄
Rogor	see Dimethoate		
Rogue	see Propanil		
Ronilan	see Vinclozolin		
Ronnel	299-84-3	NEAT	P-080N
		MeOH	P-080S
Ronstar	see Oxadiazon		
Rospin	see Chloropropylate		
Rotenone	83-79-4	NEAT	P-056N
		MeOH	P-056S ❄
Roundup	see Glyphosate		
Rovral	see Iprodione		
Roxion	see Dimethoate		
Rubigan	see Bloc		
Ruelene	see Crufomate		
S421	127-90-2	NEAT	P-749N
		MeOH	P-749S
SADH	see Alar		
Saflufenacil	372137-35-4	NEAT	P-1078N
		MeOH	P-1078S
Safrotin	see Propetamphos		
Sancap	see Dipropetryn		
Sanmarton	see Fenvalerate		
Scepter	see Imazaquin		
Schradan	152-16-9	NEAT	P-418N
		MeOH	P-418S
Sebuthylazin	7286-69-3	NEAT	P-432N
		MeOH	P-432S
Secbumeton	26259-45-0	NEAT	P-165N
		MeOH	P-165S
Select	see Clethodim		
Sencor	see Metribuzin		
Sethoxydim	74051-80-2	NEAT	P-306N
		AcCN	P-306S-CN ❄
Sevin	see Carbaryl		
Siduron	1982-49-6	NEAT	P-063N
		MeOH	P-063S
Silafluofen	105024-66-6	NEAT	P-717N
		MeOH	P-717S
Silmurix	see Schradan		
Silvex ✦	93-72-1	NEAT	P-084N
		MeOH	P-084S
		AcCN	P-084S-CN
Silvex 2-ethylhexyl ester	53404-76-5	NEAT	P-728N
		MeOH	P-728S
Silvex methyl ester	4841-20-7	NEAT	P-115N
		MeOH	P-115S
Simazine	122-34-9	NEAT	P-085N
		MeOH	P-085S
Simazine-2-hydroxy	2599-11-3	MeOH	P-1191S
Simeton	673-04-1	NEAT	P-501N
		MeOH	P-501S
Simetryn	1014-70-6	NEAT	P-166N
		MeOH	P-166S
Sinbar	see Terbacil		
Siperin	see Cypermethrin		
Sipscasan	see Thiophanate-methyl		
Sodium diethyldithiocarbamate trihydrate	20624-25-3	NEAT	P-505N
		Water	P-505S-W
Solfac	see Cyfluthrin		
Sonalan	see Ethalfluralin		
Sonar	see Fluridone		
Spike	see Tebuthiuron		
Spinetoram mix of isomers J & L	187166-40-1 / 187166-15-0	AcCN	P-1083S-CN
Spinosad	168316-95-8	NEAT	P-864N
		AcCN	P-864S-CN
Spirodiclofen	148477-71-8	NEAT	P-938N
		MeOH	P-938S
Spiromesifen	283594-90-1	AcCN	P-960S-CN
Spirotetramat	203313-25-1	NEAT	P-1077N
		AcCN	P-1077S-CN
Spiroxamine	118134-30-8	NEAT	P-869N
		AcCN	P-869S-CN
Stam F-34	see Propanil		
Stirofos	see Tetrachlorvinphos		
Stomp	see Pendimethalin		
Strobane	8001-50-1	NEAT	P-339N
		MeOH	P-339S
Suffix	see Benzoylprop ethyl		
Sulcontrione	99105-77-8	NEAT	P-951N
		MeOH	P-951S
Sulfallate	95-06-7	NEAT	P-327N
		MeOH	P-327S
Sulfaquinoxaline	59-40-5	MeOH	P-681S
Sulfentrazone	122836-35-5	NEAT	P-798N
		AcCN	P-798S-CN
Sulfometuron methyl ester	74222-97-2	NEAT	P-336N
Sulfosulfuron	141776-32-1	10 µg/mL AcCN	P-865S-CN-0.1X
Sulfotep	3689-24-5	NEAT	P-167N
		MeOH	P-167S
Sulfox-cide	see Sulfoxide		

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.
Sulfoxide	120-62-7	NEAT	P-396N
		MeOH	P-396S
Sulfoxyl	see Sulfoxide		
Sulprofos	see Bolstar		
Sumicidin	see Fenvalerate		
Sumifly	see Fenvalerate		
Sumipower	see Fenvalerate		
Sumithrin	26002-80-2	NEAT	P-050N
		MeOH	P-050S
Sumitol	see Secbumeton		
Summit	see Triadimenol		
Super X	see Terrazole		
Supracide	see Methidathion		
Surcopur	see Propanil		
Surflan	see Oryzalin		
Sutan	see Butylate		
Swebate	see Abate		
Swep	1918-18-9	NEAT	P-061N
		MeOH	P-061S
Systhane	see Myclobutanil		
Systox	see Demeton		
2,4,5-T acid ✦	93-76-5	NEAT	P-168N
		MeOH	P-168S
		AcCN	P-168S-CN
2,4,5-T butoxyethyl ester	2545-59-7	NEAT	P-441N
		AcCN	P-441S-CN
2,4,5-T n-butyl ester	93-79-8	NEAT	P-440N
		AcCN	P-440S-CN
2,4,5-T methyl ester	1928-37-6	NEAT	P-067N
		MeOH	P-067S
2,4,6-T ✦	575-89-3	NEAT	P-523N
		MeOH	P-523S
		AcCN	P-523S-CN
Talstar	see Bifenthrin		
Tame	see Danitol		
Tamaron	see Monitor		
Tamogan	see Bromadiolone		
Target	see MSMA		
TCA	see Trichloroacetic acid		
TCMTB	see Busan		
TCNB	see Tecnazene		
Tebuconazol	107534-96-3	NEAT	P-451N
		MeOH	P-451S
Tebufenozide	112410-23-8	NEAT	P-726N
		MeOH	P-726S
Tebufenpyrad	119168-77-3	NEAT	P-877N
		MeOH	P-877S
Tebupirimfos	96182-53-5	NEAT	P-727N
		MeOH	P-727S
Tebutam	35256-85-0	MeOH	P-879S
Tebuthiuron	34014-18-1	NEAT	P-188N
		MeOH	P-188S
Tecto	see Thiabendazole		
Tecnazene	see 2,3,5,6-Tetrachloronitrobenzene		
Tedion	see Tetradifon		
Teflubenzuron	83121-18-0	NEAT	P-452N
		MeOH	P-452S
Tefluthrin	79538-32-2	MeOH	P-568S ❄
Telodrin	see Isobenzan		
Tembotrione	335104-84-2	NEAT	P-1109N
		AcCN	P-1109S-CN
Temephos	see Abate		
Temik	see Aldicarb		
Temus	see Bromadiolone		
Tenoran	see Chloroxuron		
TEPP	107-49-3	NEAT	P-207N

Compound	Synonym / CAS No.	Matrix	Cat. No.
Terbacil	5902-51-2	NEAT	P-096N
		MeOH	P-096S
Terbufos	13071-79-9	NEAT	P-208N
		MeOH	P-208S
Terbufos sulfone	56070-16-7	MeOH	P-729S
Terbufos sulfoxide	10548-10-4	NEAT	P-730N
		MeOH	P-730S
Terbumeton	33693-04-8	NEAT	P-504N
		MeOH	P-504S
Terbuthylazine	5915-41-3	NEAT	P-169N
		MeOH	P-169S
Terbuthylazine desethyl	30125-63-4	NEAT	P-613N
		MeOH	P-613S
Terbutol	1918-11-2	NEAT	P-464N
		MeOH	P-464S
Terbutryn	see Prebane		
Terpene polychlorinates	see Strobane		
Terraclor	see Pentachloronitrobenzene		
Terracur P	see Dasanit		
Terrazole	2593-15-9	NEAT	P-190N
		MeOH	P-190S
Terre-Sytam	see Dimefox		
Tersan	see Thiram		
Tersan SP	see Chloroneb		
1,2,3,4-Tetrachlorobenzene	634-66-2	NEAT	P-999N
		MeOH	P-999S
1,2,3,5-Tetrachlorobenzene	634-90-2	NEAT	P-1001N
		Isooctane	P-1001S-TP
1,2,4,5-Tetrachlorobenzene	95-94-3	NEAT	P-1003N
		MeOH	P-1003S
1,2,3,4-Tetrachloro-5-nitrobenzene	879-39-0	NEAT	P-1000N
		MeOH	P-1000S
2,3,5,6-Tetrachloronitrobenzene	117-18-0	NEAT	P-467N
		MeOH	P-467S
Tetrachlorvinphos	22248-79-9	NEAT	P-125N
		MeOH	P-125S
Tetraconazole	112281-77-3	NEAT	P-721N
		MeOH	P-721S
Tetradifon	116-29-0	NEAT	P-261N
		MeOH	P-261S
***cis*-1,2,3,6-Tetrahydrophthalimide**	1469-48-3	MeOH	P-116S
1,2,3,6-Tetrahydrophthalimide	85-40-5	NEAT	P-621N
		MeOH	P-621S
Tetramethrin	7696-12-0	NEAT	P-406N
		MeOH	P-406S
Tetrasul	2227-13-6	NEAT	P-552N
		MeOH	P-552S
Tetron	see TEPP		
Thiabendazole	148-79-8	NEAT	P-068N
		MeOH	P-068S
Thiacloprid	111988-49-9	NEAT	P-838N
		AcCN	P-838S-CN
Thiacloprid-amide	676228-91-4	NEAT	P-1223N
		MeOH	P-1223S
Thiamethoxam	153719-23-4	NEAT	P-866N
		AcCN	P-866S-CN
Thiazopyr	117718-60-2	NEAT	P-808N
		MeOH	P-808S
Thidiazuron	51707-55-2	NEAT	P-369N
		MeOH	P-369S
Thifensulfuron methyl	79277-27-3	NEAT	P-468N
		MeOH	P-468S
Thifluzamide	130000-40-7	NEAT	P-1055N
		MeOH	P-1055S
Thimet	see Phorate		
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.
Thiocyclam hydrogen oxalate	31895-22-4	MeOH	P-688S
Thiodan I	see Endosulfan I		
Thiodan II	see Endosulfan II		
Thiodicarb	59669-26-0	NEAT	P-477N
		MeOH	P-477S
4,4'-Thiodiphenol	2664-63-3	NEAT	P-117N
		MeOH	P-117S
Thiofanox	39196-18-4	NEAT	P-266N
		MeOH	P-266S
Thiofanox sulfone	39184-59-3	AcCN	P-839S-CN-0.1X
Thiofanox sulfoxide	39184-27-5	NEAT	P-702N
		MeOH	P-702S
Thiometon	640-15-3	NEAT	P-486N
		MeOH	P-486S
Thionazin	297-97-2	MeOH	P-171S
Thiophanate ✦	23564-06-9	NEAT	P-321N
		MeOH	P-321S
		AcCN	P-321S-CN
Thiophanate-methyl	23564-05-8	NEAT	P-349N
		MeOH	P-349S
Thiophos	see Parathion		
Thiram	137-26-8	NEAT	P-118N
		MeOH	P-118S
Tiguvon	see Fenthion		
Tillam	1114-71-2	NEAT	P-105N
		MeOH	P-105S
Tilt	60207-90-1	NEAT	P-280N
		MeOH	P-280S
Tomadorane	see 4-CPA		
Tobaz	see Thiabendazole		
Tokuthion	34643-46-4	NEAT	P-126N
		MeOH	P-126S
Tolban	see Profluralin		
Tolclofos-methyl	57018-04-9	NEAT	P-557N
		MeOH	P-557S
Tolylfluanide	731-27-1	NEAT	P-553N
		MeOH	P-553S ❄
Torak	see Dialifos		
Tordon	see Picloram		
Toxaphene (Tech)	8001-35-2	NEAT	P-093N
		MeOH	P-093S
2,4,5-TP	see Silvex		
2,4,5-TP methyl ester	see Silvex methyl ester		
Tralkoxydim	87820-88-0	NEAT	P-405N
		MeOH	P-405S
Tralomethrin	66841-25-6	NEAT	P-478N
		MeOH	P-478S
Transfluthrin	118712-89-3	NEAT	P-743N
		MeOH	P-743S
Treflan	see Trifluralin		
Triadimefon	43121-43-3	NEAT	P-069N
		MeOH	P-069S
Triadimenol	55219-65-3	NEAT	P-361N
		MeOH	P-361S
Triallate	2303-17-5	NEAT	P-268N
		MeOH	P-268S
Triasulfuron	82097-50-5	NEAT	P-592N
		AcCN	P-592S-CN
Triaziflam	131475-57-5	MeOH	P-1346S
1,2,4-Triazole	288-88-0	NEAT	P-627N
		MeOH	P-627S
Triazophos	24017-47-8	NEAT	P-334N
		MeOH	P-334S
Tribenuron-methyl	101200-48-0	NEAT	P-666N
		AcCN	P-666S-CN
Tribufos	see DEF		
Tributylphosphorotrithioite	see Merphos		
bis(Tributyltin)oxide	56-35-9	NEAT	P-455N
		MeOH	P-455S
Trichlorfon	52-68-6	NEAT	P-044N
		MeOH	P-044S
Trichloroacetic acid	76-03-9	100 mg	P-459N
		MeOH	P-459S
		AcCN	P-459S-CN
1,2,3-Trichlorobenzene	87-61-6	NEAT	P-1002N
		Isooctane	P-1002S-TP
1,2,4-Trichlorobenzene	120-82-1	NEAT	P-1004N
		MeOH	P-1004S
2,3,5-Trichlorobenzoic acid	50-73-7	NEAT	P-508N
		MeOH	P-508S
Trichloronate	327-98-0	NEAT	P-127N
		MeOH	P-127S
2,4,6-Trichlorophenol	88-06-2	NEAT	P-1006N
		MeOH	P-1006S
2,4,6-Trichlorophenyl-4'-nitrophenyl ether	see Chlornitrofen		
3,5,6-Trichloro-2-pyridinol	6515-38-4	NEAT	P-626N
		MeOH	P-626S
Trichloropyrphos	see Dursban		
Triclopyr ✦	55335-06-3	NEAT	P-289N
		MeOH	P-289S
		AcCN	P-289S-CN
Triclopyr-2-butoxy ethyl ester	64700-56-7	NEAT	P-703N
		AcCN	P-703S-CN
Triclopyr methyl ester	60825-26-5	MeOH	P-291S
Tricresyl phosphate	1330-78-5	NEAT	P-209N
		MeOH	P-209S
Tricyclazole	41814-78-2	NEAT	P-090N
		MeOH	P-090S
Tridemorph	24602-86-6	NEAT	P-307N
		MeOH	P-307S
Trietazine	1912-26-1	NEAT	P-492N
		MeOH	P-492S
Triethylphosphate	78-40-0	NEAT	P-335N
		MeOH	P-335S
O,O,O-Triethylphosphorothioate	126-68-1	NEAT	P-172N
		MeOH	P-172S
Trifene	see Fenatrol		
Trifenmorph	1420-06-0	NEAT	P-300N
		MeOH	P-300S
Trifloxystrobin	141517-21-7	NEAT	P-867N
		AcCN	P-867S-CN
Triflumizole	68694-11-1	AcCN	P-479S-CN
Triflumuron	64628-44-0	NEAT	P-689N
		MeOH	P-689S
Trifluralin	1582-09-8	NEAT	P-197N
		MeOH	P-197S
Triflusulfuron-methyl	126535-15-7	NEAT	P-840N
		AcCN	P-840S-CN
Triforine	26644-46-2	NEAT	P-308N
		MeOH	P-308S
2,3,5-Triiodobenzoic acid ✦	88-82-4	NEAT	P-507N
		MeOH	P-507S
		AcCN	P-507S-CN
2,3,5-Trimethacarb	2655-15-4	NEAT	P-515N
		MeOH	P-515S
3,4,5-Trimethacarb	2686-99-9	NEAT	P-516N
		MeOH	P-516S
Trimethyl phosphate	512-56-1	NEAT	P-210N
		MeOH	P-210S
Trimethylsulfonium iodide	2181-42-2	NEAT	P-1016N
		MeOH	P-1016S
Trimidal	63284-71-9	NEAT	P-422N
		MeOH	P-422S
Trinexapac-ethyl	95266-40-3	NEAT	P-1034N
		MeOH	P-1034S
Triphenylphosphate	115-86-6	NEAT	P-192N
		MeOH	P-192S
Triphenyltin chloride	639-58-7	NEAT	P-526N
		MeOH	P-526S
Trithion	see Carbophenothion		
Triticonazole	131983-72-7	10 µg/mL Isooctane	P-868S-TP-0.1X

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.
Trucidor	see Vamidithion		
Tugon	see Trichlorfon		
Tupersan	see Siduron		
Unden	see Baygon		
Uniconazole	83657-22-1	AcCN	P-1092S-CN ❄
Urab	see Fenuron-TCA		
Urox	see Monuron TCA		
Ustilan	see Ethidimuron		
Vacor	53558-25-1	NEAT	P-240N
		MeOH	P-240S
Vamidothion	2275-23-2	NEAT	P-350N
		MeOH	P-350S ❄
Vamidoate	see Vamidothion		
Vancide 89	see Captan		
Vandyke 264	see MGK 264		
Vanicide-20S		NEAT	P-073N
		MeOH	P-073S
Vapona	see Dichlorvos		
Vapotone	see TEPP		
Vegadex	see Sulfallate		
Velpar	see Hexazinone		
Vernam	see Vernolate		
Vernolate	1929-77-7	NEAT	P-111N
		MeOH	P-111S
Vinclozolin	50471-44-8	NEAT	P-122N
		MeOH	P-122S
Warbex	see Famphur		
Warfarin	81-81-2	NEAT	P-076N
		MeOH	P-076S
Waylay	see Napropamide		
Weedol	see Paraquat CL		
Weedone	see 2,4,5-T acid		
XMC	2655-14-3	NEAT	P-1085N
		MeOH	P-1085S
Zectran	see Mexacarbate		
Zerlate	see Ziram		
Zineb	12122-67-7	NEAT	P-098N
Zinophos	see Thionazin		
Ziram	137-30-4	NEAT	P-324N
		MeOH	P-324S
Zolone	see Phosalone		
Zoxamide	156052-68-5	AcCN	P-970S-CN ❄

❄ 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.

Pesticide Kits and Mixtures

Neat Pesticide Kit

Z-004-SET ❖ **20 x 10 mg**

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

Pesticide (Solid Waste) Kit

Z-017-SET **6 x 10 mg**

- 2,4-D
- Endrin
- Lindane
- Methoxychlor
- Silvex
- 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
- Dicamba
- Benfluralin
- Bentazon ✢
- Dacthal
- Dichlobenil
- Metolachlor
- Prometryne
- Prometon
- Propanil
- Propazine
- Simazine
- Tebuthiuron
- Trifluralin

✢ *in Acetone*

Herbicide Mix #1

M-HERB-1 **1 x 1 mL**

0.1 mg/mL each in EtOAc 13 comps.

- Atrazine
- Bromacil
- Cycloate
- Eptam
- Isopropalin
- Hexazinone
- Molinate
- Oxyfluorfen
- Sencor
- Sutan
- Terbacil
- Tillam
- Trifluralin

Herbicide Mix #2

M-HERB-2 **1 x 1 mL**

0.1 mg/mL each in EtOAc 9 comps.

- Benfluralin
- Metolachlor
- Oxadiazon
- Propachlor
- Propazine
- 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	
Terbuthylazine	5915-41-3	P-169N		P-169S	

Phenylurea Pesticide Mixtures

Phenylurea Pesticide Mixture

PES-PU-001 — **1 x 1 mL**
PES-PU-001-PAK — ***SAVE*** — **5 x 1 mL**
200 µg/mL each in AcCN:Acetone — 8 comps.

Diflubenzuron	Fluometuron	Propanil	Tebuthiuron
Diuron	Linuron	Siduron	Thidiazuron

Phenylurea Surrogate Mixture

PES-PU-SS — **1 x 1 mL**
PES-PU-SS-PAK — ***SAVE*** — **5 x 1 mL**
500 µg/mL each in MeOH:AcCN — 2 comps.

Carbazole	Monuron

Neonicotinoids and Fipronil - Honeybee Colony Collapse Discorder (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
Acetamiprid	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
Imidaclorid	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)

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

NEATS are as stated, SOLUTIONS are in 1 mL

VOCs

Compound	Conc.	Matrix	Cat. No.
Acetonitrile 75-05-8	100 µg/mL	MeOH	APP-9-005
	10 mg/mL	Water	M-8015B/5031-02
	1 mg/mL	Water	M-8033
	1 mg/mL	MeOH	APP-9-005-10X
	5 mg/mL	MeOH	APP-9-005-50X
	5 mg/mL	IPA	AS-E0473
Acrylamide 79-06-1	1 mg/mL	MeOH	M-8032
Acrylonitrile 107-13-1	100 µg/mL	MeOH	APP-9-008
	10 mg/mL	Water	M-8015B/5031-04
	1 mg/mL	MeOH	APP-9-008-10X
	10 mg/mL	MeOH	AS-E0003
Allyl chloride 107-05-1	100 µg/mL	MeOH	APP-9-010
	2 mg/mL	MeOH	APP-9-010-20X
	1 mg/mL	MeOH	AS-E0476
n-Amylbenzene 538-68-1	100 mg	NEAT	V-001
Azobenzene 103-33-3	2 mg/mL	CH_2Cl_2	Z-014B-1
Benzene 71-43-2	1 gram	NEAT	M-502-01N
	100 µg/mL	MeOH	APP-9-015
	1 mg/mL	MeOH	AS-E0004
	0.2 mg/mL	MeOH	M-502-01
	2 mg/mL	MeOH	M-502-01-10X
Benzene-d_6 1076-43-3	0.2 mg/mL	MeOH	M-624-SS-01
	2 mg/mL	MeOH	M-624-SS-01-10X
Benzyl chloride 100-44-7	0.2 mg/mL	MeOH	M-8010-01
	5 mg/mL	AcCN	AS-E0169
2-Bromo-1-chloropropane 3017-95-6	20 mg/mL	MeOH	M-001R-3
	0.2 mg/mL	MeOH	M-624-SS-04
1-Bromo-2-nitrobenzene 577-19-5	1 mg/mL	Acetone	M-8081-IS-DC
Bromobenzene 108-86-1	1 gram	NEAT	M-502-02N
	5 mg/mL	MeOH	AS-E0406
	0.2 mg/mL	MeOH	M-502-02
	2 mg/mL	MeOH	M-502-02-10X
Bromochloroacetonitrile 83463-62-1	1 mg/mL	Acetone	AS-E1186
	5 mg/mL	Acetone	M-551B-1
2-Bromochlorobenzene 694-80-4	0.2 mg/mL	MeOH	M-624-SS-12
4-Bromochlorobenzene 106-39-8	2 mg/mL	MeOH	M-8020-SS-1
Bromochloromethane 74-97-5	100 mg	NEAT	K-007N
	1 gram	NEAT	M-502-03N
	10 mg/mL	MeOH	AS-E0136
	0.2 mg/mL	MeOH	M-502-03
	2 mg/mL	MeOH	M-502-03-10X
Bromodichloromethane 75-27-4	100 mg	NEAT	K-008N
	1 g	NEAT	M-502-04N
	0.2 mg/mL	MeOH	M-502-04
	2 mg/mL	MeOH	M-502-04-10X
	5 mg/mL	MeOH	AS-E0046
***p*-Bromofluorobenzene** 460-00-4	25 µg/mL	MeOH	CLP-004
	250 µg/mL	MeOH	CLP-004-10X
	0.15 mg/mL	MeOH	AS-E0233
	25 mg/mL	MeOH	CLP-004-1000X
	2.5 mg/mL	MeOH	CLP-004-100X
	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

Compound	Conc.	Matrix	Cat. No.
Bromoform 75-25-2	1 gram	NEAT	M-502-05N
	0.2 mg/mL	MeOH	M-502-05
	2 mg/mL	MeOH	M-502-05-10X
	5 mg/mL	MeOH	AS-E0212
Bromomethane 74-83-9	100 µg/mL	MeOH	APP-9-032
	0.2 mg/mL	MeOH	M-502-06
	2 mg/mL	MeOH	M-502-06-10X
Bromotrichloromethane 75-62-7	100 mg	NEAT	K-009N
1,3-Butadiene 106-99-0	0.2 mg/mL	MeOH	S-406A
	2 mg/mL	MeOH	S-406A-10X
***n*-Butylbenzene** 104-51-8	100 mg	NEAT	V-002
	1 gram	NEAT	M-502-07N
	5 mg/mL	MeOH	AS-E1105
	0.2 mg/mL	MeOH	M-502-07
	2 mg/mL	MeOH	M-502-07-10X
Isobutylbenzene 538-93-2	100 mg	NEAT	V-003
sec-Butylbenzene 135-98-8	100 mg	NEAT	V-004
	1 gram	NEAT	M-502-08N
	5 mg/mL	MeOH	AS-E1104
	0.2 mg/mL	MeOH	M-502-08
	2 mg/mL	MeOH	M-502-08-10X
tert-Butylbenzene 98-06-6	1 gram	NEAT	M-502-09N
	5 mg/mL	MeOH	AS-E1106
	0.2 mg/mL	MeOH	M-502-09
	2 mg/mL	MeOH	M-502-09-10X
Carbon disulfide 75-15-0	100 µg/mL	MeOH	APP-9-035
	2 mg/mL	MeOH	APP-9-035-20X
	5 mg/mL	MeOH	AS-E0363
Carbon tetrabromide 558-13-4	100 mg	NEAT	K-006N
Carbon tetrachloride 56-23-5	100 mg	NEAT	K-003N
	1 gram	NEAT	M-502-10N
	100 µg/mL	MeOH	APP-9-036
	5 mg/mL	MeOH	AS-E0360
	0.2 mg/mL	MeOH	M-502-10
	2 mg/mL	MeOH	M-502-10-10X
Chloral hydrate 302-17-0	1 mg/mL	MeOH	M-E-1179-M ❄
	1 mg/mL	Acetone	AS-E1179
	5 mg/mL	Acetone	M-551B-2
Chlorobenzene 108-90-7	100 mg	NEAT	A-001
	1 gram	NEAT	M-502-11N
	100 µg/mL	MeOH	APP-9-039
	1 mg/mL	MeOH	AS-E0006
	0.2 mg/mL	MeOH	M-502-11
	2 mg/mL	MeOH	M-502-11-10X
Chlorobenzene-d_5 3114-55-4	5 mg/mL	MeOH	CLP-PI-3-5X
Chloroethane 75-00-3	100 µg/mL	MeOH	APP-9-042
	1 mg/mL	MeOH	AS-E0015
	0.2 mg/mL	MeOH	M-502-12
	2 mg/mL	MeOH	M-502-12-10X
bis(2-Chloroethoxy)methane 111-91-1	100 µg/mL	CH_2Cl_2	APP-9-026
	1 mg/mL	MeOH	APP-9-026-M-10X
	5 mg/mL	MeOH	AS-E0041
1-Chloro-2-fluorobenzene 348-51-6	2 mg/mL	MeOH	S-163
1-Chloro-4-fluorobenzene 352-33-0	0.2 mg/mL	MeOH	M-624-SS-13
1-Chloro-3-nitrobenzene 121-73-3	1 mg/mL	Acetone	M-8091-SS-100X

❄ ColdPAK required to maintain integrity of product.

Volatile Organic Compounds (VOCs)

VOCs

Compound	Conc.	Matrix	Cat. No.
Chloroform 67-66-3	1 gram	NEAT	M-502-13N
	0.2 mg/mL	MeOH	M-502-13
	2 mg/mL	MeOH	M-502-13-10X
1-Chlorohexane 544-10-5	0.2 mg/mL	MeOH	M-8010R-1-04
	2 mg/mL	MeOH	M-8010R-1-04-10X
Chloromethane 74-87-3	100 µg/mL	MeOH	APP-9-044
	0.2 mg/mL	MeOH	M-502-14
	2 mg/mL	MeOH	M-502-14-10X
bis(2-Chloro-1-methylethyl)ether 108-60-1	100 mg	NEAT	FETH-02N
Chloroprene 126-99-8	100 µg/mL	MeOH	APP-9-048-R1
	200 µg/mL	MeOH	APP-9-048-R1-2X
	1 mg/mL	MeOH	APP-9-048-R1-10X
	2.0 mg/mL	MeOH	APP-9-048-R1-20X
3-Chloropropionitrile 542-76-7	1 mg/mL	MeOH	AS-E0375
2-Chlorotoluene 95-49-8	1 gram	NEAT	M-502-15N
	0.2 mg/mL	MeOH	M-502-15
	2 mg/mL	MeOH	M-502-15-10X
	5 mg/mL	MeOH	AS-E0150
3-Chlorotoluene 108-41-8	5 mg/mL	MeOH	AS-E0151
4-Chlorotoluene 106-43-4	1 gram	NEAT	M-502-16N
	0.2 mg/mL	MeOH	M-502-16
	2 mg/mL	MeOH	M-502-16-10X
Cyclohexane 110-82-7	1 gram	NEAT	TK-102-08N
	2 mg/mL	MeOH	TK-102-08S-10X
Decylbenzene 104-72-3	100 mg	NEAT	V-005
Diallate 2303-16-4	1 mg/mL	AcCN	AS-E0623
	1000 µg/mL	MeOH	APP-9-057
Dibromochloromethane 124-48-1	100 mg	NEAT	K-010N
	1 gram	NEAT	M-502-17N
	100 µg/mL	MeOH	APP-9-060
	0.2 mg/mL	MeOH	M-502-17
	2 mg/mL	MeOH	M-502-17-10X
1,2-Dibromo-3-chloropropane 96-12-8	1 gram	NEAT	M-502-18N
	0.2 mg/mL	MeOH	M-502-18
	2 mg/mL	MeOH	M-502-18-10X
	5 mg/mL	MeOH	AS-E0993
Dibromoacetonitrile 3252-43-5	5 mg/mL	Acetone	M-551B-4
1,2-Dibromoethane 106-93-4	1 gram	NEAT	M-502-19N **
	100 µg/mL	MeOH	APP-9-214
	0.2 mg/mL	MeOH	M-502-19
	2 mg/mL	MeOH	M-502-19-10X
	5 mg/mL	MeOH	AS-E0171
Dibromofluoromethane 1868-53-7	0.2 mg/mL	MeOH	M-8260-SS-2
	2 mg/mL	MeOH	M-8260-SS-2-10X
Dibromomethane 74-95-3	100 mg	NEAT	K-004N
	1 gram	NEAT	M-502-20N
	100 µg/mL	MeOH	APP-9-062
	0.2 mg/mL	MeOH	M-502-20
	2 mg/mL	MeOH	M-502-20-10X
	5 mg/mL	MeOH	AS-E1097
a,a-Dibromo-m-xylene 626-15-3	1 mg/mL	Acetone	M-8081-IS-X
1,2-Dibromopropane 78-75-1	5 mg/mL	MeOH	M-552-IS
	10 mg/mL	Hexane	M-556-IS
1,2-Dibromo-1,1,2,2-tetrafluoroethane 124-73-2	1000 µg/mL	MeOH	AS-E0463
2,3-Dichloro-1-propene 78-88-6	4.2 mg/mL	MeOH	AS-E0170
trans-1,4-Dichloro-2-butene 110-57-6	100 µg/mL	MeOH	APP-9-068
	2 mg/mL	MeOH	APP-9-068-20X
Dichloroacetonitrile 3018-12-0	5 mg/mL	Acetone	M-551B-5
1,2-Dichlorobenzene 95-50-1	100 mg	NEAT	A-002
	1 gram	NEAT	M-502-21N
	100 µg/mL	MeOH	APP-9-064
	0.2 mg/mL	MeOH	M-502-21
	2 mg/mL	MeOH	M-502-21-10X
	5 mg/mL	MeOH	AS-E0023
	2.0 mg/mL	Hexane	M-8120-02
1,2-Dichlorobenzene-d_4 2199-69-1	0.15 mg/mL	MeOH	AS-E0776
	0.2 mg/mL	MeOH	M-624-SS-11
	2 mg/mL	MeOH	M-624-SS-11-10X

Compound	Conc.	Matrix	Cat. No.
1,3-Dichlorobenzene 541-73-1	100 mg	NEAT	A-003
	1 gram	NEAT	M-502-22N
	100 µg/mL	MeOH	APP-9-065
	0.2 mg/mL	MeOH	M-502-22
	1 mg/mL	MeOH	AS-E0214
	2 mg/mL	MeOH	M-502-22-10X
	2.0 mg/mL	Hexane	M-8120-03
1,4-Dichlorobenzene 106-46-7	100 mg	NEAT	A-004
	1 gram	NEAT	M-502-23N
	100 µg/mL	MeOH	APP-9-066
	0.2 mg/mL	MeOH	M-502-23
	2 mg/mL	MeOH	M-502-23-10X
	5 mg/mL	MeOH	AS-E0025
	0.2 mg/mL	Acetone	M-8151-IS-2
	2.0 mg/mL	Hexane	M-8120-04
1,4-Dichlorobenzene-d_4 3855-82-1	2 mg/mL	MeOH	Z-014J-3-M-0.5X
	4 mg/mL	CH_2Cl_2	Z-014J-3
1,4-Dichlorobutane 110-56-5	0.2 mg/mL	MeOH	M-624-SS-05
	20 mg/mL	MeOH	M-001R-2
1,4-Dichlorobutane-d_8 83547-96-0	0.15 mg/mL	MeOH	AS-E0196
Dichlorodifluoromethane 75-71-8	100 µg/mL	MeOH	APP-9-069
	5000 µg/mL	MeOH	AS-E0346
	0.2 mg/mL	MeOH	M-502-24
	2 mg/mL	MeOH	M-502-24-10X
1,1-Dichloroethane 75-34-3	1 gram	NEAT	M-502-25N
	100 µg/mL	MeOH	APP-9-070
	0.2 mg/mL	MeOH	M-502-25
	1 mg/mL	MeOH	AS-E0012
	2 mg/mL	MeOH	M-502-25-10X
1,2-Dichloroethane 107-06-2	1 gram	NEAT	M-502-26N
	100 µg/mL	MeOH	APP-9-071
	1 mg/mL	MeOH	AS-E0009
	0.2 mg/mL	MeOH	M-502-26
	2 mg/mL	MeOH	M-502-26-10X
1,2-Dichloroethane-d_4 17060-07-0	0.2 mg/mL	MeOH	M-624-SS-06
	2.0 mg/mL	MeOH	M-624-SS-06-10X
1,1-Dichloroethene 75-35-4	1 gram	NEAT	M-502-27N
	100 µg/mL	MeOH	APP-9-072
	0.2 mg/mL	MeOH	M-502-27
	2 mg/mL	MeOH	M-502-27-10X
cis-1,2-Dichloroethene 156-59-2	1 gram	NEAT	M-502-28N
	0.2 mg/mL	MeOH	M-502-28
	2 mg/mL	MeOH	M-502-28-10X
	10 mg/mL	MeOH	AS-E0173
trans-1,2-Dichloroethene 156-60-5	1 gram	NEAT	M-502-29N
	100 µg/mL	MeOH	APP-9-073
	0.2 mg/mL	MeOH	M-502-29
	1 mg/mL	MeOH	AS-E0028
	2 mg/mL	MeOH	M-502-29-10X
Dichlorofluoromethane 75-43-4	0.2 mg/mL	MeOH	M-502-61
	2 mg/mL	MeOH	M-502-61-10X
Dichloromethane 75-09-2 *(Methylene chloride)*	100 mg	NEAT	K-001N
	1 gram	NEAT	M-502-39N
	100 µg/mL	MeOH	APP-9-074
	0.2 mg/mL	MeOH	M-502-39
	1 mg/mL	MeOH	AS-E0042
	2 mg/mL	MeOH	M-502-39-10X
Dichloromethane-d_2 1665-00-5	2 mg/mL	MeOH	M-502-IS-2-3
1,2-Dichloropropane 78-87-5	1 gram	NEAT	M-502-30N
	100 µg/mL	MeOH	APP-9-077
	0.2 mg/mL	MeOH	M-502-30
	1 mg/mL	MeOH	AS-E0030
	2 mg/mL	MeOH	M-502-30-10X
1,3-Dichloropropane 142-28-9	1 gram	NEAT	M-502-31N
	0.2 mg/mL	MeOH	M-502-31
	2 mg/mL	MeOH	M-502-31-10X
	5 mg/mL	MeOH	AS-E1109
2,2-Dichloropropane 594-20-7	1 gram	NEAT	M-502-32N
	0.2 mg/mL	MeOH	M-502-32
	2 mg/mL	MeOH	M-502-32-10X
	5 mg/mL	MeOH	AS-E1167
1,3-Dichloropropene (cis/trans) 542-75-6	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 563-58-6	0.2 mg/mL	MeOH	M-502-33
	2 mg/mL	MeOH	M-502-33-10X
cis-1,3-Dichloropropene 10061-01-5	100 µg/mL	MeOH	APP-9-078

❄ ColdPAK required to maintain integrity of product.

** This product can not ship by air.

Volatile Organic Compounds (VOCs)

NEATS are as stated, SOLUTIONS are in 1 mL

VOCs

Compound	Conc.	Matrix	Cat. No.
trans-1,3-Dichloropropene 10061-02-6	100 µg/mL	MeOH	APP-9-079
1,1-Dichloro-1-propylene 563-58-6	5 mg/mL	MeOH	AS-E1166
2,4-Dichlorotoluene 95-73-8	5 mg/mL	MeOH	AS-E0149
1,2,3,4-Diepoxybutane 1464-53-5	1 mg/mL	AcCN	AS-E0577
m-Diethylbenzene 141-93-5	100 mg	NEAT	V-007
o-Diethylbenzene 135-01-3	100 mg	NEAT	V-006
p-Diethylbenzene 105-05-5	100 mg	NEAT	V-008
	100 µg/mL	Isooctane	M-GRA-ST
1,4-Difluorobenzene 540-36-3	0.2 mg/mL	MeOH	M-624-SS-07
	2 mg/mL	MeOH	M-624-SS-07-10X
Dimethyl sulfate 77-78-1	1 mg/mL	AcCN	AS-E0389
1,3-Dimethyl-2-nitrobenzene 81-20-9	0.25 mg/mL	MtBE	M-507-SS
	1.0 mg/mL	MtBE	M-507-SS-4X
1,3-Dinitrobenzene 99-65-0	100 µg/mL	CH_2Cl_2	APP-9-089
	1 mg/mL	CH_2Cl_2	APP-9-089-10X
	5 mg/mL	MeOH	AS-E0527
2,5-Dinitrotoluene 619-15-8	100 µg/mL	AcCN	M-8095-SS-03
3,4-Dinitrotoluene 610-39-9	100 µg/mL	AcCN	M-8095-SS-01
Dodecylbenzene 123-01-3	100 mg	NEAT	V-009
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
	1 mg/mL	MeOH	AS-E0687
Ethyl methanesulfonate 62-50-0	100 µg/mL	CH_2Cl_2	APP-9-106
	1 mg/mL	AcCN	AS-E0456
Ethylbenzene 100-41-4	1 gram	NEAT	M-502-35N
	100 µg/mL	MeOH	APP-9-104
	0.2 mg/mL	MeOH	M-502-35
	2 mg/mL	MeOH	M-502-35-10X
	10 mg/mL	MeOH	AS-E0036
Ethylbenzene-d_{10} 25837-05-2	0.2 mg/mL	MeOH	M-624-SS-08
Ethylene glycol 107-21-1	2 mg/mL	Water	D-4291-93
	10 mg/mL	Water	M-8015B/5031-13
Ethylene oxide 75-21-8	0.2 mg/mL	Isooctane	S-354-2
	5 mg/mL	Water	M-8015B/5031-14-R1 ❄
m-Ethyltoluene 620-14-4	100 mg	NEAT	V-031
o-Ethyltoluene 611-14-3	100 mg	NEAT	V-010
p-Ethyltoluene 622-96-8	100 mg	NEAT	V-011
2-Fluoroacetamide 640-19-7	5 mg/mL	AcCN	AS-E0299
Fluorobenzene 462-06-6	0.15 mg/mL	MeOH	AS-E0232
	0.2 mg/mL	MeOH	M-624-SS-09
	2 mg/mL	MeOH	M-524-IS-2
	20 mg/mL	MeOH	M-524-IS-2-10X
Fluorotrichloromethane 75-69-4	5 mg/mL	MeOH	AS-E0047
Heptadecylbenzene 14752-75-1	100 mg	NEAT	V-014
Heptylbenzene 1078-71-3	100 mg	NEAT	V-012
Hexachlorobenzene 118-74-1	100 mg	NEAT	A-012
	100 µg/mL	MeOH	APP-9-112
	1 mg/mL	Acetone	M-8091-IS-20X
	2 mg/mL	CH_2Cl_2	APP-9-112-D-20X
	2.0 mg/mL	Hexane	M-8120-05

Compound	Conc.	Matrix	Cat. No.
Hexachlorobutadiene 87-68-3	1 gram	NEAT	M-502-36N
	100 µg/mL	MeOH	APP-9-113
	0.2 mg/mL	MeOH	M-502-36
	2 mg/mL	MeOH	M-502-36-10X
	5 mg/mL	MeOH	AS-E0050
	2.0 mg/mL	Hexane	M-8120-06
Hexachlorocyclopentadiene 77-47-4	100 µg/mL	MeOH	APP-9-114
	1 mg/mL	MeOH	APP-9-114-10X
	2.0 mg/mL	Hexane	M-8120-07
Hexachloroethane 67-72-1	100 µg/mL	MeOH	APP-9-115
	1 mg/mL	MeOH	AS-E0011
	2.0 mg/mL	Hexane	M-8120-08
Hexachlorophene 70-30-4	100 µg/mL	MeOH	APP-9-116
	2 mg/mL	CH_2Cl_2	APP-9-116-D-20X
	5 mg/mL	MeOH	AS-E0323
Hexachloropropene 1888-71-7	100 µg/mL	MeOH	APP-9-117
	1 mg/mL	MeOH	AS-E0364
Hexadecylbenzene 1459-09-2	100 mg	NEAT	V-015
Hexylbenzene 1077-16-3	100 mg	NEAT	V-013
Isopropylbenzene 98-82-8	1 gram	NEAT	M-502-37N
	0.2 mg/mL	MeOH	M-502-37
	2 mg/mL	MeOH	M-502-37-10X
p-Isopropyltoluene (p-Cymene) 99-87-6	1 gram	NEAT	M-502-38N
	5 mg/mL	MeOH	AS-E1108
	0.2 mg/mL	MeOH	M-502-38
	2 mg/mL	MeOH	M-502-38-10X
Methacrylonitrile 126-98-7	100 µg/mL	MeOH	APP-9-125
	1 mg/mL	MeOH	AS-E0686
Methyl bromide 74-83-9	1 mg/mL	AcCN	AS-E0044
Methyl 2-bromopropionate 5445-17-0	1 mg/mL	MtBE	M-552.1-SS-ME
Methyl chloride 74-87-3	5 mg/mL	MeOH	AS-E0043
Methyl-2,3-dibromopropionate 1729-67-5	1 mg/mL	MtBE	M-552.2-SS-ME
1-Methyl ethyl benzene 98-82-8	5 mg/mL	MeOH	AS-E0669
Methyl iodide 74-88-4	100 µg/mL	MeOH	APP-9-130
	2.0 mg/mL	MeOH	APP-9-130-20X
Methyl isothiocyanate 556-61-6	25 µg/mL	Acetone	M-1659-RPS
Methyl methacrylate 80-62-6	100 µg/mL	MeOH	APP-9-131
	1 mg/mL	MeOH	AS-E0439
	2 mg/mL	MeOH	APP-9-131-20X
Methyl methanesulfonate 66-27-3	100 µg/mL	CH_2Cl_2	APP-9-132
	1 mg/mL	AcCN	AS-E0431
Naphthalene 91-20-3	1 gram	NEAT	M-502-40N
	1 mg/mL	MeOH	AS-E0053
	2 mg/mL	MeOH	M-502-40-10X
Naphthalene-d_8 1146-65-2	0.2 mg/mL	CH_2Cl_2	M-625-12
	4 mg/mL	CH_2Cl_2	Z-014J-4
Nitrobenzene 98-95-3	100 µg/mL	MeOH	APP-9-143
	1 mg/mL	MeOH	APP-9-143-10X
	5 mg/mL	MeOH	AS-E0054
Nitrobenzene-d_5 4165-60-0	0.2 mg/mL	CH_2Cl_2	M-625-13
	2 mg/mL	CH_2Cl_2	M-625-13-10X
Nonadecylbenzene 29136-19-4	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
Pentachloroethane 76-01-7	100 µg/mL	MeOH	APP-9-174
	2 mg/mL	MeOH	APP-9-174-20X
	5 mg/mL	MeOH	AS-E0300
Pentadecylbenzene 2131-18-2	100 mg	NEAT	V-021
Pentafluorobenzene 363-72-4	0.2 mg/mL	MeOH	M-624-SS-10
1,2-Propanediol 57-55-6	1 mg/mL	AcCN	AS-E0524

Volatile Organic Compounds (VOCs)

NEATS are as stated, SOLUTIONS are in 1 mL

VOCs

Compound	Conc.	Matrix	Cat. No.
Propionic acid	1 g	NEAT	AP-010N
79-09-4	5 mg/mL	AcCN	AS-E0673
Propionitrile	100 µg/mL	MeOH	APP-9-184
107-12-0	5 mg/mL	MeOH	AS-E0338
	10 mg/mL	Water	M-8015B/5031-25
n-Propylbenzene	100 mg	NEAT	V-022
(1-Phenylpropane)	1 gram	NEAT	M-502-41N
103-65-1	0.2 mg/mL	MeOH	M-502-41
	2 mg/mL	MeOH	M-502-41-10X
	5 mg/mL	MeOH	AS-E1112
Styrene	1 gram	NEAT	M-502-42N
100-42-5	100 µg/mL	MeOH	APP-9-189
	0.2 mg/mL	MeOH	M-502-42
	2 mg/mL	MeOH	M-502-42-10X
	5 mg/mL	MeOH	AS-E0257
TCMX	100 µg/mL	Hexane	M-8082-SS
(Tetrachloro-m-xylene)	0.2 mg/mL	MeOH	S-279
877-09-8			
	1 mg/mL	Hexane	M-8082-SS-10X
1,2,3,4-Tetrachlorobenzene	100 mg	NEAT	A-008
634-66-2	1 mg/mL	MeOH	AS-E0225
1,2,3,5-Tetrachlorobenzene	100 mg	NEAT	A-009
634-90-2			
1,2,4,5-Tetrachlorobenzene	100 mg	NEAT	A-010
95-94-3	100 µg/mL	MeOH	APP-9-191
	1.0 mg/mL	MeOH	APP-9-191-10X
	2.0 mg/mL	Hexane	M-8120-09
	2.5 mg/mL	AcCN	AS-E0177
1,1,1,2-Tetrachloroethane	1 gram	NEAT	M-502-43N
630-20-6	100 µg/mL	MeOH	APP-9-192
	0.2 mg/mL	MeOH	M-502-43
	1 mg/mL	MeOH	AS-E0335
	2 mg/mL	MeOH	M-502-43-10X
1,1,2,2-Tetrachloroethane	1 gram	NEAT	M-502-44N
79-34-5	100 µg/mL	MeOH	APP-9-193
	0.2 mg/mL	MeOH	M-502-44
	2 mg/mL	MeOH	M-502-44-10X
	5 mg/mL	MeOH	AS-E0014
Tetrachloroethene	1 gram	NEAT	M-502-45N
127-18-4	100 µg/mL	MeOH	APP-9-194
	0.2 mg/mL	MeOH	M-502-45
	2 mg/mL	MeOH	M-502-45-10X
	5 mg/mL	MeOH	AS-E0083
Tetradecylbenzene	100 mg	NEAT	V-023
1459-10-5			
Tetrahydrofuran	0.2 mg/mL	MeOH	S-457S
109-99-9	2 mg/mL	MeOH	S-457S-10X
	1 mg/mL	Water	M-1671A-IS
1,2,3,4-Tetramethylbenzene	100 mg	NEAT	V-024
488-23-3			
1,2,3,5-Tetramethylbenzene	100 mg	NEAT	V-025
527-53-7			
1,2,4,5-Tetramethylbenzene	100 mg	NEAT	V-026
95-93-2			
Toluene	1 gram	NEAT	M-502-46N
108-88-3	100 µg/mL	MeOH	APP-9-198
	0.2 mg/mL	MeOH	M-502-46
	1 mg/mL	MeOH	AS-E0084
	2 mg/mL	MeOH	M-502-46-10X
Toluene-d_8	0.25 mg/mL	MeOH	CLP-PS-3
2037-26-5	2.5 mg/mL	MeOH	CLP-PS-3-10X
1,3,5-Tribromobenzene	50 µg/mL	Acetone	M-8121-IS
626-39-1			
Trichloroacetonitrile	5 mg/mL	Acetone	M-551B-7
545-06-2			
1,2,3-Trichlorobenzene	100 mg	NEAT	A-005
87-61-6	1 gram	NEAT	M-502-47N
	0.2 mg/mL	MeOH	M-502-47
	2 mg/mL	MeOH	M-502-47-10X
	5 mg/mL	MeOH	AS-E0175
1,2,4-Trichlorobenzene	100 mg	NEAT	A-006
120-82-1	1 gram	NEAT	M-502-48N
	100 µg/mL	MeOH	APP-9-201
	0.2 mg/mL	MeOH	M-502-48
	1 mg/mL	MeOH	AS-E0007
	2 mg/mL	MeOH	M-502-48-10X

Compound	Conc.	Matrix	Cat. No.
1,3,5-Trichlorobenzene	100 mg	NEAT	A-007
108-70-3	5 mg/mL	MeOH	AS-E0176
1,1,1-Trichloroethane	100 µg/mL	MeOH	APP-9-202
71-55-6	0.2 mg/mL	MeOH	M-502-49
	1 mg/mL	MeOH	AS-E0010
	2 mg/mL	MeOH	M-502-49-10X
1,1,2-Trichloroethane	1 gram	NEAT	M-502-50N
79-00-5	100 µg/mL	MeOH	APP-9-203
	0.2 mg/mL	MeOH	M-502-50
	1 mg/mL	MeOH	AS-E0013
	2 mg/mL	MeOH	M-502-50-10X
Trichloroethene	1 gram	NEAT	M-502-51N
79-01-6	100 µg/mL	MeOH	APP-9-204
	0.2 mg/mL	MeOH	M-502-51
	1 mg/mL	MeOH	AS-E0085
	2 mg/mL	MeOH	M-502-51-10X
Trichlorofluoromethane	100 µg/mL	MeOH	APP-9-205
75-69-4	0.2 mg/mL	MeOH	M-502-52
	2 mg/mL	MeOH	M-502-52-10X
1,1,2-Trichloropropane	200 µg/mL	MeOH	S-1321B
598-77-6			
1,2,3-Trichloropropane	1 gram	NEAT	M-502-53N
96-18-4	100 µg/mL	MeOH	APP-9-208
	0.2 mg/mL	MeOH	M-502-53
	1 mg/mL	MeOH	APP-9-208-10X
	1 mg/mL	MtBE	M-552.1-IS
	2 mg/mL	MeOH	M-502-53-10X
	5 mg/mL	MeOH	AS-E0368
a,a,a-Trichlorotoluene	0.2 mg/mL	MeOH	M-624-SS-14
98-07-7			
Tridecylbenzene	100 mg	NEAT	V-027
123-02-4			
1,2,3-Trimethylbenzene	100 mg	NEAT	V-028
526-73-8	1 mg/mL	CH_2Cl_2	V-028S-D-10X
	3 % w/w	Isooctane	M-GRA-FP
1,2,4-Trimethylbenzene	100 mg	NEAT	V-029
95-63-6	1 gram	NEAT	M-502-54N
	0.2 mg/mL	MeOH	M-502-54
	2 mg/mL	MeOH	M-502-54-10X
	5 mg/mL	MeOH	AS-E1107
1,3,5-Trimethylbenzene	100 mg	NEAT	V-016
108-67-8	1 gram	NEAT	M-502-55N
	0.2 mg/mL	MeOH	M-502-55
	2 mg/mL	MeOH	M-502-55-10X
	5 mg/mL	MeOH	AS-E1103
1,3,5-Trinitrobenzene	100 µg/mL	MeOH	APP-9-210
99-35-4	2 mg/mL	MeOH	M-8270-10
	2.0 mg/mL	CH_2Cl_2	APP-9-210-D-20X
Undecylbenzene	100 mg	NEAT	V-030
6742-54-7			
Vinyl acetate	100 µg/mL	MeOH	APP-9-211 ❄
108-05-4	2 mg/mL	MeOH	APP-9-211-20X ❄
	1 mg/mL	AcCN	AS-E0327
Vinyl chloride	100 µg/mL	MeOH	APP-9-212
75-01-4	0.2 mg/mL	MeOH	M-502-56
	1 mg/mL	MeOH	AS-E0536
	2 mg/mL	MeOH	M-502-56-10X
Xylene (total)	100 µg/mL	MeOH	APP-9-213
1330-20-7			
m-Xylene	1 gram	NEAT	M-502-58N
108-38-3	0.2 mg/mL	MeOH	M-502-58
	1 mg/mL	MeOH	AS-E0202
	2 mg/mL	MeOH	M-502-58-10X
o-Xylene	1 gram	NEAT	M-502-57N
95-47-6	0.2 mg/mL	MeOH	M-502-57
	1 mg/mL	MeOH	AS-E0201
	2 mg/mL	MeOH	M-502-57-10X
p-Xylene	1 gram	NEAT	M-502-59N
106-42-3	0.2 mg/mL	MeOH	M-502-59
	1 mg/mL	MeOH	AS-E0203
	2 mg/mL	MeOH	M-502-59-10X

❄ ColdPAK required to maintain integrity of product.

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

Search by
- ✔ Functional Group
- Application
- EPA Method

Table of Contents

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

NEATS are as stated, SOLUTIONS are in 1 mL

Alcohols

Alcohols
EPA Methods include: 1673, 8015

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

Aldehydes and Derivatives

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

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 continued on next page

❄ ColdPAK required to maintain integrity of product.

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
***m*-Tolualdehyde-DNPH**	2880-05-9	0.1 mg/mL	AcCN	M-8315-R-DNPH-18
***o*-Tolualdehyde-DNPH**	1773-44-0	0.1 mg/mL	AcCN	M-8315-R-DNPH-19
***p*-Tolualdehyde-DNPH**	2571-00-8	0.1 mg/mL	AcCN	M-8315-R-DNPH-20

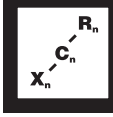
Aldehydes
EPA Methods include: 554, 556, 1667A, 8315, 8315A

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_2Cl_2	APP-9-004
		2 mg/mL	CH_2Cl_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.



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_2Cl_2	APP-9-046-D-20X
		5 mg/mL	MeOH	AS-E0022
2-Chlorophenol-d_4	93951-73-6	0.2 mg/mL	CH_2Cl_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_2Cl_2	APP-9-050
		1 mg/mL	CH_2Cl_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_2Cl_2	APP-9-051
		2 mg/mL	CH_2Cl_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_2Cl_2	APP-9-052
		2 mg/mL	CH_2Cl_2	APP-9-052-20X
		1.0 mg/mL	MeOH	M-8040-05
		5 mg/mL	MeOH	AS-E0252
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
2,5-Dichlorophenol	583-78-8	100 mg	NEAT	A-018
2,6-Dichlorophenol	87-65-0	100 mg	NEAT	A-019
		100 µg/mL	CH_2Cl_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-d_3	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_2Cl_2	M-625-16
		2 mg/mL	CH_2Cl_2	M-625-16-10X
2-Methyl-4,6-dinitrophenol	534-52-1	1.0 mg/mL	MeOH	M-8040-12
2-Nitrophenol (*o*-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
3-Nitrophenol (*m*-Nitrophenol)	554-84-7	5 mg/mL	MeOH	AS-E0662
4-Nitrophenol (*p*-Nitrophenol)	100-02-7	100 mg	NEAT	R-052N
		100 µg/mL	Toluene	R-052S
		100 µg/mL	MeOH	APP-9-145
		1.0 mg/mL	MeOH	M-8040-14
		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

NEATS are as stated, SOLUTIONS are in 1 mL

Phenols (continued)

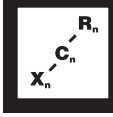
Compound	CAS No.	Conc.	Matrix	Cat. No.
Pentachlorophenol	87-86-5	100 mg	NEAT	A-031
		100 µg/mL	MeOH	APP-9-176
		1 mg/mL	MeOH	APP-9-176-10X
		2 mg/mL	CH_2Cl_2	APP-9-176-D-20X
		5 mg/mL	MeOH	AS-E0062
		25 µg/mL	CH_2Cl_2	M-625C-2
		0.2 mg/mL	CH_2Cl_2	M-625C-2-10X
		1.0 mg/mL	MeOH	M-8040-15
Pentachlorophenol-$^{13}C_6$	85380-74-1	0.1 mg/mL	Acetone	AS-E0191
Pentafluorophenol	771-61-9	0.2 mg/mL	CH_2Cl_2	M-625-17
Phenol	108-95-2	100 µg/mL	CH_2Cl_2	APP-9-179
		5 mg/mL	MeOH	AS-E0063
Phenol-d_5	4165-62-2	0.1 mg/mL	Acetone	AS-E0189
		0.2 mg/mL	CH_2Cl_2	M-625-18
		2 mg/mL	CH_2Cl_2	M-625-18-10X
2,3,4,5-Tetrachlorophenol	4901-51-3	5 mg	NEAT	A-028
2,3,4,6-Tetrachlorophenol	58-90-2	10 mg	NEAT	A-029-10MG
		100 µg/mL	MeOH	APP-9-195
		1.0 mg/mL	MeOH	M-8040-17
2,3,5,6-Tetrachlorophenol	935-95-5	100 mg	NEAT	A-030
2,4,6-Tribromophenol	118-79-6	20 µg/mL	MtBE	M-8085-HERB-SS
		0.2 mg/mL	CH_2Cl_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
3,4,5-Trichlorophenol	609-19-8	10 mg	NEAT	A-027
		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_2Cl_2	APP-9-011
		100 µg/mL	AcCN	RAC-02
		1 mg/mL	AcCN	RAC-02-10X
		1 mg/mL	MeOH	AS-E0578
Aniline	62-53-3	100 mg	NEAT	L-001N
		100 µg/mL	MeOH	APP-9-012
		1 mg/mL	MeOH	APP-9-012-10X
		5 mg/mL	MeOH	AS-E0542
Aniline-d_5	4165-61-1	0.2 mg/mL	CH_2Cl_2	M-625-01
		2 mg/mL	CH_2Cl_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



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_2Cl_2	M-625C-1
		2 mg/mL	CH_2Cl_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-Diaminoanisole 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
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_2Cl_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_2Cl_2	APP-9-085
		2.0 mg/mL	CH_2Cl_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_2Cl_2	APP-9-086
		2.0 mg/mL	CH_2Cl_2	APP-9-086-20X
2,4-Dinitroaniline	97-02-9	100 mg	NEAT	L-011N
Diphenylamine	122-39-4	100 µg/mL	CH_2Cl_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_2Cl_2	M-625-08
		2 mg/mL	CH_2Cl_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

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_2Cl_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_2Cl_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_2Cl_2	APP-9-141
4-Nitroaniline	100-01-6	100 mg	NEAT	R-056N
		100 µg/mL	Toluene	R-056S
		100 µg/mL	CH_2Cl_2	APP-9-142
		5 mg/mL	MeOH	AS-E0342
		5 mg/mL	AcCN	AS-E0392
5-Nitro-*o*-toluidine	99-55-8	100 µg/mL	CH_2Cl_2	APP-9-156
		5 mg/mL	MeOH	AS-E0344
N-Nitrosodiethylamine	55-18-5	100 µg/mL	CH_2Cl_2	APP-9-148
		2 mg/mL	CH_2Cl_2	APP-9-148-20X
		5 mg/mL	MeOH	AS-E0334
N-Nitrosodimethylamine	62-75-9	100 µg/mL	CH_2Cl_2	APP-9-149
		1 mg/mL	MeOH	APP-9-149-M-10X
		5 mg/mL	MeOH	AS-E0059
N-Nitrosodi-*n*-butylamine	924-16-3	100 µg/mL	CH_2Cl_2	APP-9-147
		2 mg/mL	CH_2Cl_2	APP-9-147-20X
		0.5 mg/mL	Water	M-8015B/5031-20
N-Nitrosodi-*n*-propylamine	621-64-7	100 µg/mL	CH_2Cl_2	APP-9-151
		2.5 mg/mL	CH_2Cl_2	APP-9-151-25X
		5 mg/mL	MeOH	AS-E0061
N-Nitrosodiphenylamine	86-30-6	100 µg/mL	CH_2Cl_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_2Cl_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
***p*-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_2Cl_2	APP-9-186-M
		2 mg/mL	CH_2Cl_2	APP-9-186-M-20X
		5 mg/mL	MeOH	AS-E0271
		10 mg/mL	Water	M-8015B/5031-26
Pyridine-d_5	7291-22-7	0.2 mg/mL	CH_2Cl_2	M-625-15
		2.0 mg/mL	CH_2Cl_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
o-Toluidine	95-53-4	100 µg/mL	MeOH	APP-9-199
		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
2,4,5-Trichloroaniline	636-30-6	100 mg	NEAT	L-006N
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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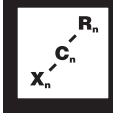

NEATS are as stated, SOLUTIONS are in 1 mL

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	79-08-3	40 µg/mL	MtBE	M-552.2A-07
Monobromoacetic acid)		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	79-11-8	1 mg/mL	MtBE	M-552A-2
(Monochloroacetic acid)		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
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

includes technical and physical info

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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		100 mg	NEAT	ALR-142N
Mixture of C9 Isomers		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-3,4,5,6-d_4	358731-25-6	5 mg	NEAT	PHTH-D4-004N
		100 µg/mL	MeOH	PHTH-D4-004S
Diethyl phthalate-3,4,5,6-d_4	93952-12-6	5 mg	NEAT	PHTH-D4-005N
		100 µg/mL	MeOH	PHTH-D4-005S
Di-iso-butyl phthalate-3,4,5,6-d_4	358730-88-8	5 mg	NEAT	PHTH-D4-003N
		100 µg/mL	MeOH	PHTH-D4-003S
Dimethyl phthalate-3,4,5,6-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-3,4,5,6-d_4	1015854-55-3	5 mg	NEAT	PHTH-D4-006N
		100 µg/mL	MeOH	PHTH-D4-006S
Di-n-octyl phthalate-3,4,5,6-d_4	93952-13-7	5 mg	NEAT	PHTH-D4-008N
		100 µg/mL	MeOH	PHTH-D4-008S
Di-n-pentyl phthalate-3,4,5,6-d_4	358730-89-9	5 mg	NEAT	PHTH-D4-009N
		100 µg/mL	MeOH	PHTH-D4-009S
Di-n-propyl phthalate-3,4,5,6-d_4	358731-29-0	5 mg	NEAT	PHTH-D4-010N
		100 µg/mL	MeOH	PHTH-D4-010S
bis(2-Ethylhexyl)phthalate-3,4,5,6-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
Diisohexyl 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
Diisooctyl 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
Isobutyl benzyl phthalate		10 mg	NEAT	PHTH-015N
		100 µg/mL	MeOH	PHTH-015S
Isobutylcyclohexyl phthalate	5334-09-8	100 mg	NEAT	J-014
Pentyl isopentyl phthalate	84777-06-0	10 mg	NEAT	PHTH-016N
		100 µg/mL	MeOH	PHTH-016S
n-Octyl n-decyl phthalate	119-07-3	100 mg	NEAT	J-015

Phthalates
EPA Methods:
506, 606, 8060, 8061

Phthalate Replacments
continued on next page

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
Fumeric 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
Olieic 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

Organic Analytes by Application

Search by

Functional Group

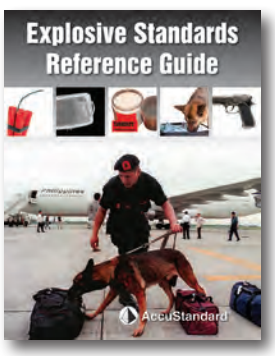
✔ **Application**

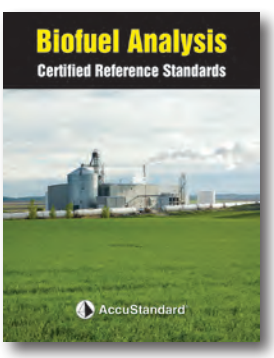
EPA Method

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

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

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

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..

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

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

❄ ColdPAK required to maintain integrity of product.

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

Internal Standard Fortification Solution

M-529-ISFS **1 x 1 mL**

200 µg/mL each in Ethyl acetate:AcCN (96:4) 14 comps.

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

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 2 comps.

1,3,5-Trimethyl-2-nitrobenzene
1,2,4-Trimethyl-5-nitrobenzene

M-529-SS2 **1 x 1 mL**
M-529-SS2-PAK ***SAVE*** **5 x 1 mL**
1000 µg/mL each in CH_2Cl_2

Nitrobenzene-d_5

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
1,2,4-Trimethyl-5-nitrobenzene
Nitrobenzene-d_5

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 ***SAVE*** **5 x 1 mL**
100 µg/mL each in AcCN:MeOH (50:50) 10 comps.

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

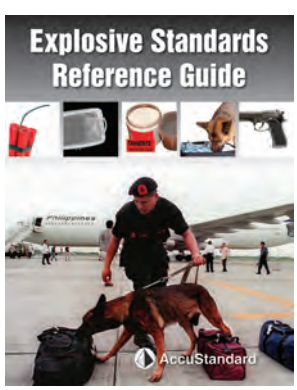
3,4-Dinitrotoluene

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



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 Matrix	Unit	1000 µg/mL Cat. No.	10,000 µg/mL Cat. No.
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

Organic Compounds for Firearm Discharge Analysis

Compound	Conc.	Matrix	Cat. No.	1 mL
2,4-Dinitrotoluene $C_7H_6N_2O_4$	100 µg/mL	AcCN:MeOH	M-8330-02-0.1X	
	1000 µg/mL	AcCN:MeOH	M-8330-02	
2,6-Dinitrotoluene $C_7H_6N_2O_4$	100 µg/mL	AcCN:MeOH	M-8330-03-0.1X	
	1000 µg/mL	AcCN:MeOH	M-8330-03	
3,4-Dinitrotoluene $C_7H_6N_2O_4$	1000 µg/mL	AcCN:MeOH	M-8330-IS	
Diphenylamine $C_{12}H_{11}N$	100 µg/mL	DCM	APP-9-097	
Ethylcentralite $C_{17}H_{20}N_2O$	100 µg/mL	AcCN:MeOH	M-8330-ADD-50	
Methylcentralite $C_{15}H_{16}N_2O$	100 µg/mL	AcCN:MeOH	M-8330-ADD-49	
2-Nitrodiphenylamine $C_{12}H_{10}N_2O_2$	100 µg/mL	AcCN:MeOH	M-8330-ADD-51	
4-Nitrodiphenylamine $C_{12}H_{10}N_2O_2$	100 µg/mL	AcCN:MeOH	M-8330-ADD-52	
1-Nitroglycerin ✤ $C_3H_5N_3O_9$	100 µg/mL	AcCN:MeOH	M-8330-ADD-31	
2-Nitroglycerin ✤ $C_3H_5N_3O_9$	100 µg/mL	AcCN:MeOH	M-8330-ADD-32	
N-Nitrosodiphenylamine $C_{12}H_{10}N_2O$	100 µg/mL	DCM	APP-9-150	
2-Nitrotoluene $C_7H_7NO_3$	1000 µg/mL	AcCN:MeOH	M-8330-07	
3-Nitrotoluene $C_7H_7NO_3$	1000 µg/mL	AcCN:MeOH	M-8330-08	
4-Nitrotoluene $C_7H_7NO_3$	1000 µg/mL	AcCN:MeOH	M-8330-09	

Any compound without ✤ could contain possible isomers

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

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.

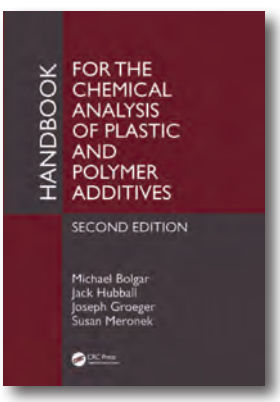
Table of Contents

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



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

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

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

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

Accelerants

Trade Name	Chemical Name	CAS No.	NEAT (50 mg)	SOLN (1 mL)
Accelerator BBTS	N-(1,1-dimethylethyl)-2-benzo thiazolesulfenamide	95-31-8	PLAS-AC-003N	PLAS-AC-003S
Accelerator CBTS	N-cyclohexyl-2-benzothioazole sulfenamide	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-piperidinyl)sebacate and Methyl(1,2,2,6,6-pentamethyl-4-piperidinyl)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[[6-[(1,1,3,3-tetramethylbutyl)amino]-s-triazine-2,4-diyl][(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'-methylphenol)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-Hexanediyl 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	----------
Ultranox® 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-(Triethoxysilypropyl)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	C-216S-H-10X
		100 mg	C-216N
Aroclor 1221 (Tech Mix)	11104-28-2	1000 µg/mL in Hexane	C-221S-H-10X
		50 mg	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	C-242S-H-10X
		50 mg	C-242N-50MG
Aroclor 1248 (Tech Mix)	12672-29-6	1000 µg/mL in Hexane	C-248S-H-10X
		50 mg	C-248N-50MG
Aroclor 1254 (Tech Mix)	11097-69-1	1000 µg/mL in Hexane	C-254S-H-10X
		50 mg	C-254N-50MG
Aroclor 1260 (Tech Mix)	11096-82-5	1000 µg/mL in Hexane	C-260S-H-10X
		50 mg	C-260N-50MG
Aroclor 1262 (Tech Mix)	37324-23-5	1000 µg/mL in Hexane	C-262S-H-10X
		50 mg	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
m-Terphenyl	92-06-8	100 mg	T-002N
o-Terphenyl	84-15-1	100 mg	T-001N
p-Terphenyl	92-94-4	100 mg	T-003N
Tetradecachloro-*m*-terphenyl	42429-89-0	35 µg/mL in Toluene	T-005S
Tetradecachloro-*o*-terphenyl		35 µg/mL in Toluene	T-004S
Tetradecachloro-*p*-terphenyl		35 µg/mL in Toluene	T-006S

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					**10 µg/mL in MeOH**
Bisphenol A (BPA)	4,4'-Isopropylidene-diphenol	80-05-7	* 1 mg/mL in MeOH 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	10 mg	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	20 mg	BPA-C2-S
Bisphenol E		2081-08-5	BPA-E-N		BPA-E-S
Bisphenol F		620-92-8	BPA-F-N-10MG	10 mg	BPA-F-S
Bisphenol G		127-54-8	BPA-G-N	20 mg	BPA-G-S
Bisphenol M		13595-25-0	BPA-M-N	20 mg	BPA-M-S
Bisphenol P		2167-51-3	BPA-P-N		BPA-P-S
Bisphenol PH		24038-68-4	BPA-PH-N	20 mg	BPA-PH-S
Bisphenol S		80-09-1	BPA-S-N		BPA-S-S
Bisphenol TMC		129188-99-4	BPA-TMC-N-10MG	10 mg	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	Fumeric 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	Azelaic Acid Derivative	103-24-2	----------	--	PLAS-PL-081S-A
Di(2-ethylhexyl)maleate [Dioctyl 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	Azelaic Acid Derivative	109-31-9	----------	--	PLAS-PL-078S-A
Diisobutyl adipate	Adipic Acid Derivative	141-04-8	----------	--	PLAS-PL-082S
Diisoctyl azelate	Azelaic Acid Derivative	26544-17-2	----------	--	PLAS-PL-076S-A
Diisodecyl azelate	*Azelaic 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	Azelaic Acid Derivative	1732-10-1	----------	--	PLAS-PL-077S-A
Dimethyl sebacate	Dimethyl decanedioate	106-79-6	PLAS-PL-061N		----------
Dioctyl phthalate (DOP)		117-81-7	PLAS-PL-019N		PLAS-PL-019S
Di(propylene glycol) dibenzoate	Benzoic Acid Derivative	27138-31-4	----------	--	PLAS-PL-101S
Disflamoll® TKP	Tricresyl phosphate	1330-78-5	PLAS-PL-073N		----------
Disflamoll® 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	Olieic 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-ethanediylbis(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	Diisoheptyl 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 DTDP	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	Olieic Acid Derivative	112-62-9	----------	--	PLAS-PL-097S
Morflex® 150	Dicyclohexyl phthalate	84-61-7	PLAS-PL-014N		PLAS-PL-014S
Morflex 190	Butylphthalyl butyl glycolate	85-70-1	PLAS-PL-008N		PLAS-PL-008S
Morflex 560	Tri-n-hexyl trimellitate	1528-49-0	PLAS-PL-031N		PLAS-PL-031S
Morflex 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	Olieic 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: isodecyldiphenyl 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-isobutyryloxy-1-isopropyl-2,2-dimethylpropyl phthalate	16883-83-3	PLAS-PL-074N		----------
Tetrahydrofurfuryl oleate	Olieic 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 trithiocarbomate		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-003N
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-hyfroxyphenyl)benzotriazole		36437-37-3	----------	PLAS-UV-014S-CN
2-(2H-Benzotriazol-2yl)-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** **11 x 5 mg**	**PHTH-D4S-SET** 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
- Erucamide Slip
- Vitamin E
- Irgafos 168
- Irganox 3114
- Irganox 1010
- Irganox 1076

Internal Standard Mix

PLAS-IS-001 **1 x 1 mL**

PLAS-IS-001-PAK ***SAVE*** **5 x 1 mL**

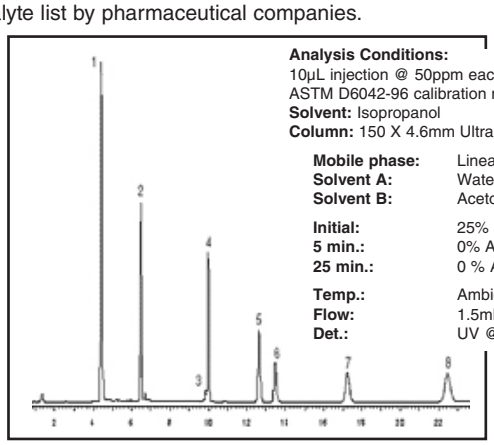
51.8 µg/mL in Isopropanol

- 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



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

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
2. BHT
3. Erucamide
4. Irganox® 3114
5. Irganox 1010
6. Vitamin E
7. Irganox 1076
8. Irgafos® 168

Food Analysis

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

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.

		NEAT		SOLUTION Each at 100 µg/mL in Toluene	
Compound	**CAS**	**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 100 µg/mL in MeOH	1 mL

Quinoline (Internal Standard)
FAC-IS-T 1 mL
50 µg/mL in Toluene

FAC-SET **6 x 1 mL**

Unsaturated Methyl Esters

99% Purity

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

Neats and Solutions are sealed under Nitrogen Blanket

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 (Brassidate) 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

❄ 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
Methy lundecanoate 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
Trioctanoin *(Caprylin)* C8:0	538-23-8	GS-001N
Dicaprylin C8:0	36354-80-0	GS-002N
Caprylin C8:0	19670-49-6	GS-003N
Tridecanoin *(Caprin)* C10:0	621-71-6	GS-004N
Dicaprin C10:0	53988-07-1	GS-005N
Monocaprin C10:0	26402-22-2	GS-006N
Tridodecanoin *(Laurin)* C12:0	538-24-9	GS-007N
Dilaurin C12:0	27638-00-2	GS-008N
Monolaurin C12:0	142-18-7	GS-009N
Tritetradecanoin *(Myristin)* C14:0	555-45-3	GS-010N
Dimyristin C14:0	53563-63-6	GS-011N
Monomyristin C14:0	589-68-4	GS-012N
Trihexadecanoin *(Palmitin)* C16:0	555-44-2	GS-013N

Compound	CAS No.	NEAT 100 mg
Dipalmitin C16:0	26657-95-4	GS-014N
Monopalmitin C16:0	542-44-9	GS-015N
Trioctadecanoin *(Stearin)* C18:0	555-43-1	GS-016N
Distearin C18:0	1323-83-7	GS-017N
Monostearin C18:0	22610-63-5	GS-018N
Trieicosanoin *(Arachidin)* C20:0	620-64-4	GS-019N
Diarachidin C20:0	60586-60-9	GS-020N
Arachidin C20:0		GS-021N
Tridocosanoin *(Behenin)* C22:0	18641-57-1	GS-022N
Dibehenin C22:0		GS-023N
Behenin C22:0	6916-74-1	GS-024N
		GS-KIT 24 x 100 mg

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	Trieicosenoin C20:1 cis	80380-39-8	UG-028N
Diolein 9 C18:1	25637-84-7	UG-011N	Dieicosenoin C20:1	102783-82-4	UG-029N
Monoolein 9 C18:1	111-03-5	UG-012N	Monoeicosenoin C20:1		UG-030N
Trielaidin 9 C18:1 trans	537-39-3	UG-013N	cis-11,14-Trieicosadienoin C20:2 cis,cis		UG-031N ❄
Dielaidin 9 C18:1 trans	98168-52-6	UG-014N	Dieicosadienoin C20:2		UG-032N ❄
Monoelaidin 9 C18:1 trans	2716-53-2	UG-015N	Monoeicosadienoin 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, perrilla & 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**

AOCS Reference Mix	Cat. No.	Methyl Ester (% Composition by Weight) 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

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

NHI/NIH Reference Mix	Cat. No.	Methyl Ester (% Composition by Weight) 100 mg C8:0 Caprylate	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		24.9		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

NHI-SET ❄ **6 x 100 mg**

❄ ColdPAK required to maintain integrity of product.

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 petroselinate (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)

Standards of Interest
For FAEE standards refer to Biofuels in the Petrochemical section.

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

FAME Quantitative Standard Mix
FAMQ-005 ❄ **1 x 1 mL**
At stated conc. (mg/mL) in CH_2Cl_2 (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.

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		CAS No.	Unit	Cat. No.
Thiamine • HCl	B1	67-03-8	1 gram	VIT-001N
Riboflavin	B2	83-88-5	1 gram	VIT-002N
Pyridoxine • HCl	B6	58-56-0	1 gram	VIT-003N
L-Ascorbic acid	C	50-81-7	1 gram	VIT-004N
Nicotinic acid	Niacin	59-67-6	1 gram	VIT-005N
Nicotinamide		98-92-0	1 gram	VIT-006N
Folic Acid	M	59-30-3	1 gram	VIT-007N
Calcium-D-pantothenate	B5	137-08-6	100 mg	VIT-008N
d-Biotin	H	58-85-5	100 mg	VIT-009N-R1
Cyanocobalamin	B12	68-19-9	25 mg	VIT-010N-R1
		VIT-WSK-R1-SET		**10 units**

Fat Soluble		CAS No.	Unit	Cat. No.
DL-a-Tocopherol	E	10191-41-0	100 mg	VIT-012N
Cholecalciferol	D3	67-97-0	100 mg	VIT-013N
Retinol palmitate	A, Palmitate	79-81-2	100 mg	VIT-014N
DL-a-Tocopherol acetate		7695-91-2	100 mg	VIT-015N
Phylloguinone	K1	84-80-0	100 mg	VIT-016N
Menaquinone	K2	863-61-6	100 mg	VIT-017N
Menadione	K3	58-27-5	100 mg	VIT-018N
β-Carotene (Substantially free of alpha Carotene)		7235-40-7	10 mg	VIT-019N
D-a-Tocopherol succinate	E	4345-03-3	100 mg	VIT-020N
Ergocalciferol	D2	50-14-6	100 mg	VIT-022N
		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 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 — **1 mL**
100 µg/mL each in PT Methanol — 14 comps.

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

Cannabis Terpene Mix 2

CP-TER-MIX-002 — **1 mL**
100 µg/mL each in PT Methanol — 14 comps.

- beta-Pinene
- (–)-Guaiol
- (+)-Borneol
- (–)-Borneol
- alpha-Humulene
- alpha-Pinene
- alpha-Terpinene
- (R)-Limonene
- gamma-Terpinene
- Geraniol
- L-(-)-Fenchone
- *p*-Cymene
- Terpinolene
- 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 — **1 mL**
1000 µg/mL each in PT Methanol — 3 comps.

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

Restrictions may apply contact us for details.

Cannabis Standards

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	Flonicamid	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.

Acetamiprid	Fludioxonil	Propiconazole
Azoxystrobin	Imazalil	Pyridaben
Bifenazate	Kresoxim-methyl	Spiromesifen
Boscalid	Metalaxyl	Spiroxamine
Chlorfenapyr	MGK-264	Tebuconazol
Dichlorvos	Myclobutanil	Thiacloprid
Etoxazole	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	Etoxazole	Pyrethrins
Acequinocyl	Fenhexamid	Quintozene
Alar	Flonicamid	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	NEAT	ALR-066N	
		100 µg/mL	MeOH	ALR-066S	
Alkylphenol ethoxylates:					
Nonylphenol-ethylene oxide condensate (Nonoxynol-9)	26027-38-3	100 mg	NEAT	ALR-079N	
		100 µg/mL	MeOH	ALR-079S	
Polyethylene glycol nonaphenyl ether (Triton N-101)	123359-41-1	100 mg	NEAT	ALR-078N	
		100 µg/mL	MeOH	ALR-078S	
Allylisothiocyanate	57-06-7	100 mg	NEAT	ALR-028N	
		1000 µg/mL	EtOH	ALR-028S-ET-10X	
Amyl cinnamal	122-40-7	100 mg	NEAT	ALR-001N	
		1000 µg/mL	AcCN	ALR-001S-CN-10X	
Amylcinnamyl alcohol	101-85-9	1000 µg/mL	EtOH	ALR-008S-ET-10X	
Anisyl alcohol	105-13-5	100 mg	NEAT	ALR-014N	
		1000 µg/mL	EtOH	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	NEAT	ALR-080N	
		100 µg/mL	MeOH	ALR-080S	
Benzophenone-3 (Bp-3)	131-57-7	100 mg	NEAT	ALR-081N	
		100 µg/mL	AcCN	ALR-081S-CN	
Benzyl alcohol	100-51-6	100 mg	NEAT	ALR-002N	
		1000 µg/mL	EtOH	ALR-002S-ET-10X	
Benzyl benzoate	120-51-4	100 mg	NEAT	ALR-019N	
		1000 µg/mL	EtOH	ALR-019S-ET-10X	
Benzyl butyl phthalate	85-68-7	100 mg	NEAT	ALR-082N	
		100 µg/mL	MeOH	ALR-082S	
Benzyl cinnamate	103-41-3	100 mg	NEAT	ALR-015N	
		1000 µg/mL	EtOH	ALR-015S-ET-10X	
Benzyl cyanide	140-29-4	100 mg	NEAT	ALR-029N	
		1000 µg/mL	EtOH	ALR-029S-ET-10X	
Benzyl 2-ethylhexyl phthalate	27215-22-1	100 mg	NEAT	ALR-165N	
		100 µg/mL	MeOH	ALR-165S	
Benzyl paraben	94-18-8	100 mg	NEAT	ALR-083N	
		100 µg/mL	MeOH	ALR-083S	
Benzyl salicylate	118-58-1	100 mg	NEAT	ALR-009N	
		1000 µg/mL	AcCN	ALR-009S-CN-10X	
Bithionol	97-18-7	100 mg	NEAT	ALR-084N	
		100 µg/mL	MeOH	ALR-084S	
5-Bromo-5-nitro-1,3-dioxane (Bronidox L) (BND)	30007-47-7	100 mg	NEAT	ALR-074N	
		100 µg/mL	MeOH	ALR-074S	
2-Bromo-2-nitropropane-1,3-diol (Bronopol)	52-51-7	100 mg	NEAT	ALR-067N	
		100 µg/mL	MeOH	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	NEAT	ALR-087N	
		100 µg/mL	MeOH	ALR-087S	
Butylated hydroxytoluene (BHT & 2,6-DBPC)	128-37-0	100 mg	NEAT	ALR-088N	
		100 µg/mL	MeOH	ALR-088S	
Butylene glycol	107-88-0	100 mg	NEAT	ALR-089N	
		100 µg/mL	MeOH	ALR-089S	
Butyl-methoxydibenzoylmethane (B-MDM) Sunblock, Parsol1789	70356-09-1	100 µg/mL	MeOH	ALR-086S	
Butyl paraben	94-26-8	100 mg	NEAT	ALR-085N	
		100 µg/mL	MeOH	ALR-085S	
p-tert-Butylphenol	98-54-4	100 mg	NEAT	ALR-030N	
		1000 µg/mL	EtOH	ALR-030S-ET-10X	

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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	
Chloroform	67-66-3	100 mg	NEAT	ALR-091N	
		100 µg/mL	MeOH	ALR-091S	
2-Chloropyridine	109-09-1	100 mg	NEAT	ALR-068N	
		100 µg/mL	MeOH	ALR-068S	
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	
Cinnamyl alcohol	104-54-1	100 mg	NEAT	ALR-003N	
		1000 µg/mL	EtOH	ALR-003S-ET-10X	
Citral	5392-40-5	100 mg	NEAT	ALR-004N	
		1000 µg/mL	AcCN	ALR-004S-CN-10X	
β-Citronellol	106-22-9	100 mg	NEAT	ALR-020N	
		1000 µg/mL	EtOH	ALR-020S-ET-10X	
Coal Tar (black)	8007-45-2	100 mg	NEAT	ALR-094N	
		100 µg/mL	Toluene	ALR-094S-T	
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	
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	
Diamyl phthalate	131-18-0	100 mg	NEAT	ALR-098N	
		100 µg/mL	MeOH	ALR-098S	
Diazolidinyl urea	78491-02-8	100 mg	NEAT	ALR-106N	
		100 µg/mL	MeOH	ALR-106S	
Dibromsalon (Halogenated salicylanilides)	87-12-7	10 mg	NEAT	ALR-107N-10MG	
		100 µg/mL	MeOH	ALR-107S	
Dicyclohexyl phthalate	84-61-7	100 mg	NEAT	ALR-099N	
		100 µg/mL	MeOH	ALR-099S	
Diethanolamine (DEA)	111-42-2	100 mg	NEAT	ALR-109N	
		100 µg/mL	MeOH	ALR-109S	
Di(2-ethylhexyl)phthalate (DEHP)	117-81-7	100 mg	NEAT	ALR-097N	
		100 µg/mL	MeOH	ALR-097S	
Diethyl maleate	141-05-9	100 mg	NEAT	ALR-033N	
		1000 µg/mL	EtOH	ALR-033S-ET-10X	
Diethyl phthalate	84-66-2	100 mg	NEAT	ALR-110N	
		100 µg/mL	MeOH	ALR-110S	
Dihexyl phthalate	84-75-3	100 mg	NEAT	ALR-100N	
		100 µg/mL	MeOH	ALR-100S	
Dihydroabietyl alcohol	26266-77-3	100 mg	NEAT	ALR-047N	
		1000 µg/mL	EtOH	ALR-047S-ET-10X	
Dihydrocoumarin	119-84-6	100 mg	NEAT	ALR-034N	
		1000 µg/mL	Acetone	ALR-034S-A-10X	
Diisodecyl phthalate (Tech)	26761-40-0	100 mg	NEAT	ALR-101N	
		100 µg/mL	MeOH	ALR-101S	
Diisononyl phthalate (Tech)	68515-48-0	100 mg	NEAT	ALR-102N	
		100 µg/mL	MeOH	ALR-102S	
Diisooctyl phthalate (Tech)	27554-26-3	100 mg	NEAT	ALR-103N	
		100 µg/mL	MeOH	ALR-103S	
Dimethyl citraconate	617-54-9	100 mg	NEAT	ALR-038N	
		1000 µg/mL	EtOH	ALR-038S-ET-10X	
Dimethyl phthalate (DMP)	131-11-3	100 mg	NEAT	ALR-111N	
		100 µg/mL	MeOH	ALR-111S	
6,10-Dimethyl-3,5,9-undecatrien-2-one (Pseudoionone)	141-10-6	100 mg	NEAT	ALR-040N	
		1000 µg/mL	Acetone	ALR-040S-A-10X	
Di-n-butyl phthalate (DBP)	84-74-2	100 mg	NEAT	ALR-104N	
		100 µg/mL	MeOH	ALR-104S	
Di-n-octyl phthalate	117-84-0	100 mg	NEAT	ALR-105N	
		100 µg/mL	MeOH	ALR-105S	
1,4-Dioxane	123-91-1	100 mg	NEAT	ALR-062N	
		100 µg/mL	MeOH	ALR-062S	
Diphenylamine	122-39-4	100 mg	NEAT	ALR-041N	
		1000 µg/mL	EtOH	ALR-041S-ET-10X	
2-Ethoxyethanol	110-80-5	100 mg	NEAT	ALR-064N	
		100 µg/mL	MeOH	ALR-064S	
2-Ethoxyethanol acetate	111-15-9	100 mg	NEAT	ALR-065N	
		100 µg/mL	MeOH	ALR-065S	
Ethyl acrylate	140-88-5	100 mg	NEAT	ALR-042N	
		1000 µg/mL	EtOH	ALR-042S-ET-10X	
Ethyl paraben	120-47-8	100 mg	NEAT	ALR-113N	
		100 µg/mL	MeOH	ALR-113S	
Ethylene diamine dihydrochloride	333-18-6	100 mg	NEAT	ALR-114N	
		100 µg/mL	MeOH	ALR-114S	
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	

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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	

Allergens

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-butenoate	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	
Octyl-methoxycinnamate (OMC)	5466-77-3	100 mg	NEAT	ALR-144N	
		100 µg/mL	MeOH	ALR-144S	
4-Phenyl-3-buten-2-one	122-57-6	100 mg	NEAT	ALR-058N	
		1000 µg/mL	AcCN	ALR-058S-CN-10X	
m-Phenylenediamine (MPD)	108-45-2	100 mg	NEAT	ALR-127N	
		100 µg/mL	MeOH	ALR-127S	
p-Phenylenediamine (PPD)	106-50-3	100 mg	NEAT	ALR-147N	
		100 µg/mL	MeOH	ALR-147S	
Polyethylene glycol (PEG), appr. Molecular weight 200	25322-68-3	100 mg	NEAT	ALR-149N-MW200	
		100 µg/mL	MeOH	ALR-149S-MW200	
Polyethylene glycol (PEG), appr. Molecular weight 400	25322-68-3	100 mg	NEAT	ALR-149N-MW400	
		100 µg/mL	MeOH	ALR-149S-MW400	
Polyethylene glycol (PEG), appr. Molecular weight 600	25322-68-3	100 mg	NEAT	ALR-149N-MW600	
		100 µg/mL	MeOH	ALR-149S-MW600	
Polyethylene glycol (PEG), appr. Molecular weight 1500	25322-68-3	100 mg	NEAT	ALR-149N-MW1500	
		100 µg/mL	MeOH	ALR-149S-MW1500	
Polyethylene glycol (PEG), appr. Molecular weight 4000	25322-68-3	100 mg	NEAT	ALR-149N-MW4000	
		100 µg/mL	MeOH	ALR-149S-MW4000	
Polyvinylpyrolidone 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	

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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) (Tetramethylthiouram 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
Allylisothiocyanate	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% HNO_3, except † in Water

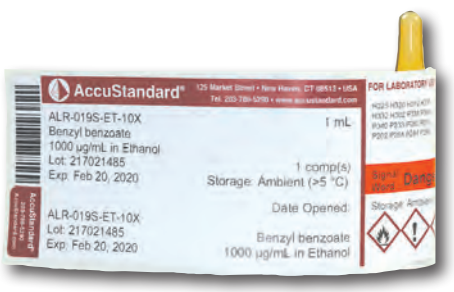
Compound	CAS No.	Cat. No.	100 mL
Arsenic	7440-38-2	ALR-MET-01S	
Chromium	7440-47-3	ALR-MET-02S	
Cobalt	7440-48-4	ALR-MET-03S	
Lead	7439-92-1	ALR-MET-04S	
Mercury	7439-97-6	ALR-MET-05S *	
Nickel	7440-02-0	ALR-MET-06S	
Potassium dichromate	7778-50-9	ALR-MET-07S †	
Zirconium	7440-67-7	ALR-MET-08S	

*† in Water, * 10% HNO_3*

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

* in AcCN
** in THF

Compound	Synonym	CAS No.	NEAT 100 mg Cat. No.	Solution 1 mL Cat. No.
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	*Ponceau Xylidine*	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
Basic Blue 26	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
Congo Red	see Direct Red 28			
Crocein Scarlet 3b		5413-75-2	DYE-115N	DYE-115S
Crystal Violet	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	*Congo Red*	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	*Sunset Yellow FCF*	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
Ponceau Xylidine	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	*Sudan Red 7B*	6368-72-5	DYE-025N	DYE-025S
Solvent Red 23	*Sudan III*	85-86-9	DYE-022N	DYE-022S
Solvent Red 24	*Sudan IV*	85-83-6	DYE-023N	DYE-023S
Solvent Yellow 1		60-09-3	--------	DYE-029S
Solvent Yellow 14	*Sudan I, Solvent Orange R*	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	*Basic Blue 26*	2580-56-5	DYE-111N	DYE-111S

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
o-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-*o*-toluidine	RAC-06	RAC-06-10X	RAC-06-EA-0.1X-10ML
p-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
o-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
p-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
o-Anisidine	RAC-23	RAC-23-10X	RAC-23-EA-0.1X-10ML
3-Chloro-*o*-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 (PFSAs), 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

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	

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

Alcohols

C_1-C_5 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

nC_6-C_{22} 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%

C_6-C_8 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-*tert*-Butyl-4-methoxy phenol)
BHT (2,6-*di*-*tert*-Butyl-4-methyl phenol)
4-Hydroxymethyl-2,6-*di*-*tert*-butyl phenol
THBP (2,4,5-Trihydroxybutyrophenone)
Ethoxyquin (1,2-Dihydro-6-ethoxy-2,2,4-trimethyl quinoline)
tert-Butyl hydroquinone
DLTDP (Dilaurylthiodipropionate)
Thiodipropionic acid
Propyl gallate
Ascorbyl palmitate
Ascorbic acid
Erythorbic acid (*iso*-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 CH_2Cl_2 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
n-Undecane	0.29
n-Decane	0.28

Contains interactive and labile components.

Refrigerate when not in use.

Alkane C_8-C_{12} Mixture
PS-CP-02-1ML **1 mL**

0.5 mg/mL each in n-Hexane 5 comps.

n-Octane
n-Nonane
n-Decane
n-Undecane
n-Dodecane

Alkane C_{13}-C_{20} Mixture
PS-CP-03-1ML **1 mL**

0.5 mg/mL each in n-Hexane 8 comps.

n-Tridecane
n-Tetradecane
n-Pentadecane
n-Hexadecane
n-Heptadecane
n-Octadecane
n-Nonadecane
n-Eicosane

Alkane C_{22}-C_{32} Even Number Mixture
PS-CP-04-1ML **1 mL**

0.5 mg/mL each in n-Hexane 6 comps.

n-Docosane
n-Tetracosane
n-Hexacosane
n-Octacosane
n-Tricosane
n-Dotriacontane

Alkane C_{34}-C_{44} Even Number Mixture
PS-CP-05A-1ML **1 mL**

0.5 mg/mL each in n-Hexane 4 comps.

n-Tetratriacontane
n-Hexatriacontane
n-Octatriacontane
n-Tetracontane

Alkane C_8-C_{40} Mixture
PS-CP-06A-1ML **1 mL**

0.5 mg/mL each in n-Hexane 23 comps.

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

Visit our website for the latest New Products and Technical Information including:

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

Hydrocarbons

Alkanes nC_6-nC_{19}

PS-211C-R1-SET **14 ampules**

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

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

Alkanes nC_{19}-nC_{40}

PS-261C-R1-SET **14 ampules**

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

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

Fatty Acids

Fatty Acids C_3-C_{18}

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
n-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
p,p-DDT
p,p'-DDE
p,p'-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 CH_2Cl_2

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
n-Propyl mercaptan	22.4
isobutyl mercaptan	28.6
n-Butyl mercaptan	35.6

Environmental Protection Agency (EPA) Methods

Environmental Protection Agency (EPA) Methods

Table of Contents

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

Compound CAS No.	Conc. (µg/mL)	Solv.	Cat. No.	1 mL
Acenaphthene 83-32-9	100 1,000	M M	APP-9-001 APP-9-001-10X	
Acenaphthene-d_{10} 15067-26-2	500	M	M-548.1-IS	
Acenaphthylene 208-96-8	100 1,000	M M	APP-9-002 APP-9-002-10X	
Acephate 30560-19-1	100 1,000	A A	P-200S-A P-200S-A-10X	
Acetaldehyde 75-07-0	1,000 1,000	W M	M-8315-01 M-554-01 ❄	
Acetaldehyde-DNPH 1019-57-4	100 1,000	CN M:CN	M-8315-R-DNPH-01 M-554-DNPH-01	
Acetochlor 34256-82-1	100	M	P-465S	
Acetone 67-64	100 10,000	M W	APP-9-003 ❄ M-8015B/5031-01	
Acetone-DNPH 1567-89-1	100	CN	M-8315-R2-DNPH-02	
Acetonitrile 75-05-8	100 1,000	M M	APP-9-005 APP-9-005-10X	
Acetophenone 98-86-2	100 2000	D D	APP-9-004 APP-9-004-20X	
2-Acetylaminofluorene 53-96-3	100	D	APP-9-006	
Acifluorfen 50594-66-6	100 1,000	M M	P-245S P-245S-10X	
Acifluorfen methyl ester 50594-67-7	100 1,000	M M	P-246S P-246S-10X	
Acrolein 107-02-8	100 1,000	M:W M:W	APP-9-007 ❄ APP-9-007-10X ❄	
Acrolein-DNPH 888-54-0	100 1,000	CN CN	M-8315-R-DNPH-03 M-8315-R-DNPH-03-10X	
Acrylamide 79-06-1	1,000	M	M-8032	
Acrylonitrile 107-13-1	100 1,000	M M	APP-9-008 APP-9-008-10X	
Alachlor 15972-60-8	100 1,000	M M	P-102S P-102S-10X	
Alanap 132-66-1	100	M	P-274S	
Aldicarb 116-06-3	100 100	M CN	P-001S M-531-06	
Aldicarb sulfone 1646-88-4	100 100	CN M	M-531-02 M-8318-02	
Aldicarb sulfoxide 1646-87-3	100 100	M CN	P-131S M-531-01	
Aldrin 309-00-2	100 1,000	M M	P-002S P-002S-10X	
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 2000	M M	APP-9-010 APP-9-010-20X	
Ametryn 834-12-8	100 1,000	M M	P-003S P-003S-10X	

Compound CAS No.	Conc. (µg/mL)	Solv.	Cat. No.	1 mL
4-Aminobiphenyl 92-67-1	100	D	APP-9-011	
Aminocarb 2032-59-9	100 100	CN M	M-632-01 P-062S	
2-Amino-4,6-dinitrotoluene 35572-78-2	100 1,000	M:CN M:CN	M-8330-13-0.1X M-8330-13	
4-Amino-2,6-dinitrotoluene 19406-51-0	100 1,000	M:CN M:CN	M-8330-14-0.1X M-8330-14	
4-Aminopyridine 504-24-5	100	M	P-407S	
Anilazine 101-05-3	100	H:A 80:20	P-287S-H	
Aniline 62-53-3	100 1,000	M M	APP-9-012 APP-9-012-10X	
Aniline-d_5 4165-61-1	200 2,000	D D	M-625-01 M-625-01-10X	
Anthracene 120-12-7	100 1,000	M M	APP-9-013 APP-9-013-10X	
Anthracene-d_{10} 1719-06-8	200	D	M-625-02	
Aramite 140-57-8	100	M	P-132S	
Asulam 3337-71-1	100	M	P-276S	
Atrazine 1912-24-9	100 1,000	M M	P-005S P-005S-10X	
Atrazine desethyl 6190-65-4	100	M	P-343S	
Atrazine-desisopropyl 1007-28-9	100	M	P-345S	
Azamethiphos 35575-96-3	100	M	P-352S	
Azinphos-ethyl 2642-71-9	100 1,000	M H	P-201S M-8141A-1-01	
Azinphos-methyl 86-50-0	100 1,000	M H	P-007S M-8140-01	
Azobenzene 103-33-3	2,000	D	Z-014B-1	
Barbamate (Barban) 101-27-9	100 100	M CN	P-202S M-632-02	
Baycarb 3766-81-2	100	M	P-347S	
Baygon 114-26-1	100 100	M CN	P-009S M-531-07	
Benazolin 3813-05-6	100	M	P-397S	
Bendiocarb 22781-23-3	100 100	M CN	P-203S M-639	
Benfluralin 1861-40-1	100	M	P-237S	
Benfuracarb 82560-54-1	100 1000	M M	P-454S P-454S-10X	
Benomyl 17804-35-2	100	CN	P-104S-CN ❄	
Bensulfuron-methyl 83055-99-6	100	M	P-597S	

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
Bensulide	100	CN	M-636
741-58-2	100	M	P-204S
Bentazon	100	A	P-177S-A
25057-89-0	1000	A	P-177S-A-10X
Bentazon methyl	100	M	P-241S
61592-45-8			
Benz[a]anthracene	100	M	APP-9-016
56-55-3	1,000	M	APP-9-016-10X
Benz[a]anthracene-d_{12}	200	D	M-625-03
1718-53-2	2,000	D	M-625-03-10X
Benzaldehyde-DNPH	100	CN	M-8315-R-DNPH-04
1157-84-2			
Benzene	200	M	M-502-01
71-43-2	2,000	M	M-502-01-10X
Benzene-d_6	200	M	M-624-SS-01
1076-43-3	2,000	M	M-624-SS-01-10X
Benzidine †	50	D	M-625C-1
92-87-5	2000	D	M-625C-1-40X
Benz[a]pyrene	100	M	APP-9-020
50-32-8	500	CN	M-8310-FL-05
Benzo[b]fluoranthene	100	M	APP-9-017
205-99-2	1,000	M	APP-9-017-10X
Benzo[g,h,i]perylene	100	D	APP-9-019
191-24-2	1,000	D	APP-9-019-10X
Benzo[k]fluoranthene	100	M	APP-9-018
207-08-9	500	CN	M-8310-FL-08
Benzoic acid	2,000	D	Z-014D-1
65-85-0			
Benzyl alcohol	100	M	APP-9-021
100-51-6	5000	M	APP-9-021-50X
Benzyl benzoate	5,000	H	M-8061-IS
120-51-4			
Benzyl butyl phthalate	100	M	APP-9-034
85-68-7			
Benzyl chloride	200	M	M-8010-01
100-44-7			
α-BHC	100	M	P-010S
319-84-6	1,000	M	P-010S-10X
β-BHC	100	M	P-011S
319-85-7	1,000	M	P-011S-10X
δ-BHC	100	M	P-012S
319-86-8	1,000	M	P-012S-10X
BHC Tech	100	M	P-081S
608-73-1			
Bifenox	100	M	P-257S
42576-02-3			
Bifenthrin	100	M	P-445S
82657-04-3	1000	M	P-445S-10X
Bitertanol	100	M	P-351S
55179-31-2			
Bloc	100	M	P-086S
60168-88-9			
Bolstar	100	M	P-108S
35400-43-2	1,000	H	M-8140-02
Botran	100	M	P-013S
99-30-9			
Bromacil	100	M	P-181S
314-40-9			
Brominal	100	M	P-256S
1689-84-5			
Bromoacetic acid	40	MT	M-552.2A-07
79-08-3	1,000	MT	M-552A-1
4-**Bromoanisole**	50	M	BAN-03
Bromobenzene	200	M	M-502-02
108-86-1	2,000	M	M-502-02-10X
2-Bromobiphenyl	1,000	A	M-8081-SS-X
2052-07-5			
Bromochloroacetic acid	40	MT	M-552.2A-01
5589-96-8	1,000	MT	M-552A-R-02
Bromochloroacetonitrile	5,000	A	M-551B-1
83463-62-1			
2-Bromochlorobenzene	200	M	M-624-SS-12
694-80-4			

Compound CAS No.	Conc. (µg/mL)	Solv.	Cat. No. 1 mL
4-Bromochlorobenzene	2,000	M	M-8020-SS-1
106-39-8			
Bromochlorodifluoromethane	200	M	M-REF-X-01
353-59-3			
Bromochloromethane	200	M	M-502-03
74-97-5	2,000	M	M-502-03-10X
2-Bromo-1-chloropropane	200	M	M-624-SS-04
3017-95-6	20,000	M	M-001R-3
Bromodichloroacetic acid	40	MT	M-552.2A-02
71133-14-7			
Bromodichloromethane	200	M	M-502-04
75-27-4	2,000	M	M-502-04-10X
4-Bromo-3,5-dimethylphenyl-N-methylcarbamate			
672-99-1	100	CN	M-531-IS
p-Bromofluorobenzene	100	A	M-551.1-IS
460-00-4	200	M	M-624-SS-03
Bromoform	200	M	M-502-05
75-25-2	2,000	M	M-502-05-10X
Bromomethane	200	M	M-502-06
74-83-9	2,000	M	M-502-06-10X
1-Bromo-2-nitrobenzene	1,000	A	M-8081-IS-DC
577-19-5			
4-Bromophenyl phenyl ether	100	M	APP-9-033
101-55-3			
Bromophos-ethyl	100	M	P-372S
4824-78-6	1,000	M	P-372S-10X
2-Bromopropanoic acid	1,000	MT	M-552.1-SS
598-72-1			
Bromotrifluoromethane	200	M	M-REF-01
75-63-8 (Freon #13b1)			
Bueno	100	M	P-279S
2163-80-6			
Butachlor	100	M	P-191S
23184-66-9	1,000	M	P-191S-10X
1,3-Butadiene	200	M	S-406A
106-99-0	2,000	M	S-406A-10X
Butanal	1,000	M	M-554-02 ❄
123-72-8			
Butanal-DNPH	100	CN	M-8315-R-DNPH-05
1527-98-6	1,000	M:CN	M-554-DNPH-02
1-Butanol	10,000	W	M-8015B/5031-06
71-36-3			
t-Butanol	2,000	M	S-410
75-65-0	10,000	W	M-8015B/5031-07
Butylate	100	M	P-088S
2008-41-5	1,000	M	P-088S-10X
n-Butylbenzene	200	M	M-502-07
104-51-8	2,000	M	M-502-07-10X
sec-Butylbenzene	200	M	M-502-08
135-98-8	2,000	M	M-502-08-10X
tert-Butylbenzene	200	M	M-502-09
98-06-6	2,000	M	M-502-09-10X
Captafol	100	M	P-254S
2425-06-1			
Captan	100	M	P-182S ❄
133-06-2			
Carbaryl	100	M	P-083S
63-25-2	1,000	M	P-083S-10X
Carbazole	1,000	M	M-634-IS
86-74-8			
Carbendazim	100	CN	M-631
10605-21-7	100	M	P-278S
Carbofuran	100	CN	M-531-08
1563-66-2	100	M	P-106S
Carbon disulfide	100	M	APP-9-035
75-15-0	2000	M	APP-9-035-20X
Carbon tetrachloride	200	M	M-502-10
56-23-5	2,000	M	M-502-10-10X
Carbophenothion	100	M	P-095S
786-19-6	1,000	H	M-8141A-1-02
Carbosulfan	100	M	P-446S
55285-14-8			
Carboxin	100	M	P-216S
5234-68-4			

† 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
Chloral hydrate	5,000	A	M-551B-2	
302-17-0	1,000	M	M-E-1179-M ❄	
Chloramben	100	M	P-243S	
133-90-4				
Chloramben methyl ester	100	M	P-272S	
7286-84-2				
Chlorbenside	100	M	P-107S	
103-17-3	1,000	M	P-107S-10X	
α-Chlordane	100	M	P-134S	
5103-71-9	100	H	P-134S-H	
Chlordane	100	M	P-017S	
12789-03-6	1,000	M	P-017S-10X	
γ-Chlordane	100	M	P-135S	
5103-74-2	1,000	M	P-135S-10X	
Chlordene	100	M	P-136S	
3734-48-3				
Chlorfenvinphos	100	M	P-139S	
470-90-6	1,000	H	M-8141A-1-03	
Chlorflurecol-methyl ester	100	M	P-401S	
2536-31-4	1000	M	P-401S-10X	
Chlorimuron-ethyl	100	CN	P-284S-CN	
90982-32-4				
bis(2-Chloro-1-methylethyl)ether	100	D	APP-9-028	
108-60-1				
Chloroacetic acid	60	MT	M-552.2A-08	
79-11-8	1,000	MT	M-552A-2	
p-Chloroaniline	100	M	APP-9-038	
106-47-8				
Chlorobenzene	200	M	M-502-11	
108-90-7	2,000	M	M-502-11-10X	
Chlorobenzilate	100	CN	P-133S-CN	
510-15-6	1,000	CN	P-133S-CN-10X	
Chlorodibromoacetic acid	100	MT	M-552.2A-03	
5278-95-5				
1-Chloro-1,1-difluoroethane	200	M	M-REF-02	
75-68-3 (Freon #142b)				
Chlorodifluoromethane	200	M	M-REF-03	
75-45-6 (Freon #22)				
Chloroethane	200	M	M-502-12	
75-00-3 (Freon #160)	2,000	M	M-502-12-10X	
bis(2-Chloroethoxy)methane	100	D	APP-9-026	
111-91-1	1,000	M	APP-9-026-M-10X	
bis(2-Chloroethyl)ether	100	M	APP-9-027	
111-44-4	4000	M	APP-9-027-40X	
2-Chloroethylvinyl ether	200	M	M-601C ❄	
110-75-8	2,000	M	M-601C-10X ❄	
1-Chloro-2-fluorobenzene	2,000	M	S-163	
348-51-6				
1-Chloro-4-fluorobenzene	200	M	M-624-SS-13	
352-33-0				
Chloroform	200	M	M-502-13	
67-66-3	2,000	M	M-502-13-10X	
1-Chlorohexane	200	M	M-8010R-1-04	
544-10-5	2,000	M	M-8010R-1-04-10X	
Chloromethane	200	M	M-502-14	
74-87-3	2,000	M	M-502-14-10X	
bis(Chloromethyl)ether	100	H	S-006	
542-88-1	2,000	H	S-006-20X	
4-Chloro-3-methylphenol	100	M	APP-9-041	
59-50-7				
2-Chloronaphthalene	100	M	APP-9-045	
91-58-7	2000	H	M-8120-01	
4-Chloro-3-nitrobenzotrifluoride	1,000	A	M-8081-SS-DC	
121-17-5				
Chloropentafluoroethane	200	M	M-REF-06	
76-15-3				
2-Chlorophenol	100	M	APP-9-046	
95-57-8	2000	D	APP-9-046-D-20X	
2-Chlorophenol-d_4	200	D	M-625-20	
93951-73-6				

Compound CAS No.	Conc. (µg/mL)	Solv.	Cat. No.	1 mL
4-Chlorophenyl phenyl ether	100	M	APP-9-047	
7005-72-3				
Chloropicrin	5,000	A	M-551B-3	
76-06-2	100	M	P-398S	
Chloroprene	100	M	APP-9-048-R1	
126-99-8	1,000	M	APP-9-048-R1-10X	
3-Chloro-1,2-propanediol	100	M	P-408S	
96-24-2				
Chloropropylate	100	M	P-213S	
5836-10-2				
2-Chloro-1,1,1,2-tetrafluoroethane	200	M	M-REF-X-02	
2837-89-0 (Freon #124)				
Chlorothalonil	100	M	P-222S	
1897-45-6	1,000	M	P-222S-10X	
2-Chlorotoluene	200	M	M-502-15	
95-49-8	2,000	M	M-502-15-10X	
4-Chlorotoluene	200	M	M-502-16	
106-43-4	2,000	M	M-502-16-10X	
Chlorotrifluoromethane	200	M	M-REF-07	
75-72-9 (Freon #13)				
Chlorpropham	100	CN	M-632-05	
101-21-3	100	M	P-221S	
Chlorpyrifos	1,000	H	M-8140-03	
2921-88-2				
Chlorpyrifos-methyl	100	M	P-223S	
5598-13-0				
Chlorsulfuron	100	CN	P-262S-CN	
64902-72-3				
Chrysene	100	M	APP-9-049	
218-01-9	500	CN	M-8310-FL-09	
Chrysene-d_{12}	2,500	T	M-680B	
1719-03-5	4,000	D	Z-014J-2	
Clethodim	100	CN	P-602S-CN ❄	
99129-21-2	1,000	CN	P-602S-CN-10X ❄	
Clopyralid methyl ester	100	M	P-488S	
1532-24-7				
Coumaphos	100	M	P-019S	
56-72-4	1,000	H	M-8140-04	
4-CPA	100	M	P-373S	
122-88-3				
m-Cresol	100	D	APP-9-050	
108-39-4	1,000	D	APP-9-050-10X	
o-Cresol	100	D	APP-9-051	
95-48-7	2,000	D	APP-9-051-20X	
p-Cresol	100	D	APP-9-052	
106-44-5	2000	D	APP-9-052-20X	
Crotonaldehyde	1,000	M	M-554-03 ❄	
123-73-9				
Crotonaldehyde-DNPH	100	CN	M-8315-R-DNPH-06	
1527-96-4	1,000	M:CN	M-554-DNPH-03	
Crufomate	100	M	P-292S	
299-86-5				
Cyanazine	100	CN	M-629	
21725-46-2	100	M	P-175S	
Cycloate	100	M	P-248S	
1134-23-2				
Cyclohexanone	1,000	M	M-554-04 ❄	
108-94-1				
Cyclohexanone-DNPH	100	CN	M-8315-R-DNPH-07	
1589-62-4	1000	M:CN	M-554-DNPH-04	
Cypermethrin	100	M	P-225S ❄	
52315-07-8	1,000	M	P-225S-10X ❄	
Cyprazine	100	M	P-420S	
22936-86-3	100	H	P-420S-H	
Cyromazine	100	M	P-296S	
66215-27-8				
2,4-D	100	M	P-020S	
94-75-7	200	M	M-8150S-A-01	
2,6-D acid	100	M	P-690S	
575-90-6	100	CN	P-690S-CN	

Analytes in EPA Methods continued on next page

Analytes in EPA Methods

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-D ethyl ester 533-23-3	100	M	P-636S
2,4-D ethylhexyl ester 1928-43-4	100	H	P-439S-H
2,4-D methyl ester 1928-38-7	100 200	M H	P-021S M-8150-01
Dacthal 1861-32-1	100	M	P-196S
Dalapon acid 75-99-0	40 200	MT M	M-552.2A-04 M-8150S-A-05 ❄
Dalapon methyl ester 17640-02-7	200 200	M H	M-552.1-01 M-8150-05
Danitol 39515-41-8	100 1,000	M M	P-263S P-263S-10X
Dasanit 115-90-2	100 1000	M H:A	P-235S P-235S-H-10X
Dazomet 533-74-4	25 100	A M	M-1659-MS P-465S
2,4-D-PFB	100	MT	M-8150-02-PFB
2,4-DB acid 94-82-6	100 200	M M	P-141S M-8150S-A-02
2,4-DB methyl ester 18625-12-2	100 200	M H	P-228S M-8150-02
DCPA diacid 2136-79-0	100 100	M CN	P-320S P-320S-CN
p,p'-DDA 83-05-6	100 1000	M M	P-444S P-444S-10X
o,p'-DDD 53-19-0	100	M	P-024S
p,p'-DDD 72-54-8	100 1000	M M	P-025S P-025S-10X
o,p'-DDE 3424-82-6	100	M	P-026S
p,p'-DDE 72-55-9	100 1000	M M	P-027S P-027S-10X
4,4'-DDMU 1022-22-6	100	M	P-424S
o,p'-DDT 789-02-6	100	M	P-028S
p,p'-DDT 50-29-3	100	M	P-029S
DDT, Tech 8017-34-3	100 100	M CN	P-346S P-346S-CN
Decachlorobiphenyl 2051-24-3	200 500	A MT	CLP-032-R-01 M-508-SS-2
Decafluorobiphenyl 434-90-2	200 2,000	D D	M-625-04 M-625-04-10X
Decafluorotriphenylphosphine 5074-71-5	10 25	D D	M-680-TS M-625C-3
Decanal 112-31-2	1,000	M	M-554-05
Decanal-DNPH 1527-95-3	100 1,000	CN M:CN	M-8315-R-DNPH-08 M-554-DNPH-05
Deet (Off®) 134-62-3	100	M	P-255S
DEF 6 78-48-8	100	M	P-150S
Deltamethrin 52918-63-5	100	M	P-355S
Demeton-S 126-75-0	100	M	P-271S
Demeton-S-methyl 919-86-8	100	M	P-482S
DFTPP 5074-71-5	50 100	A D	M-1653-TS M-525-TS
DFTPPO	100	CN	M-553-PC
Diallate 2303-16-4	100	M	P-142S
2,6-Diamino-4-nitrotoluene 59229-75-3	100	CN	M-8330-ADD-13
2,4-Diamino-6-nitrotoluene 6629-29-4	100	CN	M-8330-ADD-12
Diazinon 333-41-5	100 1,000	M H	P-033S M-622-06
Dibenz[a,h]anthracene 53-70-3	100 500	M CN	APP-9-058 M-8310-FL-10
Dibenzofuran 132-64-9	100	M	APP-9-059
Dibromoacetic acid 631-64-1	20 1,000	MT MT	M-552.2A-05 M-552A-5
Dibromoacetonitrile 3252-43-5	5,000	A	M-551B-4
4,4'-Dibromobiphenyl 92-86-4	200 2,000	D D	M-625-05 M-625-05-10X
Dibromochloromethane 124-48-1	200 2,000	M M	M-502-17 M-502-17-10X
1,2-Dibromo-3-chloropropane 96-12-8	200 2,000	M M	M-502-18 M-502-18-10X
1,2-Dibromoethane 106-93-4	200 2,000	M M	M-502-19 M-502-19-10X
Dibromofluoromethane 1868-53-7	200 2,000	M M	M-8260-SS-2 M-8260-SS-2-10X
Dibromomethane 74-95-3	200 2,000	M M	M-502-20 M-502-20-10X
a,a-Dibromo-m-xylene 626-15-3	1,000	A	M-8081-IS-X
4,4'-Dibromooctafluorobiphenyl 10386-84-2	200 2,000	D D	M-625-06 M-625-06-10X
1,2-Dibromopropane 78-75-1	5,000 10,000	M H	M-552-IS M-556-IS
2,3-Dibromopropionic acid 600-05-5	1,000 20,000	MT MT	M-552.2-SS M-552-SS
1,2-Dibromotetrafluoroethane 124-73-2	200	M	M-REF-X-03
Dibutylchlorendate 1770-80-5	2 100	A M	M-1618-SS P-109S
Dicamba 1918-00-9	100 200	M M	P-008S M-8150S-A-06
Dicamba methyl ester 6597-78-0	100 200	M H	P-071S M-8150-06
Dicapthon 2463-84-5	100 1,000	M M	P-035S P-035S-10X
Dichlobenil 1194-65-6	100	M	P-275S
Dichlofenthion 97-17-6	100	M	P-211S
Dichlone 117-80-6	100	M	P-253S
Dichlormid 37764-25-3	100	M	P-675S
Dichloroacetic acid 79-43-6	60 1,000	MT MT	M-552.2A-06 M-552A-3 ❄
Dichloroacetonitrile 3018-12-0	5,000	A	M-551B-5
1,2-Dichlorobenzene 95-50-1	200 2,000	M M	M-502-21 M-502-21-10X
1,2-Dichlorobenzene-d_4 2199-69-1	200 2,000	M M	M-624-SS-11 M-624-SS-11-10X
1,3-Dichlorobenzene 541-73-1	200 2,000	M M	M-502-22 M-502-22-10X
1,4-Dichlorobenzene 106-46-7	200 2,000	M M	M-502-23 M-502-23-10X
1,4-Dichlorobenzene-d_4 3855-82-1	2,000 4,000	M D	Z-014J-3-M-0.5X Z-014J-3
3,3'-Dichlorobenzidine † 91-94-1	100 2,000	M M	APP-9-067 Z-014F-2
3,5-Dichlorobenzoic acid 51-36-5	100 1,000	M M	P-242S P-242S-10X
4,4'-Dichlorobenzophenone 90-98-2	100 1,000	M M	P-295S P-295S-10X
4,4'-Dichlorobiphenyl 2050-68-2	500	MT	M-508-SS
1,4-Dichlorobutane 110-56-5	200	M	M-624-SS-05

† Subject to oxidation
❄ ColdPAK required to maintain integrity of product.

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
trans-1,4-Dichloro-2-butene 110-57-6	100	M	APP-9-068
Dichlorodifluoromethane 75-71-8 (Freon #12)	200	M	M-502-24
	2,000	M	M-502-24-10X
1,1-Dichloroethane 75-34-3	200	M	M-502-25
	2,000	M	M-502-25-10X
1,2-Dichloroethane 107-06-2	200	M	M-502-26
	2,000	M	M-502-26-10X
1,2-Dichloroethane-d_4 17060-07-0	200	M	M-624-SS-06
	2,000	M	M-624-SS-06-10X
cis-1,2-Dichloroethene 156-59-2	200	M	M-502-28
	2,000	M	M-502-28-10X
1,1-Dichloroethene 75-35-4	200	M	M-502-27
	2,000	M	M-502-27-10X
trans-1,2-Dichloroethene 156-60-5	200	M	M-502-29
	2,000	M	M-502-29-10X
1,1-Dichloro-1-fluoroethane 1717-00-6 (Freon #141B)	200	M	M-REF-X-04
Dichlorofluoromethane 75-43-4 (Freon #21)	200	M	M-502-61
	2,000	M	M-502-61-10X
Dichloromethane 75-09-2	200	M	M-502-39
	2,000	M	M-502-39-10X
Dichloromethane-d_2 1665-00-5	2,000	M	M-502-IS-2-3
Dichlorophen 97-23-4	100	M	P-232S
2,4-Dichlorophenol 120-83-2	1,000	MT	M-552A-6
	1,000	M	M-8040-07
2,6-Dichlorophenol 87-65-0	100	D	APP-9-076
	1,000	M	M-8040-08
2,3-Dichlorophenoxyacetic acid 2976-74-1	100	M	P-470S
	100	CN	P-470S-CN
2,4-Dichlorophenylacetic acid 19719-28-9	100	A	M-8150B-SS
	1,000	A	M-8150B-SS-10X
1,2-Dichloropropane 78-87-5	200	M	M-502-30
	2,000	M	M-502-30-10X
1,3-Dichloropropane 142-28-9	200	M	M-502-31
	2,000	M	M-502-31-10X
2,2-Dichloropropane 594-20-7	200	M	M-502-32
	2,000	M	M-502-32-10X
1,1-Dichloro-2-propanone 513-88-2	5,000	A	M-551B-6
1,1-Dichloropropene 563-58-6	200	M	M-502-33
	2,000	M	M-502-33-10X
trans-1,3-Dichloropropene 10061-02-6	100	M	APP-9-079
1,3-Dichloropropene (cis/trans) 542-75-6	400	M	M-502-34-R
	4,000	M	M-502-34-R-10X
cis-1,3-Dichloropropene 10061-01-5	100	M	APP-9-078
1,2-Dichloro-1,1,2,2-tetrafluoroethane 76-14-2 (Freon #114)	200	M	M-REF-10
2,2-Dichloro-1,1,1-trifluoroethane 306-83-2 (Freon #123)	200	M	M-REF-X-05
Dichlorprop 120-36-5	100	M	P-143S
	200	M	M-8150S-A-07
Dichlorprop methyl ester 57153-17-0	100	M	P-229S
	200	H	M-8150-07
Dichlorvos 62-73-7	100	M	P-036S
	1,000	H	M-8140-07
Diclofop methyl 51338-27-3	100	M	P-303S
Dicrotophos 141-66-2	100	M	P-178S
Dieldrin 60-57-1	100	M	P-037S
	1,000	M	P-037S-10X
Diethyl ether 60-29-7	10,000	W	M-8015B/5031-09
Diethyl phosphate (mono- & di-)	100	M	P-443S

Compound CAS No.	Conc. (µg/mL)	Solv.	Cat. No. 1 mL
Diethyl phthalate 84-66-2	100	M	APP-9-081
	1,000	M	APP-9-081-10X
1,4-Difluorobenzene 540-36-3	200	M	M-624-SS-07
	2,000	M	M-624-SS-07-10X
2,2'-Difluorobiphenyl 388-82-9	200	D	M-625-07
	2,000	D	M-625-07-10X
4,4'-Difluorobiphenyl 398-23-2	100	CN	M-550-IS
1,1-Difluoroethane 75-37-6 (Freon 152a)	200	M	M-REF-11
Dimefox 115-26-4	100	M	P-299S
Dimethoate 60-51-5	1,000	H:A	M-8141-01
	1,000	M	P-039S-10X
Dimethyl phosphate 813-78-5	100	M	P-442S
Dimethyl phthalate 131-11-3	100	M	APP-9-088
	1,000	M	APP-9-088-10X
2,3-Dimethyl-2,3-dinitrobutane 3964-18-9	100	CN	M-8330-ADD-21
1,3-Dimethyl-2-nitrobenzene 81-20-9	250	MT	M-507-SS
	1,000	MT	M-507-SS-4X
4-Dimethylaminoazobenzene 60-11-7	100	D	APP-9-083
7,12-Dimethylbenz[a]anthracene 57-97-6	100	D	APP-9-084
2,5-Dimethylbenzaldehyde-DNPH 152477-96-8	100	CN	M-8315-R-DNPH-09
3,3'-Dimethylbenzidine † 119-93-7	100	D	APP-9-085
a,a-Dimethylphenethylamine 122-09-8	100	D	APP-9-086
	2000	D	APP-9-086-20X
2,4-Dimethylphenol 105-67-9	100	M	APP-9-087
	1,000	M	M-8040-09
Di-n-butyl phthalate 84-74-2	100	M	APP-9-063
	1,000	M	APP-9-063-10X
Dinex 131-89-5	100	M	P-427S
	1,000	M	P-427S-10X
3,5-Dinitroaniline 618-87-1	100	CN:M	M-8330-ADD-4
1,2-Dinitrobenzene 528-29-0	1,000	M	M-8330-SS
1,3-Dinitrobenzene 99-65-0	100	M:CN	M-8330-01-0.1X
	1,000	M:CN	M-8330-01
4,6-Dinitro-o-cresol 534-52-1	100	M	P-384S
	1,000	M	P-384S-10X
2,4-Dinitrophenol 51-28-5	100	M	APP-9-091
	1,000	M	M-8040-10
2,4-Dinitrophenylhydrazine 119-26-6	1,000	CN	M-1667A-DERV-10ML in 10 mL
2,4-Dinitrotoluene 121-14-2	100	M:CN	M-8330-02-0.1X
	1,000	M:CN	M-8330-02
2,5-Dinitrotoluene 619-15-8	100	CN	M-8095-SS-03
2,6-Dinitrotoluene 606-20-2	100	M:CN	M-8330-03-0.1X
	1,000	M:CN	M-8330-03
3,4-Dinitrotoluene 610-39-9	100	CN	M-8095-SS-01
	1,000	M	M-8330-IS
Dinocap 39300-45-3	100	M	P-288S
Di-n-octyl phthalate 117-84-0	100	M	APP-9-095
Dinoseb 88-85-7	100	M	P-144S
	1,000	M	M-8040-11
Dinoseb methyl ether 6099-79-2	100	M	P-230S
	200	H	M-8150-08
Dioxacarb 6988-21-2	100	M	M-8318-05
p-Dioxane 123-91-1	100	M	APP-9-096
	1,000	M	APP-9-096-10X

Analytes in EPA Methods continued on next page

Analytes in EPA Methods

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

❄ ColdPAK required to maintain integrity of product.

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
Heptachlor 76-44-8	100 1,000	M M	P-053S P-053S-10X
Heptachlor epoxide (Isomer A) 28044-83-9	100	M	P-294S
Heptachlor epoxide (Isomer B) 1024-57-3	100 1,000	M M	P-054S P-054S-10X
Heptanal 111-71-7	1,000	M	M-554-07
Heptanal-DNPH 2074-05-7	100 1,000	CN M:CN	M-8315-R-DNPH-11 M-554-DNPH-07
Hexachlorobenzene 118-74-1	1,000 2,000	A H	M-8091-IS-20X M-8120-05
Hexachlorobutadiene 87-68-3	200 2,000	M M	M-502-36 M-502-36-10X
Hexachlorocyclopentadiene 77-47-4	100 2,000	M H	APP-9-114 M-8120-07
Hexachloroethane 67-72-1	100 2,000	M H	APP-9-115 M-8120-08
Hexachlorophene 70-30-4	100 2,000	M D	APP-9-116 APP-9-116-D-20X
Hexachloropropene 1888-71-7	100	M	APP-9-117
Hexanal 66-25-1	1,000	M	M-554-08 ❄
Hexanal-DNPH 1527-97-5	100 1,000	CN M:CN	M-8315-R-DNPH-12 M-554-DNPH-08
2-Hexanone 591-78-6	100	M	APP-9-118 ❄
Hexazinone 51235-04-2	100 1,000	M M	P-123S P-123S-10X
HMX 2691-41-0	100 1,000	M:CN M:CN	M-8330-04-0.1X M-8330-04
Hydrazine 302-01-2	100	M	M-8330-ADD-8
2-Hydroxyatrazine 2163-68-0	100	M:A	P-326S
3-Hydroxycarbofuran 16655-82-6	100 100	CN M	M-531-05 M-8318-06
Imidan 732-11-6	100 1,000	M H	P-055S M-8141A-1-08
Indeno[1,2,3-cd]pyrene 193-39-5	100 500	M CN	APP-9-119 M-8310-FL-13
Iodofenphos 18181-70-9	100	M	P-379S
Ioxynil 1689-83-4	100	M	P-522S
Iprodione 36734-19-7	100 100	A CN	P-016S-A P-016S-CN
Isobutanol 78-83-1	100 10,000	M W	APP-9-120 M-8015B/5031-15
Isodrin 465-73-6	1,000	M	APP-9-121-10X
Isofenphos 25311-71-1	100	M	P-018S
Isophorone 78-59-1	100 1,000	M M	APP-9-122 APP-9-122-10X
Isopropalin 33820-53-0	100	M	P-100S
Isopropanol 67-63-0	10,000	W	M-8015B/5031-16
Isopropylbenzene 98-82-8	200 2,000	M M	M-502-37 M-502-37-10X
p-Isopropyltoluene (p-Cymene) 99-87-6	200 2,000	M M	M-502-38 M-502-38-10X
Isosafrole 120-58-1	100	D	APP-9-123
Isovaleraldehyde-DNPH 2256-01-1	100	CN	M-8315-R-DNPH-13
Karmex 330-54-1	100 100	M CN	P-227S M-632-06
Kelthane 115-32-2	100	M	P-057S

Compound CAS No.	Conc. (µg/mL)	Solv.	Cat. No. 1 mL
Kepone 143-50-0	100 1,000	M M	P-152S P-152S-10X
3-Ketocarbofuran 16709-30-1	100	A	P-298S-A
Leptophos 21609-90-5	100 1,000	M H	P-206S M-8141A-1-07
Lindane (γ-BHC) 58-89-9	100 1,000	M M	P-059S P-059S-10X
Linuron 330-55-2	100 100	M CN	P-022S M-632-10
Lontrel 1702-17-6	100	M	P-224S
Malathion 121-75-5	1,000 100	H M	M-8141-03 P-060S
MCPA acid 94-74-6	100 2,000	M M	P-153S M-8150S-A-09
MCPA methyl ester 2436-73-9	100 2,000	M H	P-038S M-8150-09
MCPB acid 94-81-5	100	M	P-370S
MCPB methyl ester 57153-18-1	100	M	P-371S
MCPP acid 7085-19-0	100 2,000	CN M	P-154S-CN M-8150S-A-10
MCPP methyl ester 23844-56-6	100 2,000	M H	P-040S M-8150-10
Mecoprop, 2-Ethylhexyl ester 71526-69-7	100	M	P-502S
Mercaptobenzothiazole 149-30-4	100	CN	M-640
Merphos 150-50-5	1,000	H	M-8140-12
Metalaxyl 57837-19-1	100	M	P-120S
Metaldehyde 9002-91-9	100 100	M CN	P-600S P-600S-CN
Metamitron 41394-05-2	100	M	P-252S
Metazachlor 67129-08-2	100	M	P-249S
Methacrylonitrile 126-98-7	100	M	APP-9-125
Methanol 67-56-1	10,000	W	M-8015B/5031-17
Methapyrilene 91-80-5	100 1,000	D D	APP-9-126 APP-9-126-10X
Methidathion 950-37-8	100	M	P-195S
Methiocarb 2032-65-7	100 100	M CN	M-8318-07 M-531-11
Methomyl 16752-77-5	100 1,000	CN CN	M-531-04 M-531-04-10X
Methoprene 40596-69-8	100	M	P-157S
Methoxychlor 72-43-5	100 1,000	M M	P-064S P-064S-10X
o,p'-Methoxychlor 30667-99-3	100	M	P-535S
p,p'-Methoxychlor-olefin 2132-70-9	100 1,000	M M	P-466S P-466S-10X
Methyl-2,3-dibromopropionate 1729-67-5	1,000	MT	M-552.2-SS-ME
Methyl bromoacetate 96-32-2	200	M	M-552.1-02
Methyl bromochloroacetate 20428-74-4	200 1,000	M MT	M-552.1-03 M-552-R-03
Methyl bromodichloroacetate 20428-76-6	40	MT	M-552.2-04
Methyl 2-bromopropionate 5445-17-0	1,000	MT	M-552.1-SS-ME

Analytes in EPA Methods continued on next page

Analytes in EPA Methods

Compound CAS No.	Conc. (µg/mL)	Solv.	Cat. No.	1 mL
Methyl chlorodibromoacetate 20428-75-5	100	MT	M-552.2-06	
3-Methylcholanthrene 56-49-5	100	D	APP-9-128	
Methyl dibromoacetate 6482-26-4	20	MT	M-552.2-07	
	100	M	M-552.1-05	
Methyl dichloroacetate 116-54-1	60	MT	M-552.2-08	
	300	M	M-552.1-06	
Methyl-3,5-dichlorobenzoate 2905-67-1	100	M	P-247S	
	1,000	M	P-247S-10X	
Methyl-2,4-Dichlorophenylacetate 55954-23-9	100	M	P-214S	
Methyl ethyl ketone 78-93-3	1,000	M	APP-9-129-10X ❄	
	10,000	W	M-8015B/5031-18	
Methyl iodide 74-88-4	100	M	APP-9-130	
	2000	M	APP-9-130-20X	
Methyl isobutyl ketone 108-10-1	10,000	W	M-8015B/5031-19	
Methyl isothiocyanate 556-61-6	25	A	M-1659-RPS	
Methyl methacrylate 80-62-6	100	M	APP-9-131	
	2000	M	APP-9-131-20X	
Methyl methanesulfonate 66-27-3	100	D	APP-9-132	
1-Methylnaphthalene 90-12-0	500	CN	M-8310-FL-14	
2-Methylnaphthalene 91-57-6	100	D	APP-9-133	
	500	CN	M-8310-FL-15	
2-Methyl-4-nitroaniline 99-52-5	100	CN	M-8095-SS-02	
3-Methyl-4-nitrophenol 2581-34-2	100	M	P-509S	
Methyl nonyl ketone 112-12-9	100	M	P-415S	
	100	CN	P-415S-CN	
Methyl paraoxon 950-35-6	100	M	P-311S	
Methyl parathion 298-00-0	100	M	P-065S	
	1,000	H	M-8140-13	
4-Methyl-2-pentanone 108-10-1	100	M	APP-9-135	
	2000	M	APP-9-135-20X	
Methyl tribromoacetate 3222-05-7	200	MT	M-552.2-09 ❄	
Methyl trichloroacetate 598-99-2	100	M	M-552.1-07	
	20	MT	M-552.2-10	
Metolachlor 51218-45-2	100	M	P-158S	
	1,000	M	P-158S-10X	
Metribuzin 21087-64-9	100	M	P-089S	
	1,000	M	P-089S-10X	
Metsulfuron methyl 74223-64-6	100	M	P-463S ❄	
Mevinphos 7786-34-7	100	M	P-074S	
	1,000	H	M-8140-14	
Mexacarbate 315-18-4	100	M	P-030S	
	100	CN	M-632-13	
MGK-264 113-48-4	100	M	P-082S	
MGK-326 136-45-8	100	M	P-342S	
Mirex 2385-85-5	100	M	P-066S	
	1000	M	P-066S-10X	
Molinate 2212-67-1	100	M	P-176S	
Monitor 10265-92-6	100	M	P-155S	
	1000	M	P-155S-10X	
Monocrotophos 6923-22-4	100	M	P-112S	
	1,000	H	M-8141-04	
Monuron 150-68-5	100	CN	M-632-14	
Monuron TCA 140-41-0	100	M	P-034S	
	100	CN	M-632-15	
MtBE 1634-04-4	2,000	M	M-8020-QC	
Myclobutanil 88671-89-0	100	M	P-330S	
	1,000	M	P-330S-10X	

Compound CAS No.	Conc. (µg/mL)	Solv.	Cat. No.	1 mL
Nabam 142-59-6	100	M	P-383S	
Naled 300-76-5	100	M	P-159S	
	1,000	H	M-8140-15	
Naphthalene 91-20-3	200	M	M-502-40	
	500	M	M-8310-FL-16	
Naphthalene-d_8 1146-65-2	200	D	M-625-12	
	4,000	D	Z-014J-4	
1-Naphthalene acetamide 86-86-2	100	M	P-512S	
1-Naphthol 90-15-3	100	CN	M-531-10	
	100	M	P-1007S	
1,4-Naphthoquinone 130-15-4	100	D	APP-9-137	
1-Naphthylamine 134-32-7	100	D	APP-9-138	
2-Naphthylamine 91-59-8	100	D	APP-9-139	
Napropamide 15299-99-7	100	M	P-179S	
	100	CN	M-632.1-3	
Neburon 555-37-3	100	M	P-041S	
	100	CN	M-632-16	
Niclosamide 50-65-7	100	M	P-160S	
m-Nitroaniline 99-09-2	100	D	APP-9-141	
o-Nitroaniline 88-74-4	100	D	APP-9-140	
p-Nitroaniline 100-01-6	100	D	APP-9-142	
4-Nitroanisole 100-17-4	100	M	P-273S	
Nitrobenzene 98-95-3	100	M:CN	M-8330-06-0.1X	
	1,000	M:CN	M-8330-06	
Nitrobenzene-d_5 4165-60-0	200	D	M-625-13	
	2000	D	M-625-13-10X	
Nitroguanidine 556-88-7	100	M	M-8330-ADD-6	
Nitromethane 75-52-5	100	M	M-8330-ADD-7	
5-Nitro-o-toluidine 99-55-8	100	D	APP-9-156	
o-Nitrophenol 88-75-5	100	M	APP-9-144	
p-Nitrophenol 100-02-7	100	M	APP-9-145	
4-Nitroquinoline-1-oxide 56-57-5	100	D	APP-9-146	
N-Nitrosodiethylamine 55-18-5	100	D	APP-9-148	
	2000	D	APP-9-148-20X	
N-Nitrosodimethylamine 62-75-9	100	D	APP-9-149	
	1,000	M	APP-9-149-M-10X	
N-Nitrosodi-n-butylamine 924-16-3	100	D	APP-9-147	
	500	W	M-8015B/5031-20	
N-Nitrosodi-n-propylamine 621-64-7	100	D	APP-9-151	
N-Nitrosodiphenylamine 86-30-6	100	D	APP-9-150	
	1,000	M	APP-9-150-M-10X	
N-Nitrosomethylethylamine 10595-95-6	100	D	APP-9-152	
N-Nitrosomorpholine 59-89-2	100	D	APP-9-153	
N-Nitrosopiperidine 100-75-4	100	D	APP-9-154	
N-Nitrosopyrrolidine 930-55-2	100	D	APP-9-155	
2-Nitrotoluene 88-72-2	100	M:CN	M-8330-07-0.1X	
	1,000	M:CN	M-8330-07	
3-Nitrotoluene 99-08-1	100	M:CN	M-8330-08-0.1X	
	1,000	M:CN	M-8330-08	
4-Nitrotoluene 99-99-0	100	M:CN	M-8330-09-0.1X	
	1,000	M:CN	M-8330-09	
cis-Nonachlor 5103-73-1	100	M	P-297S	
	1,000	M	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

Compound CAS No.	Conc. (µg/mL)	Solv.	Cat. No. 1 mL
trans-Nonachlor 39765-80-5	100	M	P-184S
Nonanal 124-19-6	1,000	M	M-554-09
Nonanal-DNPH 2348-19-8	100	CN	M-8315-R-DNPH-14
	1,000	M:CN	M-554-DNPH-09
Octanal 124-13-0	1,000	M	M-554-10
Octanal-DNPH 1726-77-8	100	CN	M-8315-R-DNPH-15
	1,000	M:CN	M-554-DNPH-10
Omethoate 1113-02-6	100	M	P-121S
	1,000	M	P-121S-10X
Oryzalin 19044-88-3	100	CN	M-638
	100	M	P-043S
Oxadiazon 19666-30-9	100	M	P-236S
	1,000	M	P-236S-10X
Oxamyl 23135-22-0	100	M	P-161S
	100	CN	M-531-03
Oxycarboxin 5259-88-1	100	M	P-391S
Oxychlordane Isomer 27304-13-8	100	M	P-331S
	100	H	P-331S-H
Oxydemeton-methyl 301-12-2	100	M	P-290S
Oxyfluorfen 42874-03-3	100	M	P-277S
Paraldehyde 123-63-7	10,000	W	M-8015B/5031-21
Paraoxon 311-45-5	100	M	P-453S
	1,000	M	P-453S-10X
Paraquat CL tetrahydrate 1910-42-5 **(as Paraquat)**	100	M	P-051S
Parathion 56-38-2	100	M	P-070S
	1,000	H	M-622-19
Pendimethalin 40487-42-1	100	M	P-097S
	1,000	M	P-097S-10X
Pentachloroanisole 1825-21-4	100	M	P-199S
Pentachlorobenzene 608-93-5	100	M	APP-9-173
Pentachloroethane 76-01-7	100	M	APP-9-174
Pentachloronitrobenzene 82-68-8	100	MT	M-508-IS
	1,000	MT	M-508-IS-10X
Pentachlorophenol 87-86-5	25	D	M-625C-2
	1,000	M	M-8040-15
Pentafluorobenzene 363-72-4	200	M	M-624-SS-10
Pentafluoroethane 354-33-6 (Freon #125)	200	M	M-REF-X-06
Pentafluorophenol 771-61-9	200	D	M-625-17
Pentanal 110-62-3	1,000	M	M-554-11
Pentanal-DNPH 2057-84-3	100	CN	M-8315-R-DNPH-16
	1,000	M:CN	M-554-DNPH-11
2-Pentanone 107-87-9	10,000	W	M-8015B/5031-22
Permethrin 52645-53-1	100	M	P-128S
Perthane 72-56-0	100	M	P-162S
PETN 78-11-5	100	M	M-8330-ADD-2
Phenacetin 62-44-2	100	D	APP-9-177
	1,000	D	APP-9-177-10X
Phenanthrene 85-01-8	100	M	APP-9-178
	200	D	Z-013-15
Phenanthrene-d_{10} 1517-22-2	200	D	M-625-14
Phenol 108-95-2	100	D	APP-9-179
	1,000	M	M-8040-16
Phenol-d_5 4165-62-2	200	D	M-625-18
	2,000	D	M-625-18-10X
Phenthoate 2597-03-7	100	M	P-476S
p-Phenylenediamine 106-50-3	100	M	APP-9-180
o-Phenylphenol 90-43-7	100	M	P-460S
Phorate 298-02-2	100	M	P-170S
	1,000	H	M-8140-16
Phorate sulfone 2588-04-7	100	H	P-655S-H
Phosalone 2310-17-0	100	M	P-163S
Phosfolan 947-02-4	100	M	P-234S
	1,000	M	P-234S-10X
Phosphamidon 13171-21-6	100	M	P-075S
	1,000	H	M-8141A-1-09
Picloram 1918-02-1	100	M	P-047S
	100	CN	M-644
Picloram methyl ester 14143-55-6	100	M	P-198S
2-Picoline 109-06-8	100	M	APP-9-182
	10,000	W	M-8015B/5031-23
Picramic acid 96-91-3	100	CN:M	M-8330-ADD-22
Picric acid 88-89-1	100	CN:M	M-8330-ADD-3
Pirimicarb 23103-98-2	100	M	P-304S
Pirimiphos-methyl 29232-93-7	100	M	P-305S
Prebane 886-50-0	100	M	P-119S
Profenofos 41198-08-7	100	M	P-260S
Profluoralin 26399-36-0	100	M	P-099S
	1,000	M	P-099S-10X
Promecarb 2631-37-0	100	M	M-8318-09
Prometon 1610-18-0	100	M	M-619-04
Prometryne 7287-19-6	100	M	M-619-05
Pronamide 23950-58-5	100	M	P-164S
Propachlor 1918-16-7	100	M	P-215S
	1,000	M	P-215S-10X
Propanal 123-38-6	1,000	M	M-554-12 ❄
Propanal-DNPH 725-00-8	100	CN	M-8315-R-DNPH-17
	1,000	M:CN	M-554-DNPH-12
Propanil 709-98-8	100	CN	M-632.1-2
1-Propanol 71-23-8	10,000	W	M-8015B/5031-24
Propargite 2312-35-8	100	M	P-251S
Propazine 139-40-2	100	M	M-619-06
Propham 122-42-9	100	CN	M-632-18
	100	M	P-052S
Propionitrile 107-12-0	100	M	APP-9-184
	10,000	W	M-8015B/5031-25
n-Propylbenzene 103-65-1	200	M	M-502-41
	2,000	M	M-502-41-10X
Propyleneglycol dinitrate 6423-43-4	100	M	M-8330-ADD-35
Pyrazon 1698-60-8	100	M	P-395S
	1,000	M	P-395S-10X

Analytes in EPA Methods continued on next page

Analytes in EPA Methods

Compound CAS No.	Conc. (µg/mL)	Solv.	Cat. No. 1 mL
Pyrazoxyfen 71561-11-0	100	M	P-618S
Pyrene 129-00-0	100	M	APP-9-185
	500	CN	M-8310-FL-18
Pyrene-d_{10} 1718-52-1	50	A	M-525-SS
Pyridine 110-86-1	100	M	APP-9-186-M
	10,000	W	M-8015B/5031-26
Pyridine-d_5 7291-22-7	200	D	M-625-15
	2000	D	M-625-15-10X
PYX 38082-89-2	100	CN	M-8330-ADD-11
Quizalofop ethyl 76578-14-8	100	CN	P-293S-CN
RDX 121-82-4	100	M:CN	M-8330-05-0.1X
	1,000	M:CN	M-8330-05
Ronnel 299-84-3	100	M	P-080S
	1,000	H	M-8140-17
Rotenone 83-79-4	100	M	P-056S ❄
	100	CN	M-635
Safrole 94-59-7	100	M	APP-9-187
Secbumeton 26259-45-0	100	M	M-619-07
Siduron 1982-49-6	100	M	P-063S
	100	CN	M-632-20
Silvex 93-72-1	100	M	P-084S
	1,000	M	P-084S-10X
Silvex methyl ester 4841-20-7	100	M	P-115S
Simazine 122-34-9	100	M	P-085S
	1,000	M	M-507F
Simetryn 1014-70-6	100	M	M-619-08
Styrene 100-42-5	200	M	M-502-42
	2,000	M	M-502-42-10X
Sulfotep 3689-24-5	100	M	P-167S
	1,000	H	M-8141-06
Sulfoxide 120-62-7	100	M	P-396S
Sumithrin 26002-80-2	100	M	P-050S
Swep 1918-18-9	100	M	P-061S
	100	CN	M-632-21
2,4,6-T 575-89-3	100	M	P-523S
	100	CN	P-523S-CN
2,4,5-T acid 93-76-5	100	M	P-168S
	1,000	M	P-168S-10X
2,4,5-T butoxyethyl ester 2545-59-7	100	CN	P-441S-CN
2,4,5-T methyl ester 1928-37-6	100	M	P-067S
	200	H	M-8150-03
2,4,5-T n-butyl ester 93-79-8	100	CN	P-440S-CN
TAME 994-05-8	200	M	S-1019
TCMX 877-09-8	100	H	M-8082-SS
	1,000	H	M-8082-SS-10X
Tebuconazol 107534-96-3	100	M	P-451S
	1000	M	P-451S-10X
Tebuthiuron 34014-18-1	100	M	P-188S
Tefluthrin 79538-32-2	100	M	P-568S ❄
TEPP 107-49-3	1,000	H	M-8141-07
Terbacil 5902-51-2	100	M	P-096S
Terbufos 13071-79-9	100	M	P-208S
	1,000	H	M-8141A-1-10
Terbuthylazine 5915-41-3	100	M	M-619-10
p-Terphenyl-d_{14} 1718-51-0	500	D	M-525-FS-2
Terrazole 2593-15-9	100	M	P-190S
1,2,4,5-Tetrachlorobenzene 95-94-3	100	M	APP-9-191
	2,000	H	M-8120-09
1,1,1,2-Tetrachloroethane 630-20-6	200	M	M-502-43
	2,000	M	M-502-43-10X
1,1,2,2-Tetrachloroethane 79-34-5	200	M	M-502-44
	2,000	M	M-502-44-10X
Tetrachloroethene 127-18-4	200	M	M-502-45
	2,000	M	M-502-45-10X
2,3,5,6-Tetrachloronitrobenzene 117-18-0	100	M	P-467S
2,3,4,6-Tetrachlorophenol 58-90-2	100	M	APP-9-195
	1,000	M	M-8040-17
Tetrachlorvinphos 22248-79-9	100	M	P-125S
	1,000	H	M-8140-18
Tetradifon 116-29-0	100	M	P-261S
Tetrafluoroethane 811-97-2	200	M	M-REF-12
1,1,2,2-Tetrafluoroethane 359-35-3 (Freon #134)	200	M	M-REF-X-07
Tetrahydrofuran 109-99-9	1,000	W	M-1671A-IS
Tetryl 479-45-8	100	M:CN	M-8330-10-0.1X
	1,000	M:CN	M-8330-10
Thiabendazole 148-79-8	100	M	P-068S
	100	CN	M-641
Thiobencarb 28249-77-6	100	M	P-180S
	1,000	M	P-180S-10X
4,4'-Thiodiphenol 2664-63-3	100	M	P-117S
	1,000	M	P-117S-10X
Thiofanox 39196-18-4	100	M	P-266S
Thionazin 297-97-2	100	M	P-171S
Thiophanate 23564-06-9	100	M	P-321S
	100	CN	P-321S-CN
Thiram 137-26-8	100	M	P-118S
	1,000	M	P-118S-10X
Tillam 1114-71-2	100	M	P-105S
	1,000	M	P-105S-10X
Tilt 60207-90-1	100	M	P-280S
TNT 118-96-7	100	M:CN	M-8330-11-0.1X
	1,000	M:CN	M-8330-11
Tokuthion 34643-46-4	100	M	P-126S
	1,000	H	M-8140-19
m-Tolualdehyde-DNPH 2880-05-9	100	CN	M-8315-R-DNPH-18
o-Tolualdehyde-DNPH 1773-44-0	100	CN	M-8315-R-DNPH-19
p-Tolualdehyde-DNPH 2571-00-8	100	CN	M-8315-R-DNPH-20
Toluene 108-88-3	200	M	M-502-46
	2,000	M	M-502-46-10X
o-Toluidine 95-53-4	100	M	APP-9-199
	10,000	W	M-8015B/5031-27
Toxaphene 8001-35-2	1,000	M	P-093S-10X
	2,500	A	M-525-5
2,4,5-TP 93-72-1	200	M	M-8150S-A-04
2,4,5-TP methyl ester 4841-20-7	200	H	M-8150-04
2,4,5-TP-PFB	100	MT	M-8150-04-PFB
Triadimefon 43121-43-3	100	M	P-069S
Triallate 2303-17-5	100	M	P-268S
1,2,4-Triazole 288-88-0	100	M	P-627S
Triazophos 24017-47-8	100	M	P-334S

❄ ColdPAK required to maintain integrity of product.

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
Tribromoacetic acid 75-96-7	200	MT	M-552.2A-09
1,3,5-Tribromobenzene 626-39-1	50	A	M-8121-IS
2,4,6-Tribromophenol 118-79-6	200	D	M-625-19
	200	M	M-604-SS
2,4,6-Tribromophenol-PFB	200	M	M-604-SS-PFB
Tributylphosphate 126-73-8	1,000	A	M-8141A-SS-01
Trichlorfon 52-68-6	100	M	P-044S
1,1,2-Trichloro-1,2,2-trifluoroethane 76-13-1	200	M	M-REF-14
	2,000	M	M-REF-14-10X
1,1,1-Trichloro-2-propanone 918-00-3	5,000	A	M-551B-8
Trichloroacetic acid 76-03-9	20	MT	M-552.2A-10
	1,000	MT	M-552A-4 ❄
Trichloroacetonitrile 545-06-2	5,000	A	M-551B-7
1,2,3-Trichlorobenzene 87-61-6	200	M	M-502-47
	2,000	M	M-502-47-10X
1,2,4-Trichlorobenzene 120-82-1	200	M	M-502-48
	2,000	M	M-502-48-10X
2,3,5-Trichlorobenzoic acid 50-73-7	100	M	P-508S
	100	CN	P-508S-CN
1,1,1-Trichloroethane 71-55-6	200	M	M-502-49
	2,000	M	M-502-49-10X
1,1,2-Trichloroethane 79-00-5	200	M	M-502-50
	2,000	M	M-502-50-10X
Trichloroethene 79-01-6	200	M	M-502-51
	2,000	M	M-502-51-10X
Trichlorofluoromethane (Freon #11) 75-69-4	200	M	M-502-52
	2,000	M	M-502-52-10X
Trichloronate 327-98-0	100	M	P-127S
	1,000	H	M-8140-20
2,4,5-Trichlorophenol 95-95-4	100	A	CLP-FC
	1,000	M	M-8040-18
2,4,6-Trichlorophenol 88-06-2	1,000	MT	M-552A-R-08 ❄
	1,000	M	M-8040-19
3,4,5-Trichlorophenol 609-19-8	1,000	M	M-1653-IS
	1,000	A	M-1653-IS-R
1,1,2-Trichloropropane 598-77-6	200	M	S-1321B
1,2,3-Trichloropropane 96-18-4	200	M	M-502-53
	2,000	M	M-502-53-10X
a,a,a-Trichlorotoluene 98-07-7	200	M	M-624-SS-14
Triclopyr 55335-06-3	100	M	P-289S
	100	CN	P-289S-CN
Triclopyr methyl ester 60825-26-5	100	M	P-291S
Tricresyl phosphate 1330-78-5	100	M	P-209S
Tricyclazole 41814-78-2	100	M	P-090S
Triethylphosphate 78-40-0	100	M	P-335S
O,O,O-Triethylphosphorothioate 126-68-1	100	M	P-172S
	1,000	H	P-172S-H-10X
2',4',5'-Trifluoroacetophenone 129322-83-4	20	CN	M-556-SS
1,1,1-Trifluoroethane 420-46-2 (Freon #143A)	200	M	M-REF-X-08
Trifluoromethane 75-46-7 (Freon #23)	200	M	M-REF-15
a,a,a-Trifluorotoluene 98-08-8	200	M	M-602-SS
	2,000	M	M-602-SS-10X
Trifluralin 1582-09-8	100	M	P-197S
	1,000	M	P-197S-10X
2,3,5-Triiodobenzoic acid 88-82-4	100	M	P-507S
	100	CN	P-507S-CN
2,3,5-Trimethacarb 2655-15-4	100	M	P-515S
3,4,5-Trimethacarb 2686-99-9	100	M	P-516S
Trimethyl phosphate 512-56-1	100	M	P-210S
1,2,4-Trimethylbenzene 95-63-6	200	M	M-502-54
	2,000	M	M-502-54-10X
1,3,5-Trimethylbenzene 108-67-8	200	M	M-502-55
	2,000	M	M-502-55-10X
1,3,5-Trinitrobenzene 99-35-4	100	M:CN	M-8330-12-0.1X
	1,000	M:CN	M-8330-12
Triphenylphosphate 115-86-6	500	MT	M-507-IS
	5,000	MT	M-507-IS-10X
Vacor 53558-25-1	100	M	P-240S
	100	CN	M-632.1-1
Vernolate 1929-77-7	100	M	P-111S
Vinclozolin 50471-44-8	100	M	P-122S
	1,000	M	P-122S-10X
Vinyl acetate 108-05-4	100	M	APP-9-211 ❄
	2000	M	APP-9-211-20X ❄
Vinyl chloride 75-01-4	200	M	M-502-56
	2,000	M	M-502-56-10X
o-Xylene 95-47-6	200	M	M-502-57
	2,000	M	M-502-57-10X
m-Xylene 108-38-3	200	M	M-502-58
	2,000	M	M-502-58-10X
p-Xylene 106-42-3	200	M	M-502-59
	2,000	M	M-502-59-10X
Xylene (total) 1330-20-7	100	M	APP-9-213
Ziram 137-30-4	100	CN	M-630-1-0.1X
	100	M	P-324S

❄ ColdPAK required to maintain integrity of product.

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Contract Laboratory Program (CLP)
Volatiles

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

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

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-Butanone
- Carbon disulfide
- 2-Hexanone
- 4-Methyl-2-pentanone
- Styrene
- Vinyl acetate
- *o*-Xylene

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
- Chloroethane
- Chloromethane
- 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

CLP-022K-25X ❄ — **1 x 1 mL**
5.0 mg/mL each in MeOH — 4 comps.

- Acetone
- 2-Butanone
- 2-Hexanone
- 4-Methyl-2-pentanone

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

Certificate will reflect actual cis/trans ratio

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

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

Certificate will reflect actual cis/trans ratio

❄ ColdPAK required to maintain integrity of product.

Contract Laboratory Program (CLP)
Auxiliary Volatiles

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
1,1-Dichloroethene
1,2-Dichloropropane
Ethylbenzene
Toluene
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
Chlorobenzene
Chloromethane
1,1-Dichloroethane
1,1,2,2-Tetrachloroethane

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.

p-Bromofluorobenzene
1,2-Dichloroethane-d_4
Toluene-d_8

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	
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
Chlorobenzene-d_5
1,4-Difluorobenzene

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
p-Bromofluorobenzene
Chlorobenzene-d_5
1,2-Dichloroethane-d_4
1,4-Difluorobenzene
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
Chlorobenzene
1,1-Dichloroethene
Toluene
Trichloroethene

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
Ethylbenzene
Toluene
m-Xylene
o-Xylene
p-Xylene

CLP-001B	**1 x 1 mL**
1.0 mg/mL each in MeOH	2 comps.

n-Decane
n-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	

p-Bromofluorobenzene

Buy AccuPAKs™
Save 20-40% 5 x 1 mL

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.

Volatiles continued on next page

Contract Laboratory Program (CLP)
Volatiles (continued)

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 — **1x 1 mL**
CLP-022-R3-PAK — ***SAVE*** — **5 x 1 mL**
200 µg/mL in MeOH — 40 comps.

Benzene	1,2-Dichloropropane
Bromodichloromethane	*cis*-1,3-Dichloropropene
Bromoform	*trans*-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
cis-1,2-Dichloroethene	*m*-Xylene
trans-1,2-Dichloroethene	*p*-Xylene
Dichloromethane	*o*-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	*m*-Xylene
Ethylbenzene	*o*-Xylene
Toluene	*p*-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.

p-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
p-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

p-Bromofluorobenzene

❄ ColdPAK required to maintain integrity of product.

Low Concentration SOW (10/92) Organic Analysis of Water

Volatile Target Compounds Mix

CLP-022-LC **1 x 1 mL**
0.2 mg/mL each in MeOH (except indictated) 42 comps.

Acetone (1.0 mg/mL)
Benzene
Bromochloromethane
Bromodichloromethane
Bromoform
Bromomethane
2-Butanone (1.0 mg/mL)
Carbon disulfide
Carbon tetrachloride
Chlorobenzene
Chloroethane
Chloroform
Chloromethane
Dibromochloromethane
1,2-Dibromo-3-chloropropane
1,2-Dibromoethane
1,2-Dichlorobenzene
1,3-Dichlorobenzene
1,4-Dichlorobenzene
1,1-Dichloroethane
Dichloromethane
1,2-Dichloroethane
1,1-Dichloroethylene
cis-1,2-Dichloroethylene
trans-1,2-Dichloroethylene
1,2-Dichloropropane
cis-1,3-Dichloropropene
trans-1,3-Dichloropropene
Ethylbenzene
2-Hexanone (1.0 mg/mL)
4-Methyl-2-pentanone (1.0 mg/mL)
Styrene
1,1,2,2-Tetrachloroethane
Tetrachloroethene
Toluene
1,1,1-Trichloroethane
1,1,2-Trichloroethane
Trichloroethene
Vinyl chloride
o-Xylene
m-Xylene
p-Xylene

Certificate will reflect actual cis/trans ratio

Internal Standard Mix

CLP-LC-IS **1 x 1 mL**
CLP-LC-IS-PAK ***SAVE*** **5 x 1 mL**
25 µg/mL each in MeOH 3 comps.

CLP-LC-IS-10X **1 x 1 mL**
CLP-LC-IS-10X-PAK ***SAVE*** **5 x 1 mL**
0.25 mg/mL each in MeOH 3 comps.

CLP-LC-IS-100X **1 x 1 mL**
CLP-LC-IS-100X-PAK ***SAVE*** **5 x 1 mL**
2.5 mg/mL each in MeOH 3 comps.

Chlorobenzene-d_5
1,4-Dichlorobenzene-d_4
1,4-Difluorobenzene

Laboratory Control Sample Spiking Solution

CLP-LCS-V **1 x 1 mL**
CLP-LCS-V-PAK ***SAVE*** **5 x 1 mL**
0.2 mg/mL each in MeOH 12 comps.

Benzene
Bromoform
Carbon tetrachloride
1,2-Dibromoethane
1,4-Dichlorobenzene
1,2-Dichloroethane
1,2-Dichloropropane
cis-1,3-Dichloropropene *
Tetrachloroethene
1,1,2-Trichloroethane
Trichloroethene
Vinyl chloride

*** may contain trace amounts of trans isomer**

Tuning Solution / Surrogate Standard Mix

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**
0.*25 mg/mL in MeOH*

CLP-004-100X **1 x 1 mL**
CLP-004-100X-PAK ***SAVE*** **5 x 1 mL**
2.5 mg/mL in MeOH

CLP-004-1000X **1 x 1 mL**
2.5 mg/mL in MeOH

p-Bromofluorobenzene

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 Pollutant Standards

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_2Cl_2 14 comps.

- 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_2Cl_2 14 comps.

- 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 2 comps.

- 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_2Cl_2 11 comps.

- 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_2Cl_2 4 comps.

- 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_2Cl_2 8 comps.

- 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_2Cl_2 6 comps.

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_2Cl_2 6 comps.

- Acenaphthene-d_{10}
- Chrysene-d_{12}
- 1,4-Dichlorobenzene-d_4
- Naphthalene-d_8
- Perylene-d_{12}
- Phenanthrene-d_{10}

† 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_2Cl_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_2Cl_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_2Cl_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-014A	Base/Neutrals - Mix #1
Z-014B	Base/Neutrals - Mix #2
Z-014C	Pesticides - Mix #1
Z-014D	Toxic Substances - Mix #1
Z-014E	Toxic Substances - Mix #2
Z-014F	Benzidine Mix
Z-014G-R	PAH Mix
Z-014H	Phenols Mix
Z-014J	Internal Standard Mix

Z-014R-1-SET 9 x 1 mL

Z-014A	Base/Neutrals - Mix #1
Z-014B	Base/Neutrals - Mix #2
Z-014C-R	Pesticides - Mix #2
Z-014D	Toxic Substances - Mix #1
Z-014E	Toxic Substances - Mix #2
Z-014F	Benzidine Mix
Z-014G-R	PAH Mix
Z-014H	Phenols Mix
Z-014J	Internal Standard Mix

Z-014R-2-SET 7 x 1 mL

Z-014A	Base/Neutrals - Mix #1
Z-014B	Base/Neutrals - Mix #2
Z-014D	Toxic Substances - Mix #1
Z-014E	Toxic Substances - Mix #2
Z-014F	Benzidine Mix
Z-014G	PAH Mix
Z-014H	Phenols Mix

Z-014R-3-SET 7 x 1 mL

Z-014A	Base/Neutrals - Mix #1
Z-014B	Base/Neutrals - Mix #2
Z-014D	Toxic Substances - Mix #1
Z-014E	Toxic Substances - Mix #2
Z-014F	Benzidine Mix
Z-014G-R	PAH Mix
Z-014H	Phenols Mix

Order a complete Set and Save

Tuning Standards for EPA Methods

M-625-TS 1 x 1 mL
M-625-TS-PAK *SAVE* 5 x 1 mL
50 µg/mL each in CH_2Cl_2 4 comps.

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_2Cl_2

Perfluorokerosene

† 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 CH_2Cl_2

Buy AccuPAKs
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 — **1 x 1 mL**
CLP-HC-BN-R-PAK — ***SAVE*** — **5 x 1 mL**
2.0 mg/mL each in Benzene : CH_2Cl_2 : AcCN (40:40:20) — 44 comps.

- Acenaphthene
- Acenaphthylene
- Anthracene
- Azobenzene
- Benz[a]anthracene
- Benzo[b]fluoranthene
- Benzo[k]fluoranthene
- Benzo[g,h,i]perylene
- Benz[a]pyrene
- 4-Bromophenyl phenyl ether
- Butyl benzyl phthalate
- bis(2-Chloroethoxy)methane
- bis(2-Chloroethyl)ether
- bis(2-Chloro-1-methylethyl) ether
- 2-Chloronaphthalene
- 4-Chlorophenyl phenyl ether
- Chrysene
- Dibenz[a,h]anthracene
- Di-*n*-butyl phthalate
- 1,2-Dichlorobenzene
- 1,3-Dichlorobenzene
- 1,4-Dichlorobenzene
- Diethyl phthalate
- Dimethyl phthalate
- 2,4-Dinitrotoluene
- 2,6-Dinitrotoluene
- Di-*n*-octyl phthalate
- bis(2-Ethylhexyl)phthalate
- Fluoranthene
- Fluorene
- Hexachlorobenzene
- Hexachlorobutadiene
- Hexachlorocyclopentadiene
- Hexachloroethane
- Indeno[1,2,3-cd]pyrene
- Isophorone
- Naphthalene
- Nitrobenzene
- N-Nitrosodimethylamine
- N-Nitrosodiphenylamine
- N-Nitrosodi-*n*-propylamine
- Phenanthrene
- Pyrene
- 1,2,4-Trichlorobenzene

Technical Note

Azobenzene was substituted for 1,2-Diphenylhydrazine because the 1,2-Diphenylhydrazine loses hydrogen to form azobenzene under GC operating conditions.

Benzidine

Z-014F — **1 x 1 mL**
Z-014F-PAK — **5 x 1 mL**
2.0 mg/mL each in MeOH — 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 — **1 x 1 mL**
CLP-HC-A-R-PAK — ***SAVE*** — **5 x 1 mL**
2.0 mg/mL each in CH_2Cl_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

† Subject to oxidation

Additional Composite Mixtures

Composite #1

Z-014E — **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 — 8 comps.

- Aniline
- Benzyl alcohol
- 4-Chloroaniline
- Dibenzofuran
- 2-Methylnaphthalene
- 2-Nitroaniline
- 3-Nitroaniline
- 4-Nitroaniline

Composite #2

Z-014E-R — **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 — 9 comps.

- Aniline
- Benzyl alcohol
- 4-Chloroaniline
- Dibenzofuran
- 2-Methylnaphthalene
- 2-Nitroaniline
- 3-Nitroaniline
- 4-Nitroaniline
- Pyridine

Composite #3

Z-014E-R3 — **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 — 10 comps.

- Aniline
- Benzyl alcohol
- Carbazole
- 4-Chloroaniline
- Dibenzofuran
- 2-Methylnaphthalene
- 2-Nitroaniline
- 3-Nitroaniline
- 4-Nitroaniline
- Pyridine

GC/MS Analysis of Semi-Volatiles

Method Analytes Mixture
CLP-TCLSV — **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 — 3 comps.

- Benzoic acid
- Benzyl alcohol
- N-Nitrosodimethylamine

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_2Cl_2 — 7 comps.

- Acenaphthene
- Benz[a]pyrene
- 1,4-Dichlorobenzene
- Di-*n*-octylphthalate
- Hexachlorobutadiene
- Fluoranthene
- N-Nitroso-diphenylamine

Acids
CLP-011B — **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 — 6 comps.

- 4-Chloro-3-methylphenol
- 2,4-Dichlorophenol
- 2-Nitrophenol
- Pentachlorophenol
- Phenol
- 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
- 1,4-Dichlorobenzene
- 2,4-Dinitrotoluene
- N-Nitroso-di-*n*-propylamine
- Pyrene
- 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
- 4-Chloro-3-methylphenol
- 4-Nitrophenol
- Pentachlorophenol
- Phenol

Surrogate Standard
CLP-BNS-3-2X — **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_2

- 4-Terphenyl-d_{14}

Internal Standards Mixture
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}
- Chrysene-d_{12}
- 1,4-Dichlorobenzene-d_4
- Naphthalene-d_8
- Perylene-d_{12}
- Phenanthrene-d_{10}

System Performance Check Compounds (SPCC)
CLP-010 — **1 x 1 mL**
0.2 mg/mL each in CH_2Cl_2

CLP-010-10X — **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 — 4 comps.

- 2,4-Dinitrophenol
- Hexachlorocyclopentadiene
- 4-Nitrophenol
- N-nitroso-di-*n*-propylamine

Semi-Volatile Organic Extract Calibration (Screening Mix)
CLP-009 — **1 x 1 mL**
0.1 mg/mL each in CH_2Cl_2

CLP-009-10X — **1 x 1 mL**
1.0 mg/mL each in CH_2Cl_2 — 3 comps.

- Di-*n*-octylphthalate
- Phenanthrene
- Phenol

Initial Calibration Target Compounds List
CLP-012 — **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 — 9 comps.

- Benzoic acid
- 2,4-Dinitrophenol
- 4,6-Dinitro-2-methylphenol
- 2-Nitroaniline
- 3-Nitroaniline
- 4-Nitroaniline
- 4-Nitrophenol
- Pentachlorophenol
- 2,4,5-Trichlorophenol

Acid Surrogate Standard
CLP-AS — **1 x 1 mL**
CLP-AS-PAK — *SAVE* — **5 x 1 mL**
2.0 mg/mL each in MeOH — 3 comps.

CLP-AS-10X — **1 x 1 mL**
CLP-AS-10X-PAK — *SAVE* — **5 x 1 mL**
20 mg/mL each in MeOH — 3 comps.

- 2-Fluorophenol
- Phenol-d_5
- 2,4,6-Tribromophenol

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_2Cl_2

CLP-BNS-10X — **1 x 1 mL**
CLP-BNS-10X-PAK — *SAVE* — **5 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 — 3 comps.

- 2-Fluorobiphenyl
- Nitrobenzene-d_5
- *p*-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-*n*-propylamine	100
Pentachlorophenol	200	Pyrene	100
Phenol	200	1,2,4-Trichlorobenzene	100
Acenaphthene	100		

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-*n*-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 — ***SAVE*** — **5 x 1 mL**
2.0 mg/mL each in MeOH — 4 comps.

CLP-029-0.75X — **1 x 1 mL**
CLP-029-0.75X-PAK — ***SAVE*** — **5 x 1 mL**
1.5 mg/mL each in MeOH — 4 comps.

2-Chlorophenol-d_4	Phenol-d_5
2-Fluorophenol	2,4,6-Tribromophenol

Semi-Volatile Surrogate Mixes

CLP-031-R — **1 x 1 mL**
CLP-031-R-PAK — ***SAVE*** — **5 x 1 mL**
At stated conc. (mg/mL) in MeOH:CH_2Cl_2 (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	*p*-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 — ***SAVE*** — **5 x 1 mL**
2000 µg/mL each in CH_2Cl_2 — 8 comps.

2-Chlorophenol-d_4	Nitrobenzene-d_5
1,2-Dichlorobenzene-d_4	Phenol-d_5
2-Fluorobiphenyl	*p*-Terphenyl-d_{14}
2-Fluorophenol	2,4,6-Tribromophenol

Base/Neutral Surrogate Standard

CLP-030 — **1 x 1 mL**
CLP-030-PAK — ***SAVE*** — **5 x 1 mL**
1.0 mg/mL each in CH_2Cl_2 — 4 comps.

1,2-Dichlorobenzene-d_4	Nitrobenzene-d_5
2-Fluorobiphenyl	*p*-Terphenyl-d_{14}

Instrument Performance Check Solution

CLP-033 — **1 x 1 mL**
CLP-033-PAK — ***SAVE*** — **5 x 1 mL**
0.25 mg/mL in CH_2Cl_2

Decafluorotriphenylphosphine (DFTPP)

GC/MS Tuning Solution

CLP-TS — **1 x 1 mL**
CLP-TS-PAK — ***SAVE*** — **5 x 1 mL**
50 µg/mL in CH_2Cl_2

Perfluorokerosene

GPC Solutions for Sample Clean-up

Semi-Volatiles (Gel Permeation)

GPC Calibration Standard Solution

CLP-027 — **1 x 1 mL**
CLP-027-PAK — ***SAVE*** — **5 x 1 mL**
At stated conc. (mg/mL) in CH_2Cl_2 — 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 — ***SAVE*** — **5 x 1 mL**
At stated conc. (mg/mL) in CH_2Cl_2 — 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 CH_2Cl_2

Corn Oil

Solution B

CLP-008B-R — **1 x 1 mL**
4.0 mg/mL each in CH_2Cl_2 — 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 CH_2Cl_2 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 CH_2Cl_2 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 CH_2Cl_2 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 ***SAVE*** **5 x 1 mL**
2.0 mg/mL each in CH_2Cl_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

Phenols Mixture

Z-014H-LC **1 x 1 mL**
Z-014H-LC-PAK ***SAVE*** **5 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 9 comps.

- 4-Chloro-3-methylphenol
- 2-Chlorophenol
- 2,4-Dichlorophenol
- 2,4-Dimethylphenol
- 2-Methylphenol
- 4-Methylphenol
- 2-Nitrophenol
- Phenol
- 2,4,6-Trichlorophenol

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-*n*-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 CH_2Cl_2

- Decafluorotriphenylphosphine (DFTPP)

Internal Standard

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_2Cl_2 6 comps.

- Acenaphthene-d_{10}
- Chrysene-d_{12}
- 1,4-Dichlorobenzene-d_4
- Naphthalene-d_8
- Perylene-d_{12}
- Phenanthrene-d_{10}

Surrogate Standards

CLP-LC-SS-1 **1 x 1 mL**
CLP-LC-SS-1-PAK ***SAVE*** **5 x 1 mL**
2.0 mg/mL each in MeOH:CH_2Cl_2 (20:80) 5 comps.

- 2-Fluorobiphenyl
- 2-Fluorophenol
- Nitrobenzene-d_5
- Phenol-d_5
- *p*-Terphenyl-d_{14}

CLP-LC-SS-2 **1 x 1 mL**
CLP-LC-SS-2-PAK ***SAVE*** **5 x 1 mL**
6.0 mg/mL in MeOH

- 2,4,6-Tribromophenol

CLP OLM 04.1 - 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 CH_2Cl_2 — 13 comps.

- Benzyl butyl phthalate
- 4-Bromophenyl phenyl ether
- bis(2-Chloroethoxy) methane
- bis(2-Chloroethyl) ether
- bis(2-Chloroisopropyl) ether
- 4-Chlorophenyl phenyl ether
- Dibutyl phthalate
- Diethyl phthalate
- Dimethyl phthalate
- Di-*n*-octyl phthalate
- bis(2-Ethylhexyl)phthalate
- N-Nitrosodiphenylamine
- N-Nitrosodi-*n*-propylamine

CLP Base Neutral & PAH Mix #2

CLP-HC-SV-MIX2 — **1 x 1 mL**
2000 µg/mL each in CH_2Cl_2 : Benzene (75:25) — 31 comps.

- Acenaphthene
- Acenaphthylene
- Acetophenone
- Anthracene
- Atrazine
- Benzaldehyde
- Benz[a]anthracene
- Benzo[b]fluoranthene
- Benzo[k]fluoranthene
- Benzo[g,h,i]perylene
- Benz[a]pyrene
- Biphenyl
- ε-Caprolactam
- Carbazole
- 2-Chloronaphthalene
- Chrysene
- Dibenz[a,h]anthracene
- 2,4-Dinitrotoluene
- 2,6-Dinitrotoluene
- Fluoranthene
- Fluorene
- Hexachlorobenzene
- Hexachlorobutadiene
- Hexachlorocyclopentadiene
- Hexachloroethane
- Indeno[1,2,3-cd]pyrene
- Isophorone
- Naphthalene
- Nitrobenzene
- Phenanthrene
- Pyrene

CLP Toxic Substance Mix #4

CLP-HC-SV-MIX4 — **1 x 1 mL**
2000 µg/mL each in CH_2Cl_2 — 7 comps.

- 4-Chloroaniline
- Dibenzofuran
- 3,3'-Dichlorobenzidine †
- 2-Methylnaphthalene
- 2-Nitroaniline
- 3-Nitroaniline
- 4-Nitroaniline

† 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 CH_2Cl_2 — 14 comps.

- 4-Chloro-3-methylphenol
- 2,4-Dichlorophenol
- 2,4-Dimethylphenol
- 2,4-Dinitrophenol
- 2-Chlorophenol
- 2-Methyl-4,6-dinitrophenol
- *o*-Cresol
- *p*-Cresol
- 2-Nitrophenol
- 4-Nitrophenol
- Pentachlorophenol
- Phenol
- 2,4,5-Trichlorophenol
- 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
- 2,4-Dinitrotoluene
- N-Nitrosodi-*n*-propylamine
- Pyrene

Semi-Volatile Organic Extract Calibration (Screening Mix)

CLP-009-10X — **1 x 1 mL**
1.0 mg/mL each in CH_2Cl_2 — 3 comps.

- Di-*n*-octylphthalate
- Phenanthrene
- Phenol

Instrument Performance Check Solution

CLP-033 — **1 x 1 mL**
CLP-033-PAK — *SAVE* — **5 x 1 mL**
0.25 mg/mL in CH_2Cl_2

- Decafluorotriphenylphosphine (DFTPP)

Acids

CLP-007-2 — **1 x 1 mL**
1.5 mg/mL each in MeOH — 5 comps.

- 2-Chlorophenol
- 4-Chloro-3-methylphenol
- 4-Nitrophenol
- Pentachlorophenol
- Phenol

Internal Standards Mixture

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}
- Chrysene-d_{12}
- 1,4-Dichlorobenzene-d_4
- Naphthalene-d_8
- Perylene-d_{12}
- 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:CH_2Cl_2 (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	*p*-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
- α-BHC
- β-BHC
- γ-BHC
- δ-BHC
- α-Chlordane
- γ-Chlordane
- 4,4'-DDD
- 4,4'-DDE
- 4,4'-DDT
- Dieldrin
- Endosulfan I
- Endosulfan II
- Endosulfan sulfate
- Endrin
- Endrin aldehyde
- Endrin ketone
- Heptachlor
- Heptachlor epoxide (Isomer B)
- 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	*p*-Terphenyl-d_{14}	100
2-Fluorophenol	150	2,4,6-Tribromophenol	150

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 — *SAVE* — **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
Dibutylchlorendate	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 — *SAVE* — **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	Dibutylchlorendate	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 — *SAVE* — **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 — *SAVE* — **5 x 1 mL**
200 µg/mL each in Acetone — 2 comps.
Dibutylchlorendate — Tetrachloro-*m*-xylene

CLP-PES-A — **1 x 1 mL**
CLP-PES-A-PAK — *SAVE* — **5 x 1 mL**
200 µg/mL in Acetone
CLP-PES-A-20X — **1 x 1 mL**
4000 µg/mL in Acetone
Dibutylchlorendate

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-*m*-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-*m*-xylene	20
Dieldrin	40		

Ready-to-Inject

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-*m*-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-*m*-xylene	20
Decachlorobiphenyl	40		

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

Pesticides
Working Levels

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 — 4 comps.

Aldrin	1	Dibutylchlorendate	1
4,4'-DDT	2	Endrin	2

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 — 6 comps.

Aldrin	5	Dieldrin	10
γ-BHC	5	Endrin	10
4,4'-DDT	10	Heptachlor	5

CLP-026-R2-10X — **1 x 1 mL**
CLP-026-R2-10X-PAK — *SAVE* — **5 x 1 mL**
At stated conc. (µg/mL) in Acetone — 6 comps.

Aldrin	50	Dieldrin	100
γ-BHC	50	Endrin	100
4,4'-DDT	100	Heptachlor	50

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 — 6 comps.

Aldrin	0.5	Dieldrin	1.0
γ-BHC	0.5	Endrin	1.0
4,4'-DDT	1.0	Heptachlor	0.5

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 — 9 comps.

γ-Chlordane	10	Endosulfan sulfate	20
Endosulfan I	10	Endrin ketone	20
p,p'-DDE	20	Methoxychlor	100
Decachlorobiphenyl	20	Tetrachloro-*m*-xylene	20
Dieldrin	20		

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 — 6 comps.

Aldrin	200	Endrin	500
4,4'-DDT	500	Heptachlor	200
Dieldrin	500	Lindane	200

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 — 6 comps.

Aldrin	2,000	Endrin	5,000
4,4'-DDT	5,000	Heptachlor	2,000
Dieldrin	5,000	Lindane	2,000

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 — 7 comps.

γ-BHC	100	Endosulfan sulfate	200
γ-Chlordane	100	Endrin	200
Dieldrin	200	Heptachlor epoxide	100
4,4'-DDE	200		

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 — 8 comps.

α-BHC	10	Decachlorobiphenyl	20
β-BHC	10	Endrin	50
γ-BHC	10	Methoxychlor	250
4,4'-DDT	100	Tetrachloro-*m*-xylene	20

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 — 2 comps.

Decachlorobiphenyl — Tetrachloro-*m*-xylene

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 — 8 comps.

α-BHC	100	Decachlorobiphenyl	200
β-BHC	100	Endrin	500
γ-BHC	100	Methoxychlor	2500
4,4'-DDT	1000	Tetrachloro-*m*-xylene	200

Resolution Mixture
CLP-028 — **1 x 1 mL**
CLP-028-PAK — *SAVE* — **5 x 1 mL**
At stated conc. (ng/mL) in Isooctane — 9 comps.

γ-Chlordane	100	Endosulfan sulfate	200
Endosulfan I	100	Endrin ketone	200
p,p'-DDE	200	Methoxychlor	1000
Decachlorobiphenyl	200	Tetrachloro-*m*-xylene	200
Dieldrin	200		

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
Working Levels

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-*m*-xylene	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-*m*-xylene	20
Decachlorobiphenyl	20		

Aroclor 1232 with Surrogates

CLP-232-WL **1 x1 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-*m*-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-*m*-xylene	20
Decachlorobiphenyl	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-*m*-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-*m*-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-*m*-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_2Cl_2 5 comps.

Corn Oil	25	Perylene	0.02
bis(2-Ethylhexyl)phthalate	1.0	Sulfur	0.08
Methoxychlor	0.2		

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_2Cl_2 5 comps.

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

AccuStandard provides the solutions to meet sample clean-up parameters!

Florisil Cartridge Check Solution

CLP-FC-WL-10ML **1 x 10 mL**
0.1 µg/mL in Acetone

2,4,5-Trichlorophenol

GPC Calibration Check Solutions

GPC-CC-A-WL-10ML **1 x 10 mL**
At stated conc. (µg/mL) in CH_2Cl_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

GPC-CC-B-WL-10ML **1 x 10 mL**
0.2 µg/mL each in CH_2Cl_2 2 comps.

Aroclor 1016 Aroclor 1260

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

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ASL products can be used as an independent second source.

Methods 502, 505, 508.1, 525.2

Table of Contents

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 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
Chloroform
Dibromochloromethane
Dichlorobromomethane

Trihalomethanes Set

M-501-SET 5 x 1 mL
Each at 0.2 mg/mL in MeOH Set contains

Bromoform
Chloroform
Dibromochloromethane
Dichlorobromomethane
+ M-501 Mix (4 comps.)

Method 502.2 Volatile Organic Compounds by PID/ELCD

54 Liquid Components

Benzene (01)
Bromobenzene (02)
Bromochloromethane (03)
Bromodichloromethane (04)
Bromoform (05)
n-Butylbenzene (07)
sec-Butylbenzene (08)
tert-Butylbenzene (09)
Carbon tetrachloride (10)
Chlorobenzene (11)
Chloroform (13)
2-Chlorotoluene (15)
4-Chlorotoluene (16)
Dibromochloromethane (17)
1,2-Dibromo-3-chloropropane (18)
1,2-Dibromoethane (19)
Dibromomethane (20)
1,2-Dichlorobenzene (21)
1,3-Dichlorobenzene (22)
1,4-Dichlorobenzene (23)
1,1-Dichloroethane (25)
1,2-Dichloroethane (26)
1,1-Dichloroethene (27)
cis-1,2-Dichloroethene (28)
trans-1,2-Dichloroethene (29)
1,2-Dichloropropane (30)
1,3-Dichloropropane (31)
2,2-Dichloropropane (32)
1,1-Dichloropropene (33)
cis-1,3-Dichloropropene (34A)
trans-1,3-Dichloropropene (34B)
Ethylbenzene (35)
Hexachlorobutadiene (36)
Isopropylbenzene *(Cumene)* (37)
p-Isopropyltoluene *(p-Cymene)* (38)
Methylene chloride (39)
Naphthalene (40)
n-Propylbenzene (41)
Styrene (42)
1,1,1,2-Tetrachloroethane (43)
1,1,2,2-Tetrachloroethane (44)
Tetrachloroethene (45)
Toluene (46)
1,2,3-Trichlorobenzene (47)
1,2,4-Trichlorobenzene (48)
1,1,1-Trichloroethane (49)
1,1,2-Trichloroethane (50)
Trichloroethene (51)
1,2,3-Trichloropropane (53)
1,2,4-Trimethylbenzene (54)
1,3,5-Trimethylbenzene (55)
o-Xylene (57)
m-Xylene (58)
p-Xylene (59)

Certificate will reflect actual cis/trans ratio

6 Gas Components

Bromomethane (06)
Chloroethane (12)
Chloromethane (14)
Dichlorodifluoromethane (24)
Trichlorofluoromethane (52)
Vinyl chloride (56)

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

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.

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

M-502-##N 1 x 1 gram

Except

M-502-##N 1 x 1 gram

M-502-04N **M-502-08N** **M-502-17N** **M-502-18N**
M-502-28N **M-502-29N** **M-502-31N** **M-502-32N**
M-502-34N **M-502-43N** **M-502-44N**

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.

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

Method 502.2 VOCs by PID/ELCD (continued)

Internal & Surrogate Standard

M-502-IS/SS — **1 x 1 mL**
M-502-IS/SS-PAK — *SAVE* — **5 x 1 mL**
2.0 mg/mL each in MeOH — 4 comps.

1-Chloro-3-fluorobenzene
2-Chloropropane
Fluorobenzene
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

Alternate Source

M-502-IS-ASL — **1 x 1 mL**
M-502-IS-ASL-PAK — *SAVE* — **5 x 1 mL**
2.0 mg/mL each in MeOH — 2 comps.

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
m-Xylene
p-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
2-Butanone
Carbon disulfide
2-Hexanone
4-Methyl-2-pentanone
Styrene
Vinyl acetate
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
Bromochloromethane
Bromodichloromethane
Bromoform
Bromomethane
n-Butylbenzene
sec-Butylbenzene
tert-Butylbenzene
Chloroethane
Chloroform
Chloromethane
2-Chlorotoluene
4-Chlorotoluene
Dibromochloromethane
Dibromomethane
1,3-Dichlorobenzene
Dichlorodifluoromethane
1,1-Dichloroethane
1,2-Dichloropropane
1,3-Dichloropropane
2,2-Dichloropropane
1,1-Dichloropropene
cis-1,3-Dichloropropene
trans-1,3-Dichloropropene
Hexachlorobutadiene
Isopropylbenzene *(Cumene)*
p-Isopropyltoluene *(p-Cymene)*
Dichloromethane *(Methylene chloride)*
Naphthalene
n-Propylbenzene
1,1,1,2-Tetrachloroethane
1,1,2,2-Tetrachloroethane
1,2,3-Trichlorobenzene
1,2,4-Trichlorobenzene
1,1,2-Trichloroethane
Trichlorofluoromethane
1,2,3-Trichloropropane
1,2,4-Trimethylbenzene
1,3,5-Trimethylbenzene *(Mesitylene)*

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 — Alternate Source — **1 x 1 mL**
M-502B-10X-PAK — *SAVE* — **5 x 1 mL**
2.0 mg/mL each in MeOH — 6 comps.

Bromomethane
Chloroethane
Chloromethane
Dichlorodifluoromethane
Trichlorofluoromethane
Vinyl chloride

M-502C-02 — Alternate Source — **1 x 1 mL**
M-502C-02-PAK — *SAVE* — **5 x 1 mL**
2.0 mg/mL each in MeOH — 6 comps.

Bromodichloromethane
Dibromochloromethane
1,1,-Dichloroethylene
cis-1,2-Dichloroethylene
trans-1,2-Dichloroethylene
Methylene chloride

Certificate will reflect actual cis/trans ratio

M-502C-03 — Alternate Source — **1 x 1 mL**
M-502C-03-PAK — *SAVE* — **5 x 1 mL**
2.0 mg/mL each in MeOH — 9 comps.

Bromochloromethane
Bromoform
Carbon tetrachloride
Chloroform
Dibromomethane
1,1-Dichloroethane
2,2-Dichloropropane
Tetrachloroethylene
1,1,1-Trichloroethane

M-502C-04 — Alternate Source — **1 x 1 mL**
M-502C-04-PAK — *SAVE* — **5 x 1 mL**
2.0 mg/mL each in MeOH — 14 comps.

1,2-Dibromo-3-chloropropane
1,2-Dibromoethane
1,2-Dichloroethane
1,2-Dichloropropane
1,3-Dichloropropane
1,1-Dichloropropylene
cis-1,3-Dichloropropene
trans-1,3-Dichloropropene
Hexachlorobutadiene
1,1,1,2-Tetrachloroethane
1,1,2,2-Tetrachloroethane
1,1,2-Trichloroethane
Trichloroethylene
1,2,3-Trichloropropane

Certificate will reflect actual cis/trans ratio

M-502C-05 — Alternate Source — **1 x 1 mL**
M-502C-05-PAK — *SAVE* — **5 x 1 mL**
2.0 mg/mL each in MeOH — 13 comps.

Benzene
Bromobenzene
n-Butylbenzene
Ethylbenzene
p-Isopropyltoluene
Naphthalene
Styrene
Toluene
1,2,3-Trichlorobenzene
1,2,4-Trichlorobenzene
1,2,4-Trimethylbenzene
1,3,5-Trimethylbenzene
m-Xylene

M-502C-06 — Alternate Source — **1 x 1 mL**
M-502C-06-PAK — *SAVE* — **5 x 1 mL**
2.0 mg/mL each in MeOH — 12 comps.

sec-Butylbenzene
tert-Butylbenzene
Chlorobenzene
2-Chlorotoluene
4-Chlorotoluene
1,2-Dichlorobenzene
1,3-Dichlorobenzene
1,4-Dichlorobenzene
Isopropylbenzene
n-Propylbenzene
o-Xylene
p-Xylene

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
- Bromobenzene
- Bromochloromethane
- Bromoform
- *sec*-Butyl benzene
- Carbon tetrachloride
- Chloroethane
- 4-Chlorotoluene
- Dibromomethane
- 1,2-Dichlorobenzene
- 1,4-Dichlorobenzene
- 1,1-Dichloroethene
- *trans*-1,2-Dichloroethene
- Dichlorodifluoromethane
- 2,2-Dichloropropane
- Ethyl benzene
- 1,2-Dibromoethane
- Isopropylbenzene
- Tetrachloroethene
- 1,1,1,2-Tetrachloroethane
- Toluene
- 1,2,3-Trichlorobenzene
- 1,2,4-Trichlorobenzene
- Trichloroethene
- Vinyl chloride
- *o*-Xylene

Mix E

M-502E — **1 x 1 mL**
0.2 mg/mL each in MeOH — 21 comps.

- Bromomethane
- Chlorobenzene
- Chloromethane
- 2-Chlorotoluene
- Dibromochloromethane
- 1,3-Dichlorobenzene
- 1,1-Dichloroethane
- 1,2-Dichloroethane
- *cis*-1,2-Dichloroethene
- 1,2-Dichloropropane
- *cis*-1,3-Dichloropropene
- *trans*-1,3-Dichloropropene
- Hexachlorobutadiene
- Methylene chloride
- 1,1,1-Trichloroethane
- 1,1,2-Trichloroethane
- Trichlorofluoromethane
- Styrene
- 1,2,3-Trichloropropane
- 1,2,4-Trimethylbenzene
- *m*-Xylene

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
- *n*-Butylbenzene
- *t*-Butylbenzene
- Chloroform
- 1,2-Dibromo-3-chloropropane
- 1,3-Dichloropropane
- 1,1-Dichloropropene
- *p*-Isopropyltoluene
- Naphthalene
- *n*-Propylbenzene
- 1,1,2,2-Tetrachloroethane
- 1,3,5-Trimethyl benzene
- *p*-Xylene

Wisconsin DNR VOC Mix

S-989 — **1 x 1 mL**
2.0 mg/mL each in MeOH — 52 comps.

- Benzene
- Bromobenzene
- Bromodichloromethene
- *n*-Butylbenzene
- *sec*-Butylbenzene
- *t*-Butylbenzene
- Carbon tetrachloride
- Chlorobenzene
- Dibromochloromethane
- 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
- MtBE
- 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

Certificate will reflect actual cis/trans ratio

Mixtures of Internal, Surrogate Standards and Fortification Solutions

Internal Standard

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

Internal Standard 2

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
- Fluorobenzene
- Methylene chloride-d_2

Internal Standard 3

M-502-IS-2-3 — **1 x 1 mL**
2.0 mg/mL in MeOH

- Methylene chloride-d_2

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-d_4
- Fluorobenzene

Internal Standard 2

M-524-IS-2 — **1 x 1 mL**
M-524-IS-2-PAK — ***SAVE*** — **5 x 1 mL**
2.0 mg/mL in MeOH

- Fluorobenzene

Fortification Solution

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
- 1,2-Dichlorobenzene-d_4
- Fluorobenzene

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-d_4

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-d_4
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-d_2

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-d_5
1,4-Dichlorobenzene-d_4
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-d_4
Pentafluorobenzene

M-8260-IS — **1 x 1 mL**
0.2 mg/mL each in MeOH — 4 comps.

Chlorobenzene-d_5
1,4-Difluorobenzene
1,4-Dichlorobenzene-d_4
Pentafluorobenzene

M-8260A/B-IS — **1 x 1 mL**
0.2 mg/mL each in MeOH — 3 comps.

Chlorobenzene-d_5
1,4-Dichlorobenzene-d_4
Fluorobenzene

ISTD/SS Evaluation Mixtures

Conventional ISTD/SS Evaluation MIxture

M-CONV-IS/SS — **1 x 1 mL**
200 µg/mL each in MeOH — 15 comps.

2-Bromochlorobenzene
4-Bromochlorobenzene
Bromochloromethane
p-Bromofluorobenzene
2-Bromo-1-chloropropane
1-Chloro-2-fluorobenzene
1-Chloro-3-fluorobenzene
1-Chloro-4-fluorobenzene
2-Chloropropane
Dibromofluoromethane
1,4-Dichlorobutane
1,4-Difluorobenzene
Fluorobenzene
Pentafluorobenzene
α,α,α-Trifluorotoluene

Deuterated ISTD/SS Evaluation Mixture

M-DEUT-IS/SS — **1 x 1 mL**
200 µg/mL each in MeOH — 8 comps.

Benzene-d_6
Chlorobenzene-d_5
1,2-Dichlorobenzene-d_4
1,4-Dichlorobenzene-d_4
1,2-Dichloroethane-d_4
Ethylbenzene-d_{10}
Methylene chloride-d_2
Toluene-d_8

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

Alternate Source

M-524-SS — **1 x 1 mL**
2.0 mg/mL each in MeOH — 2 comps.

4-Bromofluorobenzene
1,2-Dichlorobenzene-d_4

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
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-d_4
Toluene-d_8

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-d_4
Fluorobenzene

M-8010-IS/SS — **1 x 1 mL**
150 µg/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-d_5
Dibromofluoromethane
1,4-Dichlorobenzene-d_4
1,2-Dichloroethane-d_4
1,4-Difluorobenzene
Pentafluorobenzene
Toluene-d_8

M-8260A/B-IS/SS — **1 x 1 mL**
200 µg/mL each in MeOH — 7 comps.

p-Bromofluorobenzene
Chlorobenzene-d_5
Dibromofluoromethane
1,4-Dichlorobenzene-d_4
1,2-Dichloroethane-d_4
Fluorobenzene
Toluene-d_8

EPA Method 500 Series

Method 503.1 Purgeable Aromatics & Alkenes

Purgeable Aromatics & Alkenes

M-503 1 x 1 mL
M-503-PAK *SAVE* 5 x 1 mL
0.2 mg/mL each in MeOH 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 *SAVE* 5 x 1 mL
0.2 mg/mL in MeOH

α,α,α-Trifluorotoluene

Method 504 EDB & DBCP by ECD

EDB & DBCP

M-504 1 x 1 mL
M-504-PAK *SAVE* 5 x 1 mL
0.2 mg/mL each in MeOH 2 comps.

M-504-10X 1 x 1 mL
M-504-10X-PAK *SAVE* 5 x 1 mL
2.0 mg/mL each in MeOH 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 *SAVE* 5 x 1 mL
0.2 mg/mL each in MeOH 3 comps.

1,2-Dibromoethane *(EDB)*
1,2-Dibromo-3-chloropropane *(DBCP)*
1,2,3-Trichloropropane

Laboratory Fortified Blank Sample Concentrate

M-504.1-LFB 1 x 1 mL
M-504.1-LFB-PAK *SAVE* 5 x 1 mL
0.25 µg/mL each in MeOH 3 comps.

1,2-Dibromoethane *(EDB)*
1,2-Dibromo-3-chloropropane *(DBCP)*
1,2,3-Trichloropropane

MDL Check Sample Concentrate

M-504.1-MDL 1 x 1 mL
M-504.1-MDL-PAK *SAVE* 5 x 1 mL
0.02 µg/mL each in MeOH 3 comps.

1,2-Dibromoethane *(EDB)*
1,2-Dibromo-3-chloropropane *(DBCP)*
1,2,3-Trichloropropane

Method 505 Organohalide Pesticides by Microextraction & GC/ECD

M-505R-2 1 x 1 mL
M-505R-2-PAK *SAVE* 5 x 1 mL
At stated conc. (µg/mL) in MeOH 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 Alternate Source 1 x 1 mL
M-505-ASL-PAK *SAVE* 5 x 1 mL
At stated conc. (µg/mL) in Acetone 12 comps.

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 µg/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 µg/mL in MeOH

Endrin

Method 506 Phthalate Esters by PID

Phthalate Esters

M-506 1 x 1 mL
M-506-PAK *SAVE* 5 x 1 mL
1.0 mg/mL each in Isooctane 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 *SAVE* 5 x 1 mL
At stated conc. (mg/mL) in MeOH 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, Cycloate, Disulfoton, Fenamiphos, Merphos, Prometon

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, Diphenamid, EPTC, Ethoprop, Mevinphos, Prometryne, Propazine, Terbutryn, Triadimefon

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, Carboxin, Diazinon, Metolachlor, Metribuzin, MGK-264, Norflurazon, Terbufos, Vernolate

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, Atraton, Bromacil, Butylate, Chlorpropham, Hexazinone, Molinate, Pronamide, Stirofos, Tricyclazole

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, Fenarimol, Fluridone, Napropamide, Pebulate *(Tillam)*, Simetryn, Tebuthiuron, Terbacil

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 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, Isopropalin, Pendimethalin, Oxadiazon, Oxyfluorfen, Propachlor, Profluralin, Trifluralin

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

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

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

Method 508 Chlorinated Pesticides by GC/ECD

Chlorinated Pesticides Mix A

M-508P-A 1 x 1 mL
M-508P-A-PAK *SAVE* 5 x 1 mL
1.0 mg/mL each in MtBE 17 comps.

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	

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 *SAVE* 5 x 1 mL
0.1 mg/mL in MtBE
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 *SAVE* 5 x 1 mL
0.5 mg/mL in MtBE

4,4'-Dichlorobiphenyl

M-508-SS-2 1 x 1 mL
M-508-SS-2-PAK *SAVE* 5 x 1 mL
0.5 mg/mL in MtBE

Decachlorobiphenyl

Decomposition Solution

M-508-DS-100X 1 x 1 mL
M-508-DS-100X-PAK *SAVE* 5 x 1 mL
At stated conc. (µg/mL) in MtBE 2 comps.

p,p'-DDT	200	Endrin	100

Performance Check Solution

M-508-QC 1 x 1 mL
M-508-QC-PAK *SAVE* 5 x 1 mL
At stated conc. (ng/mL) in MtBE 4 comps.

δ-BHC	40	Chlorpyrifos	2
Chlorothalonil	50	Dacthal	50

Chlorinated Pesticides Mix B

M-508P-B-R 1 x 1 mL
M-508P-B-R-PAK *SAVE* 5 x 1 mL
1.0 mg/mL each in MtBE 13 comps.

α-Chlordane	Chlorpyrifos	*cis*-Permethrin
γ-Chlordane	DCPA	*trans*-Permethrin
Chlorobenzilate	Etridiazole	Propachlor
Chloroneb	Hexachlorobenzene	Trifluralin
Chlorothalonil		

Certificate will reflect actual cis/trans ratio

M-508P-B-R2 1 x 1 mL
M-508P-B-R2-PAK *SAVE* 5 x 1 mL
1.0 mg/mL each in MtBE 15 comps.

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 *SAVE* 5 x 1 mL
5.0 mg/mL in MeOH

Aroclor 1260

DCB Stock Solution

M-508A-2 1 x 1 mL
M-508A-2-PAK *SAVE* 5 x 1 mL
1.0 mg/mL in Toluene

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	

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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 ***SAVE*** **5 x 1 mL**
500 µg/mL each in Ethyl acetate 19 comps.

- Aldrin
- α-BHC
- β-BHC
- δ-BHC
- γ-BHC
- α-Chlordane
- γ-Chlordane
- 4,4'-DDD
- 4,4'-DDE
- 4,4'-DDT
- Dieldrin
- Endosulfan I
- Endosulfan II
- Endosulfan sulfate
- Endrin
- Endrin aldehyde
- Heptachlor
- Heptachlor epoxide (Isomer B)
- Methoxychlor

Chlorinated Pesticide Mix #2

M-508.1-X2 **1 x 1 mL**
M-508.1-X2-PAK ***SAVE*** **5 x 1 mL**
500 µg/mL each in Ethyl acetate 17 comps.

- Alachlor
- Atrazine
- Chlorobenzilate
- Chloroneb
- Chlorothalonil
- Cyanazine
- DCPA
- Etridiazole
- Hexachlorobenzene
- Hexachlorocyclopentadiene
- Metolachlor
- Metribuzin
- *cis*-Permethrin
- *trans*-Permethrin
- Propachlor
- Simazine
- Trifluralin

Certificate will reflect actual cis/trans ratio

Regulated Pesticide Mix (SDWA)

M-508.1-ASL **1 x 1 mL**
M-508.1-ASL-PAK ***SAVE*** **5 x 1 mL**
100 µg/mL each in MtBE 17 comps.

- Alachlor
- Aldrin
- Atrazine
- γ-BHC
- α-Chlordane
- γ-Chlordane
- Dieldrin
- Endrin
- Heptachlor
- Heptachlor epoxide (Isomer B)
- Hexachlorobenzene
- Hexachlorocyclopentadiene
- Methoxychlor
- Metolachlor
- Metribuzin
- Propachlor
- Simazine

Decomposition Solution

M-508.1-DS-100X **1 x 1 mL**
M-508.1-DS-100X-PAK ***SAVE*** **5 x 1 mL**
100 µg/mL each in Ethyl acetate 2 comps.

- 4,4'-DDT
- Endrin

Internal Standard Solution

M-508.1-IS **1 x 1 mL**
M-508.1-IS-PAK ***SAVE*** **5 x 1 mL**
100 µg/mL each in Ethyl acetate

- Pentachloronitrobenzene

Surrogate Standard Solution

M-508.1-SS **1 x 1 mL**
M-508.1-SS-PAK ***SAVE*** **5 x 1 mL**
100 µg/mL each in Ethyl acetate

- 4,4'-Dibromobiphenyl

Performance Check Solution

M-508.1-QC **1 x 1 mL**
M-508.1-QC-PAK ***SAVE*** **5 x 1 mL**
At stated conc. (ng/mL) in MtBE 4 comps.

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 515.1 Chlorinated Acids in Water by GC/ECD

Methyl Derivatives

M-515-R — **1 x 1 mL**
M-515-R-PAK — ***SAVE*** — **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 — ***SAVE*** — **5 x 1 mL**
At stated conc. (µg/mL) in MeOH — 16 comps.

Acifluorfen	100	3,5-Dichlorobenzoic acid	100
Bentazon	200	Dichloroprop	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 — ***SAVE*** — **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 — ***SAVE*** — **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 — ***SAVE*** — **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 — ***SAVE*** — **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 — ***SAVE*** — **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 — **1 x 1 mL**
M-515.2-2-PAK — ***SAVE*** — **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 — ***SAVE*** — **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 — **1 x 1 mL**
M-515.2A-2-PAK — ***SAVE*** — **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 ***SAVE*** **5 x 1 mL**
At stated conc. (µg/mL) in Acetone 17 comps.

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 ***SAVE*** **5 x 1 mL**
At stated conc. (µg/mL) in MtBE 4 comps.

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 ***SAVE*** **5 x 1 mL**
At stated conc. (µg/mL) in MtBE 16 comps.

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 ***SAVE*** **5 x 1 mL**
0.1 mg/mL in MtBE

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 ***SAVE*** **5 x 1 mL**
At stated conc. (µg/mL) in Acetone 17 comps.

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 ***SAVE*** **5 x 1 mL**
0.1 mg/mL in Acetone

2,4-Dichlorophenylacetic acid

Quality Control Sample Methyl Derivatives

M-515.4-QCS **1 x 1 mL**
M-515.4-QCS-PAK ***SAVE*** **5 x 1 mL**
At stated conc. (µg/mL) in MtBE 16 comps.

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 Nitrosamines by SPE & Capillary Column GC

Analyte Stock Solution

M-521 — **1 x 1 mL**
200 µg/mL each in CH_2Cl_2 — 7 comps.

- N-Nitrosodimethylamine
- N-Nitrosomethylethylamine
- N-Nitrosodiethylamine
- N-Nitrosodi-*n*-propylamine
- N-Nitrosodi-*n*-butylamine
- N-Nitrosopyrrolidine
- N-Nitrosopiperidine

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 CH_2Cl_2

- N-Nitrosodi-*n*-propylamine-d_{14}

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 CH_2Cl_2

- N-Nitrosodimethylamine-d_6

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
- Acrylonitrile
- Allyl chloride
- 2-Butanone
- Carbon disulfide
- Chloroacetonitrile
- 1-Chlorobutane
- *trans*-1,4-Dichloro-2-butene
- 1,1-Dichloropropanone
- Diethyl ether
- Ethyl methacrylate
- Hexachloroethane
- 2-Hexanone
- Methacrylonitrile
- Methyl acrylate
- Methyl iodide
- Methyl methacrylate
- 4-Methyl-2-pentanone
- MtBE
- Nitrobenzene
- 2-Nitropropane
- Pentachloroethane
- Propionitrile
- 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
- Fluorobenzene
- Methylene chloride-d_2

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-d_4
- 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
- 1,2-Dichlorobenzene-d_4
- Fluorobenzene

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-d_4

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
- 1-Chlorobutane
- Allyl chloride
- Carbon disulfide
- Chlorodifluoromethane
- Diethyl ether
- Diisopropyl ether
- Ethyl methacrylate
- Hexachloroethane
- Methyl acetate
- Methyl iodide
- MtBE
- Pentachloroethane
- *t*-Amyl ethyl ether
- TAME
- *t*-Butanol
- EtBE
- 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
- Chlorobenzene-d_5
- 1,4-Dichlorobenzene-d_4

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
- Chlorobenzene-d_5
- 1,4-Dichlorobenzene-d_4
- *tert*-Butyl methyl ether-d_3
- *p*-Bromofluorobenzene
- 1,2-Dichlorobenzene-d_4

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-d_3
- 1,2-Dichlorobenzene-d_4
- *p*-Bromofluorobenzene

❄ 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
- Anthracene
- Benz[a]anthracene
- Benzo[b]fluoranthene
- Benzo[k]fluoranthene
- Benz[a]pyrene
- Benzo[g,h,i]perylene
- Chrysene
- Dibenz[a,h]anthracene
- Fluorene
- Indeno[1,2,3-cd]pyrene
- Phenanthrene
- Pyrene

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

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
- Aldrin
- Atrazine
- α-Chlordane
- γ-Chlordane
- Endrin
- Heptachlor
- Heptachlor epoxide (Isomer B)
- Lindane
- Methoxychlor
- Simazine
- *trans*-Nonachlor

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) — 9 comps.

- Butylbenzylphthalate
- Di-*n*-butyl phthalate
- Diethylphthalate
- bis(2-Ethylhexyl)adipate
- Dimethyl phthalate
- Hexachlorobenzene
- Hexachlorocyclopentadiene
- bis(2-Ethylhexyl)phthalate
- Pentachlorophenol *(PCP)*

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 CH_2Cl_2 — 4 comps.

- Acenaphthene-d_{10}
- Chrysene-d_{12}
- Perylene-d_{12}
- Phenanthrene-d_{10}

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}
- Chrysene-d_{12}
- Perylene-d_{12}
- Phenanthrene-d_{10}

M-525-FS-2 — **1 x 1 mL**
M-525-FS-2-PAK — *SAVE* — **5 x 1 mL**
0.5 mg/mL in CH_2Cl_2

- *p*-Terphenyl-d_{14}

Tuning Standards

CLP-TS — **1 x 1 mL**
CLP-TS-PAK — *SAVE* — **5 x 1 mL**
50 µg/mL in CH_2Cl_2

- Perfluorokerosene

M-525-TS — **1 x 1 mL**
M-525-TS-PAK — *SAVE* — **5 x 1 mL**
0.1 mg/mL in CH_2Cl_2

- 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-d_{10}

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

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 — 1 x 1 mL
M-507A-PAK — *SAVE* — 5 x 1 mL
1.0 mg/mL each in MtBE — 6 comps.

Ametryn, Cycloate, Disulfoton, Fenamiphos, Merphos, Prometon

M-507B — 1 x 1 mL
M-507B-PAK — *SAVE* — 5 x 1 mL
1.0 mg/mL each in MtBE — 9 comps.

Atrazine, Diphenamid, EPTC, Ethoprop, Mevinphos, Prometryne, Propazine, Terbutryn, Triadimefon

M-507C — 1 x 1 mL
M-507C-PAK — *SAVE* — 5 x 1 mL
1.0 mg/mL each in MtBE — 9 comps.

Butachlor, Carboxin, Diazinon, Metolachlor, Metribuzin, MGK-264, Norflurazon, Terbufos, Vernolate

M-507D — 1 x 1 mL
M-507D-PAK — *SAVE* — 5 x 1 mL
1.0 mg/mL each in MtBE — 10 comps.

Alachlor, Atraton, Bromacil, Butylate, Chlorpropham, Hexazinone, Molinate, Pronamide, Stirofos, Tricyclazole

M-507E — 1 x 1 mL
M-507E-PAK — *SAVE* — 1 x 1 mL
1.0 mg/mL each in MtBE — 8 comps.

Dichlorvos, Fenarimol, Fluridone, Napropamide, Pebulate *(Tillam)*, Simetryn, Tebuthiuron, Terbacil

M-507F-R2 — 1 x 1 mL
M-507F-R2-PAK — 5 x 1 mL
1.0 mg/mL each in Acetone — 2 comps.

Methyl paraoxon, Simazine

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.

Acenapthene-d_{10}, Chrysene-d_{12}, Phenanthrene-d_{10}

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, Perylene-d_{12}, Triphenylphosphate

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.

Acenapthene-d_{10}, Chrysene-d_{12}, 1,3-Dimethyl-2-nitrobenzene, Perylene-d_{12}, Phenanthrene-d_{10}, Triphenylphosphate

Tuning Standard

M-525.2-TS — 1 x 1 mL
0.5 mg/mL each in CH_2Cl_2 — 3 comps.

4,4'-DDT, DFTPP, Endrin

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 ❄ — 18 x 1 mL

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 — **1 x 1 mL**
M-508P-A-PAK — ***SAVE*** — **5 x 1 mL**
1.0 mg/mL each in MtBE — 17 comps.

- Aldrin
- α-BHC
- β-BHC
- δ-BHC
- γ-BHC
- 4,4'-DDD
- 4,4'-DDE
- 4,4'-DDT
- Dieldrin
- Endosulfan I
- Endosulfan II
- Endosulfan sulfate
- Endrin
- Endrin aldehyde
- Heptachlor
- Heptachlor epoxide (Isomer B)
- Methoxychlor

Mix B

M-508P-B-R2 — **1 x 1 mL**
M-508P-B-R2-PAK — ***SAVE*** — **5 x 1 mL**
1.0 mg/mL each in MtBE — 15 comps.

- α-Chlordane
- γ-Chlordane
- Chlorobenzilate
- Chloroneb
- Chlorothalonil
- Chlorpyrifos
- Cyanazine
- DCPA
- Etridiazole
- Hexachlorobenzene
- *trans*-Nonachlor
- *cis*-Permethrin
- *trans*-Permethrin
- Propachlor
- Trifluralin

Certificate will reflect actual cis/trans permethrin ratio

Semi-Volatile Analytes

PAH Mixtures

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
- Anthracene
- Benz[a]anthracene
- Benzo[b]fluoranthene
- Benzo[k]fluoranthene
- Benz[a]pyrene
- Benzo[g,h,i]perylene
- Chrysene
- Dibenz[a,h]anthracene
- Fluorene
- Indeno[1,2,3-cd]pyrene
- Phenanthrene
- Pyrene

PCB Congener Mixtures

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.

- 2-Chlorobiphenyl
- 2,3-Dichlorobiphenyl
- 2,2',3,3',4,4',6-Heptachlorobiphenyl
- 2,2',4,4',5,6'-Hexachlorobiphenyl
- 2,2',3,3',4,5',6,6'-Octachlorobiphenyl
- 2,2',3',4,6-Pentachlorobiphenyl
- 2,2',4,4'-Tetrachlorobiphenyl
- 2,4,5-Trichlorobiphenyl

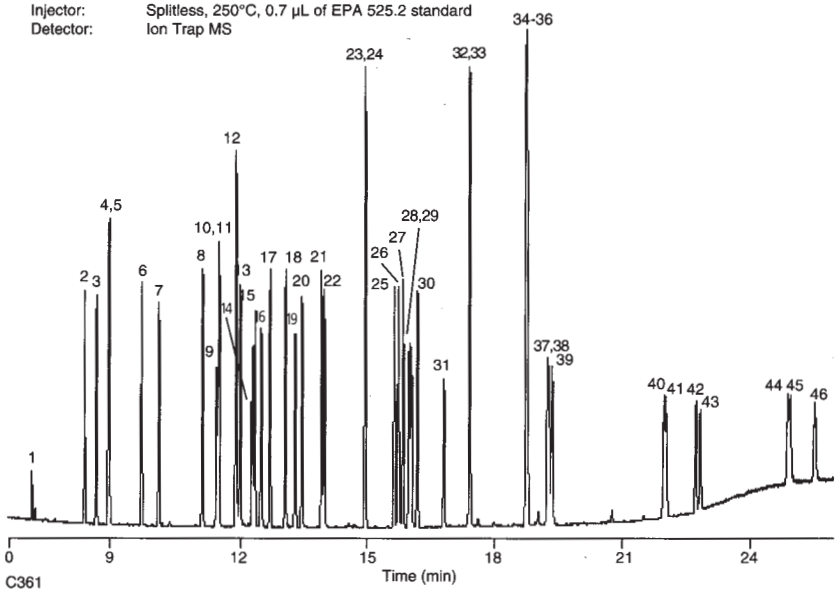
Semi-Volatile Mixtures

M-525-4-R-5X — **1 x 1 mL**
0.5 mg/mL each in Acetone — 11 comps.

- Butyl benzyl phthalate
- Di-*n*-butyl phthalate
- Diethyl phthalate
- bis(2-Ethylhexyl)adipate
- Dimethyl phthalate
- 2,4-Dinitrotoluene
- 2,6-Dinitrotoluene
- Hexachlorocyclopentadiene
- bis(2-Ethylhexyl)phthalate
- Isophorone
- Pentachlorophenol (2.0 mg/mL)

EPA Method 525.2

Column: DB-XLB
30 m x 0.25 mm I.D., 0.25 µm
Agilent p/n: **122-1232**
Carrier: Helium at 33.3 cm/sec, measured at 150°C
Oven: 60°C for 0.5 min
60-160°C at 20°/min
160-325°C at 10°/min
325-350°C at 25°/min
350°C for 5 min
Injector: Splitless, 250°C, 0.7 µL of EPA 525.2 standard
Detector: Ion Trap MS



	Compound Name	m/z	RT
1.	Hexachlorocyclopentadiene	237	07:07
2.	Dimethylphthalate	163	08:22
3.	Acenaphthylene	152	08:39
4.	Acenaphthene-d10	164	08:55
5.	2-Chlorobiphenyl	188	08:57
6.	Diethylphthalate	149	09:43
7.	Fluorene	166	10:07
8.	2,3-Dichlorobiphenyl	222	11:09
9.	Hexachlorobenzene	284	11:29
10.	Simazine	201	11:31
11.	Atrazine	200,215	11:33
12.	Pentachlorophenol	266	11:56
13.	Lindane	181	12:02
14.	Phenanthrene-d10	188	12:19
15.	Phenanthrene	178	12:23
16.	Anthracene	178	12:32
17.	2,4,5-Trichlorobiphenyl	256	12:45
18.	Alachlor	160	13:06
19.	Heptachlor	100,160	13:19
20.	Di-n-butylphthalate	149	13:29
21.	2,2',4,4'-Tetrachlorobiphenyl	292	13:57
22.	Aldrin	66	14:01
23.	Heptachlor epoxide	81,353	14:57
24.	2,2',3',4,6-Pentachlorobiphenyl	326	14:58
25.	γ-Chlordane	375	15:39
26.	α-Chlordane	375	15:45
27.	*trans*-Nonachlor	409	15:52
28.	Pyrene-d10	212	16:00
29.	Pyrene	202	16:04
30.	2,2',3',4,6-Pentachlorobiphenyl	326	16:12
31.	Endrin	81	16:49
32.	Butylbenzylphthalate	149	17:25
33.	Di(2-ethylhexyl)adipate	129	17:26
34.	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	430	18:47
35.	Methoxychlor	227	18:46
36.	Di(2-ethylhexyl)phthalate	149	18:45
37.	Benz[a]anthracene	228	19:15
38.	Chrysene-d12	240	19:16
39.	Chrysene	228	19:22
40.	Benzo[b]fluoranthene	252	21:59
41.	Benzo[k]fluoranthene	252	22:02
42.	Benzo[a]pyrene	252	22:44
43.	Perylene-d12	264	22:50
44.	Dibenz[a,h]anthracene	278	24:54
45.	Indeno[1,2,3-c,d]pyrene	276	24:56
46.	Benzo[g,h,i]perylene	276	25:31

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 *SAVE* — **5 x 1 mL**
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	

Nitrogen / Phosphorus Pesticide Mix Revision

M-525.2-NP1-ASL-R1 Alternate Source — **1 x 1 mL**
100 µg/mL each in Acetone — 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		

Nitrogen / Phosphorus Pesticide Mixture

M-525.2-NP2-ASL — **1 x 1 mL**
M-525.2-NP2-ASL-PAK Alternate Source *SAVE* — **5 x 1 mL**
100 µg/mL each in Acetone — 6 comps.

Carboxin	Fenamiphos
Diazinon	Merphos
Disulfoton	Terbufos

Organochlorine Pesticides

M-525.2-CP-ASL — **1 x 1 mL**
M-525.2-CP-ASL-PAK Alternate Source *SAVE* — **5 x 1 mL**
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

Match frequently requested products.

Alternate Source **ASL products can be used as an independent second source.**

Semi-Volatiles Mixture

M-525.2-SV-ASL — **1 x 1 mL**
M-525.2-SV-ASL-PAK Alternate Source *SAVE* — **5 x 1 mL**
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	

Regulated Semi-Volatiles Mixture

M-525-REG-ASL — **1 x 1 mL**
M-525-REG-ASL-PAK Alternate Source *SAVE* — **5 x 1 mL**
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 *SAVE* — **5 x 1 mL**
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}	

Surrogate Standard

M-525.2-SS2-ASL Alternate Source — **1 x 1 mL**
M-525.2-SS2-ASL-PAK *SAVE* — **5 x 1 mL**
500 µg/mL each in Acetone — 4 comps.

1,3-Dimethyl-2-nitrobenzene	Pyrene-d_{10}
Perylene-d_{12}	Triphenylphosphate

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	

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 — ***SAVE*** — **5 x 1 mL**
200 µg/mL each in Ethyl acetate — 11 comps.

M-526 — **1 x 1 mL**
M-526-PAK — ***SAVE*** — **5 x 1 mL**
1000 µg/mL each in Acetone — 11 comps.

- Acetochlor
- Cyanazine
- Diazinon
- 2,4-Dichlorophenol
- 1,2-Diphenylhydrazine
- Disulfoton
- Dyfonate
- Nitrobenzene
- Prometon
- Terbufos
- 2,4,6-Trichlorophenol

Internal/Surrogate Standards

M-526-IS/SS — **1 x 1 mL**
M-526-IS/SS-PAK — ***SAVE*** — **5 x 1 mL**
500 µg/mL each in Acetone — 5 comps.

- Acenaphthene-d_{10}
- Chrysene-d_{12}
- 1,3-Dimethyl-2-nitrobenzene
- Phenanthrene-d_{10}
- Triphenylphosphate

M-525-TS — **1 x 1 mL**
M-525-TS-PAK — ***SAVE*** — **5 x 1 mL**
100 µg/mL in CH_2C_2

- DFTPP

Internal Standard

M-525.2-IS — **1 x 1 mL**
M-525.2-IS-PAK — ***SAVE*** — **5 x 1 mL**
500 µg/mL each in Acetone — 3 comps.

- Acenaphthene-d_{10}
- Chrysene-d_{12}
- Phenanthrene-d_{10}

Surrogate Standard

M-526-SS — **1 x 1 mL**
M-526-SS-PAK — ***SAVE*** — **5 x 1 mL**
500 µg/mL each in Acetone — 2 comps.

- 1,3-Dimethyl-2-nitrobenzene
- Triphenylphosphate

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
- Bioallethrin, S-cyclopentyl isomer
- Bromacil
- Esfenvalerate
- Fenvalerate
- Hexazinone
- Kepone
- Norflurazon
- Oxychlordane isomer
- Prometryne
- Propazine

Pesticide Mix B

M-527-PEST-B — **1 x 1 mL**
500 µg/mL each in MeOH — 12 comps.

- Bifenthrin
- Dimethoate
- Dursban
- Fenamiphos
- Malathion
- Mirex
- Nitrofen
- Parathion
- Terbufos sulfone
- Thiazopyr
- Thiobencarb
- Vinclozolin

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.

- Acenapthene-d_{10}
- Chrysene-d_{12}
- Phenanthrene-d_{10}

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
- Perylene-d_{12}
- Triphenylphosphate

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_2Cl_2 12 comps.

- 4-Chloro-3-methylphenol
- 2-Chlorophenol
- *o*-Cresol
- 2,4-Dichlorophenol
- 2,4-Dimethylphenol
- 2,4-Dinitrophenol
- 2-Methyl-4,6-Dinitrophenol
- 2-Nitrophenol
- 4-Nitrophenol
- Pentachlorophenol
- Phenol
- 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 12 comps.

4-Chloro-3-methylphenol	100	2-Methyl-4,6-Dinitrophenol	500
2-Chlorophenol	100	2-Nitrophenol	100
o-Cresol	100	4-Nitrophenol	500
2,4-Dichlorophenol	100	Pentachlorophenol	500
2,4-Dimethylphenol	100	Phenol	100
2,4-Dinitrophenol	500	2,4,6-Trichlorophenol	100

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_2Cl_2 2 comps.

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 3 comps.

2-Chlorophenol-d_4	1000
2,4-Dimethylphenol-3,5,6-d_3	1000
2,4,6-Tribromophenol	2500

M-528-SS2 **1 x 1 mL**
M-528-SS2-PAK ***SAVE*** **5 x 1 mL**
At stated conc. (µg/mL) in MeOH 3 comps.

2-Chlorophenol-d_4	1000
2,4-Dimethylphenol-3,5,6-d_3	1000
2,4,6-Tribromophenol	2000

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_2Cl_2 4 comps.

- 2,4-Dimethylphenol
- 2-Methyl-4,6-dinitrophenol
- 4-Nitrophenol
- Pentachlorophenol

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

Internal Standard Fortification Solution

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

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

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 2 comps.

- 1,3,5-Trimethyl-2-nitrobenzene
- 1,2,4-Trimethyl-5-nitrobenzene

M-529-SS2 **1 x 1 mL**
M-529-SS2-PAK ***SAVE*** **5 x 1 mL**
1000 µg/mL each in CH_2Cl_2

- Nitrobenzene-d_5

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
- 1,2,4-Trimethyl-5-nitrobenzene
- Nitrobenzene-d_5

Method 531 + 531.1 N-Methyl carbamoyl oximes & N-Methyl carbamates by HPLC

Method 531 Compounds (HPLC)

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 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

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 (internal standard)	20
Flufenacet OA	20		
Metolachlor ESA	50	Dimethachlor ESA sodium salt (surrogate standard)	20
Metolachlor OA	50		

Method 537 Perflourinated Compounds (PFCs)

Compound	CAS No.	Conc.	Matrix	Cat. No.	1 mL
Perfluoroctanoic 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 **1 x 1 mL**
0.1 mg/mL in Deionized water

M-547-10X **1 x 1 mL**
1.0 mg/mL in Deionized water

Glyphosate

Glyphosate Metabolite

M-547-02 **1 x 1 mL**
0.1 mg/mL in Deionized water

Aminomethyl phosphonic acid (AMPA)

Method 548 Endothall by GC/ECD

M-548A **1 x 1 mL**
10 µg/mL in Deionized water

M-548B **1 x 1 mL**
50 µg/mL in Deionized water

Endothall

Internal Standard

M-548-IS **1 x 1 mL**
10 µg/mL in MtBE

Endosulfan I

Calibration Standard

M-548-CAL **1 x 1 mL**
100 µg/mL in MtBE

Endothall pentafluorophenyl hydrazine derivative

Method 548.1 Endothall by GC/MS

P-183S **1 x 1 mL**
100 µg/mL in MeOH

Endothall

Internal Standard

M-548.1-IS **1 x 1 mL**
500 µg/mL in MeOH

Acenaphthene-d_{10}

Methyl Derivative

M-548.1-ME **1 x 1 mL**
100 µg/mL in MeOH

Endothall dimethyl ester

Method 549.1/549.2 Diquat & Paraquat Liquid - Solid Extraction & HPLC

M-549.1 **1 x 1 mL**
1.0 mg/mL each in Deionized water as non-hydrated species 2 comps.

Diquat dibromide - H_2O (1.97 mg/mL)
Paraquat dichloride - 4 H_2O (1.77 mg/mL)

Method 550 + 550.1 PAHs by HPLC & Internal Standard

M-550-QC **1 x 1 mL**
At stated conc. (µg/mL) in AcCN 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 **1 x 1 mL**
0.1 mg/mL in AcCN

4,4'-Difluorobiphenyl

Method 551 Chlorinated Organic Solvents + Trihalomethanes by GC/ECD

M-551A **1 x 1 mL**
M-551A-PAK ***SAVE*** **5 x 1 mL**
5.0 mg/mL each in MeOH 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 **1 x 1 mL**
5.0 mg/mL each in Acetone 8 comps.

M-551B-SET **8 x 1 mL**
Each at 5.0 mg/mL in Acetone

	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. (µg/mL) in Acetone — 12 comps.

Bromodichloromethane	1000
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 µg/mL each in Acetone — 8 comps.

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. (µg/mL) in Acetone — 17 comps.

Alachlor	10	Hexachlorobenzene	1
Atrazine	200	Hexachlorocyclopentadiene	1
Bromacil	10	Lindane	1
Cyanazine	30	Methoxychlor	5
Endrin	2	Metolachlor	10
Endrin aldehyde	2	Metribuzin	5
Endrin ketone	2	Simazine	200
Heptachlor	1	Trifluralin	1
Heptachlor epoxide (Isomer B)	1		

Technical Note

1. 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.
2. **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. (µg/mL) in Pentane — 7 comps.

Alachlor	83	Hexachlorocyclopentadiene	20
Bromacil	83	Lindane	0.2
Bromodichloromethane	30	Trichloroethene	30
Endrin	30		

MtBE Extracts

M-551.1-LPC — **1 x 1 mL**
M-551.1-LPC-PAK — *SAVE* — **5 x 1 mL**
At stated conc. (µg/mL) in MtBE — 7 comps.

Alachlor	83	Hexachlorocyclopentadiene	20
Bromacil	83	Lindane	0.2
Bromodichloromethane	30	Trichloroethene	30
Endrin	30		

Internal Standard Solutions

M-551.1-IS — **1 x 1 mL**
M-551.1-IS-PAK — *SAVE* — **5 x 1 mL**
100 µg/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 µg/mL in Acetone

p-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. (µg/mL) in Pentane — 4 comps.

γ-BHC	0.2	Hexachlorocyclopentadiene	20
Bromodichloromethane	30	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. (µg/mL) in MtBE — 4 comps.

γ-BHC	0.2	Hexachlorocyclopentadiene	20
Bromodichloromethane	30	Trichloroethene	30

Surrogate Standard Solutions

M-551.1-SS — **1 x 1 mL**
M-551.1-SS-PAK — *SAVE* — **5 x 1 mL**
10 µg/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 µg/mL in Acetone

Decafluorobiphenyl

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	
Methy 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-Bromopropanoic 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. (µg/mL) in MtBE — 10 comps.

M-552.3-R1 — **1 x 1 mL**
100 µg/mL each in MtBE — 10 comps.

M-552.2-SET ❄ — **10 x 1 mL**
Each at stated conc. (µg/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. (µg/mL) in MtBE — 11 comps.

M-552.3 — **1 x 1 mL**
100 µg/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 (Surrogate)	100
Methyl chlorodibromoacetate	100		

Surrogate Standard - Haloacetic Acid Methyl Derivative

M-552.2-SS-ME — **1 x 1 mL**
1000 µg/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*** — **5 x 1 mL**
At stated conc. (µg/mL) in MtBE — 4 comps.

Methyl bromochloroacetate	4
Methyl chloroacetate	6
Methyl chlorodibromoacatate	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 chlorodibromoacatate	10
Methyl 2,3-dibromopropionate	10

Haloacetic Acids

Haloacetic Acid without Surrogate

M-552.2A-R1 — **1 x 1 mL**
At stated conc. (µg/mL) in MtBE — 10 comps.

M-552.3A-R1 — **1 x 1 mL**
100 µg/mL each in MtBE — 10 comps.

M-552.2A-SET — **10 x 1 mL**
Each at stated conc. (µg/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. (µg/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 (Surrogate)	100
Chlorodibromoacetic acid	100		

Surrogate Standards - Haloacetic Acid

M-552.2-SS — **1 x 1 mL**
1000 µg/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 µg/mL in MtBE

1,2,3-Trichloropropane

❄ ColdPAK required to maintain integrity of product.

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 — 12 comps.

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) — 12 comps.

M-554-DNPH-R1 — **1 x 1 mL**
1.0 mg/mL each in AcCN — 12 comps.

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 — 8 comps.

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 — 8 comps.

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 — 13 comps.

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 — 2 comps.

Glyoxal — Methyl glyoxal

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)

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-d_8

ASTM Ethanolamine Surrogate Standard

D-7599-SS **1 x 1 mL**

200 µg/mL in MeOH

Diethanolamine-d_8

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-d_3

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-d_3

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 — **1 x 1 mL**
2.0 mg/mL each in MeOH — 12 comps.

- Benzene
- Bromodichloromethane
- Bromoform
- Carbon tetrachloride
- Chloroform
- Dibromochloromethane
- 1,4-Dichlorobenzene
- 1,2-Dichloroethane
- 1,1-Dichloroethylene
- 1,1,1-Trichloroethane
- Trichloroethylene
- Vinyl chloride

Phase II

VOCs

M-502C-08 — **1 x 1 mL**
2.0 mg/mL each in MeOH — 12 comps.

- Chlorobenzene
- 1,2-Dichlorobenzene
- *cis*-1,2-Dichloroethylene
- *trans*-1,2-Dichloroethylene
- 1,2-Dichloropropane
- Ethylbenzene
- Styrene
- Tetrachloroethylene
- Toluene
- *o*-Xylene
- *m*-Xylene
- *p*-Xylene

Phase V

Additions

M-502C-10 — **1 x 1 mL**
2.0 mg/mL in MeOH — 3 comps.

- Dichloromethane
- 1,2,4-Trichlorobenzene
- 1,1,2-Trichloroethane

Phase VIB

Additions

M-502C-11 — **1 x 1 mL**
2.0 mg/mL each in MeOH — 7 comps.

- Acrylonitrile
- Bromomethane
- *cis*-1,3-Dichloropropene *
- *trans*-1,3-Dichloropropene **
- Hexachlorobutadiene
- 1,1,1,2-Tetrachloroethane
- 1,2,3-Trichloropropane

* cis (1.06 x conc.)
** trans (0.94 x conc.)

Combined Phase I, Phase II, Phase V VOCs

M-502-REG — **1 x 1 mL**
M-502-REG-PAK — *SAVE* — **5 x 1 mL**
0.2 mg/mL each in MeOH — 27 comps.

M-502-REG-10X — **5 x 1 mL**
M-502-REG-10X-PAK — *SAVE* — **5 x 1 mL**
2.0 mg/mL each in MeOH — 27 comps.

- Benzene
- Bromodichloromethane
- Bromoform
- Carbon tetrachloride
- Chlorobenzene
- Chloroform
- Dibromochloromethane
- 1,2-Dichlorobenzene
- 1,4-Dichlorobenzene
- 1,2-Dichloroethane
- 1,1-Dichloroethylene
- *cis*-1,2-Dichloroethylene
- *trans*-1,2-Dichloroethylene
- Dichloromethane
- 1,2-Dichloropropane
- Ethylbenzene
- Styrene
- Tetrachloroethylene
- Toluene
- 1,2,4-Trichlorobenzene
- 1,1,1-Trichloroethane
- 1,1,2-Trichloroethane
- Trichloroethylene
- Vinyl chloride
- *m*-Xylene
- *o*-Xylene
- *p*-Xylene

Method 504 EDB & DBCP

M-504 — **1 x 1 mL**
M-504-PAK — *SAVE* — **5 x 1 mL**
0.2 mg/mL each in MeOH — 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

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 ◊◊
Chloroform ◊◊
Dibromochloromethane ◊◊
Dichlorobromomethane ◊◊

→ see Method 501 Total Trihalomethanes

→ Method 551, Chlorinated Solvents + Disinfectant By-products

Bromoacetic acid ◊◊
Chloroacetic acid ◊◊
Dibromoacetic acid ◊◊
Dichloroacetic acid ◊◊
Trichloroacetic acid ◊◊

→ Haloacetic acids see Method 552.2

Regulated Pesticide Mixture

M-508.1-ASL — **1 x 1 mL**
M-508.1-ASL-PAK — Alternate Source — *SAVE* — **5 x 1 mL**
100 µg/mL each in MtBE — 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* — **5 x 1 mL**
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)

Carbamate Pesticide Mixture

M-531-REG-ASL — **1 x 1 mL**
M-531-REG-ASL-PAK — Alternate Source — *SAVE* — **5 x 1 mL**
100 µg/mL each in MeOH — 2 comps.

Carbofuran	Oxamyl

Match frequently requested products.

Alternate Source **ASL products can be used as an independent second source.**

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 CH_2Cl_2
12 comps.

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 CH_2Cl_2
15 comps.

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 CH_2Cl_2
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:CH_2Cl_2 (50:50)
M-001G-D **1 x 1 mL**
At stated conc. (mg/mL) in CH_2Cl_2
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 CH_2Cl_2 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 1232
Aroclor 1248
Aroclor 1260

Aroclor Mix 2
M-001L **1 x 1 mL**

Aroclor 1221
Aroclor 1242
Aroclor 1254

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-d_{10}
M-001N **1 x 1 mL**
2.0 mg/mL in CH_2Cl_2

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-d_{10}
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

Table of Contents

Thousands of Standards, just a click away

AccuStandard.com

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 — *SAVE* — **5 x 1 mL**
0.2 mg/mL each in MeOH — 18 comps.

M-601A-10X — **1 x 1 mL**
M-601A-10X-PAK — *SAVE* — **5 x 1 mL**
20 mg/mL each in MeOH — 18 comps.

- Carbon tetrachloride
- Chlorobenzene
- 1,2-Dichlorobenzene
- 1,3-Dichlorobenzene
- 1,4-Dichlorobenzene
- 1,1-Dichloroethane
- 1,2-Dichloroethane
- 1,1-Dichloroethylene
- *trans*-1,2-Dichloroethylene
- 1,2-Dichloropropane
- *cis*-1,3-Dichloropropylene
- *trans*-1,3-Dichloropropylene
- Methylene chloride
- 1,1,2,2-Tetrachloroethane
- Tetrachloroethylene
- 1,1,1-Trichloroethane
- 1,1,2-Trichloroethane
- Trichloroethylene

Certificate will reflect actual cis/trans ratio

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.

- Bromomethane
- Chloromethane
- Chloroethane
- Dichlorodifluoromethane
- Trichlorofluoromethane
- Vinyl chloride

Liquid Component

M-601C ❄ — **1 x 1 mL**
M-601C-PAK ❄ — *SAVE* — **5 x 1 mL**
0.2 mg/mL each in MeOH

M-601C-10X ❄ — **1 x 1 mL**
M-601C-10X-PAK ❄ — *SAVE* — **5 x 1 mL**
2.0 mg/mL each in MeOH

- 2-Chloroethylvinyl ether

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**
2.0 mg/mL each in MeOH — 4 comps.

- Bromoform
- Chloroform
- Dichlorobromomethane
- 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 — *SAVE* — **5 x 1 mL**
20 mg/ml each in MeOH — 3 comps.

- Bromochloromethane
- 1,4-Dichlorobutane
- 2-Bromo-1-chloropropane

Purgeable Halocarbon Mix

Alternate Source

M-601-ASL — **1 x 1 mL**
M-601-ASL-PAK — *SAVE* — **5 x 1 mL**
100 µg/mL each in MeOH — 28 comps.

- Bromodichloromethane
- Bromoform
- Bromomethane
- Carbon tetrachloride
- Chlorobenzene
- Chloroethane
- Chloroform
- Chloromethane
- Dibromochloromethane
- 1,2-Dichlorobenzene
- 1,3-Dichlorobenzene
- 1,4-Dichlorobenzene
- Dichlorodifluoromethane
- 1,1-Dichloroethane
- 1,2-Dichloroethane
- 1,1-Dichloroethene
- *trans*-1,2-Dichloroethene
- 1,2-Dichloropropane
- *cis*-1,3-Dichloropropene *
- *trans*-1,3-Dichloropropene **
- Dichloromethane
- 1,1,2,2-Tetrachloroethane
- Tetrachloroethene
- 1,1,1-Trichloroethane
- 1,1,2-Trichloroethane
- Trichloroethene
- Trichlorofluoromethane
- Vinyl chloride

* cis (1.06 x conc.)
** trans (0.94 x conc.)

Performance Check Solution

Alternate Source

S-532-ASL — **1 x 1 mL**
S-532-ASL-PAK — *SAVE* — **5 x 1 mL**
0.2 mg/mL each in MeOH — 8 comps.

- Benzene
- Carbon tetrachloride
- 1,4-Dichlorobenzene
- 1,2-Dichloroethane
- 1,1-Dichloroethene
- 1,1,1-Trichloroethane
- Trichloroethene
- 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 — 25 comps.

- Benzene
- Bromoform
- Carbon tetrachloride
- Chlorobenzene
- Chloroform
- Dibromochloromethane
- 1,2-Dichlorobenzene
- 1,3-Dichlorobenzene
- 1,4-Dichlorobenzene
- Dichlorobromomethane
- 1,1-Dichloroethane
- 1,2-Dichloroethane
- 1,1-Dichloroethylene
- *trans*-1,2-Dichloroethylene
- 1,2-Dichloropropane
- *cis*-1,3-Dichloropropylene
- trans-1,3-Dichloropropylene
- Ethylbenzene
- Methylene chloride
- 1,1,2,2-Tetrachloroethane
- Tetrachloroethylene
- Toluene
- 1,1,1-Trichloroethane
- 1,1,2-Trichloroethane
- Trichloroethylene

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 — 6 comps.

- Bromomethane
- Chloromethane
- Chloroethane
- Dichlorodifluoromethane
- Trichlorofluoromethane
- 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 — 7 comps.

- Benzene
- Chlorobenzene
- 1,2-Dichlorobenzene
- 1,3-Dichlorobenzene
- 1,4-Dichlorobenzene
- Ethylbenzene
- Toluene

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 — 11 comps.

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 — 11 comps.

- Benzene
- Chlorobenzene
- 1,2-Dichlorobenzene
- 1,3-Dichlorobenzene
- 1,4-Dichlorobenzene
- Ethylbenzene
- Toluene
- *o*-Xylene
- *p*-Xylene
- *m*-Xylene
- MtBE

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 — 35 comps.

- Benzene
- Bromodichloromethane
- Bromoform
- Bromomethane
- Carbon tetrachloride
- Chlorobenzene
- Chloroethane
- Chloroform
- Chloromethane
- Dibromochloromethane
- 1,2-Dichlorobenzene
- 1,3-Dichlorobenzene
- 1,4-Dichlorobenzene
- Dichlorodifluoromethane
- 1,1-Dichloroethane
- 1,2-Dichloroethane
- 1,1-Dichloroethene
- *trans*-1,2-Dichloroethene
- 1,2-Dichloropropane
- *cis*-1,3-Dichloropropene *
- *trans*-1,3-Dichloropropene **
- Dichloromethane
- Ethylbenzene
- MtBE
- 1,1,2,2-Tetrachloroethane
- Tetrachloroethene
- Toluene
- 1,1,1-Trichloroethane
- 1,1,2-Trichloroethane
- Trichloroethene
- Trichlorofluoromethane
- *m*-Xylene
- *o*-Xylene
- *p*-Xylene
- Vinyl chloride

* 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 — 26 comps.

M-601/602/BTEX-10X — **1 x 1 mL**
2.0 mg/mL each in MeOH — 26 comps.

- Benzene
- Carbon tetrachloride
- Chlorobenzene
- Ethylbenzene
- MtBE
- Methylene chloride
- Tetrachloroethene
- Toluene
- Trichloroethene
- *cis*-1,3-Dichloropropene
- *cis*-1,2-Dichloroethene
- *trans*-1,2-Dichloroethene
- *trans*-1,3-Dichloropropene
- 1,1,1-Trichloroethane
- 1,1,2,2-Tetrachloroethane
- 1,1,2-Trichloroethane
- 1,1-Dichloroethane
- 1,1-Dichloroethene
- 1,2-Dichlorobenzene
- 1,2-Dichloroethane
- 1,2-Dichloropropane
- *o*-Xylene
- *m*-Xylene
- *p*-Xylene
- 1,3-Dichlorobenzene
- 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 *t*-butyl ether (*MtBE*)

❄ ColdPAK required to maintain integrity of product.

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 — 2 comps.

M-603-10X ❄ — **1 x 1 mL**
10 mg/mL each in Water — 2 comps.

M-603-M-0.1X ❄ — **1 x 1 mL**
0.1 mg/mL each in MeOH:Water (90:10) — 2 comps.

M-603-M-5X ❄ — **1 x 1 mL**
5.0 mg/mL each in MeOH:Water (90:10) — 2 comps.

Acrolein
Acrylonitrile

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 — 11 comps.

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

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 — 11 comps.

4-Chloro-3-methylphenol-PFB
2-Chlorophenol-PFB
2,4-Dichlorophenol-PFB
2,4-Dimethylphenol-PFB
2,4-Dinitrophenol-PFB
2-Methyl-4,6-dinitrophenol-PFB
2-Nitrophenol-PFB
4-Nitrophenol-PFB
Pentachlorophenol-PFB
Phenol-PFB
2,4,6-Trichlorophenol-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 — 2 comps.

Hexachlorophene
Dichlorophene

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 — 2 comps.

Benzidine †
3,3'-Dichlorobenzidine †

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 — 6 comps.

Benzyl butyl phthalate
Dimethyl phthalate
Diethyl phthalate
Di-*n*-butyl phthalate
Di-*n*-octyl 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 — 3 comps.

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 — 16 comps.

Aldrin	0.1	4,4'-DDE	0.2	Endrin	0.2
α-BHC	0.1	4,4'-DDT	0.6	Endrin aldehyde	0.6
β-BHC	0.1	Dieldrin	0.2	Heptachlor	0.1
δ-BHC	0.1	Endosulfan I	0.2	Heptachlor epoxide (Isomer B)	0.1
γ-BHC	0.1	Endosulfan II	0.2		
4,4'-DDD	0.6	Endosulfan sulfate	0.6		

M-001J — **1 x 1 mL**
At stated conc. (mg/mL) in MeOH — 2 comps.

Chlordane (tech) 0.02
Toxaphene 0.20

M-001K — **1 x 1 mL**
0.2 mg/mL each in MeOH — 4 comps.

Aroclor 1016
Aroclor 1232
Aroclor 1248
Aroclor 1260

M-001L — **1 x 1 mL**
0.2 mg/mL each in MeOH — 3 comps.

Aroclor 1221
Aroclor 1242
Aroclor 1254

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 — 17 comps.

Aldrin	0.02	4,4'-DDE	0.02	Endrin	0.10
α-BHC	0.02	4,4'-DDT	0.10	Endrin aldehyde	0.02
β-BHC	0.02	Dieldrin	0.02	Heptachlor	0.02
δ-BHC	0.02	Endosulfan I	0.02	Heptachlor epoxide (Isomer B)	0.02
γ-BHC	0.02	Endosulfan II	0.10		
4,4'-DDD	0.10	Endosulfan sulfate	0.10	Methoxychlor	0.02

Pesticides

Alternate Source

M-608-ASL — **1 x 1 mL**
M-608-ASL-PAK — *SAVE* — **5 x 1 mL**
20 µg/mL each in MeOH — 16 comps.

Aldrin	γ-BHC	Dieldrin	Endrin	
α-BHC	p,p'-DDD	Endosulfan I	Endrin aldehyde	
β-BHC	p,p'-DDE	Endosulfan II	Heptachlor	
δ-BHC	p,p'-DDT	Endosulfan sulfate	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

EPA Method 600 Series

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_2Cl_2 (50:50) 16 comps.
M-610A **1 x 1 mL**
At stated conc. (mg/mL) in MeOH:CH_2Cl_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 Alternate Source **1 x 1 mL**
At stated conc. (µg/mL) in Hexane 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

Method 615 Chlorinated Herbicides

Chlorinated Herbicides

Compound	Herbicide Acids In MeOH Cat. No.	Methyl Derivatives In Hexane Cat. No.	1 mL
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
Dalapon
2,4-DB
Dicamba
Dichlorprop
Dinoseb
MCPA (10 mg/mL)
MCPP (10 mg/mL)
2,4,5-TP
2,4,5-T

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
Dalapon methyl ester
2,4-DB methyl ester
Dicamba methyl ester
Dichlorprop methyl ester
Dinoseb methyl ester
MCPA methyl ester (10 mg/mL)
MCPP methyl ester (10 mg/mL)
2,4,5-TP 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
α-BHC
β-BHC
γ-BHC
δ-BHC
4,4'-DDD
4,4'-DDE
4,4'-DDT
Dieldrin
Endosulfan I
Endosulfan II
Endosulfan sulfate
Endrin
Endrin ketone
Endrin aldehyde
Heptachlor
Heptachlor epoxide (Isomer B)
Methoxychlor

Mix #2 - Analytes

M-617-2 **1 x 1 mL**
2.0 mg/mL each in Hexane:Toluene (50:50) 9 comps.

Captan
Carbophenothion
Dichloran
Dicofol
Isodrin
Mirex
Pentachloronitrobenzene
Perthane
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

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		Terbuthylazine	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
- Bolstar (Sulprofos)
- Chlorpyrifos
- Coumaphos
- Demeton, O & S
- Diazinon
- Dichlorvos
- Dimethoate
- Disulfoton
- EPN
- Ethoprop
- Fensulfothion *
- Fenthion
- Malathion
- Merphos
- Mevinphos
- Monocrotophos
- Naled
- Parathion ethyl
- Parathion methyl
- Phorate
- Ronnel
- Stirophos
- Sulfotep
- TEPP
- Tokuthion
- Trichloronate

* Hexane:Acetone (95:5)

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
- Dichlofenthion
- Famphur
- Fenitrothion
- Fonophos
- Phosmet
- Thionazin

Tens of thousands of Standards Ready-to-Ship

Method 624 Purgeables by GC/MS

Purgeables

M-624 **1 x 1 mL**
0.2 mg/mL each in MeOH 31 comps.

- Benzene
- Bromodichloromethane
- Bromoform
- Bromomethane
- Carbon tetrachloride
- Chlorobenzene
- Chloroethane
- 2-Chloroethyl vinyl ether
- Chloroform
- Chloromethane
- Dibromochloromethane
- 1,2-Dichlorobenzene
- 1,3-Dichlorobenzene
- 1,4-Dichlorobenzene
- 1,1-Dichloroethane
- 1,2-Dichloroethane
- 1,1-Dichloroethene
- *trans*-1,2-Dichloroethene
- 1,2-Dichloropropane
- *cis*-1,3-Dichloropropene
- *trans*-1,3-Dichloropropene
- Ethylbenzene
- Methylene chloride
- 1,1,2,2-Tetrachloroethane
- Tetrachloroethene
- Toluene
- 1,1,1-Trichloroethane
- 1,1,2-Trichloroethane
- Trichloroethene
- Trichlorofluoromethane
- Vinyl chloride

Certificate will reflect actual cis/trans ratio

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
- Fluorobenzene
- Pentafluorobenzene

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
- 1,4-Dichlorobutane
- 2-Bromo-1-chloropropane

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-*n*-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-*cd*]pyrene
bis(2-Chloroisopropyl) ether	Isophorone
2-Chloronaphthalene	Naphthalene
4-Chlorophenyl phenyl ether	Nitrobenzene
Chrysene	N-Nitrosodimethylamine
Dibenz[a,h]anthracene	N-Nitrosodiphenylamine
Di-*n*-butyl phthalate	N-Nitroso-di-*n*-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_2Cl_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_2Cl_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_2Cl_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_2Cl_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_2Cl_2 — 17 comps.

Acetophenone	*n*-Dodecane
Aniline	*n*-Eicosane
Benzoic acid	*n*-Hexadecane
Carbazole	1-Methylphenanthrene
p-Cresol	*n*-Octadecane
o-Cresol	Pyridine
2,3-Dichloroaniline	α-Terpineol
n-Decane	*n*-Tetradecane
n-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_2Cl_2 — 12 comps.

Acenaphthylene	3,3'-Dichlorobenzidine †
Benzo[b]fluoranthene	Dimethyl phthalate
4-Bromophenylphenyl ether	Di-*n*-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_2Cl_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_2Cl_2 — 11 comps.

Azobenzene	Isophorone
Benzyl butyl phthalate	N-Nitrosodi-*n*-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_2Cl_2 — 8 comps.

Benzidine †	4-Chlorophenyl phenyl ether
Benz[a]pyrene	Di-*n*-octyl phthalate
Benzo[g,h,i]perylene	Indeno[1,2,3-cd]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_2Cl_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 11 comps.

- 4-Chloro-3-methylphenol
- 2-Chlorophenol
- 2,4-Dichlorophenol
- 2,4-Dimethylphenol
- 2,4-Dinitrophenol
- 4,6-Dinitro-2-methylphenol
- 2-Nitrophenol
- 4-Nitrophenol
- Pentachlorophenol
- Phenol
- 2,4,6-Trichlorophenol

Single Component Surrogates & Internal Standards

Base/Neutrals

Each at 0.2 mg/mL in CH_2Cl_2

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 CH_2Cl_2

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 11 comps.

- Aldrin
- β-BHC
- δ-BHC
- 4,4'-DDD
- 4,4'-DDE
- 4,4'-DDT
- Dieldrin
- Endosulfan sulfate
- Endrin aldehyde
- Heptachlor
- Heptachlor epoxide (Isomer B)

GC/MS Calibration Standards

M-625C-SET 5 x 1 mL
At stated conc. (µg/mL) in CH_2Cl_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_2Cl_2 4 comps.

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_2Cl_2 4 comps.

- Benzidine †
- p,p'-DDT
- DFTPP
- Pentachlorophenol

CLP-TS 1 x 1 mL
CLP-TS-PAK *SAVE* 5 x 1 mL
50 µg/mL in CH_2Cl_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 2 comps.

Chlordane 0.02 Toxaphene 0.20

Polychlorinated Biphenyls

Aroclor Mix #1

M-001K 1 x 1 mL
0.2 mg/mL each in MeOH 4 comps.

- Aroclor 1016
- Aroclor 1232
- Aroclor 1248
- Aroclor 1260

Aroclor Mix #2

M-001L 1 x 1 mL
0.2 mg/mL each in MeOH 3 comps.

- Aroclor 1221
- Aroclor 1242
- Aroclor 1254

Internal Standard Mix

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}
- Chrysene-d_{12}
- 1,4-Dichlorobenzene-d_4
- Naphthalene-d_8
- Perylene-d_{12}
- Phenanthrene-d_{10}

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_2Cl_2 — 14 comps.

- 4-Bromophenyl phenyl ether
- Butyl benzyl phthalate
- bis(2-Chloroethoxy)methane
- bis(2-Chloroethyl) ether
- bis(2-Chloroisopropyl) ether
- 4-Chlorophenyl phenyl 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_2Cl_2 — 14 comps.

- 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

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_2Cl_2 — 4 comps.

- 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_2Cl_2 — 8 comps.

- Aniline
- Benzyl alcohol
- 4-Chloroaniline
- Dibenzofuran
- 2-Methylnaphthalene
- 2-Nitroaniline
- 3-Nitroaniline
- 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 — 2 comps.

- 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_2Cl_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_2Cl_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

Phenols Mix

Z-014H — **1 x 1 mL**
Z-014H-PAK — *SAVE* — **5 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 — 11 comps.

- 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

Internal Standard Mix

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}
- Chrysene-d_{12}
- 1,4-Dichlorobenzene-d_4
- Naphthalene-d_8
- Perylene-d_{12}
- Phenanthrene-d_{10}

Method 625 Priority Pollutant Set

Order a complete Set *SAVE 25%*

Z-014R-SET — **9 x 1 mL**

Z-014A	Base/Neutrals - Mix 1
Z-014B	Base/Neutrals - Mix 2
Z-014C	Pesticides - Mix #1
Z-014D	Toxic Substances - Mix 1
Z-014E	Toxic Substances -Mix 2
Z-014F	Benzidine Mix
Z-014G-R	PAH Mix
Z-014H	Phenols Mix
Z-014J	Internal Standard Mix

Z-014R-1-SET — **9 x 1 mL**

Z-014A	Base/Neutrals - Mix 1
Z-014B	Base/Neutrals - Mix 2
Z-014C-R	Pesticides - Mix #2
Z-014D	Toxic Substances - Mix 1
Z-014E	Toxic Substances - Mix 2
Z-014F	Benzidine Mix
Z-014G-R	PAH Mix
Z-014H	Phenols Mix
Z-014J	Internal Standard Mix

Z-014R-2-SET — **7 x 1 mL**

Z-014A	Base/Neutrals - Mix 1
Z-014B	Base/Neutrals - Mix 2
Z-014D	Toxic Substances - Mix 1
Z-014E	Toxic Substances - Mix 2
Z-014F	Benzidine Mix
Z-014G	PAH Mix
Z-014H	Phenols Mix

Z-014R-3-SET — **7 x 1 mL**

Z-014A	Base/Neutrals - Mix 1
Z-014B	Base/Neutrals - Mix 2
Z-014D	Toxic Substances - Mix 1
Z-014E	Toxic Substances - Mix 2
Z-014F	Benzidine Mix
Z-014G-R	PAH Mix
Z-014H	Phenols 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) — 16 comps.

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) — 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

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	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_2Cl_2 — 4 comps.

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_2Cl_2

Perfluorokerosene

EPA Method 625 GC/MS Calibration Standards

M-625C-SET — **5 x 1 mL**
At stated conc. (µg/mL) in CH_2Cl_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 — 4 comps.

Ethalfluralin	Tolban (Profluralin)
Isopropalin	Trifluralin

M-627-R — **1 x 1 mL**
1.0 mg/mL each in MeOH — 5 comps.

Benfluralin	Tolban (Profluralin)
Ethalfluralin	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 — 21 comps.

M-632M-10X — **1 x 1 mL**
1.0 mg/mL each in AcCN — 21 comps.

	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 — 6 comps.

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 — 6 comps.

Butylate	EPTC	Pebulate
Cycloate	Molinate	Vernolate

Internal Standard

M-634-IS — **1 x 1 mL**
1.0 mg/mL in MeOH

Carbazole

Method 645 Amino Pesticides & Lethane by GC/NPD

Amino Pesticides Mix

M-645 — **1 x 1 mL**
1.0 mg/mL each in Hexane:Acetone (80:20) — 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.
604.1	Hexachlorophene & Dichlorophene	M-604.1
629	Cyanazine	M-629
631	Carbendazim	M-631
635	Rotenone	M-635
636	Bensulide	M-636
638	Oryzalin	M-638

Method	Each at 0.1 mg/mL in AcCN	Cat. No.
639	Bendiocarb	M-639
640	Mercaptobenzothiazole	M-640
641	Thiabendazole	M-641
642	Biphenyl & *o*-Phenylphenol	M-642
643	Bentazon *(Basagran)*	M-643
644	Picloram	M-644

Method 680 Determination of Pesticides & PCBs in Water & Soil/Sediment by GC/MS

PCB Isomer Calibration Mix

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

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-d_{12}, 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

Internal Standard

M-680B — **1 x 1 mL**
250 µg/mL in Toluene

Chrysene-d_{12}

Method 680 PCB Isomer Calibration Set

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

Pesticide Mix

M-680P — **1 x 1 mL**
M-680P-PAK — ***SAVE*** — **5 x 1 mL**
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 — ***SAVE*** — **5 x 1 mL**
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 — ***SAVE*** — **5 x 1 mL**
75 µg/mL each in Toluene:Hexane (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:CH_2Cl_2 (50:50) — 2 comps.

Chrysene-d_{12} Phenanthrene-d_{10}

Tuning Standard

M-680-TS — **1 x 1 mL**
M-680-TS-PAK — ***SAVE*** — **5 x 1 mL**
10 µg/mL in CH_2Cl_2

Decafluorotriphenylphosphine (DFTPP)

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.

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

Volatile Spiking Mixture

TCLP-VOC — **1 x 1 mL**
5.0 mg/mL each in MeOH, except 2-Butanone — 11 comps.

- Benzene
- 2-Butanone (10 mg/mL)
- Carbon tetrachloride
- Chlorobenzene
- Chloroform
- 1,4-Dichlorobenzene
- 1,2-Dichloroethane
- 1,1-Dichloroethene
- Tetrachloroethene
- Trichloroethene
- Vinyl chloride

Semi-Volatile Spiking Mix

TCLP-BNA — **1 x 1 mL**
TCLP-BNA-PAK — *SAVE* — **5 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 — 13 comps.

- *o*-Cresol
- *m*-Cresol
- *p*-Cresol
- 1,4-Dichlorobenzene
- 2,4-Dinitrotoluene
- Hexachlorobenzene
- Hexachlorobutadiene
- Hexachloroethane
- Nitrobenzene
- Pentachlorophenol
- Pyridine
- 2,4,5-Trichlorophenol
- 2,4,6-Trichlorophenol

Semi-Volatile Spiking Set

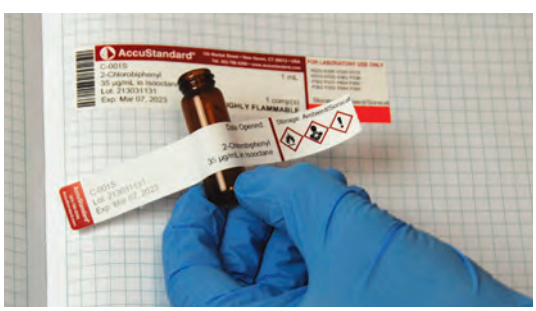
TCLP-BNA-SET — **2 x 1 mL**
TCLP-A, TCLP-BN

TCLP-A — **1 x 1 mL**
TCLP-A-PAK — *SAVE* — **5 x 1 mL**
2.0 mg/mL each in MeOH — 6 comps.

- *o*-Cresol
- *m*-Cresol
- *p*-Cresol
- Pentachlorophenol
- 2,4,5-Trichlorophenol
- 2,4,6-Trichlorophenol

TCLP-BN — **1 x 1 mL**
TCLP-BN-PAK — *SAVE* — **5 x 1 mL**
2.0 mg/mL each in Acetone — 7 comps.

- 1,4-Dichlorobenzene
- 2,4-Dinitrotoluene
- Hexachlorobenzene
- Hexachlorobutadiene
- Hexachloroethane
- Nitrobenzene
- Pyridine



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 — **1 x 1 mL**
TCLP-PES-PAK — *SAVE* — **5 x 1 mL**
2.0 mg/mL each in MeOH, except Toxaphene — 7 comps.

- Chlordane (tech)
- Endrin
- Heptachlor
- Heptachlor epoxide (Isomer B)
- Lindane
- Methoxychlor
- Toxaphene (4.0 mg/mL)

Pesticide Spiking Set

TCLP-PES-1/2-SET — **2 x 1 mL**
CLP-PES-1, TCLP-PES-2

TCLP-PES-1 — **1 x 1 mL**
TCLP-PES-1-PAK — *SAVE* — **5 x 1 mL**
2.0 mg/mL each in MeOH — 5 comps.

- Endrin
- Heptachlor
- Heptachlor epoxide (Isomer B)
- Lindane
- Methoxychlor

TCLP-PES-2 — **1 x 1 mL**
TCLP-PES-2-PAK — *SAVE* — **5 x 1 mL**
At stated conc. (mg/mL) in MeOH — 2 comps.

- Chlordane 2.0
- Toxaphene 4.0

Herbicide, PFB Derivative Mix

TCLP-HERB-PFB — **1 x 1 mL**
0.1 mg/mL each in MtBE — 2 comps.

- 2,4-D-PFB
- 2,4,5-TP-PFB

Herbicide, PFB Derivatives

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

Herbicide Spiking Mixes

TCLP-HERB — **1 x 1 mL**
TCLP-HERB-PAK — *SAVE* — **5 x 1 mL**
2.0 mg/mL each in MeOH — 2 comps.

- 2,4-D
- 2,4,5-TP

TCLP-HERB-ME — **1 x 1 mL**
TCLP-HERB-ME-PAK — *SAVE* — **5 x 1 mL**
2.0 mg/mL each in MeOH — 2 comps.

- 2,4-D methyl ester
- 2,4,5-TP methyl ester

Method 1311 TCLP continued on next page

EPA Method 1311, 1312

Method 1311 TCLP Regulatory Level Mixtures

Volatiles

TCLP-QC ❄ — **1 x 1 mL**
TCLP-QC-PAK ❄ — *SAVE* — **5 x 1 mL**
At stated conc. (µg/mL) in MeOH — 10 comps.

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**
At stated conc. (µg/mL) in MeOH — 5 comps.

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**
At stated conc. (µg/mL) in MeOH — 2 comps.

Chlordane	0.3	Toxaphene	5.0

Semi-Volatiles

TCLP-BNA-QC — **1 x 1 mL**
At stated conc. (µg/mL) in CH_2Cl_2 — 13 comps.

o-Cresol	2000	Hexachloroethane	30
m-Cresol	2000	Nitrobenzene	20
p-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**
At stated conc. (µg/mL) in MeOH — 2 comps.

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**
2.0 mg/mL each in CH_2Cl_2 — 14 comps.

Acenaphthene	2,4-Dinitrophenol
β-BHC	2,4-Dinitrotoluene
γ-BHC	*o*-Cresol
bis(2-Chloroethyl)ether	2,4-Dimethylphenol
2-Chlorophenol	Hexachlorobenzene
1,2-Dichlorobenzene	Hexachlorobutadiene
1,4-Dichlorobenzene	Nitrobenzene

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Method 1613 Dioxins & Furans by HRGC/HRMS

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.

M-1613-CAL	-01	-02	-03	-04	-05
2,3,7,8-Tetrachlorodibenzo-*p*-dioxin	0.5	2	10	**40**	200
2,3,7,8-Tetrachlorodibenzofuran	0.5	2	10	**40**	200
1,2,3,7,8-Pentachlorodibenzo-*p*-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-*p*-dioxin	2.5	10	50	**200**	1000
1,2,3,6,7,8-Hexachlorodibenzo-*p*-dioxin	2.5	10	50	**200**	1000
1,2,3,7,8,9-Hexachlorodibenzo-*p*-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-*p*-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-*p*-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 **1 x 1 mL**
40 ng/mL each in Nonane 2 comps.

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

Method 1614 Bromodiphenyl Ether Mixtures

PBDEs Standard Solution for Accuracy and Precision

		BDE-AAP-A 1 mL	BDE-AAP-A-15X 1 mL
At stated conc. in Isooctane	39 comps.	(ng/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

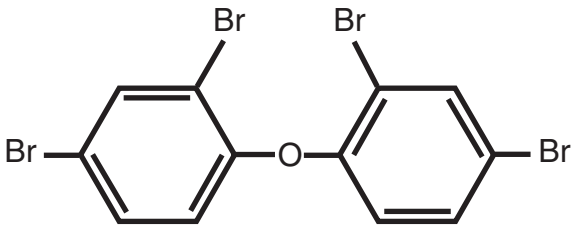
BDE-CM		1 x 1 mL
At stated conc. (µg/mL) in Isooctane		8 comps.
28	2,4,4'-Tribromodiphenyl ether	2.5
47	2,2',4,4'-Tetrabromodiphenyl ether	2.5
99	2,2',4,4',5-Pentabromodiphenyl ether	2.5
100	2,2',4,4',6-Pentabromodiphenyl ether	2.5
153	2,2',4,4',5,5'-Hexabromodiphenyl ether	2.5
154	2,2',4,4',5,6'-Hexabromodiphenyl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

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 — 7 comps.

- 4-Chlorophenol
- 2,4-Dichlorophenol
- 2,6-Dichlorophenol
- 2,4,5-Trichlorophenol
- 2,4,6-Trichlorophenol
- 2,3,4,6-Tetrachlorophenol
- Pentachlorophenol

M-1653B — **1 x 1 mL**
0.1 mg/mL each in MeOH — 8 comps.

- 4-Chloroguaiacol
- 3,4-Dichloroguaiacol
- 4,5-Dichloroguaiacol
- 4,6-Dichloroguaiacol
- 3,4,5-Trichloroguaiacol
- 3,4,6-Trichloroguaiacol
- 4,5,6-Trichloroguaiacol
- Tetrachloroguaiacol

M-1653C — **1 x 1 mL**
0.1 mg/mL each in MeOH — 7 comps.

- 4-Chlorocatechol
- 3,4-Dichlorocatechol
- 3,6-Dichlorocatechol
- 4,5-Dichlorocatechol
- 3,4,5-Trichlorocatechol
- 3,4,6-Trichlorocatechol
- Tetrachlorocatechol

M-1653D-AC — **1 x 1 mL**
0.1 mg/mL each in Acetone — 6 comps.

- 5-Chlorovanillin
- 6-Chlorovanillin
- 5,6-Dichlorovanillin
- 2-Chlorosyringaldehyde
- 2,6-Dichlorosyringaldehyde
- 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

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 — 7 comps.

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 — 8 comps.

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 — 7 comps.

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 — 6 comps.

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 — 4 comps.

- Methanol
- Acetaldehyde
- Propionaldehyde
- Methyl ethyl ketone

Instrument Performance Check Solution

M-1653-TS — **1 x 1 mL**
50 µg/mL in Acetone

- DFTPP

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_2Cl_2 — 5 comps.

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 — 2 comps.

4,4'-DDT	2	Endrin	1

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 — 2 comps.

- Decachlorobiphenyl
- Tetrachloro-*m*-xylene

CLP-034 — **1 x 1 mL**
0.2 mg/mL each in Acetone — 2 comps.

- Dibutylchlorendate
- Tetrachloro-*m*-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-*m*-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
Ethalfluralin	10	50	200
Fenarimol	20	100	400
Methoxychlor	20	100	400
Metribuzin	10	50	200
Tetrachloro-*m*-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-*m*-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-*m*-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-*m*-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-*m*-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-*m*-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_2Cl_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 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**

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**

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-Dichlorphenylacetic 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 Phophorus 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		

Instrument Performance Check Solution

M-1653-TS **1 x 1 mL**
50 µg/mL in Acetone

DFTPP

PMI Internal Standard

M-625-07-10X **1 x 1 mL**
2.0 mg/mL in CH_2Cl_2

2,2'-Difluorobiphenyl

PMI Stock Standard

M-1665 **1 x 1 mL**
2000 µg/mL each in CH_2Cl_2 6 comps.

Aniline	Dimethylformamide
N,N-Dimethylacetamide	2-Picoline
N,N-Dimethylaniline	Pyridine

PMI Labeled Stock Standard (Not for individual sale)

M-1665-LAB **1 x 1 mL**
500 µg/mL each in CH_2Cl_2 5 comps.

Aniline-d_7	2-Picoline-d_7
N,N-Dimethylaniline-d_{11}	Pyridine-d_5
Dimethylformamide-d_7	

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.

n-Butanol	2500	Isopropanol	1000
t-Butanol	2500	4-Methyl-2-pentanone	1000
2-Furaldehyde	2500	*n*-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
n-Heptane	1000	*m*-Xylene	1000
n-Hexane	1000	*o*-Xylene	1000
Methyl formate	2500	*p*-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.

t-Butanol-d_{10}	500	*n*-Hexane-d_{14}	50
Cyclohexane-d_{12}	50	Tetrahydrofuran-d_8	50
Ethyl Acetate-2-^{13}C	50	*o*-Xylene-d_{10}	50
n-Heptane-d^{16}	50	*m*-Xylene-d_{10}	50

Buy AccuPAKs
Save 20-40% 5 x 1 mL

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	*n*-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-d_3	Methanol-d_3
Dimethyl sulfoxide-d_6	*n*-Propanol-1-d_1
Ethanol-d_6	Tetrahydrofuran-d_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-d_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.

o-Xylene	*o*-Xylene-d_{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

Method 1667A Formaldehyde, Isobutylaldehyde & Furfural by Derivatization followed by HPLC for PMI pollutants

PMI Carbonyl Set

M-1667A-SET **3 x 1 mL**
Each at 1.0 mg/mL in AcCN

	Cat. No.	1 mL
Formaldehyde	M-1667A-01	
2-Furaldehyde	M-1667A-02	
Isobutyraldehyde	M-1667A-03	

PMI Carbonyl DNPH Set

M-1667A-DNPH-SET **3 x 1 mL**
Each at 1.0 mg/mL in AcCN

	Cat. No.	1 mL
Formaldehyde-DNPH	M-1667A-DNPH-01	
2-Furaldehyde-DNPH	M-1667A-DNPH-02	
Isobutyraldehyde-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
Isobutyraldehyde

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
Isobutyraldehyde-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)

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. (µg/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',3,5,5',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	2,3,3',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',4,5,6,6'-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. (µg/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	2,3,3',4,5,5',6-Heptachlorobiphenyl	5.0
2,2',3,4',5-Pentachlorobiphenyl	5.0	2,2',3,4,4',6,6'-Octachlorobiphenyl	7.5
2,2',4,4',5-Pentachlorobiphenyl	5.0	2,2',3,3',4,5,5',6-Octachlorobiphenyl	7.5
2,3,3',4,6-Pentachlorobiphenyl	5.0	2,2',3,4,4',5,5',6-Octachlorobiphenyl	7.5

PCB Congener Mix #3

M-1668A-3-0.01X **1 x 1 mL**

At stated conc. (µg/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
2,3,3',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',4,5,6-Heptachlorobiphenyl	5.0
2,3,3',4',5,5',6-Heptachlorobiphenyl	5.0

PCB Congener Mix #4

M-1668A-4-0.01X **1 x 1 mL**

At stated conc. (µg/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',3,4,5,6'-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. (µg/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	5.0
2,2',3,3',5,5',6,6'-Octachlorobiphenyl	7.5
2,3,3',4,4',5,5',6-Octachlorobiphenyl	7.5
2,2',3,3',4,5,5',6,6'-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 **1 x 1 mL**
20 µg/mL each in Isooctane 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	2,3,3',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',4,5,5',6,6'-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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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 ❄	*trans*-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_2Cl_2	APP-9-004	2,4-Dichlorophenol	120-83-2	MeOH	APP-9-075
2-Acetylaminofluorene	53-96-3	CH_2Cl_2	APP-9-006	2,6-Dichlorophenol	87-65-0	CH_2Cl_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	*cis*-1,3-Dichloropropene	10061-01-5	MeOH	APP-9-078
Aldrin	309-00-2	MeOH	APP-9-009	*trans*-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_2Cl_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	*p*-Dimethylaminoazobenzene	60-11-7	CH_2Cl_2	APP-9-083
Aramite	140-57-8	MeOH	APP-9-014	7,12-Dimethylbenz[a]anthracene	57-97-6	CH_2Cl_2	APP-9-084
Benz[a]anthracene	56-55-3	MeOH	APP-9-016	3,3'-Dimethylbenzidine †	119-93-7	CH_2Cl_2	APP-9-085
Benzene	71-43-2	MeOH	APP-9-015	a,a-Dimethylphenethylamine	122-09-8	CH_2Cl_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_2Cl_2	APP-9-019	*m*-Dinitrobenzene	99-65-0	CH_2Cl_2	APP-9-089
Benz[a]pyrene	50-32-8	MeOH	APP-9-020	4,6-Dinitro-*o*-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-*n*-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_2Cl_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
p-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_2Cl_2	APP-9-040	Ethyl methacrylate	97-63-2	MeOH	APP-9-105
p-Chloro-*m*-cresol	59-50-7	MeOH	APP-9-041	Ethyl methanesulfonate	62-50-0	CH_2Cl_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_2Cl_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_2Cl_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
m-Cresol	108-39-4	CH_2Cl_2	APP-9-050	2-Hexanone	591-78-6	MeOH	APP-9-118 ❄
o-Cresol	95-48-7	CH_2Cl_2	APP-9-051	Indeno[1,2,3-cd]pyrene	193-39-5	MeOH	APP-9-119
p-Cresol	106-44-5	CH_2Cl_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_2Cl_2	APP-9-123
4,4'-DDT	50-29-3	MeOH	APP-9-056	Kepone	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_2Cl_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_2Cl_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-*n*-butyl phthalate	84-74-2	MeOH	APP-9-063	Methyl methanesulfonate	66-27-3	CH_2Cl_2	APP-9-132
o-Dichlorobenzene	95-50-1	MeOH	APP-9-064	2-Methylnaphthalene	91-57-6	CH_2Cl_2	APP-9-133
m-Dichlorobenzene	541-73-1	MeOH	APP-9-065	Methyl parathion	298-00-0	MeOH	APP-9-134
p-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_2Cl_2	APP-9-136
trans-1,4-Dichloro-2-butene	110-57-6	MeOH	APP-9-068	1,4-Naphthoquinone	130-15-4	CH_2Cl_2	APP-9-137
Dichlorodifluoromethane	75-71-8	MeOH	APP-9-069	1-Naphthylamine	134-32-7	CH_2Cl_2	APP-9-138
1,1-Dichloroethane	75-34-3	MeOH	APP-9-070	2-Naphthylamine	91-59-8	CH_2Cl_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 Compounds
All solutions at 100 µg/mL in 1 mL

Compound	CAS No.	Solv.	Cat. No.
o-Nitroaniline	88-74-4	CH_2Cl_2	APP-9-140
m-Nitroaniline	99-09-2	CH_2Cl_2	APP-9-141
p-Nitroaniline	100-01-6	CH_2Cl_2	APP-9-142
Nitrobenzene	98-95-3	MeOH	APP-9-143
o-Nitrophenol	88-75-5	MeOH	APP-9-144
p-Nitrophenol	100-02-7	MeOH	APP-9-145
4-Nitroquinoline-1-oxide	56-57-5	CH_2Cl_2	APP-9-146
N-Nitrosodi-*n*-butylamine	924-16-3	CH_2Cl_2	APP-9-147
N-Nitrosodiethylamine	55-18-5	CH_2Cl_2	APP-9-148
N-Nitrosodimethylamine	62-75-9	CH_2Cl_2	APP-9-149
N-Nitrosodiphenylamine	86-30-6	CH_2Cl_2	APP-9-150
N-Nitrosodipropylamine	621-64-7	CH_2Cl_2	APP-9-151
N-Nitrosomethylethylamine	10595-95-6	CH_2Cl_2	APP-9-152
N-Nitrosomorpholine	59-89-2	CH_2Cl_2	APP-9-153
N-Nitrosopiperidine	100-75-4	CH_2Cl_2	APP-9-154
N-Nitrosopyrrolidine	930-55-2	CH_2Cl_2	APP-9-155
5-Nitro-*o*-toluidine	99-55-8	CH_2Cl_2	APP-9-156
Parathion	56-38-2	MeOH	APP-9-157
Polychlorinated biphenyls:			
Aroclor® 1016	12674-11-2	MeOH	APP-9-158
Aroclor 1221	11104-28-2	MeOH	APP-9-159
Aroclor 1232	11141-16-5	MeOH	APP-9-160
Aroclor 1242	53469-21-9	MeOH	APP-9-161
Aroclor 1248	12672-29-6	MeOH	APP-9-162
Aroclor 1254	11097-69-1	MeOH	APP-9-163
Aroclor 1260	11096-82-5	MeOH	APP-9-164
Aroclor 1262	37324-23-5	MeOH	APP-9-165
Aroclor 1268	11100-14-4	MeOH	APP-9-166
Dioxins:			
1,2,3,4,7,8-HCDD (5 µg/mL)	39227-28-6	Toluene	APP-9-169
1,2,3,7,8-PCCD (5 µg/mL)	40321-76-4	Toluene	APP-9-168
2,3,7,8-TCDD (5 µg/mL)	1746-01-6	Toluene	APP-9-167
Polychlorinated dibenzofurans:			
1,2,3,4,7,8-HCDF (5 µg/mL)	55684-94-1	Toluene	APP-9-172
1,2,3,7,8-PCDF (5 µg/mL)	57117-41-6	Toluene	APP-9-171
2,3,7,8-TCDF (5 µg/mL)	51207-31-9	Toluene	APP-9-170

Compound	CAS No.	Solv.	Cat. No.
Pentachlorobenzene	608-93-5	MeOH	APP-9-173
Pentachloroethane	76-01-7	MeOH	APP-9-174
Pentachloronitrobenzene	82-68-8	MeOH	APP-9-175
Pentachlorophenol	87-86-5	MeOH	APP-9-176
Phenacetin	62-44-2	CH_2Cl_2	APP-9-177
Phenanthrene	85-01-8	MeOH	APP-9-178
Phenol	108-95-2	CH_2Cl_2	APP-9-179
p-Phenylenediamine	106-50-3	MeOH	APP-9-180
Phorate	298-02-2	MeOH	APP-9-181
2-Picoline	109-06-8	MeOH	APP-9-182
Pronamide	23950-58-5	MeOH	APP-9-183
Propionitrile	107-12-0	MeOH	APP-9-184
Pyrene	129-00-0	MeOH	APP-9-185
Pyridine	110-86-1	MeOH	APP-9-186-M
Safrole	94-59-7	MeOH	APP-9-187
Silvex (2,4,5-TP)	93-72-1	MeOH	APP-9-188
Styrene	100-42-5	MeOH	APP-9-189
2,4,5-T	93-76-5	MeOH	APP-9-190
1,2,4,5-Tetrachlorobenzene	95-94-3	MeOH	APP-9-191
1,1,1,2-Tetrachloroethane	630-20-6	MeOH	APP-9-192
1,1,2,2-Tetrachloroethane	79-34-5	MeOH	APP-9-193
Tetrachloroethylene	127-18-4	MeOH	APP-9-194
2,3,4,6-Tetrachlorophenol	58-90-2	MeOH	APP-9-195
Tetraethyl dithiopyrophosphate (Sulfotep)	3689-24-5	MeOH	APP-9-196
Thionazin	297-97-2	MeOH	APP-9-197
Toluene	108-88-3	MeOH	APP-9-198
o-Toluidine	95-53-4	MeOH	APP-9-199
Toxaphene	8001-35-2	MeOH	APP-9-200
1,2,4-Trichlorobenzene	120-82-1	MeOH	APP-9-201
1,1,1-Trichloroethane	71-55-6	MeOH	APP-9-202
1,1,2-Trichloroethane	79-00-5	MeOH	APP-9-203
Trichloroethylene	79-01-6	MeOH	APP-9-204
Trichlorofluoromethane (Freon #11)	75-69-4	MeOH	APP-9-205
2,4,5-Trichlorophenol	95-95-4	MeOH	APP-9-206
2,4,6-Trichlorophenol	88-06-2	MeOH	APP-9-207
1,2,3-Trichloropropane	96-18-4	MeOH	APP-9-208
O,O,O-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**
0.2 mg/mL each in MeOH — 41 comps.

- Acetone
- Acrolein
- Acrylonitrile
- Benzene
- Bromodichloromethane
- Bromoform
- Methyl ethyl ketone
- Carbon disulfide
- Carbon tetrachloride
- Chlorobenzene
- Chloroform
- Dibromochloromethane
- *cis*-1,4-Dichloro-2-butene (0.1 mg/mL)
- *trans*-1,4-Dichloro-2-butene (0.1 mg/mL)
- 1,2-Dichlorobenzene
- 1,3-Dichlorobenzene
- 1,4-Dichlorobenzene
- 1,1-Dichloroethane
- 1,2-Dichloroethane
- 1,1-Dichloroethene
- *trans*-1,2-Dichloroethene
- 1,2-Dichloropropane
- *cis*-1,3-Dichloropropene
- *trans*-1,3-Dichloropropene
- Ethanol
- Ethylbenzene
- 2-Hexanone
- Iodomethane
- 4-Methyl-2-pentanone
- Methylene chloride
- Styrene
- 1,1,2,2-Tetrachloroethane
- Tetrachloroethene
- Toluene
- 1,1,1-Trichloroethane
- 1,1,2-Trichloroethane
- Trichloroethene
- Vinyl acetate
- *o*-Xylene
- *m*-Xylene
- *p*-Xylene

Certificate will reflect actual cis/trans ratio

M-502B — **1 x 1 mL**
M-502B-PAK *SAVE* — **5 x 1 mL**
0.2 mg/mL each in MeOH — 6 comps.

- Bromomethane
- Chloromethane
- Chloroethane
- Dichlorodifluoromethane
- Trichlorofluoromethane
- Vinyl chloride

M-8240C — **1 x 1 mL**
0.2 mg/mL each in MeOH — 17 comps.

- Acetonitrile
- Allyl chloride
- 1,2-Dibromo-3-chloropropane
- Dibromomethane
- 1,2-Dibromoethane
- 1,4-Dioxane
- Ethyl methacrylate
- Isobutanol
- Methacrylonitrile
- Methyl methacrylate
- Nitrobenzene
- Pentachloroethane
- Propionitrile
- Pyridine
- 1,1,1,2-Tetrachloroethane
- 1,2,4-Trichlorobenzene
- 1,2,3-Trichloropropane

Special Mixtures for Laboratories Testing Appendix IX Analytes

Volatile Mixtures

S-168A — **1 x 1 mL**
0.5 mg/mL each in MeOH — 14 comps.

- Acetonitrile
- Acrolein
- Acrylonitrile
- Allyl chloride
- 1,2-Dibromoethane
- 1,2-Dibromo-3-chloropropane
- Dibromomethane
- 1,4-Dioxane
- Propionitrile
- Iodomethane
- Isobutanol
- Methacrylonitrile
- 1,1,1,2-Tetrachloroethane
- 1,2,3-Trichloropropane

S-181M — **1 x 1 mL**
0.1 mg/mL each in MeOH — 6 comps.

- bis(2-Chloroisopropyl)ether
- Dichlorodifluoromethane
- Ethyl methacrylate
- 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

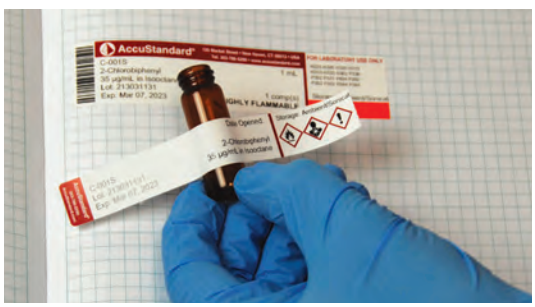
S-168-MIXA-R1 ❄ — **1 x 1 mL**
500 µg/mL each in CH_2Cl_2 — 4 comps.

- 3,3'-Dimethylbenzidine †
- 1,4-Naphthoquinone
- 4-Nitroquinoline-1-oxide
- *p*-Phenylenediamine

Mix 2

S-168-MIXB — **1 x 1 mL**
500 µg/mL each in CH_2Cl_2 — 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.

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-d_4
- 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-d_2

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-d_5
- 1,4-Dichlorobenzene-d_4
- 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-d_4
- Pentafluorobenzene

M-8260-IS — **1 x 1 mL**
0.2 mg/mL each in MeOH — 4 comps.
- Chlorobenzene-d_5
- 1,4-Difluorobenzene
- 1,4-Dichlorobenzene-d_4
- Pentafluorobenzene

M-8260A/B-IS — **1 x 1 mL**
0.2 mg/mL each in MeOH — 3 comps.
- Chlorobenzene-d_5
- 1,4-Dichlorobenzene-d_4
- Fluorobenzene

ISTD/SS Evaluation Mixtures

Conventional ISTD/SS Evaluation MIx

M-CONV-IS/SS — **1 x 1 mL**
200 µg/mL each in MeOH — 15 comps.

- 2-Bromochlorobenzene
- 4-Bromochlorobenzene
- Bromochloromethane
- *p*-Bromofluorobenzene
- 2-Bromo-1-chloropropane
- 1-Chloro-2-fluorobenzene
- 1-Chloro-3-fluorobenzene
- 1-Chloro-4-fluorobenzene
- 2-Chloropropane
- Dibromofluoromethane
- 1,4-Dichlorobutane
- 1,4-Difluorobenzene
- Fluorobenzene
- Pentafluorobenzene
- α,α,α-Trifluorotoluene

Deuterated ISTD/SS Evaluation MIx

M-DEUT-IS/SS — **1 x 1 mL**
200 µg/mL each in MeOH — 8 comps.

- Benzene-d_6
- Chlorobenzene-d_5
- 1,2-Dichlorobenzene-d_4
- 1,4-Dichlorobenzene-d_4
- 1,2-Dichlorobethane-d_4
- Ethylbenzene-d_{10}
- Methylene chloride-d_2
- Toluene-d_8

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-d_4

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
- 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-d_4
- Toluene-d_8

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-d_4
- Fluorobenzene

M-8010-IS/SS — **1 x 1 mL**
150 µg/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-d_5
- Dibromofluoromethane
- 1,4-Dichlorobenzene-d_4
- 1,2-Dichloroethane-d_4
- 1,4-Difluorobenzene
- Pentafluorobenzene
- Toluene-d_8

M-8260A/B-IS/SS — **1 x 1 mL**
200 µg/mL each in MeOH — 7 comps.
- *p*-Bromofluorobenzene
- Chlorobenzene-d_5
- Dibromofluoromethane
- 1,4-Dichlorobenzene-d_4
- 1,2-Dichloroethane-d_4
- Fluorobenzene
- Toluene-d_8

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
- Chlorobenzene
- 1,2-Dichlorobenzene
- 1,3-Dichlorobenzene
- 1,4-Dichlorobenzene
- 1,1-Dichloroethane
- 1,2-Dichloroethane
- 1,1-Dichloroethylene
- *trans*-1,2-Dichloroethylene
- 1,2-Dichloropropane
- *cis*-1,3-Dichloropropylene *
- *trans*-1,3-Dichloropropylene **
- Methylene chloride
- 1,1,2,2-Tetrachloroethane
- Tetrachloroethylene
- 1,1,1-Trichloroethane
- 1,1,2-Trichloroethane
- Trichloroethylene

* cis (1.06 x conc.)
** trans (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
- Chloromethane
- Chloroethane
- Dichlorodifluoromethane
- Trichlorofluoromethane
- 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
- Chloroform
- Dichlorobromomethane
- Dibromochloromethane

Method 8010 Additional Analytes

M-8010R-1 — **1 x 1 mL**
0.2 mg/mL each in MeOH — 9 comps.

- Benzylchloride
- Bromobenzene
- bis(2-Chloroethoxy)methane
- 1-Chlorohexane
- Chloromethylmethyl ether
- 4-Chlorotoluene
- Dibromomethane
- 1,1,1,2-Tetrachloroethane
- 1,2,3-Trichloropropane

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
- 1,4-Dichlorobutane
- 2-Bromo-1-chloropropane

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
- Bromobenzene
- Bromoform
- Bromomethane
- Carbon tetrachloride
- Chlorobenzene
- Chloroethane
- Chloroform
- Chloromethane
- Dibromochloromethane
- Dibromomethane
- 1,2-Dichlorobenzene
- 1,3-Dichlorobenzene
- 1,4-Dichlorobenzene
- Dichlorobromomethane
- Dichlorodifluoromethane
- 1,1-Dichloroethane
- 1,2-Dichloroethane
- 1,1-Dichloroethylene
- *trans*-1,2-Dichloroethylene
- 1,2-Dichloropropane
- *cis*-1,3-Dichloropropylene *
- *trans*-1,3-Dichloropropylene **
- Methylene chloride
- 1,1,1,2-Tetrachloroethane
- 1,1,2,2-Tetrachloroethane
- Tetrachloroethylene
- 1,1,1-Trichloroethane
- 1,1,2-Trichloroethane
- Trichloroethylene
- Trichlorofluoromethane
- 1,2,3-Trichloropropane
- Vinyl chloride

* 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
- Bromobenzene
- Bromoform
- Bromomethane
- Carbon tetrachloride
- Chlorobenzene
- Chloroethane
- 2-Chloroethyl vinyl ether
- Chloroform
- Chloromethane
- Dibromochloromethane
- Dibromomethane
- 1,2-Dichlorobenzene
- 1,3-Dichlorobenzene
- 1,4-Dichlorobenzene
- Dichlorobromomethane
- Dichlorodifluoromethane
- 1,1-Dichloroethane
- 1,2-Dichloroethane
- 1,1-Dichloroethylene
- *trans*-1,2-Dichloroethylene
- 1,2-Dichloropropane
- *cis*-1,3-Dichloropropylene
- *trans*-1,3-Dichloropropylene
- Methylene chloride
- 1,1,1,2-Tetrachloroethane
- 1,1,2,2-Tetrachloroethane
- Tetrachloroethylene
- 1,1,1-Trichloroethane
- 1,1,2-Trichloroethane
- Trichloroethylene
- Trichlorofluoromethane
- 1,2,3-Trichloropropane
- Vinyl chloride

Certificate will reflect actual 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
- 4-Bromofluorobenzene
- Bromochloromethane

Method 8010B Halogenated VOCs by GC/ELCD (Hall)

Halogenated Volatiles (Methanol Versions)

Mix #1

M-8010B — **1 x 1 mL**
0.2 mg/mL each in MeOH — 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	**Certificate will reflect actual cis/trans ratio**
Dichlorodifluoromethane	

Mix #2

M-8021B-X1 — **1 x 1 mL**
0.2 mg/mL each in MeOH — 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 — **1 x 1 mL**
M-8010-IS/SS-PAK — ***SAVE*** — **5 x 1 mL**
150 µg/mL each in MeOH — 3 comps.

4-Bromochlorobenzene	4-Bromofluorobenzene
Bromochloromethane	

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 Volatiles

M-8021B-X2 — **1 x 1 mL**
0.2 mg/mL each in Pentane — 2 comps.

Bromoacetone	Chloromethyl methyl ether

APP-9-030 — **1 x 1 mL**
100 µg/mL in MeOH

Bromodichloromethane

APP-9-130 — **1 x 1 mL**
100 µg/mL in MeOH

Methyl iodide

Chloroprene (Xylene-Free)

APP-9-048-R1 — **1 x 1 mL**
100 µg/mL in MeOH

APP-9-048-R1-2X — **1 x 1 mL**
200 µg/mL in MeOH

APP-9-048-R1-20X — **1 x 1 mL**
2000 µg/mL in MeOH

Chloroprene

Method 8011 DBCP & EDB by GC/MS

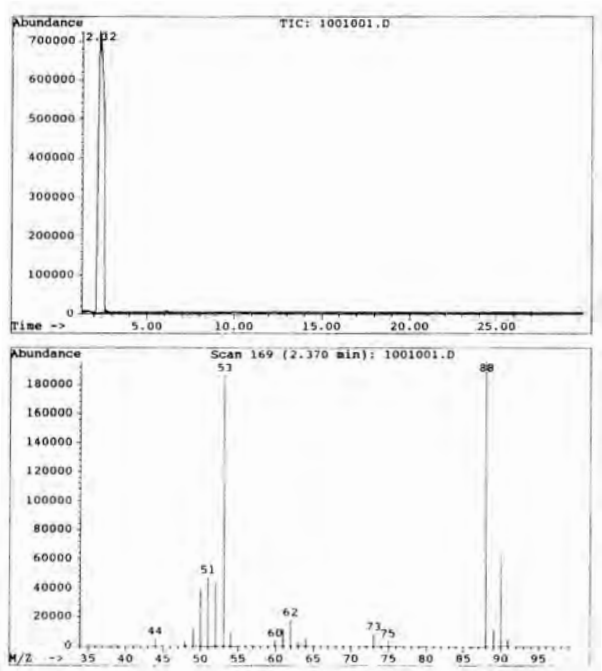
M-504-10X — **1 x 1 mL**
M-504-10X-PAK — ***SAVE*** — **5 x 1 mL**
2.0 mg/mL each in MeOH — 2 comps.

1,2-Dibromo-3-chloropropane (DBCP)	1,2-Dibromoethane (EDB)

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.



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 — Alternate Source — **1 x 1 mL**
100 µg/mL each in MeOH — 12 comps.

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 — SAVE — **5 x 1 mL**
2.0 mg/mL each in MeOH — 10 comps.

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 — SAVE — **5 x 1 mL**
2.0 mg/mL each in MeOH — 13 comps.

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 — SAVE — **5 x 1 mL**
2.0 mg/mL in MeOH

MtBE

Internal Standards

M-8020-IS — **1 x 1 mL**
M-8020-IS-PAK — SAVE — **5 x 1 mL**
0.2 mg/mL each in MeOH — 2 comps.

M-8020-IS-10X — **1 x 1 mL**
M-8020-IS-10X-PAK — SAVE — **5 x 1 mL**
2.0 mg/mL each in MeOH — 2 comps.

4-Bromofluorobenzene	α,α,α-Trifluorotoluene

Surrogate Standards

M-8020-SS — **1 x 1 mL**
M-8020-SS-PAK — SAVE — **5 x 1 mL**
2.0 mg/mL each in MeOH — 3 comps.

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 — Alternate Source — SAVE — **5 x 1 mL**
1.5 mg/mL each in MeOH — 5 comps.

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)
- Bromobenzene (02)
- Bromochloromethane (03)
- Bromodichloromethane (04)
- Bromoform (05)
- *n*-Butylbenzene (07)
- *sec*-Butylbenzene (08)
- *t*-Butylbenzene (09)
- Carbon tetrachloride (10)
- Chlorobenzene (11)
- Chloroform (13)
- 2-Chlorotoluene (15)
- 4-Chlorotoluene (16)
- Dibromochloromethane (17)
- 1,2-Dibromo-3-chloropropane (18)
- 1,2-Dibromoethane (19)
- Dibromomethane (20)
- 1,2-Dichlorobenzene (21)
- 1,3-Dichlorobenzene (22)
- 1,4-Dichlorobenzene (23)
- 1,1-Dichloroethane (25)
- 1,2-Dichloroethane (26)
- 1,1-Dichloroethene (27)
- *cis*-1,2-Dichloroethene (28)
- *trans*-1,2-Dichloroethene (29)
- 1,2-Dichloropropane (30)
- 1,3-Dichloropropane (31)
- 2,2-Dichloropropane (32)
- 1,1-Dichloropropene (33)
- *cis*-1,3-Dichloropropene (34A)
- *trans*-1,3-Dichloropropene (34B)
- Ethylbenzene (35)
- Hexachlorobutadiene (36)
- Isopropylbenzene (Cumene) (37)
- *p*-Isopropyltoluene (*p*-Cymene) (38)
- Methylene chloride (39)
- Naphthalene (40)
- *n*-Propylbenzene (41)
- Styrene (42)
- 1,1,1,2-Tetrachloroethane (43)
- 1,1,2,2-Tetrachloroethane (44)
- Tetrachloroethene (45)
- Toluene (46)
- 1,2,3-Trichlorobenzene (47)
- 1,2,4-Trichlorobenzene (48)
- 1,1,1-Trichloroethane (49)
- 1,1,2-Trichloroethane (50)
- Trichloroethene (51)
- 1,2,3-Trichloropropane (53)
- 1,2,4-Trimethylbenzene (54)
- 1,3,5-Trimethylbenzene (55)
- *o*-Xylene (57)
- *m*-Xylene (58)
- *p*-Xylene (59)

Certificate will reflect actual cis/trans ratio

6 Gas Components

- Bromomethane (06)
- Chloroethane (12)
- Chloromethane (14)
- Dichlorodifluoromethane (24)
- Trichlorofluoromethane (52)
- 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		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.

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		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

Individual Component Neats

To order, specify identity

M-502-##N	**1 x 1 gram**

Except

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		35 comps.

- Bromochloromethane
- Bromodichloromethane
- Bromoform
- Bromomethane
- Carbon tetrachloride
- Chloroethane
- Chloroform
- Chlorodibromomethane
- Chloromethane
- 1,2-Dibromo-3-chloropropane
- 1,2-Dibromoethane
- Dibromomethane
- Dichlorodifluoromethane
- 1,1-Dichloroethane
- 1,2-Dichloroethane
- 1,1-Dichloroethene
- *cis*-1,2-Dichloroethene
- *trans*-1,2-Dichloroethene
- Dichloromethane
- 1,2-Dichloropropane
- 1,3-Dichloropropane
- 2,2-Dichloropropane
- 1,1-Dichloropropene
- *cis*-1,3-Dichloropropene
- *trans*-1,3-Dichloropropene
- Hexachlorobutadiene
- Tetrachloroethene
- 1,1,1,2-Tetrachloroethane
- 1,1,2,2-Tetrachloroethane
- Trichloroethene
- 1,1,1-Trichloroethane
- 1,1,2-Trichloroethane
- Trichlorofluoromethane
- 1,2,3-Trichloropropane
- Vinyl chloride

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		25 comps.

- Benzene
- Bromobenzene
- *n*-Butylbenzene
- *sec*-Butylbenzene
- *t*-Butylbenzene
- Chlorobenzene
- 2-Chlorotoluene
- 4-Chlorotoluene
- 1,2-Dichlorobenzene
- 1,3-Dichlorobenzene
- 1,4-Dichlorobenzene
- Ethylbenzene
- Isopropylbenzene
- *p*-Isopropyltoluene
- Naphthalene
- *n*-Propylbenzene
- Styrene
- Toluene
- 1,2,3-Trichlorobenzene
- 1,2,4-Trichlorobenzene
- 1,2,4-Trimethylbenzene
- 1,3,5-Trimethylbenzene
- *o*-Xylene
- *m*-Xylene
- *p*-Xylene

Halogenated Volatiles Solution #3

M-8021B-X1		**1 x 1 mL**
0.2 mg/mL each in MeOH		8 comps.

- Allyl chloride
- Benzyl chloride
- 2-Chloroethanol
- 2-Chloroethyl vinyl ether
- bis(2-Chloroisopropyl) ether
- Chloroprene (Xylene-free)
- 1,3-Dichloro-2-propanol
- Epichlorohydrin

Halogenated Volatiles Solution #4

M-8021B-X2		**1 x 1 mL**
0.2 mg/mL each in Pentane		2 comps.

- Bromoacetone
- Chloromethyl methyl ether

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
5 µg/mL each in MeOH — 2 comps.

M-8021B-IS-10X — 1 x 1 mL
M-8021B-IS-10X-PAK — SAVE — 5 x 1 mL
50 µg/mL each in MeOH — 2 comps.

M-8021B-IS-100X — 1 x 1 mL
M-8021B-IS-100X-PAK — SAVE — 5 x 1 mL
500 µg/mL each in MeOH — 2 comps.

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
15 mg/mL each in MeOH — 3 comps.

M-001R-0.075X — 1 x 1 mL
M-001R-0.075X-PAK — SAVE — 5 x 1 mL
1.5 mg/mL each in MeOH — 3 comps.

M-001R-0.0075X — 1 x 1 mL
M-001R-0.0075X-PAK — SAVE — 5 x 1 mL
150 µg/mL each in MeOH — 3 comps.

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
15 µg/mL each in MeOH — 2 comps.

M-8021B-SS-10X — 1 x 1 mL
M-8021B-SS-10X-PAK — SAVE — 5 x 1 mL
150 µg/mL each in MeOH — 2 comps.

M-8021B-SS-100X — 1 x 1 mL
M-8021B-SS-100X-PAK — SAVE — 5 x 1 mL
1,500 µg/mL each in MeOH — 2 comps.

4-Bromochlorobenzene
1,4-Dichlorobutane

Surrogate Standards

M-8021-SS — 1 x 1 mL
M-8021-SS-PAK — SAVE — 5 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
M-8021-SS-M-PAK — SAVE — 5 x 1 mL
2.0 mg/mL each in MeOH — 2 comps.

Bromochloromethane
1,4-Dichlorobutane

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

M-8021A-SS — 1 x 1 mL
M-8021A-SS-PAK — SAVE — 5 x 1 mL
20 mg/mL each in MeOH — 4 comps.

4-Bromochlorobenzene
1,4-Dichlorobutane
Bromochloromethane
2-Bromo-1-chloropropane

Chloroprene Solution

APP-9-048-R1-2X — 1 x 1 mL
0.2 mg/mL in MeOH

Chloroprene (Xylene-free)

Method 8030A Acrolein & Acrylonitrile by GC/FID

M-603-10X ❄ — 1 x 1 mL
10 mg/mL each in Water — 2 comps.

Acrolein
Acrylonitrile

Method 8031 Acrylonitrile by GC/NPD

APP-9-008-10X — 1 x 1 mL
APP-9-008-10X-PAK — SAVE — 5 x 1 mL
1.0 mg/mL in MeOH

Acrylonitrile

Method 8032/8032A Acrylamide by GC/ECD

Acrylamide

M-8032 — 1 x 1 mL
M-8032-PAK — SAVE — 5 x 1 mL
1.0 mg/mL in MeOH

Acrylamide

Brominated Analyte

M-8032B — 1 x 1 mL
M-8032B-PAK — SAVE — 5 x 1 mL
0.1 mg/mL in Ethyl acetate

2,3-Dibromopropionamide

Internal Standard

M-8032-IS — 1 x 1 mL
M-8032-IS-PAK — SAVE — 5 x 1 mL
0.1 mg/mL in Ethyl acetate

Dimethyl phthalate

Method 8033 Acrylonitrile by GC/NPD

Acrylonitrile

M-8033 — 1 x 1 mL
M-8033-PAK — SAVE — 5 x 1 mL
1.0 mg/mL in Water

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
- *o*-Chlorophenol-PFB
- *m*-Cresol-PFB
- *o*-Cresol-PFB
- *p*-Cresol-PFB
- 2-Cyclohexyl-4,6-dinitrophenol-PFB (Dinex)
- 2,4-Dichlorophenol-PFB
- 2,6-Dichlorophenol-PFB
- 2,4-Dimethylphenol-PFB
- 2,4-Dinitrophenol-PFB
- Dinoseb-PFB
- 2-Methyl-4,6-dinitrophenol-PFB
- *o*-Nitrophenol-PFB
- *p*-Nitrophenol-PFB
- Pentachlorophenol-PFB
- Phenol-PFB
- 2,3,4,6-Tetrachlorophenol-PFB
- 2,4,5-Trichlorophenol-PFB
- 2,4,6-Trichlorophenol-PFB

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
- *o*-Cresol-PFB
- 2-Cyclohexyl-4,6-dinitrophenol-PFB(Dinex)
- 2,4-Dichlorophenol-PFB
- 2-Methyl-4,6-dinitrophenol-PFB
- *o*-Nitrophenol-PFB
- *p*-Nitrophenol-PFB
- 2,4,6-Trichlorophenol-PFB
- Pentachlorophenol-PFB
- Phenol-PFB

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.

- *o*-Chlorophenol-PFB
- *m*-Cresol-PFB
- *p*-Cresol-PFB
- 2,6-Dichlorophenol-PFB
- 2,4-Dimethylphenol-PFB
- 2,4-Dinitrophenol-PFB
- Dinoseb-PFB
- 2,3,4,6-Tetrachlorophenol-PFB
- 2,4,5-Trichlorophenol-PFB

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

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

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
- *o*-Chlorophenol
- *m*-Cresol
- *o*-Cresol
- *p*-Cresol
- 2-Cyclohexyl-4,6-dinitrophenol (Dinex)
- 2,4-Dichlorophenol
- 2,6-Dichlorophenol
- 2,4-Dimethylphenol
- 2,4-Dinitrophenol
- Dinoseb
- 2-Methyl-4,6-dinitrophenol
- *o*-Nitrophenol
- *p*-Nitrophenol
- Pentachlorophenol
- Phenol
- 2,3,4,6-Tetrachlorophenol
- 2,4,5-Trichlorophenol
- 2,4,6-Trichlorophenol

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
- *o*-Cresol
- 2-Cyclohexyl-4,6-dinitrophenol (Dinex)
- 2,4-Dichlorophenol
- 2-Methyl-4,6-dinitrophenol
- *o*-Nitrophenol
- *p*-Nitrophenol
- 2,4,6-Trichlorophenol
- Pentachlorophenol
- Phenol

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.

- *o*-Chlorophenol
- *m*-Cresol
- *p*-Cresol
- 2,6-Dichlorophenol
- 2,4-Dimethylphenol
- 2,4-Dinitrophenol
- Dinoseb
- 2,3,4,6-Tetrachlorophenol
- 2,4,5-Trichlorophenol

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-Chloro-3-methylphenol
- 2-Chlorophenol
- *o*-Cresol
- *m*-Cresol
- *p*-Cresol
- 2-Cyclohexyl-4,6-dinitrophenol (Dinex)
- 2,4-Dichlorophenol
- 2,6-Dichlorophenol
- 2,4-Dimethylphenol
- 4,6-Dinitro-*o*-cresol
- 2,4-Dinitrophenol
- 2-Nitrophenol
- 4-Nitrophenol
- Pentachlorophenol
- Phenol
- 2,3,4,6-Tetrachlorophenol
- 2,4,5-Trichlorophenol
- 2,4,6-Trichlorophenol

Method 8040/8040A Bromophenols and Anisoles

Bromophenols

Each at 100 µg/mL in Toluene

Compound	Cat. No.	1 mL
2-Bromophenol	BP-002S	
3-Bromophenol	BP-003S	
4-Bromophenol	BP-004S	
2,3-Dibromophenol	BP-023S	
2,4-Dibromophenol	BP-024S	
2,5-Dibromophenol	BP-025S	
2,6-Dibromophenol	BP-026S	
3,5-Dibromophenol	BP-035S	
2,3,4-Tribromophenol	BP-234S	
2,4,5-Tribromophenol	BP-245S	
2,3,6-Tribromophenol	BP-236S	
2,4,6-Tribromophenol	BP-246S	
3,4,5-Tribromophenol	BP-345S	
2,3,4,5-Tetrabromophenol	BP-2345S	
2,3,4,6-Tetrabromophenol	BP-2346S	
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	

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 — 21 comps.

- 4-Chloro-3-methylphenol
- 2-Chlorophenol
- 2-Cyclohexyl-4,6-dinitrophenol (Dinex)
- 2,4-Dichlorophenol
- 2,6-Dichlorophenol
- 2,4-Dimethylphenol
- Dinoseb
- 2,4-Dinitrophenol
- 2-Methyl-4,6-dinitrophenol
- *o*-Cresol
- *m*-Cresol
- *p*-Cresol
- 2-Nitrophenol
- 4-Nitrophenol
- Pentachlorophenol
- Phenol
- 2,3,4,5-Tetrachlorophenol
- 2,3,4,6-Tetrachlorophenol
- 2,3,5,6-Tetrachlorophenol
- 2,4,5-Trichlorophenol
- 2,4,6-Trichlorophenol

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 — 18 comps.

- 2-Chloro-5-methylphenol
- 4-Chloro-2-methylphenol
- 3-Chlorophenol
- 4-Chlorophenol
- 2,3-Dichlorophenol
- 2,5-Dichlorophenol
- 3,4-Dichlorophenol
- 3,5-Dichlorophenol
- 2,3-Dimethylphenol
- 2,5-Dimethylphenol
- 2,6-Dimethylphenol
- 3,4-Dimethylphenol
- 2,5-Dinitrophenol
- 3-Nitrophenol
- 2,3,4-Trichlorophenol
- 2,3,5-Trichlorophenol
- 2,3,6-Trichlorophenol
- 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 comps.

- 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 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 — 6 comps.

- Benzyl butyl phthalate
- Diethyl phthalate
- Dimethyl phthalate
- Di-*n*-butyl phthalate
- Di-*n*-octyl phthalate
- bis(2-Ethylhexyl)phthalate

M-8060-QC — **1 x 1 mL**
M-8060-QC-PAK — *SAVE* — **5 x 1 mL**
At stated conc. (mg/mL) in MeOH — 6 comps.

Benzyl butyl phthalate	0.1	Di-*n*-butyl phthalate	0.25
Diethyl phthalate	0.25	Di-*n*-octyl phthalate	0.5
Dimethyl phthalate	0.25	bis(2-Ethylhexyl)phthalate	0.5

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 — 15 comps.

- bis(2-*n*-Butoxyethyl)phthalate
- Butyl benzyl phthalate
- Diamyl phthalate
- Di-*n*-butyl phthalate
- Dicyclohexyl phthalate
- Diethyl phthalate
- Dihexyl phthalate
- Diisobutyl phthalate
- Dimethyl phthalate
- Dinonyl phthalate
- Di-*n*-octyl phthalate
- bis(2-Ethoxyethyl)phthalate
- bis(2-Ethylhexyl)phthalate
- bis(2-Methoxyethyl)phthalate
- bis(4-Methyl-2-pentyl)phthalate

M-8061A — **1 x 1 mL**
M-8061A-PAK — *SAVE* — **5 x 1 mL**
1.0 mg/mL each in Hexane — 6 comps.

- Butyl benzyl phthalate
- bis(2-Ethylhexyl)phthalate
- Di-*n*-butyl phthalate
- Diethyl phthalate
- Dimethyl phthalate
- Di-*n*-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 — 2 comps.

- 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 — 3 comps.

- Dibenzyl phthalate
- Diphenyl isophthalate
- Diphenyl phthalate

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 — 3 comps.

- N-Nitrosodimethylamine
- N-Nitrosodiphenylamine
- N-Nitrosodi-*n*-propylamine

Nitrosamines Mix

M-8270-03-ASL — Alternate Source — **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 — 9 comps.

- N-Nitrosodi-*n*-butylamine
- N-Nitrosodiethylamine
- N-Nitrosodimethylamine
- N-Nitrosodiphenylamine
- N-Nitrosodi-*n*-propylamine
- N-Nitrosomethylethylamine
- N-Nitrosomorpholine
- N-Nitrosopiperidine
- N-Nitrosopyrrolidine

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 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	

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 17 comps.

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 2 comps.

Decachlorobiphenyl Tetrachloro-*m*-xylene

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	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

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	Endrin	1

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) 3 comps.

o,p-DDD o,p-DDT
o,p-DDE

Organochlorine Pesticide Mixture

M-8080A-ASL Alternate Source 1 x 1 mL
M-8080A-ASL-PAK *SAVE* 5 x 1 mL
250 µg/mL each in Hexane:Toluene (50:50) 17 comps.

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 6 comps.

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 6 comps.

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 2 comps.

Decachlorobiphenyl Tetrachloro-*m*-xylene

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 2 comps.

Decachlorobiphenyl Tetrachloro-*m*-xylene

❄ ColdPAK required to maintain integrity of product.

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 **7 x 1 mL**
At stated conc. (ng/mL) in Isooctane 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-*m*-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 **7 x 1 mL**
At stated conc. (ng/mL) in Isooctane 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-*m*-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.

Method 8080/8081 Aroclor Calibration Curves

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-*m*-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 — **6 x 1 mL**
At stated conc. (ng/mL) in Isooctane — 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-*m*-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 — **6 x 1 mL**
At stated conc. (ng/mL) in Isooctane — 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-*m*-xylene	10	20	50	100	150	200

Level 3 Daily Working Level

Low level curves

C-232-WL-5X-5M — **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 — **6 x 1 mL**
At stated conc. (ng/mL) in Isooctane — 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-*m*-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 — **6 x 1 mL**
At stated conc. (ng/mL) in Isooctane — 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-*m*-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.

Method 8080/8081 Aroclor Calibration Curves (Continued)

Aroclor 1254 Calibration Curve

C-254-CAL-SET — **6 x 1 mL**
At stated conc. (ng/mL) in Isooctane — 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-*m*-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 — **6 x 1 mL**
At stated conc. (ng/mL) in Isooctane — 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-*m*-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 — **6 x 1 mL**
At stated conc. (ng/mL) in Isooctane — 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-*m*-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 — **1 x 10 mL**
At stated conc. (mg/mL) in CH_2Cl_2 — 5 comps.

Corn Oil	25	Perylene	0.02
bis(2-Ethylhexyl)phthalate	1.0	Sulfur	0.08
Methoxychlor	0.2		

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_2Cl_2 — 5 comps.

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

Florisil Cartridge Check Solution

CLP-FC-WL-10ML — **1 x 10 mL**
0.1 µg/mL in Acetone

2,4,5-Trichlorophenol

GPC Calibration Check Solutions

GPC-CC-A-WL-10ML — **1 x 10 mL**
At stated conc. (µg/mL) in CH_2Cl_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

GPC-CC-B-WL-10ML — **1 x 10 mL**
0.2 µg/mL each in CH_2Cl_2 — 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) — 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

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) — 7 comps.

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) — 6 comps.

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) — 22 comps.

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) — 4 comps.

Carbophenothion	Kepone
Dichlone	Nitrofen

M-8081-T-R — **1 x 1 mL**
1.0 mg/mL each in Hexane:Toluene (50:50) — 3 comps.

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 — 2 comps.

Decachlorobiphenyl	Tetrachloro-*m*-xylene

CLP-034 — **1 x 1 mL**
CLP-034-PAK — *SAVE* — **5 x 1 mL**
0.2 mg/mL each in Acetone — 2 comps.

Dibutylchlorendate	Tetrachloro-*m*-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-*m*-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 — 2 comps.

4,4'-DDT	Endrin

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 — 19 comps.

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 — 19 comps.

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 — 2 comps.

Decachlorobiphenyl — Tetrachloro-*m*-xylene

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-*m*-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-*m*-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-*m*-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 — 2 comps.

Decachlorobiphenyl — Tetrachloro-*m*-xylene

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-*m*-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
Ethalfluralin	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	Prebane	5	Triallate	13
Cyanazine	7.5	Profluoralin	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
Ioxynil 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	Fensulfothion	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	Ioxynil 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
Dichlorprop 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.

Dibutylchlorendate

Tetrachloro-*m*-xylene

Herbicide Surrogate

M-8085-HERB-SS — **1 x 5 mL**

20 µg/mL in MtBE

2,4,6-Tribromophenol

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

Buy AccuPAKs
Save 20-40% 5 x 1 mL

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 CH_2Cl_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

PAH Additions to Method 8100 by GC/FID

M-8100-R — **1 x 1 mL**
1.0 mg/mL each in CH_2Cl_2 — 8 comps.

- Benzo[j]fluoranthene
- Dibenz[a,h]acridine
- Dibenz[a,j]acridine
- 7H-Dibenzo[c,g]carbazole
- Dibenz[a,e]pyrene
- Dibenz[a,h]pyrene
- Dibenz[a,i]pyrene
- 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,j]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 CH_2Cl_2 — 2 comps.

- 2-Fluorobiphenyl
- 1-Fluoronaphthalene

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-Chloroethoxy)methane
- bis(2-Chloroethyl) ether
- bis(2-Chloroisopropyl)ether
- 4-Chlorophenyl phenyl ether

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.

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

Individual Haloethers see page 79

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-Chloroethyl) ether
bis(2-Chloroisopropyl)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
Benzotrichloride
Benzyl chloride
α-BHC
β-BHC
γ-BHC
δ-BHC
2-Chloronaphthalene
1,2-Dichlorobenzene
1,3-Dichlorobenzene
1,4-Dichlorobenzene
Hexachlorobenzene
Hexachlorobutadiene
Hexachlorocyclopentadiene
Hexachloroethane
Pentachlorobenzene
1,2,3,4-Tetrachlorobenzene
1,2,3,5-Tetrachlorobenzene
1,2,4,5-Tetrachlorobenzene
1,2,3-Trichlorobenzene
1,2,4-Trichlorobenzene
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
α,α'-Dibromo-*m*-xylene
1,3,5-Tribromobenzene

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
4-Bromoaniline
2-Bromo-6-chloro-4-nitroaniline
2-Bromo-4,6-dinitroaniline
2-Chloroaniline
3-Chloroaniline
4-Chloroaniline
2-Chloro-4,6-dinitroaniline
2-Chloro-4-nitroaniline
4-Chloro-2-nitroaniline
2,6-Dibromo-4-nitroaniline
3,4-Dichloroaniline
2,6-Dichloro-4-nitroaniline
2,4-Dinitroaniline
2-Nitroaniline
3-Nitroaniline
4-Nitroaniline
2,4,6-Trichloroaniline
2,4,5-Trichloroaniline

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	

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	

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
Chlorpyrifos methyl ester
Crotoxyphos
Dichlofenthion
Dicrotophos
Fenitrothion
Fonophos
Thionazin
Trichlorfon

❄ ColdPAK required to maintain integrity of product.

Industrial Chemicals & Triazine Herbicides

M-8141A-IC — **1 x 1 mL**
0.2 mg/mL each in Hexane — 2 comps.

Hexamethylphosphoramide *(HMPA)*
Tri-*o*-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
Coumaphos
Dichlorvos
EPN
Naled
Ronnel
Stirophos
Trichloronate
Tokuthion

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.

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 **7 x 1 mL**
At stated conc. (ng/mL) in Isooctane 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.

Ready-to-Inject

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
Dichlorprop	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 10 comps.

2,4-D
Dalapon
2,4-DB
Dicamba
Dichlorprop
Dinoseb
MCPA (10 mg/mL)
MCPP (10 mg/mL)
2,4,5-TP
2,4,5-T

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 10 comps.

2,4-D
Dalapon
2,4-DB
Dicamba
Dichlorprop
Dinoseb
MCPA
MCPP
2,4,5-TP
2,4,5-T

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

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

❄ ColdPAK required to maintain integrity of product.

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
Dalapon methyl ester
2,4-DB methyl ester
Dicamba methyl ester
Dichlorprop methyl ester
Dinoseb methyl ester
MCPA methyl ester (10 mg/mL)
MCPP methyl ester (10 mg/mL)
2,4,5-TP methyl ester
2,4,5-T methyl ester

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
Dalapon methyl ester
2,4-DB methyl ester
Dicamba methyl ester
Dichlorprop methyl ester
Dinoseb methyl ester
2,4,5-TP methyl ester
2,4,5-T methyl ester

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

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

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 8151/8151A Chlorinated Herbicides by GC/ECD

Methyl Derivatives

M-8151 — **1 x 1 mL**
0.1 mg/mL each in MtBE, except MCPA & MCPP — 18 comps.

- Acifluorfen methyl ester
- Bentazon methyl ester
- Chloramben methyl ester
- 2,4-D methyl ester
- Dalapon methyl ester
- 2,4-DB methyl ester
- DCPA methyl ester
- Dicamba methyl ester
- Methyl-3,5-dichlorobenzoate
- Dichlorprop methyl ester
- Dinoseb methyl ester
- MCPA methyl ester (10 mg/mL)
- MCPP methyl ester (10 mg/mL)
- 4-Nitroanisole
- Pentachloroanisole
- Picloram methyl ester
- 2,4,5-TP methyl ester
- 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
- Bentazon
- Chloramben
- 2,4-D
- Dalapon
- 2,4-DB
- DCPA diacid
- Dicamba
- 3,5-Dichlorobenzoic acid
- Dichlorprop
- Dinoseb
- MCPA (10 mg/mL)
- MCPP (10 mg/mL)
- 4-Nitrophenol
- Pentachlorophenol
- Picloram
- 2,4,5-TP
- 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 ❄ — **1 x 1 mL**
0.2 mg/mL each in MeOH — 41 comps.

- Acetone
- Acrolein
- Acrylonitrile
- Benzene
- Bromodichloromethane
- Bromoform
- Methyl ethyl ketone
- Carbon disulfide
- Carbon tetrachloride
- Chlorobenzene
- Chloroform
- Dibromochloromethane
- *cis*-1,4-Dichloro-2-butene
- *trans*-1,4-Dichloro-2-butene
- 1,2-Dichlorobenzene
- 1,3-Dichlorobenzene
- 1,4-Dichlorobenzene
- 1,1-Dichloroethane
- 1,2-Dichloroethane
- 1,1-Dichloroethene
- *trans*-1,2-Dichloroethene
- 1,2-Dichloropropane
- *cis*-1,3-Dichloropropene
- *trans*-1,3-Dichloropropene
- Ethanol
- Ethylbenzene
- 2-Hexanone
- Iodomethane
- 4-Methyl-2-pentanone
- Methylene chloride
- Styrene
- 1,1,2,2-Tetrachloroethane
- Tetrachloroethene
- Toluene
- 1,1,1-Trichloroethane
- 1,1,2-Trichloroethane
- Trichloroethene
- Vinyl acetate
- *o*-Xylene
- *m*-Xylene
- *p*-Xylene

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 — **1 x 1 mL**
0.2 mg/mL in MeOH

- Chloroprene (Xylene-free)

S-354-2 — **1 x 1 mL**
0.2 mg/mL in Isooctane

- 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	*cis*-1,3-Dichloropropene
Bromobenzene	*trans*-1,3-Dichloropropene
Bromodichloromethane	Ethylbenzene
Bromoform	Hexachlorobutadiene
n-Butylbenzene	Isopropylbenzene (Cumene)
sec-Butylbenzene	*p*-Isopropyltoluene (*p*-Cymene)
t-Butylbenzene	Methylene chloride
Carbon tetrachloride	Naphthalene
Chlorobenzene	*n*-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
cis-1,2-Dichloroethene	*o*-Xylene
trans-1,2-Dichloroethene	*m*-Xylene
1,2-Dichloropropane	*p*-Xylene
1,3-Dichloropropane	
2,2-Dichloropropane	**Certificate will reflect actual cis/trans ratio**
1,1-Dichloropropene	

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
cis-1,4-Dichloro-2-butene	0.2	Methacrylonitrile	2.0
trans-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
cis-1,4-Dichloro-2-butene	2.0	Methyl methacrylate	2.0
trans-1,4-Dichloro-2-butene	2.0	Propionitrile	20
1,4-Dioxane	40		
Ethanol	40	**Certificate will reflect actual cis/trans ratio**	
Ethyl methacrylate	2.0		

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

❄ ColdPAK required to maintain integrity of product.

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 — **1 x 1 mL**
0.2 mg/mL each in MeOH — 54 comps.

- 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

Certificate will reflect actual cis/trans ratio

Gases

M-502B — **1 x 1 mL**
0.2 mg/mL each in MeOH — 6 comps.

- Bromomethane
- Chloroethane
- Chloromethane
- Dichlorodifluoromethane
- Trichlorofluoromethane
- Vinyl chloride

M-603 ❄ — **1 x 1 mL**
1.0 mg/mL each in water — 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 — **1 x 1 mL**
At stated conc. (mg/mL) in MeOH — 12 comps.

Acetonitrile	20	Ethyl methacrylate	2.0
Allyl chloride	2.0	Isobutanol	40
cis-1,4-Dichloro-2-butene	2.0	Methacrylonitrile	20
trans-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 — **1 x 1 mL**
M-8260B-01-PAK — ***SAVE*** — **5 x 1 mL**
2000 µg/mL each in MeOH — 11 comps.

- Benzyl chloride
- 1-Chlorobutane
- 1-Chlorohexane
- 1,2,3,4-Diepoxybutane
- Diethyl ether
- Nitrobenzene
- 2-Nitropropane
- Dibromofluoromethane
- Methyl acrylate
- MtBE
- Pentafluorobenzene

M-8260B-02 ❄ — **1 x 1 mL**
M-8260B-02-PAK ❄ — ***SAVE*** — **5 x 1 mL**
2000 µg/mL each in MeOH — 10 comps.

- Allyl alcohol
- *n*-Butanol
- Chloroacetonitrile
- 3-Chloropropionitrile
- Epichlorohydrin
- Ethyl acetate
- Hexachloroethane
- 2-Hydroxypropionitrile
- Malonitrile
- Pyridine

M-8260B-03 — **1 x 1 mL**
M-8260B-03-PAK — ***SAVE*** — **5 x 1 mL**
2000 µg/mL each in MeOH:Water (90:10) — 4 comps.

- N-Nitrosodi-*n*-butylamine
- 2-Picoline
- Propylamine
- *o*-Toluidine

M-8260B-04 — **1 x 1 mL**
M-8260B-04-PAK — ***SAVE*** — **5 x 1 mL**
2000 µg/mL each in MeOH — 6 comps.

- *t*-Butanol
- 2-Chloroethanol
- 1,3-Dichloro-2-propanol
- *n*-Propanol
- Isopropanol
- Propargyl alcohol

M-8260B-06-PAK ❄ — ***SAVE*** — **5 x 1 mL**
2000 µg/mL each in MeOH — 3 comps.

- Bromoacetone
- 2-Pentanone
- *b*-Propiolactone

Chloroprene (Xylene-Free)

APP-9-048-R1-10X — **1 x 1 mL**
1.0 mg/mL in MeOH

APP-9-048-R1-20X — **1 x 1 mL**
2.0 mg/mL in MeOH

Ethylene oxide

M-8015B/5031-14-R1 ❄ — **1 x 1 mL**
5 mg/mL in Water

Chloral hydrate

M-E-1179-M ❄ — **1 x 1 mL**
1.0 mg/mL in MeOH

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-d_5
1,4-Difluorobenzene
1,4-Dichlorobenzene-d_4
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-Difluorobenzene
1,4-Dichlorobenzene-d_4
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-d_5
1,4-Dichlorobenzene-d_4
Fluorobenzene

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
Chlorobenzene-d_5
Dibromofluoromethane
1,4-Dichlorobenzene-d_4
1,2-Dichloroethane-d_4
Fluorobenzene
Toluene-d_8

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
Dibromofluoromethane
Toluene-d_8

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
Dibromofluoromethane
1,2-Dichloroethane-d_4
Toluene-d_8

Tens of Thousands of Standards Ready-to-Ship

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 — 5 comps.

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 — 5 comps.

- Bromochloromethane
- Chlorobenzene-d_5
- 1,4-Dichlorobenzene-d_4
- 1,4-Difluorobenzene
- Pentafluorobenzene

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 — 4 comps.

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 — 4 comps.

- *p*-Bromofluorobenzene
- Dibromofluoromethane
- 1,2-Dichloroethane-d_4
- 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 — 9 comps.

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 — 9 comps.

- Bromochloromethane
- *p*-Bromofluorobenzene
- Chlorobenzene-d_5
- Dibromofluoromethane
- 1,4-Dichlorobenzene-d_4
- 1,2-Dichloroethane-d_4
- 1,4-Difluorobenzene
- Pentafluorobenzene
- Toluene-d_8

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
- 1,1-Dichloroethene
- 1,2-Dichloropropane
- Ethylbenzene
- Toluene
- 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
- Chlorobenzene
- Chloromethane
- 1,1-Dichloroethane
- 1,1,2,2-Tetrachloroethane

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 — 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
- Chlorobenzene
- 1,1-Dichloroethene
- Toluene
- Trichloroethene

Thousands of Standards, just a click away

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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-*n*-butyl phthalate	Hexachloroethane
Benz[a]anthracene	1,2-Dichlorobenzene	Indeno[1,2,3-cd]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-*n*-propylamine
bis(2-Chloroethoxy)methane	Di-*n*-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 †

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_2Cl_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_2Cl_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_2Cl_2 — 8 comps.

- Aniline
- Benzyl alcohol
- 4-Chloroaniline
- Dibenzofuran
- 2-Methylnaphthalene
- 2-Nitroaniline
- 3-Nitroaniline
- 4-Nitroaniline

Composite #2

Z-014E-R — **1 x 1 mL**

2.0 mg/mL each in CH_2Cl_2 — 9 comps.

- Aniline
- Benzyl alcohol
- 4-Chloroaniline
- Dibenzofuran
- 2-Methylnaphthalene
- 2-Nitroaniline
- 3-Nitroaniline
- 4-Nitroaniline
- Pyridine

Composite #3A

CLP-HC-X1 — **1 x 1 mL**

2.0 mg/mL each in CH_2Cl_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_2Cl_2 — 14 comps.

- Chlorobenzilate
- Diallate
- 2,4-D
- Dimethoate
- Dinoseb
- Disulfoton
- Famphur
- Kepone
- Methyl parathion
- Parathion
- Phorate
- Silvex (2,4,5-TP)
- Sulfotep
- Thionazin

APP-9-014-D-10X — **1 x 1 mL**

2.0 mg/mL in CH_2Cl_2

- Aramite

M-8270-08 — **1 x 1 mL**

2.0 mg/mL each in CH_2Cl_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_2Cl_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

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 — **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 — 17 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

M-8270-02 — **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 — 18 comps.

- 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

M-8270-03 — **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 — 24 comps.

- 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 — **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 — 9 comps.

- 4-Aminobiphenyl
- Anthracene
- 4-Bromophenyl phenyl ether
- Di-*n*-butyl phthalate
- 4,6-Dinitro-2-methylphenol
- Fluoranthene
- Hexachlorobenzene
- Pentachlorophenol
- Phenanthrene

M-8270-04B — **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 — 6 comps.

- Diphenylamine
- 1,2-Diphenylhydrazine
- N-Nitrosodiphenylamine
- Pentachloronitrobenzene
- Phenacetin
- Pronamide

M-8270-05 — **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 — 8 comps.

- Benzidine †
- Benzo[a]anthracene
- bis(2-Ethylhexyl)phthalate
- Butyl benzyl phthalate
- Chrysene
- 3,3'-Dichlorobenzidine †
- *p*-Dimethylaminoazobenzene
- Pyrene

M-8270-06 — **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 — 10 comps.

- 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 — **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 — 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_2Cl_2 — 6 comps.

- Acenaphthene-d_{10}
- Chrysene-d_{12}
- 1,4-Dichlorobenzene-d_4
- Naphthalene-d_8
- Perylene-d_{12}
- Phenanthrene-d_{10}

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_2Cl_2 — 6 comps.

- 2-Fluorobiphenyl
- 2-Fluorophenol
- Nitrobenzene-d_5
- Phenol-d_5
- *p*-Terphenyl-d_{14}
- 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_2Cl_2 :MeOH (80:20) — 6 comps.

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

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
- 1,4-Dichlorobenzene
- 2,4-Dinitrotoluene
- N-Nitrosodi-*n*-propylamine
- Pyrene
- 1,2,4-Trichlorobenzene

Acids

CLP-007B — **1 x 1 mL**
2.0 mg/mL each in MeOH — 5 comps.

- 2-Chlorophenol
- 4-Chloro-3-methylphenol
- 4-Nitrophenol
- Pentachlorophenol
- Phenol

GC/MS Tuning Standard

M-625-TS-20X — **1 x 1 mL**
1.0 mg/mL each in CH_2Cl_2 — 4 comps.

- Benzidine †
- p,p'-DDT
- DFTPP
- Pentachlorophenol

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_2Cl_2 — 7 comps.

- Acenaphthene
- Benz[a]pyrene
- 1,4-Dichlorobenzene
- Di-*n*-octyl phthalate
- Hexachlorobutadiene
- Fluoranthene
- N-nitroso-diphenylamine

Acids

CLP-011B — **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 — 6 comps.

- 4-Chloro-3-methylphenol
- 2,4-Dichlorophenol
- 2-Nitrophenol
- Pentachlorophenol
- Phenol
- 2,4,6-Trichlorophenol

System Performance Check Compounds (SPCC)

CLP-010 — **1 x 1 mL**
0.2 mg/mL each in CH_2Cl_2 — 4 comps.

CLP-010-10X — **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 — 4 comps.

- 2,4-Dinitrophenol
- Hexachlorocyclopentadiene
- 4-Nitrophenol
- 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	

Method 8270C/D (Continued) Appendix IX Semi-Volatiles Analyzed by 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 CH_2Cl_2 12 comps.

4-Aminoazobenzene
3-Amino-9-ethylcarbazole
o-Anisidine
5-Chloro-2-methylaniline
p-Cresidine
2,4-Diaminotoluene
4,4'-Methylenebis(N,N-dimethylaniline)
4,4'-Methylene bis(2-chloroaniline)
4,4'-Oxydianiline
2-Picoline
Pyridine
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-1,2-phenylenediamine
4-Chloro-1,3-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 CH_2Cl_2 6 comps.

m-Cresol
o-Cresol
Resorcinol
Thiophenol
tris(2,3-Dibromopropyl)phosphate
Tri-*p*-tolyl phosphate

M-8270-14B **1 x 1 mL**
2.0 mg/mL each in THF 5 comps.

p-Benzoquinone
Hydroquinone
Maleic anhydride
Phthalic anhydride
Trimethyl phosphate

M-8270-14C ❄ **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_2:MeOH (75:25) 5 comps.

1-Acetyl-2-thiourea
Diethyl sulfate
Hexamethylphosphoramide
3-Picolyl chloride HCl
Toluene diisocyanate

M-8270-15 **1 x 1 mL**
1.0 mg/mL each in CH_2Cl_2:MeOH (90:10) 13 comps.

Dibenz[a,e]pyrene
1,2-Dibromo-3-chloropropane
Diethyl stilbestrol
1,2-Dinitrobenzene
1,4-Dinitrobenzene
5,5-Diphenylhydantoin
Mestranol
Nicotine
5-Nitroacenapthene
5-Nitro-*o*-anisidine
4-Nitrobiphenyl
Propylthiouracil
Strychnine

Pesticides

M-8270-16 **1 x 1 mL**
1000 µg/mL each in CH_2Cl_2 10 comps.

Anilazine
Azinphos methyl
Barbamate
Demeton (mixed isomers)
Dichlone
Dioxathion
Mirex
Sulfoxide
Sulfallate
Trifluralin

M-8270-17 **1 x 1 mL**
1000 µg/mL each in CH_2Cl_2 7 comps.

Brominal
Captafol
Captan
Dinex
Dinocap
Fluchloralin
Nitrofen

Carbamates/Pesticides

M-8270-18 **1 x 1 mL**
1000 µg/mL each in CH_2Cl_2 6 comps.

Carbaryl
Carbofuran
Ethyl carbamate
Mexacarbate
Schradan (Octamethylpyrophosphoramide)
Phenobarbital

Pesticides

M-8270-19 **1 x 1 mL**
1000 µg/mL each in CH_2Cl_2 12 comps.

Carbophenothion
Coumaphos
EPN
Ethion
Fensulfothion
Fenthion
Leptophos
Malathion
Phosalone
Imidan (Phosmet)
Terbufos
Tetrachlorvinphos

M-8270-20 **1 x 1 mL**
1000 µg/mL each in CH_2Cl_2 9 comps.

Chlorfenvinphos
Ciodrin (Crotoxyphos)
Dichlorvos
Dicrotophos
Mevinphos
Monocrotophos
Naled
Phosphamidon
TEPP (Tetraethylpyrophosphate)

Azo Dye

RAC-12-10X **1 x 1 mL**
1.0 mg/mL in CH_2Cl_2

3,3'-Dimethoxybenzidine †

Pesticide Mix

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
α-BHC
β-BHC
γ-BHC
δ-BHC
α-Chlordane
γ-Chlordane
4,4'-DDD
4,4'-DDE
4,4'-DDT
Dieldrin
Endosulfan I
Endosulfan II
Endosulfan sulfate
Endrin
Endrin aldehyde
Endrin ketone
Heptachlor
Heptachlor epoxide (Isomer B)
Methoxychlor

❄ ColdPAK required to maintain integrity of product.
† Subject to oxidation

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
Acenaphthylene
Aniline
Anthracene
Azobenzene
Benz[a]anthracene
Benzidine †
Benzo[b]fluoranthene
Benzo[k]fluoranthene
Benzoic acid
Benzo[g,h,i]perylene
Benz[a]pyrene
Benzyl alcohol
4-Bromophenyl phenyl ether
Butyl benzyl phthalate
Carbazole
4-Chloroaniline
bis(2-Chloroethoxy)methane
bis(2-Chloroethyl) ether
bis(2-Chloroisopropyl)ether
4-Chloro-3-methylphenol
2-Chloronaphthalene
2-Chlorophenol
4-Chlorophenyl phenyl ether
Chrysene
o-Cresol
p-Cresol
Dibenz[a,h]anthracene
Dibenzofuran
Di-*n*-butyl phthalate
1,2-Dichlorobenzene
1,3-Dichlorobenzene
1,4-Dichlorobenzene
3,3'-Dichlorobenzidine †
2,4-Dichlorophenol
Diethyl phthalate
2,4-Dimethylphenol
Dimethyl phthalate
4,6-Dinitro-2-methylphenol
2,4-Dinitrophenol
2,4-Dinitrotoluene
2,6-Dinitrotoluene
Di-*n*-octyl phthalate
bis(2-Ethylhexyl)phthalate
Fluoranthene
Fluorene
Hexachlorobenzene
Hexachlorobutadiene
Hexachlorocyclopentadiene
Hexachloroethane
Indeno[1,2,3-cd]pyrene
Isophorone
2-Methylnaphthalene
Naphthalene
2-Nitroaniline
3-Nitroaniline
4-Nitroaniline
Nitrobenzene
2-Nitrophenol
4-Nitrophenol
N-Nitrosodimethylamine
N-Nitrosodiphenylamine
N-Nitrosodi-*n*-propylamine
Pentachlorophenol
Phenanthrene
Phenol
Pyrene
Pyridine
1,2,4-Trichlorobenzene
2,4,5-Trichlorophenol
2,4,6-Trichlorophenol

Internal Standard Analytes

Acenaphthene-d_{10}
Chrysene-d_{12}
1,4-Dichlorobenzene-d_4
Naphthalene-d_8
Perylene-d_{12}
Phenanthrene-d_{10}

Surrogates Analytes

2-Fluorobiphenyl
2-Fluorophenol
Nitrobenzene-d_5
Phenol-d_5
p-Terphenyl-d_{14}
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 — **5 x 1 mL**
At stated conc. (µg/mL) in CH_2Cl_2 — 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 — **1 x 5 mL**
M-8270-IS-WL-2.5X-10ML — **1 x 10 mL**
At stated conc. (µg/mL) in CH_2Cl_2

Working Level Semi-Volatiles Curve
Without Internal Standards

M-8270-CAL-SET — **5 x 1 mL**
At stated conc. (µg/mL) in CH_2Cl_2 — 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 — **1 x 5 mL**
M-8270-WL-2.5X-10ML — **1 x 10 mL**
At stated conc. (µg/mL) in CH_2Cl_2

Method 8270C/D (Continued)

Matrix Spike (SW 846)

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-*n*-propylamine	100
Pentachlorophenol	200	Pyrene	100
Phenol	200	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 — ***SAVE*** — **5 x 1 mL**
50 µg/mL each in CH_2Cl_2 — 4 comps.

Benzidine †	DFTPP
p,p'-DDT	Pentachlorophenol

DFTPP GC/MS Tuning Solution

M-625C-3 — **1 x 1 mL**
M-625C-3-PAK — ***SAVE*** — **5 x 1 mL**
25 µg/mL in CH_2Cl_2

Decafluorotriphenylphosphine *(DFTPP)*

Technical Note

Benzidine and 3,3'-Dichlorobenzidine are easily oxidized and are light sensitive.

† Subject to oxidation

Matrix Spike (3/90 SOW)

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-*n*-propylamine	100
Pentachlorophenol	150	Pyrene	100
Phenol	150	1,2,4-Trichlorobenzene	100
Acenaphthene	100		

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. (µg/mL) in CH_2Cl_2:MeOH (80:20) — 6 comps.

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 — ***SAVE*** — **5 x 1 mL**
At stated conc. (µg/mL) in CH_2Cl_2:MeOH (80:20) — 6 comps.

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. (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	*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.

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.

M-8270-ASL-SET ❄ Alternate Source

Alternate Source Method 8270C/D Set

17 x 1 mL

M-8270-01-ASL **Ethers & Phthalates Mix**
M-8270-02-ASL **Chlorinated Hydrocarbons Mix**
M-8270-03-ASL **Nitrosamines Mix**
M-8270-04-ASL **Base/Neutrals Mix**
M-8270-05-ASL **Base/Neutrals Mix**
M-8270-06-ASL **PAH Mix**
M-8270-07-ASL **Pyridines Mix**
M-8270-08-ASL **Phenols Mix**
M-8270-09-ASL **Organochlorine Pesticide Mix**
M-8270-10-ASL **Pesticide Mix**
M-8270-11-ASL **Toxic Substances Mix**
M-8270-12-ASL **Phenols Mix**
M-8270-13-ASL **Polynuclear Aromatic Hydrocarbon 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 — **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 — 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-*n*-octyl phthalate

Chlorinated Hydrocarbons Mix

M-8270-02-ASL — **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 — 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 — **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 — 9 comps.

- N-Nitrosodi-*n*-butylamine
- N-Nitrosodiethylamine
- N-Nitrosodimethylamine
- N-Nitrosodiphenylamine
- N-Nitrosodi-*n*-propylamine
- N-Nitrosomethylethylamine
- N-Nitrosomorpholine
- N-Nitrosopiperidine
- N-Nitrosopyrrolidine

Base/Neutrals Mix

M-8270-04-ASL — **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 — 13 comps.

- 2-Acetylaminofluorene
- 4-Aminobiphenyl
- 3,3'-Dichlorobenzidine †
- 4-Dimethylaminoazobenzene
- 3,3'-Dimethylbenzidine †
- α,α-Dimethylphenethylamine
- Diphenylamine
- 1-Naphthylamine
- 2-Naphthylamine
- 5-Nitro-*o*-toluidine
- Phenacetin
- *p*-Phenylenediamine
- *o*-Toluidine

Base/Neutrals Mix

M-8270-05-ASL — **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 — 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

❄ ColdPAK required to maintain integrity of product.
† Subject to oxidation

PAH Mix

M-8270-06-ASL — **1 x 1 mL**
2.0 mg/mL each CH_2Cl_2:Benzene (50:50) — 2 comps.

- 7,12-Dimethylbenz[a]anthracene
- 3-Methylcholanthrene

Pyridine Mix

M-8270-07-ASL — **1 x 1 mL**
2.0 mg/mL each in Acetone — 4 comps.

- Methapyrilene
- 4-Nitroquinoline-1-oxide
- 2-Picoline
- Pyridine

Phenol Mix

M-8270-08-ASL — **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 — 8 comps.

- *o*-Cresol
- *m*-Cresol
- *p*-Cresol
- 2,6-Dichlorophenol
- Dinoseb
- Hexachlorophene
- 2,3,4,6-Tetrachlorophenol
- 2,4,5-Trichlorophenol

Organophosphorous Pesticide Mix

M-8270-09-ASL — **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 — 9 comps.

- Dimethoate
- Disulfoton
- Famphur
- Thionazin
- Sulfotep
- O,O,O-Triethylphosphorothioate
- Methyl parathion
- Parathion
- Phorate

Pesticide Mix

M-8270-10-ASL ❄ — **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 — 6 comps.

- Aramite
- Chlorobenzilate
- Diallate
- Isodrin
- Kepone
- Pronamide

Toxic Substance Mix

M-8270-11-ASL — **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 — 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 — *SAVE* — **5 x 1 mL**
4.0 mg/mL each in CH_2Cl_2 — 6 comps.

- Acenaphthene-d_{10}
- Chrysene-d_{12}
- 1,4-Dichlorobenzene-d_4
- Naphthalene-d_8
- Perylene-d_{12}
- Phenanthrene-d_{10}

Alternate Method 8270C/D Formulations continued on the next page

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 — 3 comps.

- 2-Fluorophenol
- Phenol-d_5
- 2,4,6-Tribromophenol

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_2Cl_2 — 3 comps.

- 2-Fluorobiphenyl
- Nitrobenzene-d_5
- *p*-Terphenyl-d_{14}

Phenol Mixture

M-8270-12-ASL — **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 — 11 comps.

- 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

Polynuclear Aromatic Hydrocarbon Mixture

M-8270-13-ASL — **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_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

Organochlorine Pesticide Mix

M-8270-14-ASL — **1 x 1 mL**
2.0 mg/mL each in Acetone — 17 comps.

- Aldrin
- α-BHC
- β-BHC
- δ-BHC
- γ-BHC
- 4,4'-DDD
- 4,4'-DDE
- 4,4'-DDT
- Dieldrin
- Endosulfan I
- Endosulfan II
- Endosulfan sulfate
- Endrin
- Endrin aldehyde
- Heptachlor
- Heptachlor epoxide (Isomer B)
- Methoxychlor

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_2Cl_2 — 10 comps.

- 4-Aminoazobenzene
- 3-Amino-9-ethylcarbazole
- *o*-Anisidine
- 5-Chloro-2-methylaniline
- *p*-Cresidine
- 2,4-Diaminotoluene
- 4,4'-Methylenebis(N,N-dimethylaniline)
- 4,4'-Methylenebis(2-chloroaniline)
- 4,4'-Oxydianiline
- 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-1,2-phenylenediamine
- 4-Chloro-1,3-phenylenediamine

M-8270-14A-R1 — **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 — 7 comps.

- Benzoic acid
- 1-Chloronaphthalene
- Dibenz[a,j]acridine
- Resorcinol
- Thiophenol
- *tris*-(2,3-Dibromopropyl)phosphate
- Tri-*p*-tolyl phosphate

M-8270-14B ❄ — **1 x 1 mL**
2.0 mg/mL each in THF — 5 comps.

- *p*-Benzoquinone
- Hydroquinone
- Maleic anhydride
- Phthalic anhydride
- Trimethyl phosphate

M-8270-14C ❄ — **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_2:MeOH (75:25) — 5 comps.

- 1-Acetyl-2-thiourea
- Diethyl sulfate
- Hexamethylphosphoramide
- 3-Picolyl chloride HCl
- Toluene diisocyanate

❄ ColdPAK required to maintain integrity of product.

M-8270-15 — **1** x 1 **mL**
1.0 mg/mL each in CH_2Cl_2:MeOH (90:10) — 13 comps.

- Dibenz[a,e]pyrene
- 1,2-Dibromo-3-chloropropane
- Diethyl stilbestrol
- 1,2-Dinitrobenzene
- 1,4-Dinitrobenzene
- 5,5-Diphenylhydantoin
- Mestranol
- Nicotine
- 5-Nitroacenapthene
- 5-Nitro-*o*-anisidine
- 4-Nitrobiphenyl
- Propylthiouracil
- Strychnine

Pesticides

M-8270-16 — **1 x 1 mL**
1000 µg/mL each in Acetone:CH_2Cl_2 (25:75) — 10 comps.

- Anilazine
- Azinphos methyl
- Barbamate
- Demeton (mixed isomers)
- Dichlone
- Dioxathion
- Mirex
- Sulfoxide
- Sulfallate
- Trifluralin

M-8270-17 — **1 x 1 mL**
1000 µg/mL each in CH_2Cl_2 — 7 comps.

- Brominal
- Captafol
- Captan
- Dinex
- Dinocap
- Fluchloralin
- Nitrofen

Carbamates/Pesticides

M-8270-18 — **1 x 1 mL**
1000 µg/mL each in CH_2Cl_2 — 6 comps.

- Carbaryl
- Carbofuran
- Ethyl carbamate
- Mexacarbate
- Schradan (Octamethylpyrophosphoramide)
- Phenobarbital

ASL Method 8270C/D Semi-Volatiles by GC/MS Alternate Method 8270 Formulations (Continued)

Alternate Source

Pesticides

M-8270-19 — **1 x 1 mL**
1000 µg/mL each in CH_2Cl_2 — 12 comps.

- Carbophenothion
- Coumaphos
- EPN
- Ethion
- Fensulfothion
- Fenthion
- Leptophos
- Malathion
- Phosalone
- Imidan (Phosmet)
- Terbufos
- Tetrachlorvinphos

M-8270-20 — **1 x 1 mL**
1000 µg/mL each in CH_2Cl_2 — 9 comps.

- Chlorfenvinphos
- Ciodrin (Crotoxyphos)
- Dichlorvos
- Dicrotophos
- Mevinphos
- Monocrotophos
- Naled
- Phosphamidon
- TEPP (Tetraethyl pyrophosphate)

M-8270-21 — **1 x 1 mL**
2.0 mg/mL each in Acetone — 3 comps.

- α-Chlordane
- γ-Chlordane
- Endrin ketone

Semi-Volatile additions

M-8270-22 — **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 — 2 comps.

- Benzidine †
- 3,3'-Dimethoxybenzidine †

APP-9-126-10X — **1 x 1 mL**
1.0 mg/mL in CH_2Cl_2

- Methapyrilene

P-427S-10X — **1 x 1 mL**
1.0 mg/mL in MeOH

- 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

Alternate Source

M-8270-AG01-ASL — **1 x 1 mL**
1000 µg/mL each in CH_2Cl_2:Benzene (75:25) — 64 comps.

- Acenaphthene
- Acenaphthylene
- Anthracene
- Azobenzene
- Benz[a]anthracene
- Benz[a]pyrene
- Benzo[b]fluoranthene
- Benzo[g,h,i]perylene
- Benzo[k]fluoranthene
- Benzyl butyl phthalate
- bis(2-Chloroethoxy)methane
- bis(2-Chloroethyl)ether
- bis(2-Chloroisopropyl)ether
- bis(2-Ethylhexyl)phthalate
- 4-Bromophenyl phenyl ether
- Carbazole
- 4-Chloroaniline
- 2-Chloronaphthalene
- 4-Chloro-3-methylphenol
- 2-Chlorophenol
- 4-Chlorophenyl phenyl ether
- Chrysene
- Dibenz[a,h]anthracene
- Dibenzofuran
- Dibutyl phthalate
- 1,2-Dichlorobenzene
- 1,3-Dichlorobenzene
- 1,4-Dichlorobenzene
- 2,4-Dichlorophenol
- Diethyl phthalate
- 2,4-Dimethylphenol
- 4,6-Dinitro-2-methylphenol
- 2,4-Dinitrophenol
- Dimethyl phthalate
- 2,4-Dinitrotoluene
- 2,6-Dinitrotoluene
- Di-*n*-octyl phthalate
- Fluoranthene
- Fluorene
- Hexachlorobenzene
- Hexachlorobutadiene
- Hexachlorocyclopentadiene
- Hexachloroethane
- Indeno[1,2,3-cd]pyrene
- Isophorone
- 2-Methylnaphthalene
- *o*-Cresol
- *p*-Cresol
- Naphthalene
- 2-Nitroaniline
- 3-Nitroaniline
- 4-Nitroaniline
- Nitrobenzene
- 2-Nitrophenol
- 4-Nitrophenol
- *n*-Nitrosodimethylamine
- N-Nitrosodi-*n*-propylamine
- Pentachlorophenol
- Phenanthrene
- Phenol
- Pyrene
- 1,2,4-Trichlorobenzene
- 2,4,5-Trichlorophenol
- 2,4,6-Trichlorophenol

M-8270-AG02-ASL Alternate Source — **1 x 1 mL**
1000 µg/mL each in CH_2Cl_2 — 39 comps.

- Aniline
- Acetophenone
- 2-Acetamidofluorene
- 4-Aminobiphenyl
- Benzyl alcohol
- 2,6-Dichlorophenol
- 4-Dimethylaminoazobenzene
- 7,12-Dimethylbenz[a]anthracene
- 1,3-Dinitrobenzene
- Dinoseb
- Diphenylamine
- Ethyl methanesulfonate
- Hexachloropropene
- Isosafrole
- Methapyrilene
- 3-Methylcholanthrene
- Methyl methanesulfonate
- *m*-Cresol
- 1-Naphthylamine
- 2-Naphthylamine
- 4-Nitroquinoline-N-oxide
- N-Nitrosodi-*n*-butylamine
- N-Nitrosodiethylamine
- N-Nitrosomethylethylamine
- N-Nitrosomorpholine
- N-Nitrosopiperidine
- N-Nitrosopyrrolidine
- 5-Nitro-*o*-toluidine
- Pentachlorobenzene
- Pentachloronitrobenzene
- Pentachloroethane
- Phenacetin
- 2-Picoline
- Pyridine
- Safrole
- 1,2,4,5-Tetrachlorobenzene
- 2,3,4,6-Tetrachlorophenol
- 1,3,5-Trinitrobenzene
- *o*-Toluidine

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 CH_2Cl_2 — 14 comps.

- Chlorobenzilate
- Diallate
- 2,4-D
- Dimethoate
- Dinoseb
- Disulfoton
- Famphur
- Kepone
- Methyl parathion
- Parathion
- Phorate
- Silvex (2,4,5-TP)
- Sulfotep
- Thionazin

APP-9-014-D-10X — **1 x 1 mL**
2.0 mg/mL in CH_2Cl_2

- Aramite

Additions to Method 8270

M-8270-13A-R — **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 — 12 comps.

- 4-Aminoazobenzene
- 3-Amino-9-ethylcarbazole
- *o*-Anisidine
- 5-Chloro-2-methylaniline
- p-Cresidine
- 2,4-Diaminotoluene
- 4,4'-Methylenebis(N,N-dimethylaniline)
- 4,4'-Methylene bis(2-chloroaniline)
- 4,4'-Oxydianiline
- 2-Picoline
- Pyridine
- 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-1,2-phenylenediamine
- 4-Chloro-1,3-phenylenediamine

M-8270-14A-R1 — **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 — 7 comps.

- Benzoic acid
- 1-Chloronaphthalene
- Dibenz[a,j]acridine
- Resorcinol
- Thiophenol
- tris-(2,3-Dibromopropyl)phosphate
- Tri-p-tolyl phosphate

M-8270-14B — **1 x 1 mL**
2.0 mg/mL each in THF — 5 comps.

- *p*-Benzoquinone
- Hydroquinone
- Maleic anhydride
- Phthalic anhydride
- Trimethyl phosphate

M-8270-14C ❄ — **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_2:MeOH (75:25) — 5 comps.

- 1-Acetyl-2-thiourea
- Diethyl sulfate
- Hexamethylphosphoramide
- 3-Picolyl chloride HCl
- Toluene diisocyanate

M-8270-15 — **1 x 1 mL**
1.0 mg/mL each in CH_2Cl_2:MeOH (90:10) — 13 comps.

- Dibenz[a,e]pyrene
- 1,2-Dibromo-3-chloropropane
- Diethyl stilbestrol
- 1,2-Dinitrobenzene
- 1,4-Dinitrobenzene
- 5,5-Diphenylhydantoin
- Mestranol
- Nicotine
- 5-Nitroacenapthene
- 5-Nitro-*o*-anisidine
- 4-Nitrobiphenyl
- Propylthiouracil
- Strychnine

Pesticides

M-8270-16 — **1 x 1 mL**
1000 µg/mL each in AcetoneCH_2Cl_2 (25:75) — 10 comps.

- Anilazine
- Azinphos methyl
- Barbamate
- Demeton (mixed isomers)
- Dichlone
- Dioxathion
- Mirex
- Sulfoxide
- Sulfallate
- Trifluralin

Pesticides

M-8270-17 — **1 x 1 mL**
1000 µg/mL each in CH_2Cl_2 — 7 comps.

- Brominal
- Captafol
- Captan
- Dinex
- Dinocap
- Fluchloralin
- Nitrofen

Carbamates/Pesticides

M-8270-18 — **1 x 1 mL**
1000 µg/mL each in CH_2Cl_2 — 6 comps.

- Carbaryl
- Carbofuran
- Ethyl carbamate
- Mexacarbate
- Schradan (Octamethylpyrophosphoramide)
- Phenobarbital

Pesticides

M-8270-19 — **1 x 1 mL**
1000 µg/mL each in CH_2Cl_2 — 12 comps.

- Carbophenothion
- Coumaphos
- EPN
- Ethion
- Fensulfothion
- Fenthion
- Leptophos
- Malathion
- Phosalone
- Imidan (Phosmet)
- Terbufos
- Tetrachlorvinphos

M-8270-20 — **1 x 1 mL**
1000 µg/mL each in CH_2Cl_2 — 9 comps.

- Chlorfenvinphos
- Ciodrin (Crotoxyphos)
- Dichlorvos
- Dicrotophos
- Mevinphos
- Monocrotophos
- Naled
- Phosphamidon
- TEPP (Tetraethyl pyrophosphate)

Semi-Volatile additions

M-8270-22 — **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 — 2 comps.

- Benzidine †
- 3,3'-Dimethoxybenzidine †

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
- α-BHC
- β-BHC
- γ-BHC
- δ-BHC
- α-Chlordane
- γ-Chlordane
- 4,4'-DDD
- 4,4'-DDE
- 4,4'-DDT
- Dieldrin
- Endosulfan I
- Endosulfan II
- Endosulfan sulfate
- Endrin
- Endrin aldehyde
- Endrin ketone
- Heptachlor
- Heptachlor epoxide (Isomer B)
- Methoxychlor

Semi-Volatile additions

M-8270-23-R1 — **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 — 4 comps.

- 3,3'-Dichlorobenzidine †
- 3,3'-Dimethylbenzidine †
- *a,a*-Dimethylphenethylamine
- *p*-Phenylenediamine

M-8270-24 — **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 — 4 comps

- Hexachlorophene
- Isodrin
- Pronamide
- *o,o,o*-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_2Cl_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	Fluranthene-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_2Cl_2 — 6 comps.

Acenaphthene-d_{10}	Naphthalene-d_8
Chrysene-d_{12}	Perylene-d_{12}
1,4-Dichlorobenzene-d_4	Phenanthrene-d_{10}

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

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

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

Method 8310 PAHs by HPLC

PAH Mixture

M-8310 **1 x 1 mL**
M-8310-PAK ***SAVE*** **5 x 1 mL**
0.5 mg/mL each in AcCN 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

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 ***SAVE*** **5 x 1 mL**
0.1 mg/mL in Acetonitrile

Decafluorobiphenyl

Internal Standard Post Supercritical Fluid Extraction

M-8310-SFE-IS-100X **1 x 1 mL**
M-8310-SFE-IS-100X-PAK ***SAVE*** **5 x 1 mL**
20 mg/mL in AcCN:THF (50:50)

Biphenyl

Florida Method PAH Mixture

Z-014G-FL **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_2: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 ***SAVE*** **5 x 1 mL**
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 ***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

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

Polynuclear Aromatic Hydrocarbons (HPLC)

M-8310-FL **1 x 1 mL**
M-8310-FL-PAK ***SAVE*** **5 x 1 mL**
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 ***SAVE*** **5 x 1 mL**
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

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 2 comps.

Acetaldehyde
Formaldehyde

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 2 comps.

Acetaldehyde-DNPH
Formaldehyde-DNPH

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 12 comps.

Acetaldehyde
Butanal (Butyraldehyde)
Crotonaldehyde
Cyclohexanone
Decanal
Formaldehyde
Heptanal
Hexanal (Hexaldehyde)
Nonanal
Octanal
Pentanal (Valeraldehyde)
Propanal (Propionaldehyde)

Carbonyl DNPH Derivative Mixture

M-8315-R1-DNPH **1 x 1 mL**
0.1 mg/mL each in AcCN 12 comps.

Acetaldehyde-DNPH
Butanal-DNPH (Butyraldehyde)
Crotonaldehyde-DNPH
Cyclohexanone-DNPH
Decanal-DNPH
Formaldehyde-DNPH
Heptanal-DNPH
Hexanal-DNPH (Hexaldehyde)
Nonanal-DNPH
Octanal-DNPH
Pentanal-DNPH (Valeraldehyde)
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 15 comps.

Acetaldehyde
Acetone
Acrolein
Benzaldehyde
Butanal (Butyraldehyde)
Crotonaldehyde
2,5-Dimethylbenzaldehyde
Formaldehyde
Hexanal (Hexaldehyde)
Isovaleraldehyde
Pentanal (Valeraldehyde)
Propanal (Propionaldehyde)
m-Tolualdehyde
o-Tolualdehyde
p-Tolualdehyde

Method 8316 Acrolein, Acrylamide, Acrylonitrile by HPLC

M-8316 ❄ **1 x 1 mL**
1.0 mg/mL each in Water 3 comps.

Acrolein
Acrylamide
Acrylonitrile

❄ 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 15 comps.

Acetaldehyde-DNPH
Acetone-DNPH
Acrolein-DNPH
Benzaldehyde-DNPH
Butanal-DNPH (Butyraldehyde)
Crotonaldehyde-DNPH
2,5-Dimethylbenzaldehyde-DNPH
Formaldehyde-DNPH
Hexanalv (Hexaldehyde)
Isovaleraldehyde-DNPH
Pentanal-DNPH (Valeraldehyde)
Propanal-DNPH (Propionaldehyde)
m-Tolualdehyde-DNPH
o-Tolualdehyde-DNPH
p-Tolualdehyde-DNPH

Carbonyl Compound Set

M-8315-R3-10X-SET **20 x 1 mL**
Each at 1.0 mg/mL in AcCN

Acetaldehyde
Acetone
Acrolein
Benzaldehyde
Butanal (Butyraldehyde)
Crotonaldehyde
Cyclohexanone
Decanal
2,5-Dimethylbenzaldehyde
Formaldehyde
Heptanal
Hexanal (Hexaldehyde)
Isovaleraldehyde
Nonanal)
Octanal
Pentanal (Valeraldehyde)
Propanal (Propionaldehyde)
m-Tolualdehyde
o-Tolualdehyde
p-Tolualdehyde

Carbonyl DNPH Derivative Set

M-8315-R-DNPH-SET **20 x 1 mL**
Each at 0.1 mg/mL in AcCN 20 comps.

Acetaldehyde-DNPH
Acetone-DNPH
Acrolein-DNPH
Benzaldehyde-DNPH
Butanal-DNPH (Butyraldehyde)
Crotonaldehyde-DNPH
Cyclohexanone-DNPH
Decanal-DNPH
2,5-Dimethylbenzaldehyde-DNPH
Formaldehyde-DNPH)
Heptanal-DNPH
Hexanal-DNPH (Hexaldehyde)
Isovaleraldehyde-DNPH
Nonanal-DNPH
Octanal-DNPH
Pentanal-DNPH (Valeraldehyde)
Propanal-DNPH (Propionaldehyde)
m-Tolualdehyde-DNPH
o-Tolualdehyde-DNPH
p-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 10 comps.

M-8318-SET **10 x 1 mL**
Each at 0.1 mg/mL in MeOH

Aldicarb
Aldicarb sulfone
Carbaryl
Carbofuran
Dioxacarb
3-Hydroxycarbofuran
Methiocarb
Methomyl
Promecarb
Propoxur

EPA Method 8000 Series

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 CH_2Cl_2 4 comps.

Butyltin trichloride	Tetrabutyltin
Dibutyltin dichloride	Tributyltin chloride

Organometallic Phenyltin Chloride Standard

OMT-002 **1 x 1 mL**
OMT-002-PAK ***SAVE*** **5 x 1 mL**
2000 µg/mL each in CH_2Cl_2 4 comps.

Diphenyltin dichloride	Tetraphenyltin
Phenyltin trichloride	Triphenyltin chloride

Tri-*n*-propyltin Surrogate Standard

OMT-003 **1 x 1 mL**
OMT-003-PAK ***SAVE*** **5 x 1 mL**
2000 µg/mL in CH_2Cl_2

Tri-*n*-propyltin chloride

Tripentyltin Chloride Surrogate Standard

OMT-004 **1 x 1 mL**
OMT-004-PAK ***SAVE*** **5 x 1 mL**
2000 µg/mL in CH_2Cl_2

Tripentyltin chloride

Tetra-*n*-propyltin Internal Standard

OMT-005 **1 x 1 mL**
OMT-005-PAK ***SAVE*** **5 x 1 mL**
2000 µg/mL in CH_2Cl_2

Tetra-*n*-propyltin

Tetrapentyltin Internal Standard

OMT-006 **1 x 1 mL**
OMT-006-PAK ***SAVE*** **5 x 1 mL**
2000 µg/mL in CH_2Cl_2

Tetrapentyltin

Thousands of Standards, just a click away

AccuStandard.com

❄ ColdPAK required to maintain integrity of product.
† Subject to oxidation

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
Trimethylolethane 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

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.

❄ ColdPAK required to maintain integrity of product.

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

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 CH_2Cl_2 — 2 comps.

1-Fluoronaphthalene	*p*-Terphenyl-d_{14}

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 — 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		

❄ 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
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Explosives	8095, 8330	38407-17, 38407-21	

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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',3,4,5'-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',4,4,5,5',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

Dioxins: Calibration & Window Defining Mixtures (Canadian Environmental Methods)

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

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

PAH Mixture
Quebec Ministry of Environment

PAH Standard

H-QME-01 **1 x 1 mL**
500 µg/mL each in CH_2Cl_2 : 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
n-Decane	12.5	25	50	125	250
n-Hexane	12.5	25	50	125	250
Toluene	12.5	25	50	125	250
Benzene	12.5	25	50	125	250
o-Xylene	12.5	25	50	125	250
m-Xylene	6.25	12.5	25	62.5	125
p-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
n-Decane	40	200	400
n-Hexadecane	40	200	400
n-Tetratriacontane	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 : CH_2Cl_2 (85:15) 11 comps.

Acenapthene	*n*-Dotriacontane
Anthracene	*n*-Heneicosane
Benz[a]pyrene	*n*-Hexadecane
Chrysene	*n*-Octaconsane
n-Decane	Naphthalene
n-Dodecane	

Surrogate Standard

CCME-EPH/SS **1 x 1 mL**
1000 µg/mL each in CH_2Cl_2 2 comps.

n-Dotriacontane Isobutylbenzene

Canadian Atlantic RBCA VPH Mix

CCME-VPH **1 x 1 mL**
1000 µg/mL each in MeOH 12 comps.

Benzene	*n*-Octane
n-Decane	Toluene
Ethylbenzene	1,2,4-Trimethylbenzene
n-Heptane	1,3,5-Trimethylbenzene
n-Hexane	*o*-Xylene
1-Methyl-3-ethylbenzene	*p*-Xylene

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

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 — 22 comps.

Bromoform	*trans*-1,2-Dichloroethene	
Carbon tetrachloride	1,1-Dichloroethene	
Chlorobenzene	1,2-Dichloropropane	
Chloroform	*cis*-1,3-Dichloropropene	
Dibromochloromethane	*trans*-1,3-Dichloropropene	
1,2-Dibromoethane	Methylene chloride	
1,2-Dichlorobenzene	1,1,2,2-Tetrachloroethane	
1,3-Dichlorobenzene	Tetrachloroethene	
1,4-Dichlorobenzene	1,1,1-Trichloroethane	
1,2-Dichloroethane	1,1,2-Trichloroethane	**Certificate will reflect actual cis/trans ratio**
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 — 5 comps.

Bromomethane	Trichlorofluoromethane
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 — 7 comps.

Benzene	*o*-Xylene
Ethylbenzene	*m*-Xylene
Styrene	*p*-Xylene
Toluene	

Group 18: Volatiles, Water Soluble

MISA-VWS — **1 x 1 mL**
2.0 mg/mL each in Water — 2 comps.

Acrolein	Acrylonitrile

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_2Cl_2 : 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]fluroanthene	Naphthalene
Benzo[ghi]perylene	Phenanthrene
Benzo[k]fluoranthene	Pyrene

MISA-BN-1 — **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 — 8 comps.

Biphenyl	1-Methylnaphthalene
Camphene	2-Methylnaphthalene
1-Chloronaphthalene	5-Nitroacenaphthene
2-Chloronaphthalene	Perylene

MISA-BN-2 — **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 — 8 comps.

Benzyl butyl phthalate	4-Chlorophenyl phenyl ether
4-Bromophenyl phenyl ether	Di-*n*-butyl phthalate
bis(2-Chloroethyl)ether	Di-*n*-octyl phthalate
bis(2-Chloroisopropyl)ether	bis(2-Ethylhexyl)phthalate

MISA-BN-3 — **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 — 8 comps.

bis(2-Chloroethoxy)methane	Diphenylether
2,4-Dinitrotoluene	Indole
2,6-Dinitrotoluene	N-Nitroso-diphenylamine
Diphenylamine	N-Nitroso-di-*n*-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_2Cl_2 — 20 comps.

4-Chloro-3-methylphenol	4-Nitrophenol
2-Chlorophenol	Pentachlorophenol
o-Cresol	Phenol
m-Cresol	2,3,4,5-Tetrachlorophenol
p-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 — 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

Group 23: Extractables, Chlorinated Neutrals

MISA-NC — **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 — 12 comps.

Hexachlorobenzene	1,2,3,4-Tetrachlorobenzene
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 µg/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

Regional Standards
European Methodologies

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
Trichloroethene
Tetrachloroethene
Dichloromethane
Tetrachloromethane

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
Toluene
Ethylbenzene
Chlorobenzene
1,4-Dichlorobenzene
o-Xylene
m-Xylene
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
Trichloromethane
Carbon tetrachloride
1,1-Dichloroethane
1,2-Dichloroethane
1,1,1-Trichloroethane
1,1,2-Trichloroethane
Trichloroethene
Tetrachloroethene
1,2-Dichloropropane
1,3-Dichloropropane
1,3-Dichloropropene
Dibromomethane
Tribromoethene
Bromochloromethane
Bromodichloromethane
Dibromochloromethane

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
Tetrachloroethene
Tetrachloromethane
1,1,1-Trichloroethane
Trichloroethene

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
Dichloromethane
Tetrachloroethene
Tetrachloromethane
1,1,1-Trichlorothane
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
2-Nitrotoluene
4-Nitrotoluene
1,3-Dinitrobenzene
2,6-Dinitrotoluene
2,4-Dinitrotoluene
3,4-Dinitrotoluene
2-Amino-6-nitrotoluene
4-Amino-2-nitrotoluene
4-Amino-2,6-dinitrotoluene
2-Amino-4,6-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
HMX
RDX
Tetryl
EGDN
DEGDN
Nitroglycerin
TNT
2-Nitrotoluene
PETN
4-Nitrotoluene
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 **1 x 1 mL**
2 µg/mL each in Acetonitrile 6 comps.

- Fluoranthene
- Benzo[b]fluoranthene
- Benzo[g,h,i]perylene
- Benz[a]pyrene
- Benzo[k]fluoranthene
- 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 **1 x 1 mL**
10 µg/mL each in Acetonitrile 15 comps.

- Naphthalene
- Acenaphthene
- Fluorene
- Phenanthrene
- Anthracene
- Fluoranthene
- Chrysene
- Benzo(b)fluoranthene
- Benzo[k]fluoranthene
- Benz[a]pyrene (Ames grade)
- Dibenz[a,h]anthracene
- Benzo[g,h,i]perylene
- Pyrene
- Benz[a]anthracene
- Indeno[1,2,3-cd]pyrene

DIN 38414-23 PAHs

Determination of 15 PAHs in water, waste water and sludge by HPLC and Fluorescence detection.

DIN38414-23 **1 x 1 mL**
10 µg/mL each in Acetonitrile 15 comps.

- Naphthalene
- Acenaphthene
- Fluorene
- Phenanthrene
- Anthracene
- Fluoranthene
- Chrysene
- Benzo[b]fluoranthene
- Benzo[k]fluoranthene
- Benz[a]pyrene (Ames grade)
- Dibenz[a,h]anthracene
- Benzo[g,h,i]perylene
- Pyrene
- Benz[a]anthracene
- Indeno[1,2,3-cd]pyrene

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 **1 x 1 mL**
AE-00025-10ML **1 x 10 mL**
At stated conc. (µg/mL) in Acetonitrile 16 comps.

Acenaphthene	25	Chrysene	20
Acenaphthylene	25	Dibenz[a,h]anthracene	40
Anthracene	25	Fluoranthene	40
Benz[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
Benz[a]pyrene	20	Pyrene	40

PAH Mix #2

For European methods according to customer requests.

AE-00045 **1 x 1 mL**
AE-00045-10ML **1 x 10 mL**
At stated conc. (µg/mL) in Acetonitrile 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
Benz[a]pyrene	2		

PAH Mix #3

German method for drinking water analysis.

AE-00032 **1 x 1 mL**
AE-00032-10ML **1 x 10 mL**
10 µg/mL each in Acetonitrile 7 comps.

- Benzo[b]fluoranthene
- Benzo[k]fluoranthene
- Benzo[g,h,i,]perylene
- Benz[a]pyrene
- Fluoranthene
- Indeno[1,2,3,cd]pyrene
- Perylene

PAH Mix #4

For European methods according to customer requests.

AE-00033 **1 x 1 mL**
AE-00033-10ML **1 x 10 mL**
At stated conc. (µg/mL) in Acetonitrile 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
Benz[a]pyrene	20		

ISO/DIS 22032 PBDEs in Sediment & Sludge

Draft International Standard

ISO/DIS 22032 Calibration Curve Set

ISO/DIS-22032-SET **7 x 1 mL**
At stated conc. (ng/mL) in Isooctane 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 **1 x 5 mL**
ISO22032-IS-1-10ML **1 x 10 mL**
100 ng/mL each in Isooctane

3,3',4,4'-Tetrabromodiphenyl ether

Internal Standard for BDE No. 153, 154 and 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

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.

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

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

Halo Acetic Acids

DIN 38407-25 Selected Halo Acetic Acids

DIN38407-25 **1 x 1 mL**
10 µg/mL in MtBE 7 comps.

Bromochloroacetic acid
Dalapon
Dibromoacetic acid
Dichloroacetic acid
Bromoacetic acid
Chloroactic acid
Trichloroacetic acid

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

EFSA-ITX-02 **1 x 1 mL**
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**
At stated conc. (µg/mL) in Toluene 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'-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**
10 µg/mL each in Toluene 22 comps.

Anilazine	Tecnacene
Captan	Tetradifon
Chlorthalonil	Tetrasul
Clorfenson	Tridiamefon
Dichlofluanid	Tridiamenol
Dicofol	Trifluarin
Endosulfan sulfate	Pentachloroaniline
Fenson	Procymidon
Folpet	Propyzamid
Imazalil	Quintozen
Iprodion	Vinclozolin

Pesticide Mix #3

AE-00012 **1 x 1 mL**
AE-00012-10ML **1 x 10 mL**
At stated conc. (µg/mL) in Toluene 10 comps.

Captafol	200
Captan	100
Demethon-S-methyl	500
Demethon-S-methyl-sulfone	500
Dicofol	200
Pentachlorophenol	100
Tetrachlorvinphos	10
Trichlorfon	100
Tolyfluanid	100
Vamidithion	200

Pesticide Mix #4

AE-00013 **1 x 1 mL**
AE-00013-10ML **1 x 10 mL**
At stated conc. (µg/mL) in Toluene 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**
At stated conc. (µg/mL) in Ethyl acetate 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**
1000 µg/mL in Acetonitrile

Tetrachlorvinphos

Pesticide Mix #6

AE-00015 **1 x 1 mL**
AE-00015-10ML **1 x 10 mL**
At stated conc. (µg/mL) in Toluene 8 comps.

Chlorpyriphos-methyl	100
Diazinon	100
Ethion	100
Etrimfos	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**
At stated conc. (µg/mL) in Toluene 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**
At stated conc. (µg/mL) in Toluene:Acetone:Hexane (90:5:5) 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**
At stated conc. (µg/mL) in Toluene 9 comps.

Azinphos ethyl	100
Fenchlorvos	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**
At stated conc. (µg/mL) in Toluene 7 comps.

Benalaxyl	500
Carbaryl	500
Oxadixyl	500
Terbuthylazine	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.

Carbophenthion	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
Chlorpyriphos	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, BGBI, 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
Desethylterbuthylazine	Sebuthylazin
Dimefuron	Simazine
Diuron	Terbutryn
Isoproturon	Terbuthylazine
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	Terbuthylazine
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	Terbuthylazine

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	Terbuthylazine

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	MCPP 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

Regional Standards
European Methodologies

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
- Cyanazine
- Metazachlor
- Parathion
- Methyl parathion
- Pendimethalin
- Propazine
- Sebuthylazin
- Simazine
- Terbuthylazine
- Trifluralin
- 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
- Chlortoluron
- Cyanazine
- Desethyl atrazine
- Hexazinone
- Isoproturon
- Karmex (Diuron)
- Linuron
- Metazachlor
- Methabenzthiazuron
- Metobromuron
- Metolachlor
- Metoxuron
- Monolinuron
- Sebuthylazin
- Simazine
- Terbuthylazine

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
- β-BHC
- γ-BHC
- δ-BHC
- o,p'-DDE
- p,p'-DDE
- o,p'-DDT
- o,p'-DDD
- p,p'-DDD
- p,p'-DDT
- Methoxychlor
- Aldrin
- Dieldrin
- Endrin
- Heptachlor
- Heptachlor epoxide (Isomer A)
- Heptachlor epoxide (Isomer B)
- Endosulfan I
- Endosulfan II

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
- p,p'-DDD
- o,p'-DDE
- p,p'-DDE
- o,p'-DDT
- p,p'-DDT
- Dieldrin
- Endosulfan I
- Endosulfan II
- Endrin
- Heptachlor
- Heptachlor epoxide (Isomer A)
- Heptachlor epoxide (Isomer B)
- α-BHC
- β-BHC
- γ-BHC
- Methoxychlor

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
- Atrazine
- Chlorfenvinphos
- Chlortoluron
- Cyanazine
- 2,4-D
- MCPA acid
- Metazachlor
- Metobromuron
- Metolachlor
- Metoxuron
- Monuron
- Parathion
- Pendimethalin
- Propazine
- Sebuthylazin
- Simazine
- 2,4,5-T
- Terbuthylazine
- Trifluralin
- Vinclozolin

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
- MCPA acid
- Dichlorprop acid
- 2,4-D acid
- Fenoprop acid
- MCPB acid
- 2,4,5-T 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
- 2,5-Dinitrophenol
- 2,6-Dinitrophenol
- 2-Methyl-4,6-dinitrophenol
- 2,6-Dimethyl-4-nitrophenol
- 2,4-Dichlor-6-nitrophenol
- 2,6-Dichlor-4-nitrophenol
- 2-Nitrophenol
- 3-Nitrophenol
- 4-Nitrophenol
- 4-Methyl-2-nitrophenol
- 3-Methyl-4-nitrophenol
- 5-Methyl-2-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-Dodecane
n-Tetradecane
n-Hexadecane
n-Octadecane
n-Eicosane
n-Docosane
n-Tetracosane
n-Hexacosane
n-Octacosane
n-Triacontane
n-Dotriacontane
n-Tetratriacontane
n-Hexatriacontane
n-Octatriacontane
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

Florisil 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
Acetone-DNPH
Acrolein-DNPH
Benzaldehyde-DNPH
Butanal-DNPH
Methyl ethyl ketone-DNPH
Crotonaldehyde-DNPH
Formaldehyde-DNPH (40 µg/mL)
Hexanal-DNPH
Methacrolein-DNPH
Propionaldehyde-DNPH
p-Tolualdehyde-DNPH
Valeraldehyde-DNPH

Cyclohexanone
AE-00046 **1 x 1 mL**
500 µg/mL in Acetonitrile

Cyclohexanone-DNPH

Carbonyl-DNPH Mix #2
AE-00044 **1 x 1 mL**
2 µg/mL each in Acetonitrile, except where indicated 14 comps.

Acetaldehyde-DNPH
Acetone-DNPH
Acrolein-DNPH
Benzaldehyde-DNPH
Butanal-DNPH
n-Butyraldehyde-DNPH
Crotonaldehyde-DNPH
Cyclohexanone-DNPH (5 µg/mL)
Formaldehyde-DNPH (4 µg/mL)
Hexanal-DNPH
Methacrolein-DNPH
Propionaldehyde-DNPH
p-Tolualdehyde-DNPH
Valeraldehyde-DNPH

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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

Method of Interests

Japanese Methods JIS-K0311 and JIS-K0312
See EPA Method 1613 Dioxins & Furans

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

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-d_4
- 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

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	*m*-Tolualdehyde-DNPH	7.5
n-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 CH_2Cl_2: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 — ***SAVE*** — **5 x 1 mL**
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 — ***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

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

Polynuclear Aromatic Hydrocarbons (HPLC)

M-8310-FL — **1 x 1 mL**
M-8310-FL-PAK — ***SAVE*** — **5 x 1 mL**
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 — ***SAVE*** — **5 x 1 mL**
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

Minnesota Method 465-D

List of Volatiles

Liquids

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.

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

Certificate will reflect actual cis/trans ratio

Gases

M-465B-10X — **1 x 1 mL**
M-465B-10X-PAK — ***SAVE*** — **5 x 1 mL**
0.2 mg/mL each in MeOH — 7 comps.

Bromomethane
Chloroethane
Chloromethane
Dichlorodifluoromethane
Dichlorofluoromethane
Trichlorofluoromethane
Vinyl chloride

M-465D-ADD-R ❄ — **1 x 1 mL**
0.2 mg/mL each in MeOH — 8 comps.

Acetone
Allyl chloride
Ethyl ether
Methyl ethyl ketone
Methyl isobutyl ketone
Methyl-*t*-butyl ether
Tetrahydrofuran
Trichlorotrifluoroethane

Method 465-D Volatiles Set

M-465D-SET ❄ — **3 x 1 mL**
M-465D-SET-PAK ❄ — ***SAVE*** — **5 x (3 x 1 mL)**
M-502A-R, M-465B-10X, M-465D-ADD-R

❄ ColdPAK required to maintain integrity of product.

Pesticides & Herbicides

List 1 - Pesticide Standard

MDA-PEST-01-R1 — **1 x 1 mL**
MDA-PEST-01-R1-PAK — ***SAVE*** — **5 x 1 mL**
500 µg/mL each in CH_2Cl_2 — 22 comps.

Acetochlor	Desethyl atrazine	Ethalfluralin	Phorate	Simazine
Alachlor	Dimethenamid	Metolachlor	Propachlor	Terbufos
Atrazine	Dursban	Metribuzin	Prometon	Triallate
Atrazine-desisopropyl	Dyfonate	Pendimethalin	Propazine	Trifluralin
Cyanazine	EPTC			

List 2 - Herbicide Acids Standards

MDA-HERB-01 — **1 x 1 mL**
At stated conc. (mg/mL) in Acetone — 9 comps.

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

Butylate

P-088S-10X — **1 x 1 mL**
1000 µg/mL in MeOH

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 — **1 x 1 mL**
2.0 mg/mL each in MeOH — 52 comps.

Benzene
Bromobenzene
Bromodichloromethene
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
Hexachlorobutadiane
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

Biocides

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.

Biocides in fracking fluids

see page 305

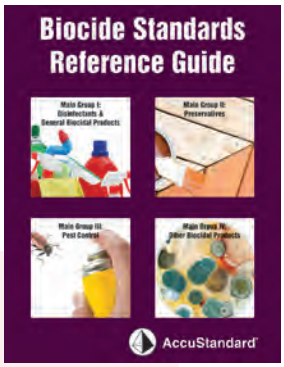
The underground gas and petroleum production enhancement process of fracking has generated much attention. There is concern about potential short and long-term adverse health effects and environmental contamination associated with the process.

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.

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



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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

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 19.3 Wt.% in Water	1 mL
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
Benzyldimethyldodecylammonium 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 100 µg/mL in Acetonitrile	1 mL
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	1897-45-6	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 1000 µg/mL in 2-5% Nitric acid	100 mL
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 100 µg/mL in Methanol	1 mL
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
Didecyldimethylammonium chloride	7173-51-5	I, II / 1, 2, 3, 4, 6, 7, 8, 9, 10, 11, 12, 13	BIOC-030N-10MG BIOC-030S 100 µg/mL in Methanol	10 mg 1 mL
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 100 µg/mL in Dichloromethane	1 mL
Diflubenzuron	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 butylacetcylaminopropionate	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 100 µg/mL in Methanol	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 1000 µg/mL in 2-5% Nitric acid	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
Terbuthylazine	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
Tolylfluanide	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 100 µg/mL in Acetonitrile	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 pyrithione	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.

Compound	CAS	Each at 10 µg/mL in AcCN, 1 mL Cat. No.
2,3-Dibromo-5,6-dimethyl-1,4-benzoquinone	38969-08-3	HBQ-001S
2,6-Dichloro-1,4-benzoquinone	697-91-6	HBQ-002S
2,5-Dibromo-1,4-benzoquinone	1633-14-3	HBQ-003S
2,3,5,6-Tetrabromo-1,4-benzoquinone	488-48-2	HBQ-004S
3,4,5,6-Tetrabromo-1,2-benzoquinone	2435-54-3	HBQ-005S
2,6-Dibromo-3,5-dimethyl-1,4-benzoquinone	87405-27-4	HBQ-006S
2,6-Dibromo-3-chloro-5-methyl-1,4-benzoquinone		HBQ-007S

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_2Cl_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_2Cl_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

Compound	CAS No.	Each at 100 µg/mL in MeOH, 1 mL 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

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-d_3

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-d_8

ASTM D5837 Furanic Compound Extraction in Electrical Insulationg Liquids by HPLC

Furanic Compound Extraction Standard
D-5837-01 **1 x 1mL**
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 1mL**
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.

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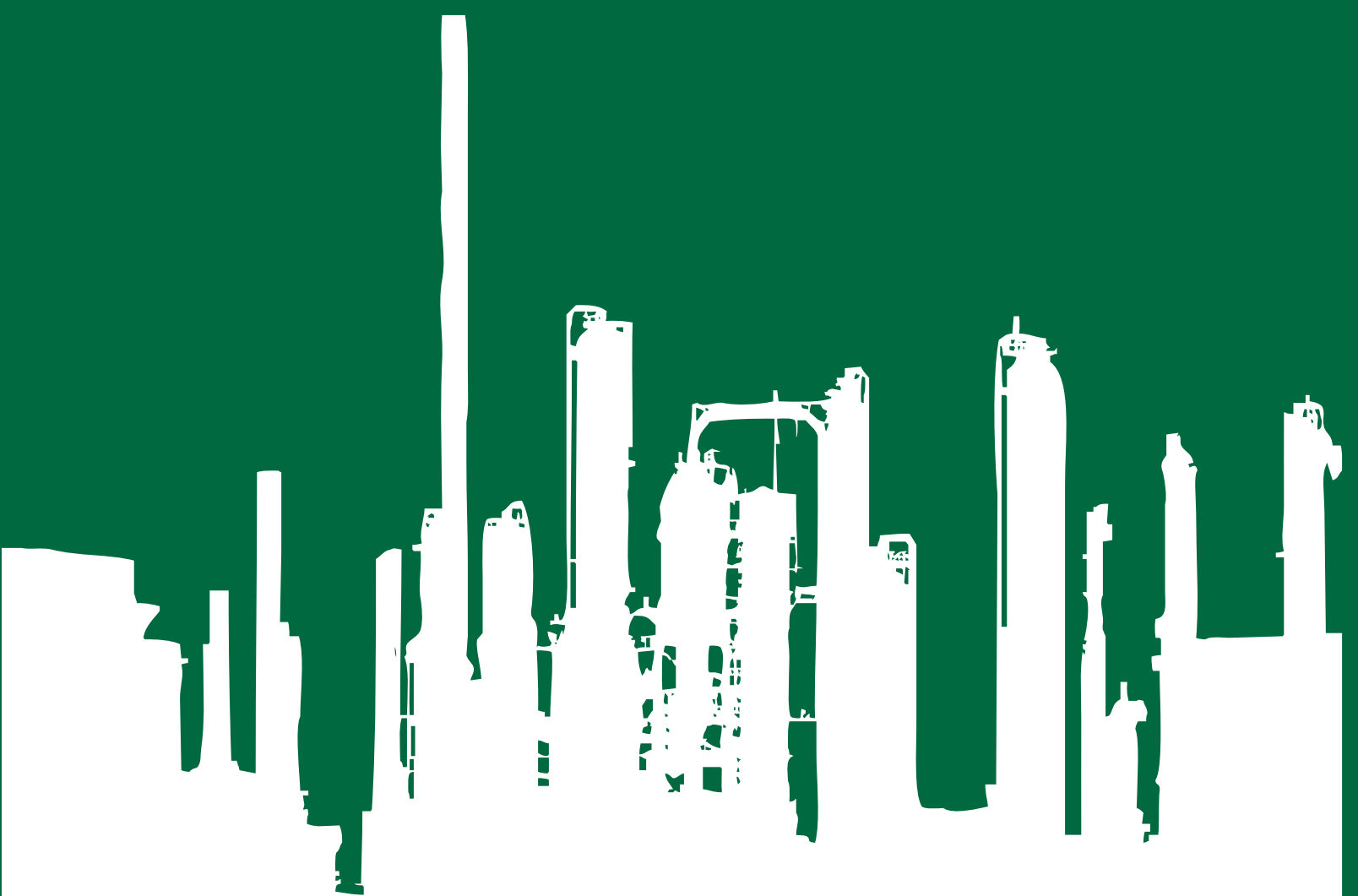


ASTM Table of Contents

ASTM Methods

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

ASTM INTERNATIONAL
Standards Worldwide

Additional Methods

ASTM

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

	Cat. No.	Unit
Nominal Aniline Point	**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

	Cat. No.	Unit
Nominal Aniline Point	**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 — **7 x 1 mL**

D1319 Meets EPA Guidelines for RFG Analysis

	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	1-Heptene	33.3
2,3-Dimethyl-2-butene	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.

n-Pentane	8	2,3-Dimethylpentane	14
n-Hexane	9	Isooctane	19
Cyclohexane	15	*n*-Octane	14
n-Heptane	14	*n*-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	*m*-Xylene	16
Toluene	32	1,2,4-Trimethylbenzene	8
Ethylbenzene	8	1,3,5-Trimethylbenzene	8
p-Xylene	8	1,2,4,5-Tetramethylbenzene	4
o-Xylene	8	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 ampules 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.

Value Added Paks (Cat. No.'s ending in -VAP) provide multiple single units packaged together for both greater stability and cost savings.

Karl Fischer titrator

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

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 µg/g	Concentration Wt.%	Cat. No. (100 mL)	Cat. No. (5 x 20 mL)
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 µg/g	Concentration Wt.%	Cat. No. (100 mL)	Cat. No. (5 x 20 mL)
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 µg/g	Concentration Wt.%	Cat. No. (100 mL)	Cat. No. (5 x 20 mL)
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 µg/g	Concentration Wt.%	Cat. No. (100 mL)	Cat. No. (5 x 20 mL)
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**	

Technical Note

Sulfur introduced using di-*n*-butyl sulfide

Sulfur in Heavy Distillate Kerosene

Concentration µg/g	Concentration Wt.%	Cat. No.	Concentration µg/g	Concentration 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

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, 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.

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

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 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-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, Naphthenes 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**

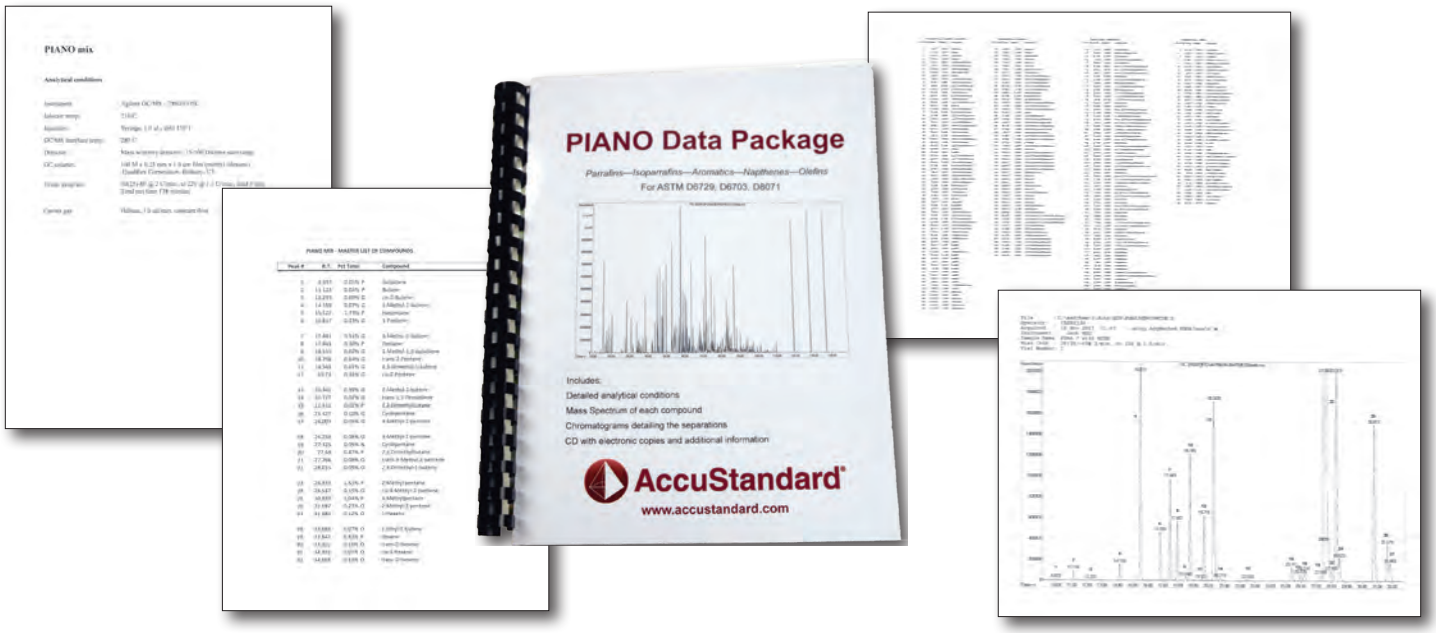
ASTM D6729-04, D6730-01, D6733-01, D8071-17 PIANO (continued) - Contents of Information Packet

A complete data package of the PIANO Mix is provided with each order.

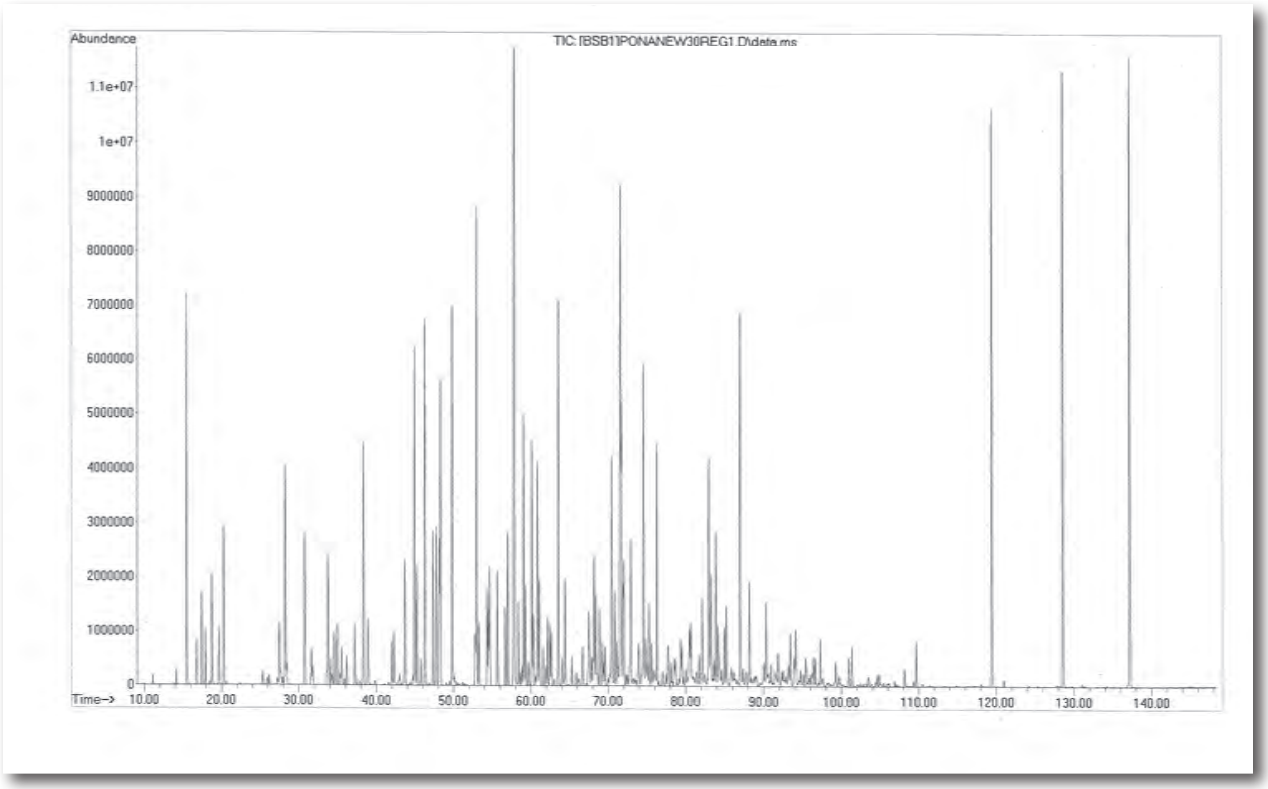
The data package includes:

- Detailed analytical conditions
- Mass Spectrum of each compound
- Chromatograms detailing separations

PIANO Mix Documentation Sample



Total Ion Chromatogram of the PIANO mix



ASTM 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	*cis*-1,2-Dimethylcyclohexane	15.5
2,4-Dimethylpentane	9.4	Benzene	7.7
n-Octane	16.6	Toluene	10
Methylcyclopentane	7.1	*p*-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.

n-Hexane	6	*n*-Octadecane	5
n-Heptane	6	*n*-Eicosane	2
n-Octane	8	*n*-Tetracosane	2
n-Nonane	8	*n*-Octacosane	1
n-Decane	12	*n*-Dotriacontane	1
n-Undecane	12	*n*-Hexatriacontane	1
n-Dodecane	12	*n*-Tetracontane	1
n-Tetradecane	12	*n*-Tetratetracontane	1
n-Hexadecane	10		

Column Test Mixture

D-2887 **1 x 1 mL**
10 mg/mL in n-Octane 2 comps.

n-Hexadecane *n*-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.

n-Octane	*n*-Tetracosane
n-Nonane	*n*-Pentacosane
n-Decane	*n*-Hexacosane
n-Undecane	*n*-Heptacosane
n-Dodecane	*n*-Octacosane
n-Tridecane	*n*-Nonacosane
n-Tetradecane	*n*-Triacontane
n-Pentadecane	*n*-Hentriacontane
n-Hexadecane	*n*-Dotriacontane
n-Heptadecane	*n*-Tritriacontane
n-Octadecane	*n*-Tetratriacontane
Pristane	*n*-Pentatriacontane
n-Nonadecane	*n*-Hexatriacontane
Phytane	*n*-Heptatriacontane
n-Eicosane	*n*-Octatriacontane
n-Heneicosane	*n*-Nonatriacontane
n-Docosane	*n*-Tetracontane
n-Tricosane	

Fuel Oil Degradation/Retention Time Mix for Quantification of C_{17}/Pristane & C_{18}/Phytane ratios

DRH-005S-10X **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_2:CS_2 (1:1) 4 comps.

DRH-005S-R1-10X **1 x 1 mL**
DRH-005S-R1-10X-PAK ***SAVE*** **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 C_8 to C_{40} odd and even alkanes. Measuring the C_{17} / pristane and C_{18}/ phytane ratios can be used to estimate fuel oil degradation.

A fuel oil degradation mix containing just the four required analytes to determine the C_{17} / pristane and C_8 / phytane ratio (DRH-005S-10X).

Calibration Solutions

DRH-002S-R1 **1 x 1 mL**
DRH-002S-R1-PAK ***SAVE*** **5 x 1 mL**
At stated conc. (µg/mL) in Chloroform 17 comps.

n-Hexane	600	*n*-Octadecane	500
n-Heptane	600	*n*-Eicosane	200
n-Octane	800	*n*-Tetracosane	200
n-Nonane	800	*n*-Octacosane	100
n-Decane	1200	*n*-Dotriacontane	100
n-Undecane	1200	*n*-Hexatriacontane	100
n-Dodecane	1200	*n*-Tetracontane	100
n-Tetradecane	1200	*n*-Tetratetracontane	100
n-Hexadecane	1000		

DRH-002S-R2 **1 x 1 gm**
DRH-002S-R2-PAK ***SAVE*** **5 x 1 gm**
0.1 Wt.% each in Chloroform 20 comps.

n-Tetratetracontane	*n*-Octadecane	*n*-Octane
n-Tetracontane	*n*-Hexadecane	*n*-Heptane
n-Hexatriacontane	*n*-Tetradecane	*n*-Hexane
n-Dotriacontane	*n*-Dodecane	*n*-Pentane
n-Octacosane	*n*-Undecane	*n*-Pentadecane
n-Tetracosane	*n*-Decane	*n*-Heptadecane
n-Eicosane	*n*-Nonane	

Reformulated to ship by Air

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.% 14 comps.

n-Pentane	6.66	*n*-Dodecane	13.33
n-Hexane	6.66	*n*-Tetradecane	6.66
n-Heptane	6.66	*n*-Pentadecane	6.66
n-Octane	6.66	*n*-Hexadecane	6.66
n-Nonane	6.66	*n*-Heptadecane	6.66
n-Decane	6.66	*n*-Octadecane	6.66
n-Undecane	6.66	*n*-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 15 comps.

n-Pentane	0.0333	*n*-Tetradecane	0.0333
n-Hexane	0.0333	*n*-Pentadecane	0.0333
n-Heptane	0.0333	*n*-Hexadecane	0.0333
n-Octane	0.0333	*n*-Heptadecane	0.0333
n-Nonane	0.0333	*n*-Octadecane	0.0333
n-Decane	0.0333	*n*-Eicosane	0.0333
n-Undecane	0.0333	Polywax 500	0.5
n-Dodecane	0.0666		

Carbon disulfide can not ship by air.
When possible alternate solvents can be used.
Contact our Technical Service Department for other options.

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

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.

n-Decane	1.0
n-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.

n-Hexadecane	1.0
n-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

D3606 Meets EPA Guidelines for RFG Analysis

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 **1 x 1 mL**
D-3710-QUAL-PAK *SAVE* **5 x 1 mL**
At stated Wt.% 19 comps.

n-Butane	4.5	*n*-Octane	5.4
n-Butylbenzene	3.2	*n*-Pentadecane	2.2
n-Decane	3.2	*n*-Pentane	7.6
2,4-Dimethylpentane	5.4	*n*-Propane	1.5
n-Dodecane	3.2	*n*-Propylbenzene	4.3
n-Heptane	9.7	*n*-Tetradecane	2.2
n-Hexane	5.4	Toluene	10.8
2-Methylbutane	9.7	*n*-Tridecane	2.2
2-Methylpentane	5.4	*p*-Xylene	13
2-Methylpropane	1.5		

Quanitative Calibration Standard

D-3710 **1 x 1 mL**
D-3710-PAK *SAVE* **5 x 1 mL**
At stated Wt.% 16 comps.

n-Butylbenzene	3.5	*n*-Octane	5.8
n-Decane	3.5	*n*-Pentadecane	2.3
2,4-Dimethylpentane	5.8	*n*-Pentane	8.1
n-Dodecane	3.5	*n*-Propylbenzene	4.7
n-Heptane	10.5	*n*-Tetradecane	2.3
n-Hexane	5.8	Toluene	11.6
2-Methylbutane	10.5	*n*-Tridecane	2.3
2-Methylpentane	5.8	*p*-Xylene	14.0

ASTM D2887 Boiling Range Distribution of Petroleum Fractions by GC

Calibration Solution

DRH-002S-R1 **1 x 1 mL**
DRH-002S-R1-PAK *SAVE* **5 x 1 mL**
At stated conc. (µg/mL) in Chloroform 17 comps.

Reformulated to ship by Air

n-Hexane	600	*n*-Undecane	1200	*n*-Octadecane	500	*n*-Dotriacontane	100
n-Heptane	600	*n*-Dodecane	1200	*n*-Eicosane	200	*n*-Hexatriacontane	100
n-Octane	800	*n*-Tetradecane	1200	*n*-Tetracosane	200	*n*-Tetracontane	100
n-Nonane	800	*n*-Hexadecane	1000	*n*-Octacosane	100	*n*-Tetratetracontane	100
n-Decane	1200						

ASTM D3798 Analysis of p-Xylene by GC

p-Xylene Impurity Standards

With Internal Standard

D-3798-IS **1 x 1 mL**
D-3798-IS-PAK *SAVE* **5 x 1 mL**
At stated Wt.% 11 comps.

n-Pentane	0.15	*o*-Xylene	0.15
n-Octane	0.15	Cumene	0.15
Benzene	0.15	Propylbenzene	0.15
Toluene	0.15		
Ethylbenzene	0.15	Total Analytes	100
p-Xylene	98.65	plus *n*-Undecane* (ISTD)	0.500
m-Xylene	0.15		

Without Internal Standard

D-3798-10ML **/ 1 x 10 mL**
D-3798-10ML-PAK *SAVE* **5 x 10 mL**
At stated Wt.% 10 comps.

n-Pentane	0.15	*p*-Xylene	98.65
n-Octane	0.15	*m*-Xylene	0.15
Benzene	0.15	*o*-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 specfic 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 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 # / CAS No.	Conc. ppm w/w	Individual Cat. No. 1 mL	PAK *SAVE* Cat. No. 5 x 1 mL
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

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 *SAVE* 5 x 1 mL
2000 µg/mL in water

Ethylene glycol

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

D-4420-CAL-SET 7 x 1 mL

Analyte	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. %
Benzene	0.05	0.10	0.25	0.75	1.25	2.50	5.00
Toluene	0.5	1.00	2.50	5.00	10.00	15.00	25.00
Total Xylenes (C_8 aromatics)	5	10.00	15.00	20.00	25.00	1.00	3.00
n-Butylbenzene (C_9 + aromatics)	30.00	25.00	20.00	10.00	5.00	15.00	2.50
Isooctane	64.45	63.90	62.25	64.25	58.75	66.50	64.50

D-4420-94 1 x 1 mL
D-4420-94-PAK *SAVE* 5 x 1 mL
At stated Vol.% 5 comps.

Benzene	3.00
Toluene	10.00
Total Xylenes (C_8 aromatics)	15.00
n-Butylbenzene(C_9 + aromatics)	15.00
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 8 x 1 mL
Nitrogen introduced using Pyridine

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 1 x 1 mL
D-4629-91-LB-CON-PAK 5 x 1 mL
1000 µg/mL in Isooctane

Nitrogen introduced using Pyridine

Nitrogen Calibration Set - High Boiling Solvents

D-4629-HB-CAL-R1-SET 8 x 1 mL
Nitrogen introduced using Carbazole

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 1 x 1 mL
D-4629-91-HB-CON-PAK 5 x 1 mL
1000 µg/mL in Toluene:Acetone (9:1)

Nitrogen introduced using Carbazole

Nitrogen Calibration Set - Low Level

ASTM-P-0070-SET 6 x 1 mL
Nitrogen introduced using Aniline

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 4 x 1 mL
The Nitrogen is introduced using Aniline and the Sulfur is introduced using di-n-butyl sulfide

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

D4815 Meets EPA Guidelines for RFG Analysis

Without Internal Standard

D-4815-10ML-SET — **5 x 10 mL**

Analyte	Std. 1 Wt.%	Std. 2 Wt.%	Std. 3 Wt.%	Std. 4 Wt.%	Std. 5 Wt.%
	Target Concentrations				
Ethanol	3.00	0.10	6.00	9.00	12.00
t-Butanol	0.10	3.00	6.00	8.00	12.00
Methyl *t*-butyl ether (MtBE)	20.0	15.00	10.00	5.00	0.10
t-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 — **5 x 1 mL**

D-4815/IS-SET-PAK — ***SAVE*** — **5 x (5 x 1 mL)**

Analyte	Calibration Range	Std. 1 Wt.%	Std. 2 Wt.%	Std. 3 Wt.%	Std. 4 Wt.%	Std. 5 Wt.%
		Target Concentrations				
Ethanol	0.1 - 11.40	2.85	0.095	5.70	8.55	11.40
t-Butanol	0.1 - 11.40	0.095	2.85	5.70	7.60	11.40
Methyl *t*-butyl ether (MtBE)	0.1 - 19.0	19.00	14.25	9.50	4.75	0.095
t-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 Oxgenates & 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
tert-Butanol	7.30
n-Propanol	7.30
Methyl *tert*-butyl ether (MtBE)	4.00
sec-Butanol	7.30
Diisopropyl ether (DIPE)	4.00
Isobutanol	7.30
Ethyl *tert*-butyl ether (EtBE)	4.00
tert-Pentanol	7.30
1,2-Dimethoxyethane (ISTD)	6.00
n-Butanol	7.30
Benzene	5.00
tert-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 *tert*-butyl ether (EtBE)	10.00
Methyl *tert*-butyl ether (MtBE)	10.00
n-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 Wt.%	Chlorine µg/g	Unit
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 g Pb/US gal	g Pb/ UK gal	mg Pb/mL	Cat. No.	100 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 ▲	

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 g Pb/US gal	g Pb/ UK gal	µg Pb/mL	Cat. No.	100 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

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

D5059 Meets EPA Guidelines for RFG Analysis

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. HNO_3

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 **1 x 1 mL**

D-5186-96-PM-PAK ***SAVE*** **5 x 1 mL**

At stated Wt.% 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 ***SAVE*** **5 x 2 mL**
Equal Wt.% 16 comps.

n-Decane
n-Undecane
n-Dodecane
n-Tridecane
n-Tetradecane
n-Pentadecane
n-Hexadecane
n-Heptadecane
n-Octadecane
n-Eicosane
n-Tetracosane
n-Octacosane
n-Dotriacontane
n-Hexatriacontane
n-Tetracontane
n-Tetratetracontane

Qualitative Paraffins Standard

D-5307-QUAL **1 x 1 mL**
D-5307-QUAL-PAK ***SAVE*** **5 x 1 mL**
At stated Wt.% 7 comps.

n-Propane	3	*n*-Heptane	18
n-Butane	5	*n*-Octane	19
n-Pentane	18	*n*-Nonane	19
n-Hexane	18		

Internal Standard

D-5307-IS-10ML **1 x 10 mL**
D-5307-IS-10ML-PAK ***SAVE*** **5 x 10 mL**
At stated Wt.% 4 comps.

n-Tetradecane	25	*n*-Hexadecane	25
n-Pentadecane	25	*n*-Heptadecane	25

Column Resolution Mix

D-5307-CR **1 x 1 mL**
D-5307-CR-PAK ***SAVE*** **5 x 1 mL**
At stated Wt.% 3 comps.

n-Hexadecane	1.0	*n*-Octane	98.0
n-Octadecane	1.0		

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 C_4 to C_{12} 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

Qualitative Standard

D-5441-QUAL	**1 x 1 mL**
0.1 Wt.% each in n-Dodecane	33 comps.

Methanol
Isobutylene
n-Butane
trans-2-Butene
cis-2-Butene
3-Methyl-1-butene
Acetone
Isopentane
Isopropanol
1-Pentene
2-Methyl-1-butene
n-Pentane
trans-2-Pentene
t-Butanol
cis-2-Pentene
2-Methyl-2-butene
Cyclopentene
MtBE
2,3-Dimethyl-1-butene
4-Methyl-*cis*-2-pentene
2-Methylpentane
Methyl ethyl ketone
3-Methylpentane
sec-Butyl methyl ether
EtBE
TAME
3,5-Dimethyl-1-hexene
2,4,4-Trimethyl-1-pentene
2,4,4-Trimethyl-2-pentene
3,4,4-Trimethyl-*trans*-2-pentene
2,3,4-Trimethyl-2-pentene
4,4-Dimethyl-2-neopentyl-1-pentene
2,2',4,6,6'-Pentamethyl-3-heptene

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

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

Quantitative Standard

D-5441-QUANT-R1	**1 x 1 mL**
0.1 Wt.% each in n-Dodecane	29 comps.

Methanol *(0.04 Wt.%)*
3-Methyl-1-butene
Acetone
Isopentane
Isopropanol
1-Pentene
2-Methyl-1-butene
n-Pentane
trans-2-Pentene
t-Butanol
cis-2-Pentene
2-Methyl-2-butene
Cyclopentene
MtBE
2,3-Dimethyl-1-butene
4-Methyl-*cis*-2-pentene
2-Methylpentane
Methyl ethyl ketone
3-Methylpentane
sec-Butyl methyl ether
EtBE
TAME
3,5-Dimethyl-1-hexene
2,4,4-Trimethyl-1-pentene
2,4,4-Trimethyl-2-pentene
3,4,4-Trimethyl-*trans*-2-pentene
2,3,4-Trimethyl-2-pentene
4,4-Dimethyl-2-neopentyl-1-pentene
2,2',4,6,6'-Pentamethyl-3-heptene

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**
At stated Wt.% in Cyclohexane 16 comps.

n-Dodecane	0.02	*n*-Octacosane	0.12
n-Tetradecane	0.03	*n*-Triacontane	0.10
n-Hexadecane	0.04	*n*-Dotriacontane	0.08
n-Octadecane	0.05	*n*-Hexatriacontane	0.06
n-Eicosane	0.06	*n*-Tetracontane	0.05
n-Docosane	0.08	*n*-Tetratetracontane	0.04
n-Tetracosane	0.10	*n*-Pentacontane	0.03
n-Hexacosane	0.12	*n*-Hexacontane	0.02

Column Resolution Standard

D-5442-CR-PAK **5 x 1 mL**
At stated Wt.% in Cyclohexane 2 comps.

n-Eicosane	0.05
n-Tetracontane	0.05

Hydrocarbon Standard Brownfield Regulation

D-5442-R1 **1 x 1 mL**
100 µg/mL each in Cyclohexane 18 comps.

n-Decane	*n*-Octacosane
n-Dodecane	*n*-Triacontane
n-Tetradecane	*n*-Dotriacontane
n-Hexadecane	*n*-Tetratriacontane
n-Octadecane	*n*-Hexatriacontane
n-Eicosane	*n*-Octatriacontane
n-Docosane	*n*-Tetracontane
n-Tetracosane	*n*-Tetratetracontane
n-Hexacosane	*n*-Pentacontane

Retention Time Standard Mix 1

D-5442-RT1 **500 mg**
Equal Wt.% 12 comps.

n-Hexadecane (c16)	*n*-Octacosane (c28)
n-Octadecane (c18)	*n*-Triacontane (c30)
n-Eicosane (c20)	*n*-Dotriacontane (c32)
n-Docosane(c22)	*n*-Hexatriacontane (c36)
n-Tetracosane (c24)	*n*-Tetracontane (c40)
n-Hexacosane (c26)	*n*-Tetratetracontane (c44)

Retention Time Standard Mix 2

D-5442-RT2 **500 mg**
Equal Wt.% 16 comps.

n-Dodecane (c12)	*n*-Octacosane (c28)
n-Tetradecane (c14)	*n*-Triacontane (c30)
n-Hexadecane (c16)	*n*-Dotriacontane (c32)
n-Octadecane (c18)	*n*-Hexatriacontane (c36)
n-Eicosane (c20)	*n*-Tetracontane (c40)
n-Docosane (c22)	*n*-Tetratetracontane (c44)
n-Tetracosane (c24)	*n*-Pentacontane (c50)
n-Hexacosane (c26)	*n*-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**
At stated Wt.% 28 comps.

Cyclopentane	1.00	1,2-Dimethylcyclohexane	5.00	*trans*-Decahydronaphthelene	4.25
n-Pentane	1.00	Isooctane	5.00	*n*-Tetradecane	4.50
Cyclohexane	2.00	*n*-Octane	5.00	Ethylbenzene	4.50
2,3-Dimethylbutane	2.00	1,2,4-Trimethylcyclohexane	4.25	*o*-Xylene	4.25
n-Hexane	2.00	*n*-Nonane	4.50	*n*-Propylbenzene	5.00
n-Hexene	1.50	*n*-Decane	4.25	1,2,4-Trimethylbenzene	4.50
Methylcyclohexane	4.25	*n*-Undecane	3.50	1,2,3-Trimethylbenzene	5.00
4-Methyl-1-hexene	1.50	*n*-Dodecane	3.25	1,2,4,5-Tetramethylbenzene	5.00
n-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**
At stated in Isooctane

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**
At stated in Isooctane

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**
At stated in Isooctane

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 — **7 x 1 mL**

Analyte	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 — **5 x 1 mL**

Analyte	D-5501-12-01 1 mL LEVEL 1 Wt.%	D-5501-12-02 1 mL LEVEL 2 Wt.%	D-5501-12-03 1 mL LEVEL 3 Wt.%	D-5501-12-04 1 mL LEVEL 4 Wt.%	D-5501-12-05 1 mL 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

Valve Timing Calibration Mixes

With Internal Standard

M-GRA-VT/IS-AS **1 x 1 mL**
M-GRA-VT/IS-AS-PAK ***SAVE*** **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

Without Internal Standard

M-GRA-VT-AS-10ML **1 x 10 mL**
M-GRA-VT-AS-10ML-PAK ***SAVE*** **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

Internal Standard

M-GRA-IS-AS-5ML **1 x 5 mL**
M-GRA-IS-AS-5ML-PAK ***SAVE*** **5 x 5 mL**

2-Hexanone (neat)

Selectivity Check Standard

M-GRA-SCS-AS **1 x 1 mL**
M-GRA-SCS-AS-PAK ***SAVE*** **5 x 1 mL**
At stated Wt.% 2 comps.

n-Dodecane	1.5
Isooctane	98.5

Daily Quality Control Standard

Without Internal Standard

D-5580-QC-R1-10ML **1 x 10 mL**
D-5580-QC-R1-10ML-PAK ***SAVE*** **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 **1 x 10 mL**
D-5580-QC-10ML-PAK ***SAVE*** **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

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.

ASTM D5599 Oxygenates in Gas by GC & O-FID

Oxygenates Calibration Curves

With Internal Standard

M-GRO-CAL/IS-SET — **8 x 1 mL**
M-GRO-CAL/IS-SET-PAK — *SAVE* — **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.

D5599 Meets EPA Guidelines for RFG Analysis

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
t-Butanol	1	*t*-Pentanol	1
n-Propanol	1	*n*-Butanol	1
MtBE	3	TAME	3
sec-Butanol	1	RFA Gasoline	79

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
t-Butanol	1	*t*-Pentanol	1
n-Propanol	1	*n*-Butanol	1
MtBE	3	TAME	3
sec-Butanol	1	RFA Gasoline	79

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 Gasoline Refinery Blank

RFA-BLNK-10ML — **1 x 10 mL**
RFA-BLNK-10ML-PAK *SAVE* — **5 x 10 mL**

RFA Gasoline (neat)

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
t-Butanol	1	*t*-Pentanol	1
n-Propanol	1	*n*-Butanol	1
MtBE	3	TAME	3
sec-Butanol	1	RFA Gasoline	81

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
t-Butanol	1	*t*-Pentanol	1
n-Propanol	1	*n*-Butanol	1
MtBE	3	TAME	3
sec-Butanol	1	RFA Gasoline	81

1,2-Dimethoxyethane (Internal Std.) is combined in a 4 to 100 Wt. ratio

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)

D5599 Meets EPA Guidelines for RFG Analysis

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 D5599

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

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

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.

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 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

Internal Standard

M-GRO-IS-5ML — **1 x 10 mL**
M-GRO-IS-5ML-PAK *SAVE* — **5 x 10 mL**

1,2-Dimethoxyethane (neat)

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		

Oxygenate Free Gasoline Refinery Blank

RFA-BLNK-10ML — **1 x 10 mL**
RFA-BLNK-10ML-PAK *SAVE* — **5 x 10 mL**

RFA Gasoline (neat)

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.

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	

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

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

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.	Target Vol. %	Std. 1 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	
m-Xylene	6	3.00	1.50	0.750	0.3750	
p-Xylene	6	3.00	1.50	0.750	0.3750	
o-Xylene	6	3.00	1.50	0.750	0.3750	
Isopropylbenzene	3	1.50	0.75	0.375	0.1875	
n-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	
n-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
m-Xylene	4.50
p-Xylene	4.50
o-Xylene	4.50
Isopropylbenzene	2.25
n-Proplylbenzene	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
n-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.

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		

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.

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	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.	Target Wt.%	Std. 1 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
m-Xylene	6.27	3.50	1.86	0.962	0.4891
p-Xylene	6.33	3.50	1.86	0.962	0.4891
o-Xylene	6.51	3.56	1.89	0.980	0.4891
Isopropylbenzene	3.06	1.74	0.93	0.480	0.2439
n-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
n-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
m-Xylene	4.87
p-Xylene	4.87
o-Xylene	4.96
Isopropylbenzene	2.43
n-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
n-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-d_8 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.

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		

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

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.

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	Core Mix (13 comps.)	100

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 5 x 5 mL
D-5769-CAL-10ML-SET 5 x 10 mL

Core Calibration Mix 24 comps.	Target	Std. 1 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	
m-Xylene	6.19	3.48	1.856	0.9598	0.4883	
p-Xylene	6.19	3.48	1.856	0.9598	0.4883	
o-Xylene	6.30	3.54	1.890	0.9776	0.4973	
Isopropylbenzene	3.09	1.74	0.925	0.4786	0.2435	
n-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	
n-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
m-Xylene	4.91
p-Xylene	4.91
o-Xylene	5.00
Isopropylbenzene	2.45
n-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
n-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.

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	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 — **5 x 1 mL**

Core Calibr. 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
m-Xylene	6.19	3.48	1.856	0.9598	0.4883
p-Xylene	6.19	3.48	1.856	0.9598	0.4883
o-Xylene	6.30	3.54	1.890	0.9776	0.4973
Isopropylbenzene	3.09	1.74	0.925	0.4786	0.2435
n-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
n-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 — **1 x 1 mL**

Core Calibration Mix 24 Comps.	Target Wt.%
Benzene	4.16
Toluene	16.41
Ethylbenzene	4.10
m-Xylene	4.91
p-Xylene	4.91
o-Xylene	5.00
Isopropylbenzene	2.45
n-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
n-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 — **1 x 5 mL**

D-5769-QC/IS-5ML-PAK *SAVE* — **5 x 5 mL**

At stated Wt.% — 17 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	2
Benzene	1	Naphthalene	1

Includes

M-GRA-IS (3 comp. mix) added in 5 to 100 weight ratio

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-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		

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

Mass Scan Range Standard

M-GRA-MSR — **1 x 1 mL**

M-GRA-MSR-PAK *SAVE* — **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-d_8)

Calibration Curve with Deuterated Toluene

With Internal Standard

D-5769-CAL/IS-R-SET **5 x 1 mL**

Core Calibration Mix 24 Comps.	Target	Std. 1 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
m-Xylene		6.19	3.48	1.856	0.9598	0.4883
p-Xylene		6.19	3.48	1.856	0.9598	0.4883
o-Xylene		6.30	3.54	1.890	0.9776	0.4973
Isopropylbenzene		3.09	1.74	0.925	0.4786	0.2435
n-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
n-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
m-Xylene	4.91
p-Xylene	4.91
o-Xylene	5.00
Isopropylbenzene	2.45
n-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
n-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.

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	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 **5 x 1 mL**

Core Calibr. Mix 24 Comps.	Target Wt.%	Std. 1 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	
m-Xylene	6.19	3.48	1.856	0.9598	0.4883	
p-Xylene	6.19	3.48	1.856	0.9598	0.4883	
o-Xylene	6.30	3.54	1.890	0.9776	0.4973	
Isopropylbenzene	3.09	1.74	0.925	0.4786	0.2435	
n-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	
n-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
m-Xylene	4.91
p-Xylene	4.91
o-Xylene	5.00
Isopropylbenzene	2.45
n-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
n-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 **1 x 5 mL**
D-5769-QC/IS-R2-5ML-PAK ***SAVE*** **5 x 5 mL**
At stated Wt.% 17 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	2
Benzene	1	Naphthalene	1

Includes M-GRA-IS-R2 added in 5 to 100 weight ratio.

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

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

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.

n-Hexane	12	Ethylbenzene	3
n-Heptane	17	*m*-Xylene	3
n-Octane	17	*o*-Xylene	3
n-Decane	12	1,2,4-Trimethylbenzene	3
n-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.

n-Hexane	12	Ethylbenzene	3
n-Heptane	17	*m*-Xylene	3
n-Octane	17	*o*-Xylene	3
n-Decane	12	1,2,4-Trimethylbenzene	3
n-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.

n-Hexane	12	Ethylbenzene	3
n-Heptane	17	*m*-Xylene	3
n-Octane	17	*o*-Xylene	3
n-Decane	12	1,2,4-Trimethylbenzene	3
n-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

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 Revison 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

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 Revison 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

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

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

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		

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-DER-5ML-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-piperazinecarboxyamide] 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-piperazinecarboxyamide] **(2,6-TDIP)**	D-5836-02-DER 2840 µg/mL in DMSO	
N,N'-1,6-Hexanediylbis[4-(2-pyridinyl)-1-piperazinecarboxyamide] 72375-27-0 **(1,6-HDIP)**	D-5836-03-DER 2900 µg/mL in DMSO	
N,N'-(Methylenediphenylene)bis[4-(2-pyridinyl)-1-piperazinecarboxyamide] 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-DER-5ML-VAP** 2 mg/mL in CH_2Cl_2	4 x 5 mL

Individual Derivatized Diisocyanates

N,N'-(4-Methyl-1,3-phenylene)bis[4-(2-pyridinyl)-1-piperazinecarboxyamide] 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-piperazinecarboxyamide] **(2,6-TDIP)**	D-5836-02A-DER 1000 µg/mL in DMSO	
N,N'-1,6-Hexanediylbis[4-(2-pyridinyl)-1-piperazinecarboxyamide] 72375-27-0 **(1,6-HDIP)**	D-5836-03A-DER 1000 µg/mL in DMSO	
N,N'-(Methylenediphenylene)bis[4-(2-pyridinyl)-1-piperazinecarboxyamide] 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 1 mL Cat. No.	35 µg/mL in MeOH 1 mL Cat. No.	1000 µg/mL in Hexane 1 mL Cat. No.
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 **1 x 1 mL**
ASTM-P-0080-PAK ***SAVE*** **5 x 1 mL**
At stated Wt.% 33 comps.

Cyclopentane	1.5	Benzene	2.5
n-Pentane	1.5	Toluene	2.5
Cyclohexane	2.0	*trans*-Decahydronaphthelene	3.5
2,3-Dimethylbutane	2.0	*n*-Tetradecane	2.0
n-Hexane	2.0	Ethylbenzene	3.5
1-Hexene	1.5	*o*-Xylene	3.0
Methylcyclohexane	3.5	*n*-Propylbenzene	3.5
4-Methyl-1-hexene	1.5	1,2,4-Trimethylbenzene	3.0
n-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
n-Octane	4.0	Ethanol	5.0
1,2,4-Trimethylcyclohexane	3.5	*t*-Butanol	4.0
n-Nonane	3.0	MtBE	8.0
n-Decane	3.5	ETBE	3.0
n-Undecane	2.0	TAME	5.0
n-Dodecane	2.0		

O-PONA Olefin Mix

ASTM-P-0081 **1 x 1 mL**
ASTM-P-0081-PAK ***SAVE*** **5 x 1 mL**
At stated Wt.% in Hexane:Heptane (50:50) 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 **1 x 1 mL**
ASTM-P-0082-PAK ***SAVE*** **5 x 1 mL**
At stated Wt.% in Hexane:Heptane (50:50) 2 comps.

n-Nonane	5.0
n-Decane	2.0

ASTM-P-0082-R1 **1 x 1 mL**
ASTM-P-0082-R1-PAK ***SAVE*** **5 x 1 mL**
At stated Wt.% in Hexane:Heptane (50:50) 2 comps.

n-Nonane	3.0
n-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.% 10 comps.

1-Pentene	1.0	1-Decene	1.0
1-Hexene	1.0	*n*-Undecane	1.0
1-Heptene	1.0	*n*-Dodecane	1.0
1-Octene	1.0	Isooctane	87.0
1-Nonene	1.0	MtBE	5.0

Calibration Standard with EtBE

D-6296-CAL2 **1 x 1 mL**
D-6296-CAL2-PAK *SAVE* **5 x 1 mL**
At stated Wt.% 11 comps.

1-Pentene	1.0	*n*-Decane	1.0
1-Hexene	1.0	*n*-Undecane	1.0
1-Heptene	1.0	*n*-Dodecane	1.0
1-Octene	1.0	Isooctane	86.0
1-Nonene	1.0	EtBE	5.0
1-Decene	1.0		

Isooctane Blank Compensation Std.

D-6296-BL **1 x 5 mL**

Isooctane (neat)

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 700ºC by GC

Polywax 500®

ASTM-P-0051N-2G **2 grams**

Polywax 500

Polywax 655®

ASTM-P-0053N-2G **2 grams**

Polywax 655

Hydrocarbon Window Defining Std.

DRH-008S-R2 **1 x 1 mL**
DRH-008S-R2-PAK *SAVE* **5 x 1 mL**
500 µg/mL each in Chloroform 35 comps.

n-Octane	*n*-Tetracosane
n-Nonane	*n*-Pentacosane
n-Decane	*n*-Hexacosane
n-Undecane	*n*-Heptacosane
n-Dodecane	*n*-Octacosane
n-Tridecane	*n*-Nonacosane
n-Tetradecane	*n*-Triacontane
n-Pentadecane	*n*-Hentriacontane
n-Hexadecane	*n*-Dotriacontane
n-Heptadecane	*n*-Tritriacontane
n-Octadecane	*n*-Tetratriacontane
Pristane	*n*-Pentatriacontane
n-Nonadecane	*n*-Hexatriacontane
Phytane	*n*-Heptatriacontane
n-Eicosane	*n*-Octatriacontane
n-Heneicosane	*n*-Nonatriacontane
n-Docosane	*n*-Tetracontane
n-Tricosane	

Polywax 850®

ASTM-P-0137N-2G **2 grams**

Polywax 850

Polywax 1000®

ASTM-P-0138N-2G **2 grams**

Polywax 1000

Calibration Mix

DRH-002N **100 mg**
DRH-002N-10X **1 gm**
At stated Wt.% 17 comps.

n-Hexane	6	*n*-Octadecane	5
n-Heptane	6	*n*-Eicosane	2
n-Octane	8	*n*-Tetracosane	2
n-Nonane	8	*n*-Octacosane	1
n-Decane	12	*n*-Dotriacontane	1
n-Undecane	12	*n*-Hexatriacontane	1
n-Dodecane	12	*n*-Tetracontane	1
n-Tetradecane	12	*n*-Tetratetracontane	1
n-Hexadecane	10		

Column Test Mixture

D-2887 **1 x 1 mL**
10 mg/mL in n-Octane 2 comps.

n-Hexadecane	*n*-Octadecane

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
o-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
o-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
o-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
o-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_2Cl_2	BF-FU-030-D	2 mL
	20	mg/mL	CH_2Cl_2	BF-FU-030-D-40X	2 mL
Biofuel 100 (Consumer grade)	0.5	mg/mL	CH_2Cl_2	BF-FU-029-D	2 mL
	20	mg/mL	CH_2Cl_2	BF-FU-029-40X	2 mL
Biofuel 100 (Refinery grade)	0.5	mg/mL	CH_2Cl_2	BF-FU-032-D	2 mL
	20	mg/mL	CH_2Cl_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-Methylanthracene	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

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 x1 mL**

At stated Wt.%

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

* These are nominal values and the actual value will be recorded on the certificate.

Cloud Point

ASTM D7751 Additive Elements in Lubricating Oil by ED-XRF

see pages 373

UOP Standards

UOP (Universal Oil Products) methods were developed to facilitate the refining industry in analyzing refinery feeds, products and process streams for compostion, purity and physical and chemical properties. In additional 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.

n-Dodecane	70	Toluene	30

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.

n-Hexane	*o*-Xylene
Benzene	*m*-Xylene
Toluene	*p*-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.

o-Xylene	0.1	*n*-Undecane	1.0
m-Xylene	0.1	*p*-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.

n-Heptane	25	*o*-Xylene	6.6
Benzene	15	*p*-Xylene	6.7
Toluene	20	*o*-Ethyltoluene	10
m-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	*n*-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.

n-Butylcyclohexane	500
n-Propylcyclohexane	400
n-Decane	500
n-Nonane	500
n-Octane	300
n-Hexane	100
Ethylcyclohexane	300
Cyclohexane	100
n-Heptane	200
Methylcyclohexane	200

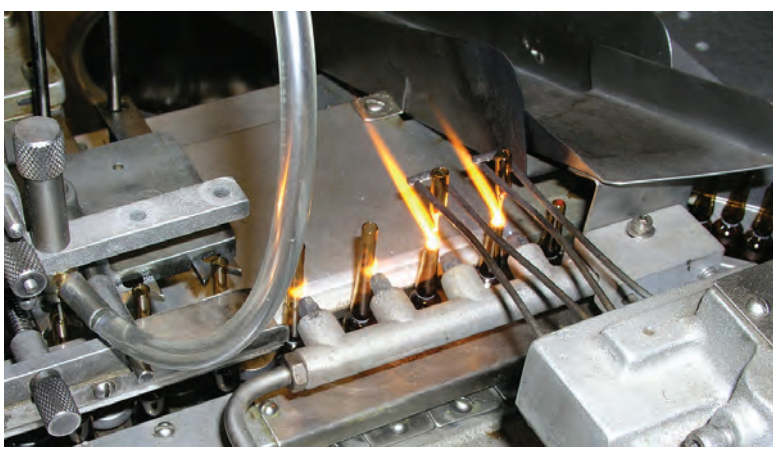
Method 931 Standard

Trace Impurities in Mixed Xylenes by GC.

UOP-M-931-PAK **5 x 1 mL**

At stated Wt.% 5 comps.

Benzene	2.0	*n*-Undecane	2.0
Toluene	2.0	*n*-Heptane	92.0
o-Ethyltoluene	2.0		

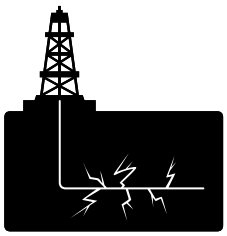


Thousands of Standards, just a click away

AccuStandard.com

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
Didecyldimethylammonium 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_2Cl_2

M-005B-10X — **1 x 1 mL**
M-005B-10X-PAK — ***SAVE*** — **5 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 — 27 comps.

- Anthracene
- Benz[a]anthracene
- Benzo[b]fluoranthene
- Benzo[k]fluoranthene
- Benz[a]pyrene
- bis(2-Ethylhexyl)phthalate
- Butyl benzyl phthalate
- Chrysene
- Dibenz[a,h]acridine
- Dibenz[a,h]anthracene
- *o*-Dichlorobenzene
- *m*-Dichlorobenzene
- *p*-Dichlorobenzene
- Diethyl phthalate
- 7,12-Dimethylbenz[a]anthracene
- Dimethyl phthalate
- Di-*n*-butyl phthalate
- Di-*n*-octyl phthalate
- Indene
- Fluoranthene
- 6-Methylchrysene
- 1-Methylnaphthalene
- Naphthalene
- Phenanthrene
- Pyrene
- Pyridine
- Quinoline

Acid Extractables

M-005A — **1 x 1 mL**
M-005A-PAK — ***SAVE*** — **5 x 1 mL**
0.2 mg/mL each in CH_2Cl_2

M-005A-10X — **1 x 1 mL**
M-005A-10X-PAK — ***SAVE*** — **5 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 — 8 comps.

- *o*-Cresol
- *m*-Cresol
- *p*-Cresol
- 2,4-Dimethylphenol
- 2,4-Dinitrophenol
- 4-Nitrophenol
- Phenol
- 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 — 14 comps.

- Benzene
- Carbon disulfide
- Chlorobenzene
- Chloroform
- 1,2-Dichloroethane
- 1,4-Dioxane
- Ethyl benzene
- Ethylene dibromide
- Methyl ethyl ketone
- Styrene
- Toluene
- *o*-Xylene
- *m*-Xylene
- *p*-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_2Cl_2 — 13 comps.

- Decane
- Dodecane
- Eicosane
- 2-Ethyltoluene
- 3-Ethyltoluene
- Hexadecane
- Hexane
- Octadecane
- Octane
- Tetradecane
- Toluene
- 1,2,4-Trimethylbenzene
- *p*-Xylene

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_2Cl_2 — 13 comps.

- *n*-Decane
- *n*-Dodecane
- *n*-Eicosane
- *o*-Ethyltoluene
- *m*-Ethyltoluene
- *n*-Hexadecane
- *n*-Hexane
- *n*-Octadecane
- *n*-Octane
- *n*-Tetradecane
- Toluene
- 1,2,4-Trimethylbenzene
- *p*-Xylene

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

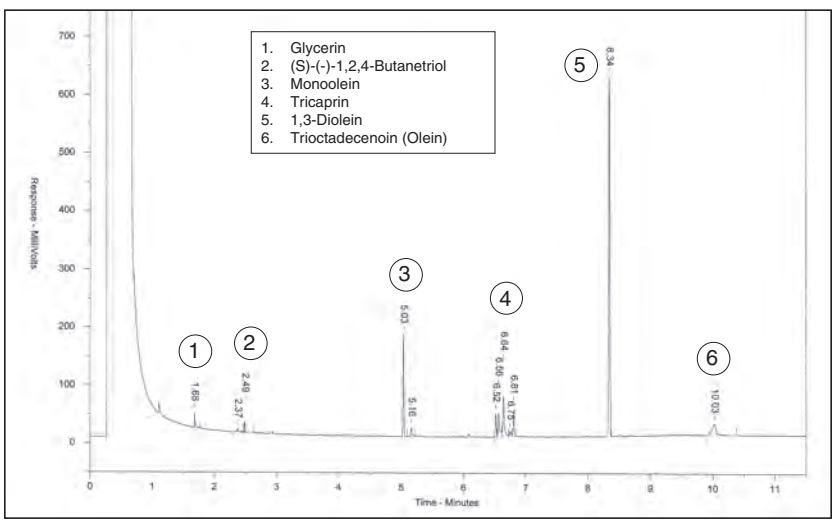
Refinery and Consumer Grade Biofuels

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**

Mix of above compounds, on right (MSTFA separate)



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.

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

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

Palm Kernel

BF-PALM-ME **100 mg**
At stated Wt.% 8 comps.

8:0 Methyl paprylate	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

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

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

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 n-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 n-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 *cis*-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

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

Neats (100 mg) Solutions (10 mg/mL conc. in Hexane)

Compound	Cat. No.	Unit
Ethyl palmitate (16:0)	FAEE-006N	100 mg
	FAEE-006S	1 mL
Ethyl stearate (18:0)	FAEE-007N	100 mg
	FAEE-007S	1 mL
Ethyl arachidate (20:0)	FAEE-008N	100 mg
	FAEE-008S	1 mL
Ethyl oleate (18:1)	FAEE-014N	100 mg
	FAEE-014S	1 mL
Ethyl linoleate (18:2)	FAEE-012N	100 mg
	FAEE-012S	1 mL
Ethyl linolenate (18:3)	FAEE-016N	100 mg
	FAEE-016S	1 mL
Ethyl myristate (14:0)	FAEE-005N	100 mg
	FAEE-005S	1 mL
Ethyl behenate (22:0)	FAEE-009N	100 mg
	FAEE-009S	1 mL
Ethyl lignocerate (24:0)	FAEE-010N	100 mg
	FAEE-010S	1 mL
Ethyl erucate (22:1)	FAEE-011N	100 mg
	FAEE-011S	1 mL
Ethyl caprylate (8:0)	FAEE-002N	100 mg
	FAEE-002S	1 mL
Ethyl caprate (10:0)	FAEE-003N	100 mg
	FAEE-003S	1 mL
Ethyl laurate (12:0)	FAEE-004N	100 mg
	FAEE-004S	1 mL
Ethyl palmitoleate (16:1)	FAEE-001N	100 mg
	FAEE-001S	1 mL
Ethyl nervonate (24:1)	FAEE-013N	100 mg
	FAEE-013S	1 mL
Ethyl heptadecanoate (17:0)	FAEE-015N	100 mg
	FAEE-015S	1 mL
Ethyl linolenate (gamma) (18:3)	FAEE-020N	100 mg
	FAEE-020S	1 mL

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

Biofuel Standards

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

* These are nominal values and the actual value will be recorded on the certificate.

Cloud Point

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

BF-WM-B100-MIX **100 g**
200 µg/g each in B100 5 comps.

Calcium (Ca)
Potassium (K)
Magnesium (Mg)
Sodium (Na)
Phosphorus (P)

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
5-alpha Androstane 438-22-2	1 mg/mL	CH_2Cl_2	GRH-IS	
	10 mg/mL	CH_2Cl_2	GRH-IS-10X	
Aviation (gas) (grade 100-LL)	0.5 mg/mL	MeOH	GA-004	
	20 mg/mL	MeOH	GA-004-40X	
	20 mg/mL	CH_2Cl_2	GA-004-D-40X	
Biodiesel 20	0.5 mg/mL	CH_2Cl_2	FU-030-D	
	20 mg/mL	CH_2Cl_2	FU-030-D-40X	
Biodiesel 100	0.5 mg/mL	CH_2Cl_2	FU-029-D	
	20 mg/mL	CH_2Cl_2	FU-029-D-40X	
Biodiesel 100 (refinery grade)	0.5 mg/mL	CH_2Cl_2	FU-032-D	
	20 mg/mL	CH_2Cl_2	FU-032-D-40X	
p-Bromofluorobenzene 460-00-4	2.5 mg/mL	Acetone	GARH-SS	
1-Chloro-4-fluorobenzene 352-33-0	2 mg/mL	MeOH	AK-101-IS-10X	
1-Chlorooctadecane 3386-33-2	1 mg/mL	Hexane	DRH-007-SS	
1-Chloro-4-fluorobenzene 352-33-0	1 mg/mL	CH_2Cl_2	GARH-IS	
2,5-Dibromotoluene 615-59-8	50 µg/mL	MeOH	GRH-004-SS	
	500 µg/mL	MeOH	GRH-004-SS-10X	
	5 mg/mL	MeOH	GRH-004-SS-100X	
Diesel	0.5 mg/mL	MeOH	FU-009	
	5 mg/mL	CH_2Cl_2	FU-009-D-10X	
	20 mg/mL	MeOH	FU-009-40X	
	20 mg/mL	CH_2Cl_2	FU-009-D-40X	
#1 Diesel - Low Sulfur	0.5 mg/mL	MeOH	FU-013	
	20 mg/mL	MeOH	FU-013-40X	
	20 mg/mL	CH_2Cl_2	FU-013-D-40X	
#2 Diesel 68334-30-5	50 mg/mL	Acetone	DRO-AK-102-LCS-10X-R1	
#2 Diesel (Extra Low Sulfur) 68476-43-6	0.5 mg/mL	MeOH	FU-017	
	5 mg/mL	CH_2Cl_2	FU-017-D-10X	
	5 mg/mL	Acetone	DRO-AK-102-LCS	
	50 mg/mL	Acetone	DRO-AK-102-LCS-10X	
	20 mg/mL	MeOH	FU-017-40X	
	20 mg/mL	CH_2Cl_2	FU-017-D-40X	
#2 Diesel (Low Sulfur) 25% Weathered	5 mg/mL	CH_2Cl_2	FD2-W25-10X	
#2 Diesel (Low Sulfur) 50% Weathered	5 mg/mL	CH_2Cl_2	FD2-W50-10X	
#2 Diesel (Low Sulfur) 75% Weathered	5 mg/mL	CH_2Cl_2	FD2-W75-10X	
#2 Diesel 25% Weathered	5 mg/mL	CH_2Cl_2	FD2-W25-R1-10X	
#2 Diesel 50% Weathered	5 mg/mL	CH_2Cl_2	FD2-W50-R1-10X	
#2 Diesel 75% Weathered	5 mg/mL	CH_2Cl_2	FD2-W75-R1-10X	
Docosane 629-97-0	20 Wt.%	Toluene	D-5186-91-PM-0.4X	
n-Dodecane 112-40-3	5 mg/mL	MeOH	AS-E0238	
	1.5 Wt.%	Isooctane	M-GRA-SCS-AS	
#1 Fuel oil 70892-10-3	0.5 mg/mL	MeOH	FU-001	
	20 mg/mL	MeOH	FU-001-40X	
	20 mg/mL	CH_2Cl_2	FU-001-D-40X	
#2 Fuel oil 68476-30-2	0.5 mg/mL	MeOH	FU-002	
	20 mg/mL	MeOH	FU-002-40X	
	20 mg/mL	CH_2Cl_2	FU-002-D-40X	
#3 Fuel oil	0.5 mg/mL	Hexane	FU-003	
	20 mg/mL	Hexane	FU-003-40X	
	20 mg/mL	CH_2Cl_2	FU-003-D-40X	
#4 Fuel oil 68476-31-3	0.5 mg/mL	Hexane	FU-004	
	20 mg/mL	Hexane	FU-004-40X	
	20 mg/mL	CH_2Cl_2	FU-004-D-40X	
#6 Fuel oil 68553-00-4	0.5 mg/mL	Hexane	FU-008	
	20 mg/mL	Hexane	FU-008-40X	
	20 mg/mL	CH_2Cl_2	FU-008-D-40X	
Gasoline Regular, unleaded	0.5 mg/mL	MeOH	GA-001	
	5 mg/mL	MeOH	GA-001-10X	
	20 mg/mL	MeOH	GA-001-40X	
	20 mg/mL	CH_2Cl_2	GA-001-D-40X	
Gasoline Premium	0.5 mg/mL	MeOH	GA-003	
	20 mg/mL	MeOH	GA-003-40X	
	20 mg/mL	CH_2Cl_2	GA-003-D-40X	
Hydraulic Fluid 64742-54-7	0.5 mg/mL	Hexane	FU-020-H	
	20 mg/mL	Hexane	FU-020-H-40X	
	20 mg/mL	CH_2Cl_2	FU-020-D-40X	
Jet Reference Fuel Type I	0.5 mg/mL	MeOH	FU-011	
	20 mg/mL	MeOH	FU-011-40X	
	20 mg/mL	CH_2Cl_2	FU-011-D-40X	
JP-4 Jet Fuel 50815-00-4	0.5 mg/mL	MeOH	FU-010	
	20 mg/mL	MeOH	FU-010-40X	
	20 mg/mL	CH_2Cl_2	FU-010-D-40X	
JP-5 Fuel	0.5 mg/mL	MeOH	FU-012	
	20 mg/mL	MeOH	FU-012-40X	
	20 mg/mL	CH_2Cl_2	FU-012-D-40X	
JP-7 Fuel	0.5 mg/mL	MeOH	FU-014	
	20 mg/mL	MeOH	FU-014-40X	
	20 mg/mL	CH_2Cl_2	FU-014-D-40X	
JP-8 Fuel	0.5 mg/mL	MeOH	FU-015	
	20 mg/mL	MeOH	FU-015-40X	
	20 mg/mL	CH_2Cl_2	FU-015-D-40X	
JP-TS Aviation Fuel 64742-47-8	0.5 mg/mL	MeOH	FU-016	
	20 mg/mL	MeOH	FU-016-40X	
	20 mg/mL	CH_2Cl_2	FU-016-D-40X	
JP-10 Aviation Fuel	0.5 mg/mL	MeOH	FU-022	
	20 mg/mL	MeOH	FU-022-40X	
	20 mg/mL	CH_2Cl_2	FU-022-D-40X	
Kerosene 25% Weathered	5 mg/mL	CH_2Cl_2	FK-W25-10X	
Kerosene 50% Weathered	5 mg/mL	CH_2Cl_2	FK-W50-10X	
Kerosene 75% Weathered	5 mg/mL	CH_2Cl_2	FK-W75-10X	
Kerosene 8008-20-6	0.5 mg/mL	MeOH	FU-005	
	20 mg/mL	MeOH	FU-005-40X	
	5 mg/mL	CH_2Cl_2	FU-005-D-10X	
	20 mg/mL	CH_2Cl_2	FU-005-D-40X	
Lacquer Thinner	1 gram	Neat	HS-001N	
	0.5 mg/mL	MeOH	HS-001S	
	20 mg/mL	MeOH	HS-001S-40X	
	20 mg/mL	CH_2Cl_2	HS-001S-D-40X	
Mineral Spirits 8030-30-6	1 gram	Neat	HS-002N	
	0.5 mg/mL	MeOH	HS-002S	
	20 mg/mL	MeOH	HS-002S-40X	
	20 mg/mL	CH_2Cl_2	HS-002S-D-40X	
Naphtha 64742-89-8	1 gram	Neat	HS-003N	
	0.5 mg/mL	MeOH	HS-003S	
	20 mg/mL	MeOH	HS-003S-40X	
	20 mg/mL	CH_2Cl_2	HS-003S-D-40X	
Nonatriacontane 7194-86-7	750 µg/mL	Chloroform	DRH-FL-SS-R1	
	1 mg/mL	CS_2	DRH-FL-SS	
	3 mg/mL	CS_2	DRH-FL-SS-3X	
n-Pentadecane 629-62-9	5 mg/mL	MeOH	AS-E0241	
RFA Gasoline (oxygenate-free)	0.5 mg/mL	MeOH	GA-005	
	20 mg/mL	MeOH	GA-005-40X	
	20 mg/mL	CH_2Cl_2	GA-005-D-40X	
Regular Leaded Gasoline	0.5 mg/mL	MeOH	GA-002	
	20 mg/mL	MeOH	GA-002-40X	
	20 mg/mL	CH_2Cl_2	GA-002-D-40X	

Individual Fuels and Hydrocarbons continued on next page

TPH, Fuel and Hydrocarbons

Individual Fuel and Hydrocarbons

Compound	Conc.	Matrix	Cat. No. 1 mL
SAE 5W30 Motor oil	0.5 mg/mL	Hexane	FU-025-H
	20 mg/mL	Hexane	FU-025-H-40X
	20 mg/mL	CH_2Cl_2	FU-025-D-40X
SAE 10W30 Motor oil	0.5 mg/mL	Hexane	FU-026-H
	20 mg/mL	Hexane	FU-026-H-40X
	20 mg/mL	CH_2Cl_2	FU-026-D-40X
SAE 10W40 Motor oil	0.5 mg/mL	Hexane	FU-027-H
	20 mg/mL	Hexane	FU-027-H-40X
	20 mg/mL	CH_2Cl_2	FU-027-D-40X
SAE 20W50 Motor oil	0.5 mg/mL	Hexane	FU-028-H
	20 mg/mL	Hexane	FU-028-H-40X
	20 mg/mL	CH_2Cl_2	FU-028-D-40X
SAE 30W Motor oil	0.5 mg/mL	Hexane	FU-018-H
	20 mg/mL	Hexane	FU-018-H-40X
	20 mg/mL	CH_2Cl_2	FU-018-D-40X
SAE 40W Motor oil	0.5 mg/mL	Hexane	FU-019-H
	5 mg/mL	Acetone:CH_2Cl_2	RRO-AK-103-LCS
	20 mg/mL	Hexane	FU-019-H-40X
	20 mg/mL	CH_2Cl_2	FU-019-D-40X
	25 mg/mL	Acetone:CH_2Cl_2	RRO-AK-103-LCS-5X
SAE 50W Motor oil	20 mg/mL	CH_2Cl_2	FU-021-D-40X
Stoddard solvent 8052-41-3	1 gram	Neat	HS-005N
	0.5 mg/mL	MeOH	HS-005S
	5 mg/mL	MeOH	HS-005S-10X
	20 mg/mL	MeOH	HS-005S-40X
	20 mg/mL	CH_2Cl_2	HS-005S-D-40X

Compound	Conc.	Matrix	Cat. No. 1 mL
o-Terphenyl 84-15-1	200 µg/mL	Acetone	DRO-AK-102-SS
	1 mg/mL	CH_2Cl_2	DRH-006-SS
	2 mg/mL	Acetone	DRO-AK-102-SS-10X
	2 mg/mL	Acetone	GRH-SS
***n*-Tetradecane** 629-59-4	5 mg/mL	MeOH	AS-E0240
Tetracosane (5 mL) 646-31-1	500 µg/mL	CS_2	D-5480-C40-5ML
	500 µg/mL	Chloroform	D-5480-C40-R1-5ML
***n*-Tridecane** 629-50-5	5 mg/mL	MeOH	AS-E0239
1,2,3-Trimethylbenzene 526-73-8	1 mg/mL	CH_2Cl_2	V-028S-D-10X
n-Triacontane-d_{62} 93952-07-9	500 µg/mL	Acetone:THF	RRO-AK-103-SS
	5 mg/mL	Acetone:THF	RRO-AK-103-SS2
	5 mg/mL	THF	DRH-SS
Turbine (Jet) fuel	0.5 mg/mL	MeOH	FU-006
	20 mg/mL	MeOH	FU-006-40X
	20 mg/mL	CH_2Cl_2	FU-006-D-40X
Turpentine 8006-64-2	1 gram	Neat	HS-004N
	0.5 mg/mL	MeOH	HS-004S
	20 mg/mL	MeOH	HS-004S-40X
	20 mg/mL	CH_2Cl_2	HS-004S-D-40X
Unleaded Gasoline 25% Weathered	5 mg/mL	MeOH	GA-W25-10X
Unleaded Gasoline 50% Weathered	5 mg/mL	MeOH	GA-W50-10X
Unleaded Gasoline 75% Weathered	5 mg/mL	MeOH	GA-W75-10X

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_2Cl_2	FU-009-D-40X
#1 Diesel (Low sulfur)	20	CH_2Cl_2	FU-013-D-40X
#2 Diesel (Extra low sulfur)	20	CH_2Cl_2	FU-017-D-40X
SAE 30W Motor oil	20	CH_2Cl_2	FU-018-D-40X
SAE 40W Motor oil	20	CH_2Cl_2	FU-019-D-40X
SAE 50W Motor oil	20	CH_2Cl_2	FU-021-D-40X
Biodiesel 20	20	CH_2Cl_2	FU-030-D-40X
Biodiesel 100 (consumer grade)	20	CH_2Cl_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_2Cl_2	FU-001-D-40X
#2 Fuel oil	20	CH_2Cl_2	FU-002-D-40X
#3 Fuel oil	20	CH_2Cl_2	FU-003-D-40X
#4 Fuel oil	20	CH_2Cl_2	FU-004-D-40X
#6 Fuel oil	20	CH_2Cl_2	FU-008-D-40X
Kerosene	20	CH_2Cl_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_2Cl_2	GA-004-D-40X
JP-4 Fuel	20	CH_2Cl_2	FU-010-D-40X
JP-5 Fuel	20	CH_2Cl_2	FU-012-D-40X
JP-7 Fuel	20	CH_2Cl_2	FU-014-D-40X
JP-8 Fuel	20	CH_2Cl_2	FU-015-D-40X
JP-10 Fuel	20	CH_2Cl_2	FU-022-D-40X
JP-TS	20	CH_2Cl_2	FU-016-D-40X
Jet Fuel (Type 1)	20	CH_2Cl_2	FU-011-D-40X
Turbine (Jet A) Fuel	20	CH_2Cl_2	FU-006-D-40X
Hydraulic oil	20	CH_2Cl_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_2Cl_2	HS-001S-D-40X
Mineral Spirits	20	CH_2Cl_2	HS-002S-D-40X
Naphtha	20	CH_2Cl_2	HS-003S-D-40X
Turpentine	20	CH_2Cl_2	HS-004S-D-40X
Stoddard solvent	20	CH_2Cl_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_2Cl_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_2Cl_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_2Cl_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_2Cl_2	FU-028-D-40X
Composite Standard	20.0	CH_2Cl_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_2Cl_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_2Cl_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

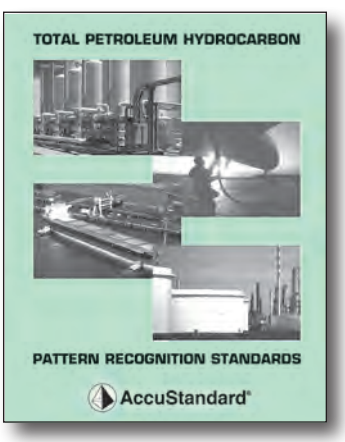
Weathered #2 Diesel (Conventional) Set

WFD2-R1-SET	Each in 5.0 mg/mL in CH_2Cl_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 **5 x 1 mL**
At stated conc. (µg/mL) in MeOH 8 comps.

	CCME-LPF-0.05X	CCME-LPF-0.1X	CCME-LPF-0.2X	CCME-LPF-0.5X	CCME-LPF
n-Decane	12.5	25	50	125	250
n-Hexane	12.5	25	50	125	250
Toluene	12.5	25	50	125	250
Benzene	12.5	25	50	125	250
o-Xylene	12.5	25	50	125	250
m-Xylene	6.25	12.5	25	62.5	125
p-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.

	CCME-MHPF-0.1X	CCME-MHPF-0.5X	CCME-MHPF
n-Decane	40	200	400
n-Hexadecane	40	200	400
n-Tetratriacontane	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 - 50% Weathered

Hydrocarbon Standard

D-5442-R1 **1 x 1 mL**
100 µg/mL each in Cyclohexane 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-Tetratriacontane
n-Hexatriacontane
n-Octatriacontane
n-Tetracontane
n-Tetratetracontane
n-Pentacontane

Canadian Atlantic RBCA EPH Mix

CCME-EPH **1 x 1 mL**
1000 µg/mL each in Hexane:CH_2Cl_2 (85:15) 11 comps.

Acenapthene
Anthracene
Benz[a]pyrene
Chrysene
n-Decane
n-Dodecane
n-Dotriacontane
n-Heneicosane
n-Hexadecane
n-Octaconsane
Naphthalene

Surrogate Standard

CCME-EPH/SS **1 x 1 mL**
1000 µg/mL each in CH_2Cl_2 2 comps.

n-Dotriacontane
Isobutylbenzene

Canadian Atlantic RBCA VPH Mix

CCME-VPH **1 x 1 mL**
1000 µg/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 µg/mL in MeOH

Isobutylbenzene

ISO/DIS 9377 Hydrocarbon Oil Index

Diesel #2/Mineral Oil Standard

ENISO9377-2-1 **1 x 1 mL**
5000 µg/mL each in Hexane 2 comps.

#2 Diesel
Mineral Oil

Quality Control Standard Mix

ISO/DIS9377-4-1 **1 x 1 mL**
500 µg/mL each in Acetone 2 comps.

#2 Diesel
Mineral Oil

Extraction Solvent Stock Soln.

ENISO9377-2-3 **1 x 5 mL**
At stated conc.(µg/mL) in Hexane 2 comps.

n-Decane	14.5
n-Tetracontane	20

Stearyl Stearate Test Solution

ISO/DIS9377-4-2 **1 x 10 mL**
2000 µg/mL in Cyclohexane

Stearyl stearate

Florisil Cartridge QC Std. Mix

ENISO9377-2-4 **1 x 10 mL**
1000 µg/mL each in Hexane 2 comps.

#2 Diesel
Mineral Oil

System Performance Standard of n-alkanes

ENISO9377-2-2 **1 x 1 mL**
50 µg/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-Tetratriacontane
n-Hexatriacontane
n-Octatriacontane
n-Tetracontane

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 µg/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

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 — **1 x 1 mL**
DRH-008S-R2-PAK — ***SAVE*** **$** — **5 x 1 mL**
500 µg/mL each in Chloroform — 35 comps.

n-Octane	Phytane	*n*-Triacontane
n-Nonane	*n*-Nonadecane	*n*-Hentriacontane
n-Decane	*n*-Eicosane	*n*-Dotriacontane
n-Undecane	*n*-Heneicosane	*n*-Tritriacontane
n-Dodecane	*n*-Docosane	*n*-Tetratriacontane
n-Tridecane	*n*-Tricosane	*n*-Pentatriacontane
n-Tetradecane	*n*-Tetracosane	*n*-Hexatriacontane
n-Pentadecane	*n*-Pentacosane	*n*-Heptatriacontane
n-Hexadecane	*n*-Hexacosane	*n*-Octatriacontane
n-Heptadecane	*n*-Heptacosane	*n*-Nonatriacontane
Pristane	*n*-Octacosane	*n*-Tetracontane
n-Octadecane	*n*-Nonacosane	

Technical Note

We offer a hydrocarbon window defining standard with the C_8 to C_{40} 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 C_{17} (Pristane) and C_{18} (Phytane) ratio to estimate subsurface degradation of fuel oil spills, the compounds are also included in the formulation.

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_2Cl_2 — 12 comps.

n-Decane	*n*-Eicosane	*n*-Octadecane
n-Dodecane	*n*-Hexacosane	*n*-Tetracosane
n-Docosane	*n*-Hexadecane	*n*-Tetradecane
n-Dotriacontane	*n*-Octacosane	*n*-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

o-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_2Cl_2 — 3 comps.

n-Decane	*n*-Dotriacontane
n-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_2Cl_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	*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	1,4-Dichlorobenzene	*p*-Xylene
Chlorobenzene	Ethylbenzene	*m*-Xylene
1,2-Dichlorobenzene	Toluene	MtBE
1,3-Dichlorobenzene	*o*-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	*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

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	*m*-Tolualdehyde-DNPH	7.5
n-Butyraldehyde-DNPH	10.5	Valeraldehyde-DNPH	9.3
Crotonaldehyde-DNPH	10.7		

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		

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.

Connecticut Method Extractable Total Petroleum Hydrocarbons

CT ETPH Alkane Standard

DRH-009S **1 x 1 mL**
DRH-009S-PAK *SAVE* **5 x 1 mL**
1000 µg/mL in CH_2Cl_2 15 comps.

n-Nonane	*n*-Octadecane	*n*-Octacosane
n-Decane	*n*-Eicosane	*n*-Triacontane
n-Dodecane	*n*-Docosane	*n*-Dotriacontane
n-Tetradecane	*n*-Tetracosane	*n*-Tetratriacontane
n-Hexadecane	*n*-Hexacosane	*n*-Hexatriacontane

Internal Standard

GRH-IS **1 x 1 mL**
GRH-IS-PAK *SAVE* **5 x 1 mL**
1.0 mg/mL in CH_2Cl_2

5-alpha Androstane

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)*

Mississippi Method

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_2Cl_2 16 comps.

n-Decane	*n*-Hexadecane	*n*-Heneicosane
n-Undecane	*n*-Heptadecane	*n*-Docosane
n-Dodecane	*n*-Octadecane	*n*-Tricosane
n-Tridecane	*n*-Nonadecane	*n*-Tetracosane
n-Tetradecane	*n*-Eicosane	*n*-Pentacosane
n-Pentadecane		

New Jersey Method

DEP (NJ) Aliphatic Hydrocarbon Standard

DRH-NJ-001S **1 x 1 mL**
1.0 mg/mL each in Hexane 20 comps.

n-Nonane	*n*-Heneicosane	*n*-Tetratriacontane
n-Decane	*n*-Docosane	*n*-Hexatriacontane
n-Dodecane	*n*-Tetracosane	*n*-Octatriacontane
n-Tetradecane	*n*-Hexacosane	*n*-Tetracontane
n-Hexadecane	*n*-Octacosane	Naphthalene
n-Octadecane	*n*-Triacontane	2-Methylnaphthalene
n-Eicosane	*n*-Dotriacontane	

DEP (NJ) Aromatic Hydrocarbon Standard

DRH-NJ-002S **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_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

Pennsylvania Method Storage Tank Site Closure & Monitoring Petroleum Standards

PA Extractable PAH Standard

DRH-PA-001 **1 x 1 mL**
DRH-PA-001-PAK *SAVE* **5 x 1 mL**
2000 µg/mL each in CH_2Cl_2 5 comps.

Benz[a]anthracene	Fluorene	Phenanthrene
Benz[a]pyrene	Naphthalene	

PA Volatile Petroleum Standard

GRH-PA-001 **1 x 1 mL**
GRH-PA-001-PAK *SAVE* **5 x 1 mL**
At stated conc. (µg/mL) in MeOH 9 comps.

Benzene	1000	*o*-Xylene	1000
Ethylbenzene	1000	*m*-Xylene	1000
MtBE	2000	*p*-Xylene	1000
Naphthalene	1000	Isopropylbenzene	1000
Toluene	1000		

Tennessee Method

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_2Cl_2 16 comps.

n-Decane	*n*-Hexadecane	*n*-Heneicosane
n-Undecane	*n*-Heptadecane	*n*-Docosane
n-Dodecane	*n*-Octadecane	*n*-Tricosane
n-Tridecane	*n*-Nonadecane	*n*-Tetracosane
n-Tetradecane	*n*-Eicosane	*n*-Pentacosane
n-Pentadecane		

Wisconsin Method

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	Toluene	*o*-Xylene
Ethylbenzene	1,2,4-Trimethylbenzene	*m*-Xylene
MtBE	1,3,5-Trimethylbenzene	*p*-Xylene
Naphthalene		

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 — 5 comps.

n-Hexane	*n*-Octane	*n*-Decane
n-Heptane	*n*-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 — 2 comps.

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 — 2 comps.

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 — 2 comps.

p-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 — 14 comps.

Benzene	*o*-Xylene	*m*-Ethyltoluene
Toluene	1,2,3-Trimethylbenzene	*p*-Ethyltoluene
Ethylbenzene	1,2,4-Trimethylbenzene	*o*-Ethyltoluene
m-Xylene	1,3,5-Trimethylbenzene	*n*-Propylbenzene
p-Xylene	Isopropylbenzene	

Certified BTEX in Gasoline (Single Source)

GA-001-20X-BTEX — **1 x 1 mL**
10.0 mg/mL in MeOH — 6 comps.

Benzene	*m,p*-Xylene
Ethylbenzene	*o*-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 — 3 comps.

Gasoline-Premium, unleaded	1.66
Gasoline-Regular, leaded	1.67
Gasoline-Regular, unleaded	1.67

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 — 3 comps.

Gasoline-Premium, unleaded	1.66
Gasoline-Regular, leaded	1.67
Gasoline-Regular, unleaded	1.67

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.% — 3 comps.

Gasoline-Regular, unleaded
Gasoline-Plus, unleaded
Gasoline-Premium, unleaded

Technical Note

Laboratory Control Standards are prepared from an independent source.

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_2Cl_2 16 comps.

n-Decane
n-Undecane
n-Dodecane
n-Tridecane
n-Tetradecane
n-Pentadecane
n-Hexadecane
n-Heptadecane
n-Octadecane
n-Nonadecane
n-Eicosane
n-Heneicosane
n-Docosane
n-Tricosane
n-Tetracosane
n-Pentacosane

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_2Cl_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_2Cl_2 10 comps.

n-Undecane
n-Pentadecane
n-Heptadecane
n-Octadecane
n-Tetracosane
Naphthalene
Acenaphthene
Fluorene
Pyrene
Anthracene

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_2Cl_2* 3 comps.

Squalane
o-Terphenyl
5,6,7,8-Tetrahydro-1-naphthol

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_2Cl_2* 3 comps.

n-Decane
n-Pentacosane
n-Hexatriacontane

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_2Cl_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_2Cl_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_2Cl_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)

n-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_2Cl_2 9 comps.

n-Hexacosane
n-Octacosane
n-Triacontane
n-Dotriacontane
n-Tetratriacontane
Benzo[b]fluoranthene
Benz[a]pyrene
Benzo[g,h,i]perylene
Dibenz[a,h]anthracene

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_2Cl_2* 3 comps.

Squalane
o-Terphenyl
5,6,7,8-Tetrahydro-1-naphthol

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_2Cl_2* 3 comps.

n-Decane
n-Pentacosane
n-Hexatriacontane

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 — 17 comps.

n-Octane	(C_8)	*n*-Hexacosane	(C_{26})
n-Decane	(C_{10})	*n*-Octacosane	(C_{28})
n-Dodecane	(C_{12})	*n*-Triacontane	(C_{30})
n-Tetradecane	(C_{14})	*n*-Dotriacontane	(C_{32})
n-Hexadecane	(C_{16})	*n*-Tetratriacontane	(C_{34})
n-Octadecane	(C_{18})	*n*-Hexatricontane	(C_{36})
n-Eicosane	(C_{20})	*n*-Octatriacontane	(C_{38})
n-Docosane	(C_{22})	*n*-Tetracontane	(C_{40})
n-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 — 17 comps.

n-Octane	*n*-Hexacosane
n-Decane	*n*-Octacosane
n-Dodecane	*n*-Triacontane
n-Tetradecane	*n*-Dotriacontane
n-Hexadecane	*n*-Tetratriacontane
n-Octadecane	*n*-Hexatriacontane
n-Eicosane	*n*-Octatriacontane
n-Docosane	*n*-Tetracontane
n-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_2Cl_2

GRH-IS-10X — **1 x 1 mL**
10 mg/mL in CH_2Cl_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

n-Triacontane-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

n-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.

n-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 — 2 comps.

n-Nonatriacontane	6000	*o*-Terphenyl *(OTP)*	1500

Carbon disulfide can not ship by air. When possible alternate solvents can be used. Please contact our Technical Service Department for other options.

Massachusetts Method Determination of Extractable Petroleum Hydrocarbons (EPH)

Aromatic Hydrocarbons Calibration Set

DRH-006-CAL-SET — **5 x 1 mL**
At stated conc. (µg/mL) in CH_2Cl_2 — 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 — **5 x 1 mL**
At stated conc. (µg/mL) in CH_2Cl_2 : n-Hexane (50:50) — 15 comps.

Components	Level 1 (1X)	Level 2 (4X)	Level 3 (10X)	Level 4 (20X)	Level 5 (40X)
n-Nonane	5	20	50	100	200
n-Decane	5	20	50	100	200
n-Dodecane	5	20	50	100	200
n-Tetradecane	5	20	50	100	200
n-Hexadecane	5	20	50	100	200
n-Octadecane	5	20	50	100	200
n-Nonadecane	5	20	50	100	200
n-Eicosane	5	20	50	100	200
n-Docosane	5	20	50	100	200
n-Tetracosane	5	20	50	100	200
n-Hexacosane	5	20	50	100	200
n-Octacosane	5	20	50	100	200
n-Triacontane	5	20	50	100	200
n-Hexatriacontane	5	20	50	100	200
1-Chlorooctadecane (Surrogate)	5	20	50	100	200

Combined Aromatic/Aliphatic Matrix Spike Standard

DRH-MS-ASL — **1 x 1 mL**
DRH-MS-ASL-PAK — *SAVE* — **5 x 1 mL**
25 µg/mL each in Hexane : CH_2Cl_2 (95:5) — 31 comps.

Acenaphthene
Acenaphthylene
Anthracene
Benz[a]anthracene
Benz[a]pyrene
Benzo[b]fluoranthene
Benzo[g,h,i]perylene
Benzo[k]fluoranthene
Chrysene
n-Decane
Dibenz[a,h]anthracene
n-Docosane
n-Dodecane
n-Eicosane
Fluoranthene
Fluorene
n-Hexacosane
n-Hexadecane
n-Hexatriacontane
Indeno[1,2,3-cd]pyrene
2-Methylnaphthalene
Naphthalene
n-Nonadecane
n-Nonane
n-Octacosane
n-Octadecane
Phenanthrene
Pyrene
n-Tetracosane
n-Tetradecane
n-Triacontane

DEP (MA) - Fractionation Surrogate Spike

DRH-MA-FSS-10ML — 40 µg/mL in Hexane — **1 x 10 mL**
DRH-MA-FSS-50X — 2.0 mg/mL in Hexane — **1 x 1 mL**
DRH-MA-FSS-50X-PAK — 2.0 mg/mL in Hexane — *SAVE* — **5 x 1 mL**
2 comps.

2-Fluorobiphenyl
2-Bromonaphthalene

Aromatic Surrogate

DRH-006-SS — **1 x 1 mL**
DRH-006-SS-PAK — *SAVE* — **5 x 1 mL**
1.0 mg/mL in CH_2Cl_2

o-Terphenyl

DEP (MA) - Aromatic Hydrocarbons

DRH-006S — **1 x 1 mL**
DRH-006S-PAK — *SAVE* — **5 x 1 mL**
1.0 mg/mL each in CH_2Cl_2 — 17 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
2-Methylnaphthalene
Naphthalene
Phenanthrene
Pyrene

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 — **1 x 1 mL**
DRH-007S-PAK — *SAVE* — **5 x 1 mL**
1.0 mg/mL each in CH_2Cl_2 : Hexane (50:50) — 14 comps.

n-Nonane
n-Decane
n-Dodecane
n-Tetradecane
n-Hexadecane
n-Octadecane
n-Nonadecane
n-Eicosane
n-Docosane
n-Tetracosane
n-Hexacosane
n-Octacosane
n-Triacontane
n-Hexatriacontane

Aliphatic Surrogate

DRH-007-SS — **1 x 1 mL**
DRH-007-SS-PAK — *SAVE* — **5 x 1 mL**
1.0 mg/mL in Hexane

1-Chlorooctadecane

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

DRH-MA-MS — **1 x 1 mL**
DRH-MA-MS-PAK — *SAVE* — **5 x 1 mL**
25 µg/mL in Acetone — 10 comps.

DRH-MA-MS-10X — **1 x 1 mL**
DRH-MA-MS-10X-PAK — *SAVE* — **5 x 1 mL**
250 µg/mL in Acetone — 10 comps.

DRH-MA-MS-40X — **1 x 1 mL**
DRH-MA-MS-40X-PAK — *SAVE* — **5 x 1 mL**
1,000 µg/mL in Acetone — 10 comps.

Acenaphthene
Anthracene
Chrysene
n-Eicosane
Naphthalene
n-Nonadecane
n-Nonane
n-Octacosane
Pyrene
n-Tetradecane

Internal Standard

GRH-IS — **1 x 1 mL**
GRH-IS-PAK — *SAVE* — **5 x 1 mL**
1,000 µg/mL in CH_2Cl_2

GRH-IS-10X — **1 x 1 mL**
10.0 mg/mL in CH_2Cl_2

5-alpha Androstane

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**
At stated conc. (mg/mL) in MeOH 13 comps.

Benzene	5.0	*n*-Pentane	10.0
Ethylbenzene	5.0	Toluene	15.0
Isooctane	15.0	1,2,4-Trimethylbenzene	10.0
2-Methylpentane	15.0	*o*-Xylene	10.0
MtBE	15.0	*m*-Xylene	10.0
Naphthalene	10.0	*p*-Xylene	10.0
n-Nonane	10.0		

DEP (MA)-VPH Surrogate Standard

GRH-004-SS **1 x 1 mL**
GRH-004-SS-PAK ***SAVE*** **5 x 1 mL**
50 µg/mL in MeOH

GRH-004-SS-10X **1 x 1 mL**
GRH-004-SS-10X-PAK ***SAVE*** **5 x 1 mL**
500 µg/mL in MeOH

GRH-004-SS-100X **1 x 1 mL**
GRH-004-SS-100X-PAK ***SAVE*** **5 x 1 mL**
5,000 µg/mL in MeOH

2,5-Dibromotoluene

MA VPH Matrix Spike Mix with Surrogate

GRH-004-MS/SS **1 x 1 mL**
50 µg/mL each in MeOH 14 comps.

Benzene	Naphthalene
n-Butylcyclohexane	*n*-Nonane
n-Decane	*n*-Pentane
2,5-Dibromotoluene	Toluene
Ethylbenzene	1,2,4-Trimethylbenzene
2-Methylpentane	Isooctane
MtBE	*m*-Xylene

VPH Matrix Spike

GRH-004-MS **1 x 1 mL**
GRH-004-MS-PAK ***SAVE*** **5 x 1 mL**
50 µg/mL each in MeOH

GRH-004-MS-10X **1 x 1 mL**
GRH-004-MS-10X-PAK ***SAVE*** **5 x 1 mL**
500 µg/mL each in MeOH

GRH-004-MS-100X **1 x 1 mL**
GRH-004-MS-100X-PAK ***SAVE*** **5 x 1 mL**
5,000 µg/mL each in MeOH 8 comps.

Benzene	Naphthalene	*m*-Xylene
Ethylbenzene	Toluene	*p*-Xylene
MtBE	*o*-Xylene	

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

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**
At stated conc. (mg/mL) in MeOH 15 comps.

Benzene	5.0	Toluene	15.0
Ethylbenzene	5.0	1,2,4-Trimethylbenzene	10.0
Isooctane	15.0	*o*-Xylene	10.0
2-Methylpentane	15.0	*m*-Xylene	10.0
MtBE	15.0	*p*-Xylene	10.0
Naphthalene	10.0	*n*-Butylcyclohexane	10.0
n-Nonane	10.0	*n*-Decane	10.0
n-Pentane	10.0		

GRH-004S-R2 **1 x 1 mL**
10 mg/mL each in MeOH 15 comps.

Benzene	Toluene
Ethylbenzene	1,2,4-Trimethylbenzene
Isooctane	*o*-Xylene
2-Methylpentane	*m*-Xylene
MtBE	*p*-Xylene
Naphthalene	*n*-Butylcyclohexane
n-Nonane	*n*-Decane
n-Pentane	

Volatile Petroleum Hydrocarbons with Surrogate

GRH-004S/SS **1 x 1 mL**
GRH-004S/SS-PAK ***SAVE*** **5 x 1 mL**
At stated conc. (µg/mL) in MeOH 14 comps.

Benzene	500	*n*-Nonane	1,000
2,5-Dibromotoluene (Surrogate)	1,000	*n*-Pentane	1,000
Ethylbenzene	500	Toluene	1,500
Isooctane	1,500	1,2,4-Trimethylbenzene	1,000
2-Methylpentane	1,500	*o*-Xylene	1,000
MtBE	1,500	*m*-Xylene	1,000
Naphthalene	1,000	*p*-Xylene	1,000

GRH-004S/SS-R1 **1 x 1 mL**
At stated conc. (µg/mL) in MeOH 16 comps.

Benzene	500	*n*-Pentane	1,000
2,5-Dibromotoluene (Surrogate)	1,000	Toluene	1,500
Ethylbenzene	500	1,2,4-Trimethylbenzene	1,000
Isooctane	1,500	*o*-Xylene	1,000
2-Methylpentane	1,500	*m*-Xylene	1,000
MtBE	1,500	*p*-Xylene	1,000
Naphthalene	1,000	*n*-Butylcyclohexane	1,000
n-Nonane	1,000	*n*-Decane	1,000

GRH-004S/SS-R2 **1 x 1 mL**
10.0 mg/mL each in MeOH 16 comps.

Benzene	*n*-Pentane
2,5-Dibromotoluene (Surrogate)	Toluene
Ethylbenzene	1,2,4-Trimethylbenzene
Isooctane	*o*-Xylene
2-Methylpentane	*m*-Xylene
MtBE	*p*-Xylene
Naphthalene	*n*-Butylcyclohexane
n-Nonane	*n*-Decane

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 — *SAVE* — **5 x 1 mL**
2000 µg/mL each in n-Pentane — 12 comps.

n-Hexane	*n*-Tetradecane	*n*-Docosane
n-Octane	*n*-Hexadecane	*n*-Tetracosane
n-Decane	*n*-Octadecane	*n*-Hexacosane
n-Dodecane	*n*-Eicosane	*n*-Octacosane

Gasoline & Diesel Calibration Curve Set

DRH-TX-002-D-SET — **8 x 1 mL**
Each at stated conc. in CH_2Cl_2 — 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 CH_2Cl_2 — 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 — *SAVE* — **5 x 1 mL**
5000 µg/mL each in MeOH — 2 comps.

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 — *SAVE* — **5 x 1 mL**
20,000 µg/mL each in CH_2Cl_2 — 2 comps.

Gasoline-Regular, unleaded — #2 Diesel Fuel

Buy AccuPAKs
Save 20-40% 5 x 1 mL

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 — *SAVE* — **5 x 5 mL**
10,000 µg/mL each in Pentane — 2 comps.

Gasoline-Regular, unleaded — #2 Diesel Fuel

Surrogate Standard

DRH-TX-003-SS1 — **1 x 5 mL**
DRH-TX-003-SS1-PAK — *SAVE* — **5 x 5 mL**
10 mg/mL each in Pentane — 2 comps.

1-Chlorooctadecane — 1-Chlorooctane

Carbon Number Distribution Maker

DRH-TX-003-CNM — **1 x 1 mL**
DRH-TX-003-CNM-PAK — *SAVE* — **5 x 1 mL**
2000 µg/mL each in Pentane — 9 comps.

n-Decane	*n*-Heptane	*n*-Octacosane
n-Dodecane	*n*-Hexadecane	*n*-Octane
n-Heneicosane	*n*-Hexane	*n*-Pentatriacontane

Aromatic Fractionation Check Standard

DRH-TX-003-FCS — **1 x 10 mL**
DRH-TX-003-FCS-PAK — *SAVE* — **5 x 10 mL**
20 µg/mL each in Pentane — 24 comps.

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	*m*-Xylene
Benzo[k]fluoranthene	Fluorene	*p*-Xylene
Benz[a]pyrene	Indeno[1,2,3-cd]pyrene	*o*-Xylene

Washington Method Determination of Volatile Petroleum Hydrocarbons (VPH)

VPH Standard

VPH-WA — **1 x 1 mL**
VPH-WA-PAK — ***SAVE*** — **5 x 1 mL**
200 µg/mL each in MeOH — 15 comps.

Benzene	*p*-Xylene	*n*-Decane
Ethylbenzene	MtBE	*n*-Dodecane
Toluene	*n*-Pentane	1-Methylnaphthalene
o-Xylene	*n*-Hexane	Naphthalene
m-Xylene	*n*-Octane	1,2,3-Trimethylbenzene

VPH Primary Dilution Standard with Surrogate

VPH-WA-SS-10X — **1 x 1 mL**
VPH-WA-SS-10X-PAK — ***SAVE*** — **5 x 1 mL**
2,000 µg/mL each in MeOH — 16 comps.

Benzene	MtBE	*n*-Dodecane
Ethylbenzene	*n*-Pentane	1-Methylnaphthalene
Toluene	*n*-Hexane	Naphthalene
o-Xylene	*n*-Octane	1,2,3-Trimethylbenzene
m-Xylene	*n*-Decane	2,5-Dibromotoluene (surrogate)
p-Xylene		

Stock Concentrate VPH Standards

VPH-WA-10X — **1 x 1 mL**
VPH-WA-10X-PAK — ***SAVE*** — **5 x 1 mL**
2,000 µg/mL each in MeOH — 15 comps.

VPH-WA-100X — **1 x 1 mL**
VPH-WA-100X-PAK — ***SAVE*** — **5 x 1 mL**
20.0 mg/mL each in MeOH — 15 comps.

Benzene	*p*-Xylene	*n*-Decane
Ethylbenzene	MtBE	*n*-Dodecane
Toluene	*n*-Pentane	1-Methylnaphthalene
o-Xylene	*n*-Hexane	Naphthalene
m-Xylene	*n*-Octane	1,2,3-Trimethylbenzene

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

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

VPH Matrix Spike

VPH-WA-MS — **1 x 1 mL**
VPH-WA-MS-PAK — ***SAVE*** — **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	*m*-Xylene	60
Naphthalene	360	*p*-Xylene	60
n-Nonane	200	*o*-Xylene	60
n-Pentane	600		

VPH Surrogate Standard

GRH-004-SS — **1 x 1 mL**
GRH-004-SS-PAK — ***SAVE*** — **5 x 1 mL**
50 µg/mL in MeOH
GRH-004-SS-10X — **1 x 1 mL**
GRH-004-SS-10X-PAK — ***SAVE*** — **5 x 1 mL**
500 µg/mL in MeOH
GRH-004-SS-100X — **1 x 1 mL**
GRH-004-SS-100X-PAK — ***SAVE*** — **5 x 1 mL**
5,000 µg/mL in MeOH

2,5-Dibromotoluene

VPH Retention Time Marker

VPH-WA-RT — **1 x 1 mL**
VPH-WA-RT-PAK — ***SAVE*** — **5 x 1 mL**
2,000 µg/mL each in MeOH — 6 comps.

n-Pentane	*n*-Octane	*n*-Dodecane
n-Hexane	*n*-Decane	*n*-Tridecane

1,2,3-Trimethylbenzene Standard

V-028S-D-10X — **1 x 1 mL**
V-028S-D-10X-PAK — ***SAVE*** — **5 x 1 mL**
1000 µg/mL each in CH_2Cl_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.

Washington Method Determination of Extractable Petroleum Hydrocarbons (EPH)

EPH Aromatic/PAH Standard

EPH-WA-10X — **1 x 1 mL**
EPH-WA-10X-PAK — ***SAVE*** — **5 x 1 mL**
1.0 mg/mL each in CH_2Cl_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 — ***SAVE*** — **5 x 1 mL**
1000 µg/mL in CH_2Cl_2

GRH-IS-10X — **1 x 1 mL**
10.0 mg/mL in CH_2Cl_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 — ***SAVE*** — **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 — ***SAVE*** — **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 — ***SAVE*** — **5 x 1 mL**
1.0 mg/mL each in CH_2Cl_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 — ***SAVE*** — **5 x 1 mL**
1.0 mg/mL each in CH_2Cl_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 — ***SAVE*** — **5 x 1 mL**
1.0 mg/mL each in CH_2Cl_2 — 6 comps.

n-Octane	*n*-Dodecane	*n*-Heneicosane
n-Decane	*n*-Hexadecane	*n*-Tetratriacontane

EPH Fractionation Check Standard

EPH-WA-FCS — **1 x 1 mL**
EPH-WA-FCS-PAK — ***SAVE*** — **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 — ***SAVE*** — **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*-Tetratriacontane
Benzo[k]fluoranthene	Phenanthrene	

1,2,3-Trimethylbenzene Standard

V-028S-D-10X — **1 x 1 mL**
V-028S-D-10X-PAK — ***SAVE*** — **5 x 1 mL**
1000 µg/mL each in CH_2Cl_2

1,2,3-Trimethylbenzene

Revised EPH Aromatic Check Mix

EPH-WA-ARO-R1 — **1 x 1 mL**
EPH-WA-ARO-R1-PAK — ***SAVE*** — **5 x 1 mL**
1.0 mg/mL each in CH_2Cl_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 — ***SAVE*** — **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 — ***SAVE*** — **5 x 1 mL**
1.0 mg/mL in CH_2Cl_2

o-Terphenyl

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 CH_2Cl_2

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-Dibromoethane
1,2-Dichloroethane
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
Ethylbenzene
Toluene
m,p-Xylene
o-Xylene
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
Ethyl benzene
Toluene
o-Xylene
m-Xylene
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
Ethylbenzene
MtBE
Toluene
o-Xylene
m-Xylene
p-Xylene

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
Chlorobenzene
1,2-Dichlorobenzene
1,3-Dichlorobenzene
1,4-Dichlorobenzene
Ethylbenzene
Toluene
o-Xylene
p-Xylene
m-Xylene
MtBE

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
Ethylbenzene
n-Heptane
2-Methyl pentane
Toluene
1,2,4-Trimethylbenzene
2,2,4-Trimethylpentane
o-Xylene
m-Xylene
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
Ethylbenzene
MtBE
Naphthalene
Toluene
1,2,4-Trimethylbenzene
1,3,5-Trimethylbenzene
o-Xylene
m-Xylene
p-Xylene

Diesel Range Hydrocarbon Analysis

EPA Method - Diesel Range Hydrocarbons

DRH-001S — **1 x 1 mL**
0.2 mg/mL each in CH_2Cl_2 : Hexane (50:50) — 10 comps.

DRH-001S-10X — **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 : Hexane (50:50) — 10 comps.

n-Decane (C_{10})	*n*-Octadecane (C_{18})	*n*-Tetracosane (C_{24})
n-Dodecane (C_{12})	*n*-Eicosane (C_{20})	*n*-Hexacosane (C_{26})
n-Tetradecane (C_{14})	*n*-Docosane (C_{22})	*n*-Octacosane (C_{28})
n-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 CH_2Cl_2

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.

n-Octane (C_8)	*n*-Eicosane (C_{20})	*n*-Dotriacontane (C_{32})
n-Decane (C_{10})	*n*-Docosane (C_{22})	*n*-Tetratriacontane (C_{34})
n-Dodecane (C_{12})	*n*-Tetracosane (C_{24})	*n*-Hexatriacontane (C_{36})
n-Tetradecane (C_{14})	*n*-Hexacosane (C_{26})	*n*-Octatriacontane (C_{38})
n-Hexadecane (C_{16})	*n*-Octacosane (C_{28})	*n*-Tetracontane ((C_{40})
n-Octadecane (C_{18})	*n*-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-d_{62}

D2887 Calibration Solution

Calibration Solution

DRH-002S — **1 x 1 mL**
At stated conc. (µg/mL) in Carbon disulfide — 17 comps.

n-Hexane	600	*n*-Dodecane	1,200	*n*-Octacosane	100
n-Heptane	600	*n*-Tetradecane	1,200	*n*-Dotriacontane	100
n-Octane	800	*n*-Hexadecane	1,000	*n*-Hexatriacontane	100
n-Nonane	800	*n*-Octadecane	500	*n*-Tetracontane	100
n-Decane	1,200	*n*-Eicosane	200	*n*-Tetratetracontane	100
n-Undecane	1,200	*n*-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.

n-Decane (C_{10})	*n*-Tetradecane (C_{14})	*n*-Octadecane (C_{18})
n-Undecane (C_{11})	*n*-Pentadecane (C_{15})	*n*-Nonadecane (C_{19})
n-Dodecane (C_{12})	*n*-Hexadecane (C_{16})	*n*-Eicosane (C_{20})
n-Tridecane (C_{13})	*n*-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.

n-Octane	Phytane	*n*-Triacontane
n-Nonane	*n*-Nonadecane	*n*-Hentriacontane
n-Decane	*n*-Eicosane	*n*-Dotriacontane
n-Undecane	*n*-Heneicosane	*n*-Tritriacontane
n-Dodecane	*n*-Docosane	*n*-Tetratriacontane
n-Tridecane	*n*-Tricosane	*n*-Pentatriacontane
n-Tetradecane	*n*-Tetracosane	*n*-Hexatriacontane
n-Pentadecane	*n*-Pentacosane	*n*-Heptatriacontane
n-Hexadecane	*n*-Hexacosane	*n*-Octatriacontane
n-Heptadecane	*n*-Heptacosane	*n*-Nonatriacontane
Pristane	*n*-Octacosane	*n*-Tetracontane
n-Octadecane	*n*-Nonacosane	

Technical Note

We offer a hydrocarbon window defining standard with the C_8 - C_{40} 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 C_{17} / Pristane and C_{18} / 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 C_{17} / Pristane and C_{18} / Phytane ratio (DRH-005S-10X)

Fuel Oil Degradation/Retention Time Mixture for Quantification of C_{17}/Pristane & C_{18}/Phytane Ratios

DRH-005S-10X — **1 x 1 mL**
2.0 mg/mL each in CH_2Cl_2 : CS_2 (50:50) — 4 comps.

n-Heptadecane	Phytane	Pristane
n-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.

n-Octane	*n*-Eicosane	*n*-Dotriacontane
n-Decane	*n*-Docosane	*n*-Tetratriacontane
n-Dodecane	*n*-Tetracosane	*n*-Hexatriacontane
n-Tetradecane	*n*-Hexacosane	*n*-Octatriacontane
n-Hexadecane	*n*-Octacosane	*n*-Tetracontane
n-Octadecane	*n*-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.

n-Nonane	Phytane	*n*-Nonacosane
n-Undecane	*n*-Nonadecane	*n*-Hentriacontane
n-Tridecane	*n*-Heneicosane	*n*-Tritriacontane
n-Pentadecane	*n*-Tricosane	*n*-Pentatriacontane
n-Heptadecane	*n*-Pentacosane	*n*-Heptatriacontane
Pristane	*n*-Heptacosane	*n*-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

Precison 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 CH_2Cl_2 — 7 comps.

n-Hexane	*n*-Tetracosane	*n*-Triacontane
n-Decane	*n*-Octacosane	*n*-Tetracontane
n-Dodecane		

Technical Note

A sample showing peaks in the C_6-C_{10} range generally indicates a gasoline spill. Samples with the peaks in the C_{12}-C_{24} range are indicative of a diesel spill while samples with the higher carbon numbers above C_{24} are typically oils or lubricants. Once the initial screen is complete, more detailed work can be done to further identify the contaminant.

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

Custom Formulations

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

The products found in our catalog represent only a portion of the Inorganic reference standards we offer. If you require something you do not see in our catalog, or a variation of a catalog item, please let us know. Our experienced team routinely provides quality custom solutions to labs around the world.

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.

Custom standards are made and tested under the guidelines of our ISO certified quality system and are covered under the scope of our ISO accreditations. Standards are traceable to NIST SRMs wherever possible. You can be confident that you are not sacrificing quality when ordering a custom standard.

- 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
- Various packaging options and bulk discounts available

Custom formulations maybe requested by contacting Inorganic Technical Service at inotech@accustandard.com or by visiting our website www.AccuStandard.com

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.

AccuStandard is an ISO accredited Reference Material Producer.

■ 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

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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

AccuStandard® Inc.

Tel (203)786-5290
Fax (203)786-5287
www.AccuStandard.com

CERTIFICATE OF ANALYSIS

AccuTrace™ Reference Standard

Directly traceable to NIST SRM's - where available

Most Single element standards have a minumum 3 Year expiration period.

Density included for easy conversion to weight/ weight applications

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)

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	**Sn**	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 I 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

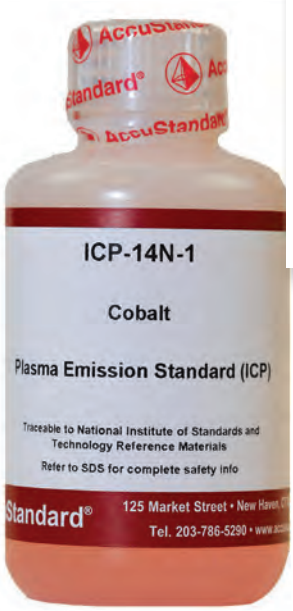
Certified By: Meigan O'Leary
Meigan O'Leary, Inorganic QC Manager

Page 1 of 1

For use in routine laboratory analysis.

OR-ORG/INO-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.

- 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 Cat. No.	10,000 µg/mL Cat. No.
Aluminum (Al) $Al(NO_3)_3 \bullet 9H_2O$	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) $BeO(C_2H_3O_2)_6$	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_3BO_3	Water tr. NH_4OH	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 $(NH_4)_2Cr_2O_7$	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_2O_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_2O_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_2O_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_2O_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

Single Element ICP

Element Starting Material	Matrix	Unit	1000 µg/mL Cat. No.	10,000 µg/mL Cat. No.
Germanium (Ge) $(NH_4)_2GeF_6$	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_2O_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) $IrCl_3 \bullet 3H_20$	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_2O_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_2CO_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_2O_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) $Mg(NO_3)_2 \bullet 6H_2O$	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) $Mn(C_2H_3O_2)_2$	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) $(NH_4)_2MoO_4$	Water tr. NH_4OH	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_2O_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_2O_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) $NH_4H_2PO_4$	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	---------- --

- 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 Cat. No.	10,000 µg/mL 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_6O_{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)		50 mL	--------- --	ICP-46H-10X-0.5
$RhCl_3 \bullet 3H_2O$	10% HCl	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) $RuCl_3 \bullet 3H_2O$	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_2O_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_2O_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) $(NH_4)2SiF_6$	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) $(NH_4)_2SO_4$	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_4O_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) $Th(NO_3)4 \bullet 4H_2O$	2-5% Nitric acid	------	--------- --	---------- --
		100 mL	ICP-61N-1	---------- --
		500 mL	ICP-61N-5	---------- --

Single Element ICP continued on next page

Single Element ICP

Element Starting Material	Matrix	Unit	1000 µg/mL Cat. No.	10,000 µg/mL Cat. No.
Thulium (Tm) Tm_2O_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) $(NH_4)_2TiF_6$	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) $(NH_4)_2WO_4$	Water tr. NH_4OH	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_3O_8	2-5% Nitric acid	-----	--------- --	---------- --
		100 mL	ICP-66N-1	---------- --
		500 mL	ICP-66N-5	---------- --
Vanadium (V) NH_4VO_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_2O_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_2O_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% HNO_3 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% HNO_3 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

			100 µg/mL	1,000 µg/mL	10,000 µg/mL
Element	**Matrix**	**Unit**	**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_4OH	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_4OH	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

Element	Matrix	Unit	100 µg/mL Cat. No.	1,000 µg/mL Cat. No.	10,000 µg/mL 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_2O 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_4OH	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% HNO_3 in 18 Megohm ASTM Type I deionized Water

Hydrochloric Acid Blank

ICP-MS-BLH-1 100 mL
ICP-MS-BLH-5 500 mL

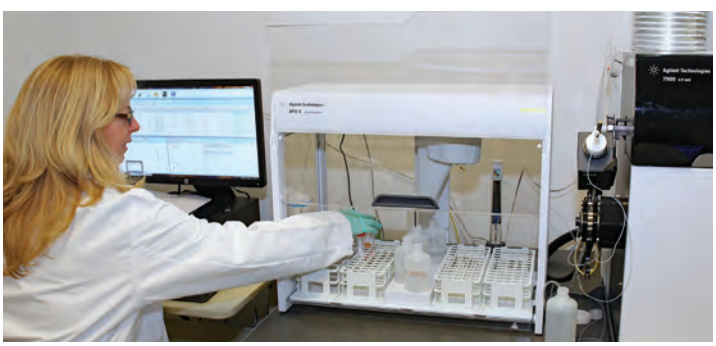
5% HCl in 18 Megohm ASTM Type I deionized Water

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



AA
Single Element and Matrix Modifier & Calibration

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 Matrix	Unit	1000 µg/mL Cat. No.
Aluminum (Al) 2-5% Nitric acid	100 mL 500 mL	AA01N-1 AA01N-5
Antimony (Sb) 2-5% HNO_3 tr.Tartaric acid	100 mL 500 mL	AA02N-1 AA02N-5
Arsenic (As) 2-5% Nitric acid	100 mL 500 mL	AA03N-1 AA03N-5
Barium (Ba) 2-5% Nitric acid	100 mL 500 mL	AA04N-1 AA04N-5
Boron (B) Water tr. NH_4OH	100 mL 500 mL	AA07W-1 AA07W-5
Cadmium (Cd) 2-5% Nitric acid	100 mL 500 mL	AA08N-1 AA08N-5
Calcium (Ca) 2-5% Nitric acid	100 mL 500 mL	AA09N-1 AA09N-5
Chromium (Cr) 2-5% Nitric acid	100 mL 500 mL	AA13N-1 AA13N-5
Cobalt (Co) 2-5% Nitric acid	100 mL 500 mL	AA14N-1 AA14N-5
Copper (Cu) 2-5% Nitric acid	100 mL 500 mL	AA15N-1 AA15N-5
Gold (Au) 5% HCl (min.)	100 mL 500 mL	AA22H-1 AA22H-5
Iron (Fe) 2-5% Nitric acid	100 mL 500 mL	AA27N-1 AA27N-5
Lead (Pb) 2-5% Nitric acid	100 mL 500 mL	AA29N-1 AA29N-5
Lithium (Li) 2-5% Nitric acid	100 mL 500 mL	AA30N-1 AA30N-5
Magnesium (Mg) 2-5% Nitric acid	100 mL 500 mL	AA32N-1 AA32N-5
Manganese (Mn) 2-5% Nitric acid	100 mL 500 mL	AA33N-1 AA33N-5
Mercury (Hg) ● 2-5% Nitric acid	100 mL 500 mL	AA34N-1 AA34N-5
Molybdenum (Mo) Water tr. NH_4OH	100 mL 500 mL	AA35W-1 AA35W-5
Nickel (Ni) 2-5% Nitric acid	100 mL 500 mL	AA37N-1 AA37N-5
Phosphorus (P) Water	100 mL 500 mL	AA41W-1 AA41W-5
Potassium (K) 2-5% Nitric acid	100 mL 500 mL	AA43N-1 AA43N-5
Selenium (Se) 2-5% Nitric acid	100 mL 500 mL	AA51N-1 AA51N-5
Silicon (Si) Water tr. HF	100 mL 500 mL	AA52W-1 AA52W-5
Silver (Ag) 2-5% Nitric acid	100 mL 500 mL	AA53N-1 AA53N-5
Sodium (Na) 2-5% Nitric acid	100 mL 500 mL	AA54N-1 AA54N-5
Strontium (Sr) 2-5% Nitric acid	100 mL 500 mL	AA55N-1 AA55N-5
Sulfur (S) Water	100 mL 500 mL	AA56W-1 AA56W-5
Thallium (Tl) 2-5% Nitric acid	100 mL 500 mL	AA60N-1 AA60N-5
Tin (Sn) 2-5% Nitric acid tr. HF	100 mL 500 mL	AA63N-1 AA63N-5
Titanium (Ti) Water tr. HF	100 mL 500 mL	AA64W-1 AA64W-5
Vanadium (V) 5-10% Nitric acid	100 mL 500 mL	AA67N-1 AA67N-5
Yttrium (Yb) 2-5% Nitric acid	100 mL 500 mL	AA69N-1 AA69N-5
Zinc (Zn) 2-5% Nitric acid	100 mL 500 mL	AA70N-1 AA70N-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	$NH_4H_2PO_4$	50 mL 100 mL	MOD-02-0.5 MOD-02-1
Ammonium nitrate 5% in Water	NH_4NO_3	50 mL 100 mL	MOD-03-0.5 MOD-03-1
Magnesium nitrate 2% Magnesium in 5% HNO_3	$Mg(NO_3)_2$	50 mL 100 mL	MOD-07-0.5 MOD-07-1
Nickel nitrate 5% Nickel in 5% HNO_3	$Ni(NO_3)_2$	50 mL 100 mL	MOD-08-0.5 MOD-08-1
Palladium nitrate 0.2% Palladium in 5% HNO_3	$Pd(NO_3)_2$	50 mL 100 mL	MOD-09A-0.5 MOD-09A-1
Palladium nitrate 1.0% Palladium in 10% HNO_3	$Pd(NO_3)_2$	50 mL 100 mL	MOD-09C-0.5 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% HNO_3 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% HNO_3 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

		100 µg/mL	200 µg/mL	1000 µg/mL
Water Matrix	**Unit**	**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**
Each at 100 µg/mL in Water

IC-AN-2X-1-SET **7 x 100 mL**
IC-AN-2X-5-SET **7 x 500 mL**
Each at 200 µg/mL in Water

IC-AN-10X-1-SET **7 x 100 mL**
IC-AN-10X-5-SET **7 x 500 mL**
Each at 1000 µg/mL in Water

Fluoride (F)
Chloride (Cl)
Nitrite (NO_2)
Nitrate (NO_3)
Bromide (Br)
Phosphate (PO_4)
Sulfate (SO_4)

Ion Chrom - Ion Singles as the Element

	Unit	100 µg/mL	1000 µg/mL
Nitrite-Nitrogen (NO_2-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 (NO_3-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 (PO_4-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 (SO_4-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 (NH_4-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

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 (NO_2-N)
Nitrate-Nitrogen (NO_3-N)
Bromide (Br)
Phosphate-Phosphorus (PO_4-P)
Sulfate-Sulfur (SO_4-S)

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

Mixed Common Anion Stock

M-314.0-MCA-250X-1 **100 mL**
25 mg/mL in Water 3 comps.

Chloride Carbonate
Sulfate

Conductivity Meter Calibration Std.

M-314.0-CMCS-1 **100 mL**

1410 µs/cm @ 25˚C in Water

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

Ion Chrom Eluents

0.5 M Sodium bicarbonate (100X concentrate)	**50 mL** IC-ELU-01-0.5	**100 mL** IC-ELU-01-1	**5 x 50 mL** IC-ELU-01-0.5-PAK	**5 x 100 mL** IC-ELU-01-1-PAK
0.5 M Sodium carbonate (100X concentrate)	**50 mL** IC-ELU-02-0.5	**100 mL** IC-ELU-02-1	**5 x 50 mL** IC-ELU-02-0.5-PAK	**5 x 100 mL** IC-ELU-02-1-PAK
0.18 M Sodium carbonate/ 0.17 M Sodium bicarbonate (100X concentrate)	**50 mL** IC-ELU-03-0.5	**100 mL** IC-ELU-03-1	**5 x 50 mL** IC-ELU-03-0.5-PAK	**5 x 100 mL** 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.

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

Technical Note

To enhance the shelf life and long term stability of our IC products, Nitrite has been removed from mixes that contain Nitrate.

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 (NO_2) 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

Anion Mix #15
IC-MAN-15-R2-1 **100 mL**
At stated conc. (µg/mL) in Water
3 comps.

Fluoride (F)	100
Nitrate (NO_3)	100
Phosphate (PO_4)	100

Anion Mix #18
IC-MAN-18-R1-1 **100 mL**
At stated conc. (µg/mL) in Water
5 comps.

Fluoride (F)	100
Chloride (Cl)	100
Nitrate (NO_3)	100
Phosphate (PO_4)	100
Sulfate (SO_4)	100

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 Cat. No.	200 µg/mL Cat. No.	1000 µg/mL 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 (NH_4)	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. HNO_3 Matrix

† 1,000 µg/mL as Ammonium (NH_4) Other Nitrogen species equivalents are:

NH_3 (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 HNO_3 6 comps.

Calcium (Ca)	1000
Ammonium (NH_4)	400
Magnesium (Mg)	200
Potassium (K)	200
Sodium (Na)	200
Lithium (Li)	50

Cation Mix #2

IC-MCA-02-1 **100 mL**
At stated conc. (µg/mL) in Dilute HNO_3 6 comps.

Calcium (Ca)	100
Ammonium (NH_4)	100
Magnesium (Mg)	100
Potassium (K)	100
Sodium (Na)	100
Lithium (Li)	100

Cation Mix #3

IC-MCA-03-1 **100 mL**
At stated conc. (µg/mL) in Dilute HNO_3 4 comps.

Calcium (Ca)	100
Potassium (K)	100
Sodium (Na)	50
Lithium (Li)	10

Cation Mix #4

IC-MCA-04-1 **100 mL**
At stated conc. (µg/mL) in Dilute HNO_3 4 comps.

Calcium (Ca)	400
Magnesium (Mg)	200
Barium (Ba)	1600
Strontium (Sr)	600

Cation Mix #5

IC-MCA-05-1 **100 mL**
At stated conc. (µg/mL) in Dilute HNO_3 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 HNO_3 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

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 (SiO_2) in Water tr. HF

Sulfate
IC-SO4-10X-1 — **100 mL**
1000 µg/mL Sulfate (SO_4) 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 $CaCO_3$ to pH 4.5

Hardness
WC-HARD-10X-1 — **100 mL**
1000 µg/mL equivalent $CaCO_3$

A combination of Ca and Mg to give an approx. concentration of 1000 µg/mL $CaCO_3$. Hardness µg/mL equivalent $CaCO_3$ = 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 Disolved 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. H_2SO_4

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

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 — 2 comps.

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

Technical Note

This Precison 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.% — 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		

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		

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% HNO_3 tr. HF 23 comps.

- Antimony (Sb)
- Arsenic (As)
- Beryllium (Be)
- Cadmium (Cd)
- Calcium (Ca)
- Chromium (Cr)
- Cobalt (Co)
- Copper (Cu)
- Iron (Fe)
- Lead (Pb)
- Lithium (Li)
- Magnesium (Mg)
- Manganese (Mn)
- Molybdenum (Mo)
- Nickel (Ni)
- Phosphorus (P)
- Selenium (Se)
- Strontium (Sr)
- Thallium (Tl)
- Tin (Sn)
- Titanium (Ti)
- Vanadium (V)
- Zinc (Zn)

QC Standard #2

QCS-02-1 **100 mL**
QCS-02-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 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 SiO_2

QC Standard #2R

QCS-02-R1-1 **100 mL**
QCS-02-R1-5 **500 mL**
100 µg/mL each in 5% HNO_3 tr. HF 7 comps.

- Aluminum (Al)
- Barium (Ba)
- Boron (B)
- Potassium (K)
- Silicon (Si) †
- Silver (Ag)
- Sodium (Na)

† 214 µg/mL as SiO_2

QC Standard #3

QCS-03-1 **100 mL**
QCS-03-5 **500 mL**
100 µg/mL each in 5% HNO_3 15 comps.

- Aluminum (Al)
- Barium (Ba)
- Cadmium (Cd)
- Calcium (Ca)
- Chromium (Cr)
- Cobalt (Co)
- Copper (Cu)
- Iron (Fe)
- Lead (Pb)
- Magnesium (Mg)
- Manganese (Mn)
- Nickel (Ni)
- Sodium (Na)
- Titanium (Ti)
- Zinc (Zn)

QC Standard #4

QCS-04-1 **100 mL**
At stated conc. (µg/mL) in 5% HNO_3 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% HNO_3 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% HNO_3 4 comps.

- Barium (Ba)
- Calcium (Ca)
- Magnesium (Mg)
- 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% HNO_3 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

- **NIST Traceable**
- **Independent Lots**
- **Exact Match**

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% HNO_3 tr. HF 21 comps.

- Antimony (Sb)
- Arsenic (As)
- Beryllium (Be)
- Cadmium (Cd)
- Calcium (Ca)
- Chromium (Cr)
- Cobalt (Co)
- Copper (Cu)
- Iron (Fe)
- Lead (Pb)
- Lithium (Li)
- Magnesium (Mg)
- Manganese (Mn)
- Molybdenum (Mo)
- Nickel (Ni)
- Selenium (Se)
- Strontium (Sr)
- Thallium (Tl)
- Titanium (Ti)
- Vanadium (V)
- Zinc (Zn)

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% HNO_3 tr. HF 19 comps.

- Antimony (Sb)
- Arsenic (As)
- Beryllium (Be)
- Cadmium (Cd)
- Calcium (Ca)
- Chromium (Cr)
- Cobalt (Co)
- Copper (Cu)
- Iron (Fe)
- Lead (Pb)
- Magnesium (Mg)
- Manganese (Mn)
- Molybdenum (Mo)
- Nickel (Ni)
- Selenium (Se)
- Thallium (Tl)
- Titanium (Ti)
- Vanadium (V)
- Zinc (Zn)

Match Other Supplier's Products.
Use as a True Second Source.

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% HNO_3 tr. HF 33 comps.

- Aluminum (Al)
- Arsenic (As)
- Barium (Ba)
- Bismuth (Bi)
- Calcium (Ca)
- Cadmium (Cd)
- Cerium (Ce)
- Dysprosium (Dy)
- Erbium (Er)
- Europium (Eu)
- Gallium (Ga)
- Gadolinium (Gd)
- Holmium (Ho)
- Indium (In)
- Lanthanum (La)
- Lutetium (Lu)
- Magnesium (Mg)
- Sodium (Na)
- Neodymium (Nd)
- Phosphorus (P)
- Lead (Pb)
- Praseodymium (Pr)
- Scandium (Sc)
- Selenium (Se)
- Samarium (Sm)
- Strontium (Sr)
- Terbium (Tb)
- Thorium (Th)
- Thallium (Tl)
- Thulium (Tm)
- Uranium (U)
- Yttrium (Y)
- Ytterbium (Yb)

Semi-Quantitative Standard #2

SQS-02-R1-1 **1 x 100 mL**
10 µg/mL each in 2-5% HNO_3 tr. HCl tr. HF 33 comps.

- Boron (B)
- Beryllium (Be)
- Cobalt (Co)
- Chromium (Cr)
- Cesium (Cs)
- Copper (Cu)
- Iron (Fe)
- Germanium (Ge)
- Hafnium (Hf)
- Iridium (Ir)
- Potassium (K)
- Lithium (Li)
- Manganese (Mn)
- Molybdenum (Mo)
- Niobium (Nb)
- Nickel (Ni)
- Palladium (Pd)
- Platinum (Pt)
- Rubidium (Rb)
- Rhenium (Re)
- Rhodium (Rh)
- Ruthenium (Ru)
- Sulfur (S)
- Antimony (Sb)
- Silicon (Si)
- Tin (Sn)
- Tantalum (Ta)
- Tellurium (Te)
- Titanium (Ti)
- Vanadium (V)
- Tungsten (W)
- Zinc (Zn)
- Zirconium (Zr)

Semi-Quantitative Standard #3

SQS-03-1 **1 x 100 mL**
10 µg/mL each in 2-5% HNO_3 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% HNO_3 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% HNO_3 3 comps.

Antimony (Sb)	20
Silver (Ag)	10
Thallium (Tl)	20

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	

Trace Metals III

WPTM-03-1 **100 mL**
WPTM-03-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 tr. HF 6 comps.

Barium (Ba)	500
Calcium (Ca)	500
Magnesium (Mg)	100
Molybdenum (Mo)	500
Potassium (K)	100
Sodium (Na)	500

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% HNO_3 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% HNO_3 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

SDWA Standards

For use in SW-846, Method 1310 and U.S. NPDWR 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 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)
Arsenic (As)
Cadmium (Cd)
Chromium (Cr)
Copper (Cu)
Lead (Pb)
Nickel (Ni)
Selenium (Se)
Thallium (Tl)

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)
Arsenic (As)
Barium (Ba)
Beryllium (Be)
Cadmium (Cd)
Chromium (Cr)
Copper (Cu)
Lead (Pb)
Nickel (Ni)
Selenium (Se)
Thallium (Tl)

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 SiO_2

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 & 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 SiO_2

Inorganic products containing acid generally require a hazardous fee for air shipments. Inorganic products in water generally do not.

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% HNO_3 18 comps.

- Cerium (Ce)
- Dysprosium (Dy)
- Erbium (Er)
- Europium (Eu)
- Gadolinium (Gd)
- Holmium (Ho)
- Lanthanum (La)
- Lutetium (Lu)
- Neodymium (Nd)
- Praseodymium (Pr)
- Scandium (Sc)
- Samarium (Sm)
- Terbium (Tb)
- Thorium (Th)
- Thulium (Tm)
- Uranium (U)
- Ytterbium (Yb)
- Yttrium (Y)

MISA Standard 2
Precious Metals

MISA-02-1 **100 mL**
100 µg/mL each in 10% HCl 6 comps.

- Gold (Au)
- Iridium (Ir)
- Palladium (Pd)
- Platinum (Pt)
- Rhodium (Rh)
- Ruthenium (Ru)

MISA Standard 3
Tellurium

MISA-03-1 **100 mL**
100 µg/mL in 10% HCl

- Tellurium (Te)

MISA Standard 4
Alkali, Alkaline Earth, Non-Transition Group

MISA-04-1 **100 mL**
100 µg/mL each in 10% HNO_3 16 comps.

- Aluminum (Al)
- Arsenic (As)
- Barium (Ba)
- Beryllium (Be)
- Bismuth (Bi)
- Calcium (Ca)
- Cesium (Cs)
- Gallium (Ga)
- Indium (In)
- Lithium (Li)
- Magnesium (Mg)
- Potassium (K)
- Rubidium (Rb)
- Selenium (Se)
- Sodium (Na)
- Strontium (Sr)

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 5
Fluoride Soluble Group

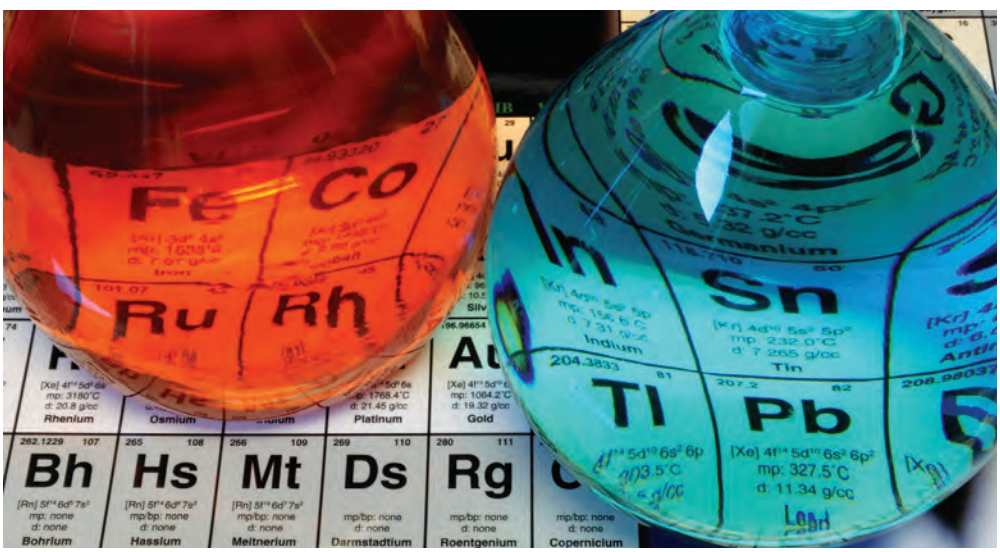
MISA-05-1 **100 mL**
100 µg/mL each in 5% HNO_3 tr. HF 15 comps.

- Antimony (Sb)
- Boron (B)
- Germanium (Ge)
- Hafnium (Hf)
- Molybdenum (Mo)
- Niobium (Nb)
- Phosphorus (P)
- Rhenium (Re)
- Silicon (Si)
- Sulfur (S)
- Tantalum (Ta)
- Tin (Sn)
- Titanium (Ti)
- Tungsten (W)
- Zirconium (Zr)

MISA Standard 6
Transition Metals

MISA-06-1 **100 mL**
100 µg/mL each in 10% HNO_3 13 comps.

- Cadmium (Cd)
- Cobalt (Co)
- Copper (Cu)
- Chromium (Cr)
- Iron (Fe)
- Lead (Pb)
- Manganese (Mn)
- Mercury (Hg)
- Nickel (Ni)
- Silver (Ag)
- Thallium (Tl)
- Vanadium (V)
- Zinc (Zn)



Calibration Check Standards

Calibration Standard #1

CLP-CAL-01-1 **100 mL**
5000 µg/mL each in 5% HNO_3 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% HNO_3 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% HNO_3 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% HNO_3 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% HNO_3

Antimony (Sb)

Calibration Standard #6

CLP-CAL-06-1 **100 mL**
100 µg/mL in 5% HNO_3

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% HNO_3 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% HNO_3 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.

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% HNO_3 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

Primary Interferents

CLP-PIN-01-1 **100 mL**
CLP-PIN-01-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 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% HNO_3 6 comps.

Chromium (Cr)	Nickel (Ni)
Copper (Cu)	Titanium (Ti)
Manganese (Mn)	Vanadium (V)

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

Alternate Analytes

CLP-PAN-02-1 **100 mL**
CLP-PAN-02-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 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

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% HNO_3 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% HNO_3 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% HNO_3 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% HNO_3 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% HNO_3 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% HNO_3 tr. HF 5 comps.

Aluminum (Al)	100
Chromium (Cr)	50
Silicon (Si) †	100
Tin (Sn)	40
Zinc (Zn)	50

† 214 µg/mL as SiO_2

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% HNO_3 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-200.7-02R-1
M-200.7-03R-1
M-200.7-04-1
M-200.7-05-1

M-200.7-5-R-5-SET **5 x 500 mL**
M-200.7-01-5
M-200.7-02R-5
M-200.7-03-5R
M-200.7-04-5
M-200.7-05-5

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% HNO_3 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% HNO_3 tr. HF 5 comps.

Antimony (Sb)	20
Molybdenum (Mo)	20
Silicon (Si) †	100
Tin (Sn)	20
Titanium (Ti)	20

† 214 µg/mL as SiO_2

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% HNO_3 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 SiO_2

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% HNO_3 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% HNO_3

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% HNO_3 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% HNO_3 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 SiO_2

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 in 2% HNO_3 4 comps.

Calcium (Ca)
Magnesium (Mg)
Potassium (K)
Sodium (Na)

Spiking Standard #3

M-200.7-SP-03 **50 mL**
At stated conc. (µg/mL) in 5% HNO_3 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

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	

Spiking Standard #4R

M-200.7-SP-04-R **50 mL**
200 µg/mL in dilute HNO_3

Antimony (Sb)

Spiking Standard #5R

M-200.7-SP-05-R **50 mL**
At stated conc. (µg/mL) in 5% HNO_3 5 comps.

Arsenic (As)	200
Cadmium (Cd)	100
Lead (Pb)	200
Selenium (Se)	400
Thallium (Tl)	400

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. NH_4OH

Molybdenum (Mo)

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	

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% HNO_3 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% HNO_3 3 comps.

Aluminum (Al)	30
Iron (Fe)	150
Nickel (Ni)	20

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% HNO_3 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% HNO_3 5 comps.

Barium (Ba)	100
Cobalt (Co)	100
Copper (Cu)	100
Iron (Fe)	10,000
Vanadium (V)	100

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		

Mixed Calibration Standard #3R

MCS-03R-1 **100 mL**
MCS-03R-5 **500 mL**
At stated conc. (µg/mL) in 2% HNO_3 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% HNO_3 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

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.

Mixed Calibration Standard #5R

MCS-05R-1 **100 mL**
MCS-05R-5 **500 mL**
At stated conc. (µg/mL) in 2% HNO_3 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% HNO_3, tr. HF 5 comps.

Phosphorus (P)	200
Tin (Sn)	200
Titanium (Ti)	100
Boron (B)	50
Silicon (Si) †	100

† 214 µg/mL as SiO_2

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% HNO_3

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% HNO_3 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% HNO_3 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 SiO_2

QC Standard #2R

QCS-02-R1-1 **100 mL**
QCS-02-R1-5 **500 mL**
100 µg/mL each in 5% HNO_3 tr. HF 7 comps.

Aluminum (Al)	Silicon (Si) †
Barium (Ba)	Silver (Ag)
Boron (B)	Sodium (Na)
Potassium (K)	

† 214 µg/mL as SiO_2

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% HNO_3

Mercury (Hg)

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% HNO_3 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 SiO_2

Primary Interferents

CLP-PIN-01-1 **100 mL**
CLP-PIN-01-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 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% HNO_3 6 comps.

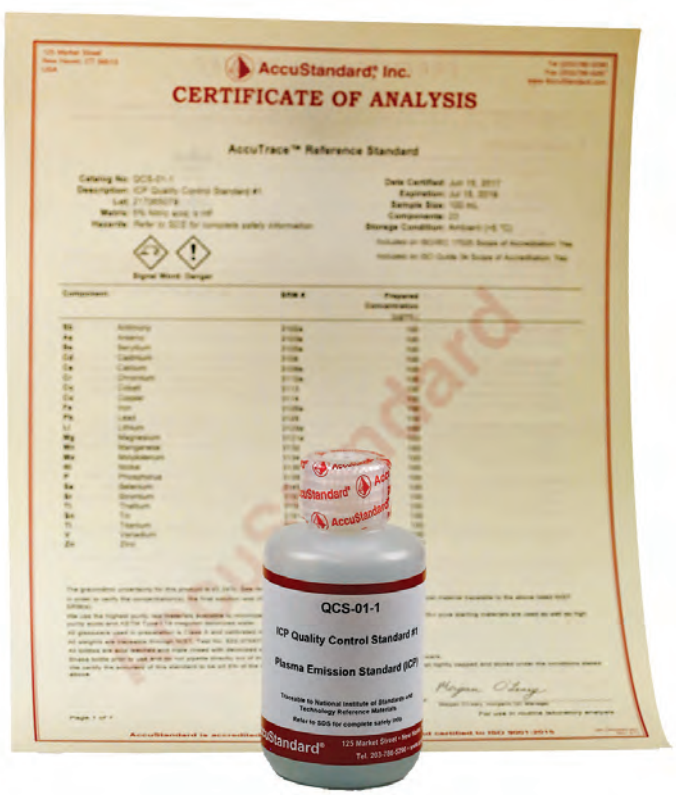
Chromium (Cr)	Nickel (Ni)
Copper (Cu)	Titanium (Ti)
Manganese (Mn)	Vanadium (V)

Set-up Solution

Nebulizer Adjustment Solution

ICP-69N-1 **100 mL**
1000 µg/mL in 2% HNO_3

Yttrium (Y)



ICP Alternate Source

Table of Contents

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 S`ervice Dept. for additional formulations not found on these pages or to cross reference part numbers.

Cross Reference Part No. Index

Agilent	AccuStandard
5183-4681	AG-INT
5183-4682	AG-VER1
5183-4687	AG-SPIKE
5183-4688	AG-CAL
5188-6524	AG-TUN
5188-6525	AG-INTSTD
5188-6526	AG-INTFR-6020 ♦
5188-6527	AG-INTFR2-6020 ♦
5188-6564	AG-TUNSTOCK
5190-0465	AG-TUNSTOCK1
8500-6940	AG-MECAL2A
8500-6942	AG-MECAL4
8500-6944	AG-MECAL1
8500-6948	AG-MECAL3
190024400	VAR-TUN ♦
190064800	AG-INTFA ♦
190024900	AG-ICV7
190025000	AG-QCS27
190025100	AG-ANALTB
6610030000	AG-WAVECAL-10X
6610030100	AG-WAVECAL
6610030400	AG-INT2
6610030500	AG-CAL1
6610030600	AG-CAL2
6610030700	AG-CALMAJOR

Perkin Elmer	
N0582152	PE-UVWAVE
N0691579	PE-MCS ♦
N0691580	PE-UV
N8122014	PE-SETUP2 *
N8122017	PE-CRDL3 * ♦
N8125030	PE-STAB *
N8125031	PE-CRDL4 * ♦
N8125032	PE-SETUP1 *
N8125034	PE-SENS * ♦
N8125040	PE-SMTUNE *
N8125041	PE-SMTUNE2 *
N9300200	PE-MCS1 ♦
N9300201	PE-MCS2 ♦
N9300202	PE-MCS3 ♦
N9300203	PE-MCS4 ♦
N9300204	PE-MCS5 ♦
N9300205	PE-ICS18
N9300208	PE-ICS5
N9300211	PE-WPTM1
N9300212	PE-WPTM2
N9300213	PE-WPTM3
N9300214	PE-WPAM1 ♦

Perkin Elmer	AccuStandard
N9300215	PE-WPAM3 ♦
N9300216	PE-SDWA1 ♦
N9300217	PE-SDWA2 ♦
N9300218	PE-CAL4
N9300219	PE-CAL5 ♦
N9300220	PE-CAL6 ♦
N9300221	PE-CAL7 ♦
N9300224	PE-CRDL1 * ♦
N9300225	PE-CRDL2 ♦
N9300226	PE-INTA ♦
N9300227	PE-ANAB ♦
N9300228	PE-ALTINTA ♦
N9300229	PE-ALTB ♦
N9300230	PE-SPIKE ♦
N9300231	PE-MECAL1
N9300232	PE-MECAL2
N9300233	PE-MECAL3
N9300234	PE-MECAL4
N9300235	PE-MECAL5
N9300280	PE-QC7
N9300281	PE-QC21
N9301720	PE-MECAL3
N9301721	PE-CAL2
N9302946	PE-VISWAVE
N9303816	PE-CAL1
N9303818	PE-CAL3
N9303821	PE-CHK1
N9303822	PE-CHK3
N9303823	PE-CHK4
N9303824	PE-CHK5
N9303825	PE-VER1
N9303826	PE-VER2
N9303827	PE-INTFRA ♦
N9303828	PE-INTFR1 ♦
N9303829	PE-INTFRB ♦
N9303830	PE-INTFR2 ♦
N9303831	PE-INTFRC ♦
N9303832	PE-INT
N9303834	PE-MEINT ♦
N9303835	PE-MEM1 ♦
N9303836	PE-MEM2 ♦
N9303839	PE-SPIKE1 ♦
N9303840	PE-SPIKE2 ♦
N9303841	PE-SPIKE3 ♦
N9303843	PE-TUNSOL
N9307113	PE-MES1 ♦
N9307114	PE-MES2 ♦
N9307115	PE-MES3 ♦
N9307116	PE-MES4 ♦

Horiba/Jobin Yvon	
JYICP-MIXHM	JY-CALHM ♦
JYICP-MIXMAJ	JY-CAL
JYICP-MIX7HSI	JY-QC7
JYICP-MIX9	JY-CHK ♦
JYICP-MIX21	JY-QC21
JYICP-MIX23	JY-QC23
JYICP-QC1	JY-CHK1 ♦

Teledyne	AccuStandard
601-3110	TELE-CHK1 *
601-4101	TELE-CHK2 * ♦
601-4102	TELE-CHK3 * ♦
602-00065	TELE-CHK4 ♦
602-00067	TELE-CHK4 ♦
602-00068	TELE-CHK5 ♦
602-00070	TELE-CHK5 ♦
602-00071	TELE-CHK6 ♦
602-00073	TELE-CHK6 ♦
620-403	TELE-CHK7 ♦
602-00125	TELE-CHK8-0.1X * ♦

Merck	AccuStandard
1.09410	MES-23 ♦
1.09411	MES-24
1.09480	MES-13 *
1.09481	MES-14
1.09482	MES-15 ♦
1.09487	MES-16
1.09490	MES-12 *
1.09491	MES-11 * ♦
1.09492	MES-08 *
1.09493	MES-10 *
1.09494	MES-09 *
1.09495	MES-17
1.09496	MES-19 * ♦
1.09497	MES-20 * ♦
1.09498	MES-21 ♦
1.09499	MES-22 *
1.09500	MES-18
1.10322	MES-07
1.10580	MES-06 *
1.10714	MES-05 * ♦
1.11355	MES-04
1.15474	MES-01
1.15626	MES-03 ♦
1.15708	MES-02 ♦

* 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.

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)
Yttrium (Y)
Cerium (Ce)
Thallium (Tl)
Cobalt (Co)

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)
Magnesium (Mg)
Yttrium (Y)
Cerium (Ce)
Tl (Thalium)
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)
Scandium (Sc)
Germanium (Ge)
Rhodium (Rh)
Indium (In)
Terbium (Tb)
Lutetium (Lu)
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)
Antimony (Sb)
Arsenic (As)
Barium (Ba)
Beryllium (Be)
Boron (B)
Cadmium (Cd)
Calcium (Ca)
Chromium (Cr)
Cobalt (Co)
Copper (Cu)
Iron (Fe)
Lead (Pb)
Magnesium (Mg)
Manganese (Mn)
Molybdenum (Mo)
Nickel (Ni)
Potassium (K)
Selenium (Se)
Silicon (Si)
Silver (Ag)
Strontium (Sr)
Sodium (Na)
Thallium (Tl)
Titanium (Ti)
Vanadium (V)
Zinc (Zn)

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

ICP Alternate Source
Agilent / Perkin Elmer

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% HNO_3 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% HNO_3 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% HNO_3 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% HNO_3 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% HNO_3 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% HNO_3 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% HNO_3 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% HNO_3 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% HNO_3 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% HNO_3 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% HNO_3 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% HNO_3 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% HNO_3 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% HNO_3 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% HNO_3 tr. HF, tr. Tartaric acid 17 comps.

Silver (Ag)
Aluminum (Al)
Arsenic (As)
Barium (Ba)
Beryllium (Be)
Cadmium (Cd)
Cobalt (Co)
Chromium (Cr)
Copper (Cu)
Manganese (Mn)
Nickel (Ni)
Lead (Pb)
Antimony (Sb)
Selenium (Se)
Thallium (Tl)
Vanadium (V)
Zinc (Zn)

Instrument Check Standard 3
PE-CHK3-ASL-1 **100 mL**
PE-CHK3-ASL-5 **500 mL**
200 µg/mL each in 2% HNO_3 5 comps.

Calcium (Ca)
Iron (Fe)
Potassium (K)
Magnesium (Mg)
Sodium (Na)

Instrument Check Standard 4
PE-CHK4-ASL-1 **100 mL**
PE-CHK4-ASL-5 **500 mL**
10 µg/mL each in 2% HNO_3 3 comps.

Molybdenum (Mo)
Thorium (Th)
Uranium (U)

Instrument Check Standard 5
PE-CHK5-ASL-1 **100 mL**
PE-CHK5-ASL-5 **500 mL**
10 µg/mL each in 2% HNO_3 tr. HF 4 comps.

Molybdenum (Mo)
Tin (Sn)
Strontium (Sr)
Titanium (Ti)

AccuStandard is not affiliated with the companies and brands. They appear for the purpose of cross reference with the corresponding AccuStandard products.

Interference Check Standard 5
PE-ICS5-ASL-1 **100 mL**
PE-ICS5-ASL-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 5 comps.

Calcium (Ca)	6000
Iron (Fe)	5000
Magnesium (Mg)	3000
Aluminum (Al)	1200
Sodium (Na)	1000

Interference Check Standard 18
PE-ICS18-ASL-1-SET **2 x 100 mL**
PE-ICS18-ASL-5-SET **2 x 500 mL**

PE-ICS18-ASL
At stated conc. (µg/mL) in 5% HNO_3 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-ICS18-HG-ASL
100 µg/mL in 5% HNO_3

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% HNO_3 7 comps.

Lithium-6 (Li-6)
Scandium (Sc)
Germanium (Ge)
Yttrium (Y)
Indium (In)
Terbium (Tb)
Bismuth (Bi)

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.

Multi-Element Calibration Std 1
PE-MECAL1-ASL-1 **100 mL**
PE-MECAL1-ASL-5 **500 mL**
10 µg/mL each in 2% HNO_3 9 comps.

Beryllium (Be)
Bismuth (Bi)
Cerium (Ce)
Cobalt (Co)
Indium (In)
Magnesium (Mg)
Nickel (Ni)
Lead (Pb)
Uranium (U)

Multi-Element Calibration Std 2
PE-MECAL2-ASL-1 **100 mL**
PE-MECAL2-ASL-5 **500 mL**
10 µg/mL each in 5% HNO_3 17 comps.

Cerium (Ce)
Dysprosium (Dy)
Erbium (Er)
Europium (Eu)
Gadolinium (Gd)
Holmium (Ho)
Lanthanum (La)
Lutetium (Lu)
Neodymium (Nd)
Praseodymium (Pr)
Samarium (Sm)
Scandium (Sc)
Terbium (Tb)
Thorium (Th)
Thulium (Tm)
Ytterbium (Yb)
Yttrium (Y)

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% HNO_3 29 comps.

Silver (Ag)
Aluminum (Al)
Arsenic (As)
Barium (Ba)
Beryllium (Be)
Bismuth (Bi)
Calcium (Ca)
Cadmium (Cd)
Cobalt (Co)
Chromium (Cr)
Cesium (Cs)
Copper (Cu)
Iron (Fe)
Gallium (Ga)
Indium (In)
Potassium (K)
Lithium (Li)
Magnesium (Mg)
Manganese (Mn)
Sodium (Na)
Nickel (Ni)
Lead (Pb)
Rubidium (Rb)
Selenium (Se)
Strontium (Sr)
Thallium (Tl)
Uranium (U)
Vanadium (V)
Zinc (Zn)

PE-MECAL3-HG-ASL
10 µg/mL in 5% HNO_3

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% HNO_3 10 comps.

Gold (Au)
Hafnium (Hf)
Iridium (Ir)
Palladium (Pd)
Platinum (Pt)
Rhodium (Rh)
Ruthenium (Ru)
Antimony (Sb)
Tin (Sn)
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)
Germanium (Ge)
Molybdenum (Mo)
Niobium (Nb)
Phosphorus (P)
Rhenium (Re)
Sulfur (S)
Silicon (Si)
Tantalum (Ta)
Titanium (Ti)
Tungsten (W)
Zirconium (Zr)

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% HNO_3 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% HNO_3, tr. HF, tr. Tartaric acid 21 comps.

Arsenic (As)
Beryllium (Be)
Calcium (Ca)
Cadmium (Cd)
Cobalt (Co)
Chromium (Cr)
Copper (Cu)
Iron (Fe)
Lithium (Li)
Magnesium (Mg)
Manganese (Mn)
Molybdenum (Mo)
Nickel (Ni)
Lead (Pb)
Antimony (Sb)
Selenium (Se)
Strontium (Sr)
Titanium (Ti)
Thallium (Tl)
Vanadium (V)
Zinc (Zn)

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% HNO_3 tr. HCl 5 comps.

Cadmium (Cd)
Copper (Cu)
Lead (Pb)
Magnesium (Mg)
Rhodium (Rh)

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% HNO_3 tr. HCl 11 comps.

Barium (Ba)
Cadmium (Cd)
Cerium (Ce)
Copper (Cu)
Germanium (Ge)
Lead (Pb)
Magnesium (Mg)
Rhodium (Rh)
Scandium (Sc)
Terbium (Tb)
Thallium (Tl)

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% HNO_3 tr. HCl 9 comps.

Barium (Ba)
Cadmium (Cd)
Cerium (Ce)
Copper (Cu)
Indium (In)
Lead (Pb)
Magnesium (Mg)
Rhodium (Rh)
Uranium (U)

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% HNO_3 tr. HCl 9 comps.

Barium (Ba)
Beryllium (Be)
Cerium (Ce)
Cobalt (Co)
Indium (In)
Lead (Pb)
Magnesium (Mg)
Rhodium (Rh)
Uranium (U)

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% HNO_3 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% HNO_3, tr. HCl 12 comps.

Barium (Ba)
Beryllium (Be)
Cerium (Ce)
Cobalt (Co)
Indium (In)
Lithium (Li)
Magnesium (Mg)
Lead (Pb)
Rhodium (Rh)
Thallium (Tl)
Uranium (U)
Yttrium (Y)

Low UV Standard

PE-UV-ASL-1 **100 mL**
PE-UV-ASL-5 **500 mL**
10 µg/mL each in 2% HNO_3 3 comps.

Aluminum (Al)
Phosphorus (P)
Sulfur (S)

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. HNO_3 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% HNO_3 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% HNO_3 tr. HF 2 comps.

Tin (Sn)
Titanium (Ti)

Initial Calibration Verification Standard 1

PE-VER1-ASL-1 **100 mL**
PE-VER1-ASL-5 **500 mL**
At stated conc. (µg/mL) in 5% HNO_3 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% HNO_3 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% HNO_3

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% HNO_3 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% HNO_3 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% HNO_3 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% HNO_3 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% HNO_3 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% HNO_3 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% HNO_3 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% HNO_3

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 HNO_3 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 HNO_3 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. HNO_3 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 HNO_3 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 HNO_3 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 HNO_3 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 HNO_3
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 HNO_3 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. HNO_3 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% HNO_3 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% HNO_3
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. HNO_3 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

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% HNO_3 tr. HF
21 comps.

Antimony (Sb)
Arsenic (As)
Beryllium (Be)
Cadmium (Cd)
Calcium (Ca)
Chromium (Cr)
Cobalt (Co)
Copper (Cu)
Iron (Fe)
Lead (Pb)
Lithium (Li)
Magnesium (Mg)
Manganese (Mn)
Molybdenum (Mo)
Nickel (Ni)
Selenium (Se)
Strontium (Sr)
Thallium (Tl)
Titanium (Ti)
Vanadium (V)
Zinc (Zn)

ICP Multi-Element Standard Solution XVII

MES-17-1 **100 mL**
MES-17-5 **500 mL**
100 µg/mL each in in 15% HCl tr. HNO_3
7 comps.

Hafnium (Hf)
Iridium (Ir)
Antimony (Sb)
Tin (Sn)
Tantalum (Ta)
Titanium (Ti)
Zirconium (Zr)

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% HNO_3
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% HNO_3
29 comps.

MES-21
Silver (Ag)
Aluminum (Al)
Arsenic (As)
Barium (Ba)
Beryllium (Be)
Bismuth (Bi)
Calcium (Ca)
Cadmium (Cd)
Cobalt (Co)
Chromium (Cr)
Cesium (Cs)
Copper (Cu)
Iron (Fe)
Gallium (Ga)
Indium (In)
Potassium (K)
Lithium (Li)
Magnesium (Mg)
Manganese (Mn)
Sodium (Na)
Nickel (Ni)
Lead (Pb)
Rubidium (Rb)
Selenium (Se)
Strontium (Sr)
Thallium (Tl)
Vanadium (V)
Uranium (U)
Zinc (Zn)

MES-21-HG
10 µg/mL in 5% $HHNO_3$
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% HNO_3 tr. HCl
5 comps.

Cadmium (Cd)
Copper (Cu)
Magnesium (Mg)
Lead (Pb)
Rhodium (Rh)

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% HNO_3
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

AccuStandard is not affiliated with the companies and brands on these pages. The brands and company names appear for the purpose of cross reference with the corresponding AccuStandard products.

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.

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% Aliquot 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	

D3237 Meets EPA Guidelines for RFG Analysis

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**
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**
1.0 g Mn / gal (264.2 mg Mn / L) in Methyl isobutyl ketone

D-3831-R1-1 **1 x 100 mL**
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**
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

■ 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% HNO_3 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% HNO_3 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% HNO_3 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% HNO_3

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% HNO_3 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% HNO_3 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% HNO_3 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% HNO_3 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% HNO_3 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% HNO_3 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% HNO_3

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.

Spiking Standards

Spiking Standard for Water

ICP-MS-SPIKE-W-1 **100 mL**

At stated conc. (µg/mL) in 5% HNO_3 17 comps.

Element	µg/mL	Most Abundant 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% HNO_3 15 comps.

Element	µg/mL	Most Abundant 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% HNO_3 9 comps.

Element	Most Abundant 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% HNO_3 25 comps

Element	Most Abundant 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% HNO_3 tr. HF 21 comps.

Element	Most Abundant 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% HNO_3 7 comps.

Element	Most Abundant 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% HNO_3 tr. HF 18 comps.

Element	Most Abundant 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% HNO_3 2 comps.

Element	Most Abundant 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% HNO_3 tr. HF 18 comps.

Element	µg/mL	Most Abundant 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% HNO_3

Element	µg/mL	Most Abundant Isotope
Mercury (Hg)	5	202

Internal Standards

Internal Standard #1

ICP-MS-200.8-IS-1 **100 mL**
100 µg/mL each in 2% HNO_3 5 comps.

Element	Most Abundant 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% HNO_3

Element	Most Abundant 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% HNO_3 5 comps.

Element	Most Abundant 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% HNO_3 22 comps.

Element	Most Abundant 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% HNO_3 12 comps.

Element	µg/mL	Most Abundant 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% HNO_3 tr. HF 9 comps.

Element	Most Abundant 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% HNO_3 4 comps.

Element	Most Abundant 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 Cat. No. (50 g)	5000 µg/g in 75 cSt base oil 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 (Zn)	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)
Calcium (Ca)
Magnesium (Mg)
Phosphorus (P)
Zinc (Zn)

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.

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)
Aluminum (Al)
Boron (B)
Barium (Ba)
Calcium (Ca)
Cadmium (Cd)
Chromium (Cr)
Copper (Cu)
Iron (Fe)
Magnesium (Mg)
Manganese (Mn)
Molybdenum (Mo)
Sodium (Na)
Nickel (Ni)
Phosphorus (P)
Lead (Pb)
Silicon (Si)
Tin (Sn)
Titanium (Ti)
Vanadium (V)
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)
Aluminum (Al)
Boron (B)
Barium (Ba)
Calcium (Ca)
Cadmium (Cd)
Chromium (Cr)
Copper (Cu)
Iron (Fe)
Potassium (K)
Magnesium (Mg)
Manganese (Mn)
Molybdenum (Mo)
Sodium (Na)
Nickel (Ni)
Phosphorus (P)
Lead (Pb)
Silicon (Si)
Tin (Sn)
Titanium (Ti)
Vanadium (V)
Zinc (Zn)

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)
Aluminum (Al)
Boron (B)
Barium (Ba)
Calcium (Ca)
Cadmium (Cd)
Chromium (Cr)
Copper (Cu)
Iron (Fe)
Potassium (K)
Magnesium (Mg)
Manganese (Mn)
Molybdenum (Mo)
Sodium (Na)
Nickel (Ni)
Phosphorus (P)
Lead (Pb)
Antimomy (Sb)
Silicon (Si)
Tin (Sn)
Titanium (Ti)
Vanadium (V)
Zinc (Zn)

Organometallic Standards
Premium Sulfur-Free

Organometallic Single Element Stock Standards

Evnt	1000 µg/g Cat. No. 50 mL	5000 µg/g Cat. No. 50 mL	Element	1000 µg/g Cat. No. 50 mL	5000 µg/g 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.

Organometallic standards do not require a hazardous shipping fee except where noted.

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)

Suitable for ASTM D4628, D4927, D4951, D5056, D5185, D6443, D6481

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.

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	

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	

Internal Standard

ASTM-P-0107-5 — **500 mL**

Manganese @ 0.05 Wt. % in Xylene-Mineral Oil

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	

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.

Lubricating Oil Standards

Elements in Lubricating Oil

ASTM-P-0108-SET — 17 x 100 mL

Designed for ASTM D4927, D6443 & D6481

Cat. No. Nominal Value	Ca (Wt.%)	P (Wt.%)	S (Wt.%)	Zn (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. Nominal Value	Ca (Wt.%)	Cl (Wt.%)	P (Wt.%)	S (Wt.%)	Zn (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. Nominal Value	Ba (Wt.%)	Ca (Wt.%)	P (Wt.%)	S (Wt.%)	Zn (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. Nominal Value	Ba (Wt.%)	Ca (Wt.%)	Cl (Wt.%)	P (Wt.%)	S (Wt.%)	Zn (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. Nominal Value	Ca (Wt.%)	Mg (Wt.%)	P (Wt.%)	S (Wt.%)	Zn (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. Nominal Value	Ba (Wt.%)	Ca (Wt.%)	Mg (Wt.%)	P (Wt.%)	S (Wt.%)	Zn (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

Lubricating Oil Standards (Continued)

Elements in Lubricating Oil

ASTM-P-0114-SET — 17 x 100 mL

Designed for ASTM D4927, D6443 & D6481

Cat. No. Nominal Value	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. Nominal Value	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. Nominal Value	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. Nominal Value	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. Nominal Value	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

Lubricating Oil Standards (Continued)

Elements in Lubricating Oil

ASTM-P-0119-SET — **22 x 100 mL**

Cat. No. / Nominal Value	Ca (Wt.%)	Cl (Wt.%)	Cu (Wt.%)	Mg (Wt.%)	P (Wt.%)	S (Wt.%)	Zn (Wt.%)
	Designed for ASTM D4927, D6443, D6481 & D7751						
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

Elements in Lubricating Oil

ASTM-P-0120-SET — **23 x 100 mL**

Cat. No. / Nominal Value	Ba (Wt.%)	Ca (Wt.%)	Cl (Wt.%)	Cu (Wt.%)	Mg (Wt.%)	P (Wt.%)	S (Wt.%)	Zn (Wt.%)
					Designed for ASTM D4927, D6443 & D6481			
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**

Cat # / Nominal Value	Al (Wt.%)	Ca (Wt.%)	Fe (Wt.%)	Na (Wt.%)	Ni (Wt.%)	P (Wt.%)	S (Wt.%)	Si (Wt.%)	V (Wt.%)	Zn (Wt.%)
								Designed for Test Method IP 501		
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	0.3000	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

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

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:

N9 . . . N4N3 – N2N1 – R

Where N represents a sequential number and R represents the check digit. Using the following formula:

9(N9) + . . . + 4(N4) + 3(N3) + 2(N2) + 1(N1) = 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 Number Index

CAS Number Index

CAS Number Index

CAS Number Index

CAS Number Index

Organic Analyte Index

A

B

C

D

Organic Analyte Index

Organic Analyte Index

E

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Organic Analyte Index

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O

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Y

Z

Catalog Number Index

Catalog Number Index

A

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Catalog Number Index

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Catalog Number Index

Catalog Number Index

Catalog Number Index

Catalog Number Index

N

O

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Catalog Number Index

Catalog Number Index

Catalog Number Index

Catalog Number Index

Q

R

Catalog Number Index

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Catalog Number Index

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Z

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 Symbols

GHS-07
- Irritant
- Skin Sensitizer
- Acute toxicity (harmful)
- Narcotic Effects
- Respiratory Tract Irritant

GHS-02
- 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 *

* Includes the most common solvents: Methylene chloride, Methanol and Acetone

For your protection an ampule opener is included with every order.

Organic 2-Part Labels (ampules or vials)

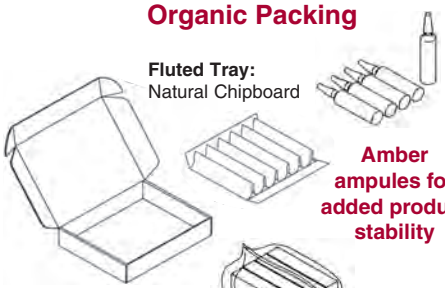
Part One can be placed into a laboratory journal to document the standard used for the analysis. This label section includes the catalog number, description, lot number, expiration date, safety information, proper storage conditions and documents AccuStandard as the manufacturer.

Part Two duplicates required information for labeling transfer vial(s) with correct information.

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.

Organic Packing

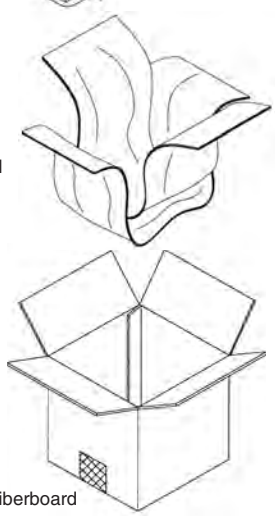


Fluted Tray:
Natural Chipboard

Amber ampules for added product stability

Inside Container:
Corrugated Fiberboard

Cushioning/Absorbent:
Natural Kraft Fiber Material



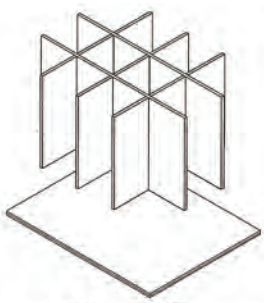
Shipping Container:
Natural Kraft Corrugated Fiberboard

Inorganic Packing

Dividers:
Natural Kraft
Corrugated Fiberboard

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.



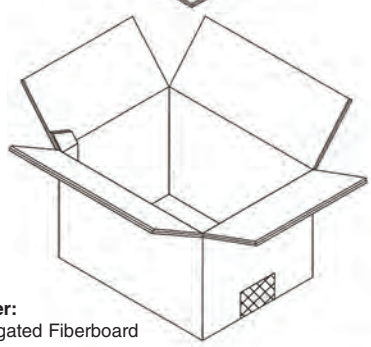
Fast and efficent shipping

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.

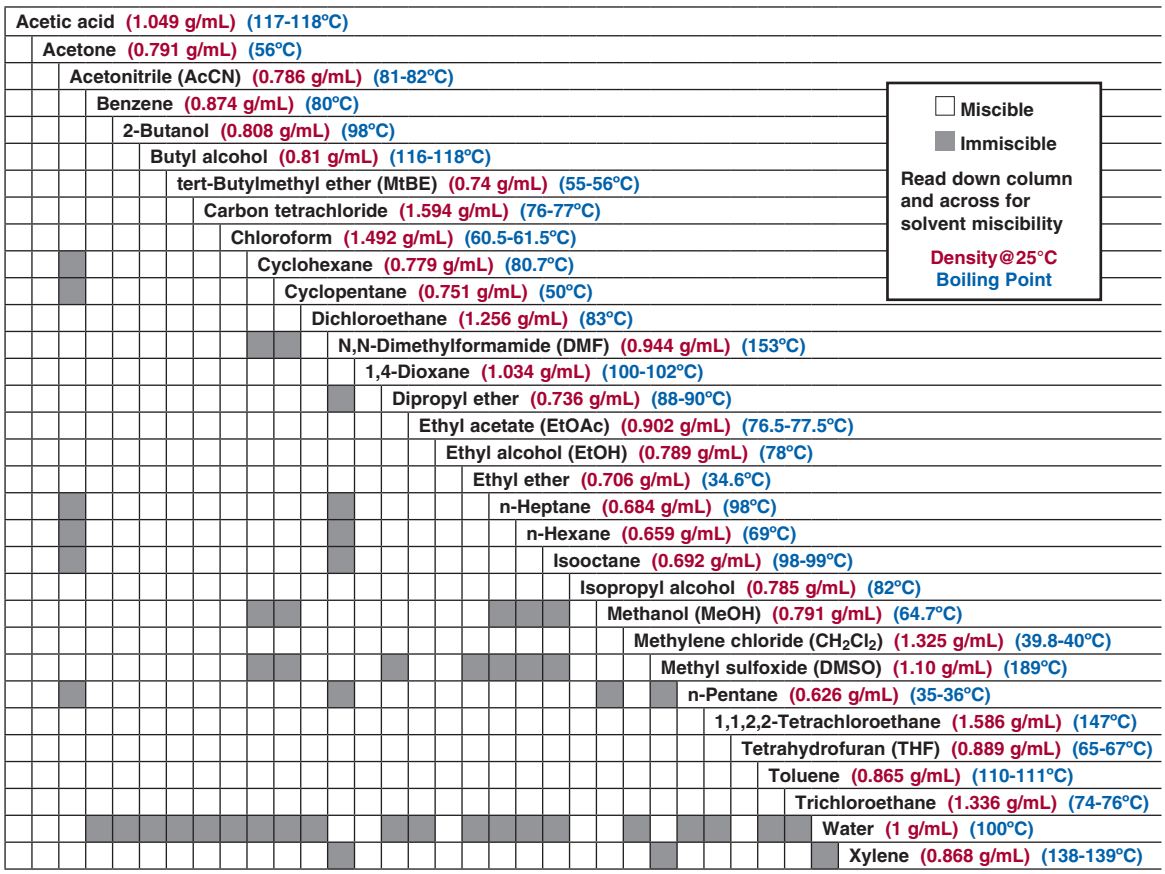
Made with recyclable and biogradable materials.



Shipping Container:
Natural Kraft Corrugated Fiberboard

Technical Reference

Solvent Miscibility Table, Density and Boiling Point

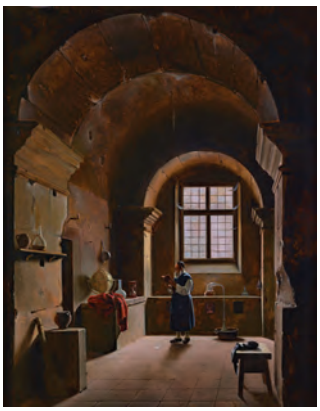


For technical information including: methods, papers, FAQs and helpful hints

Visit our website
AccuStandard.com

Alchemist Art Gallery

About the cover



The Alchemist

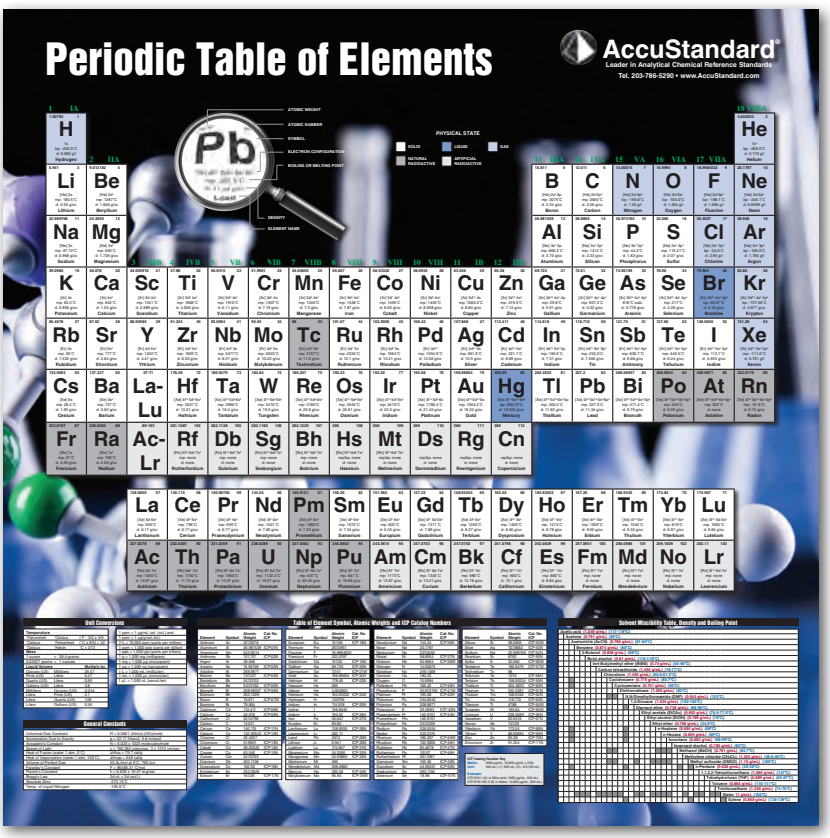
Francois-Marius Granet
French, 19th century,
Courtesy of the Science History Institute Collections, and
Roy Eddleman
Photograph by Will Brown

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.

Past Alchemist covers

Alchemist artwork available, please inquire.

Periodic Table of Elements



(20 x 20 inch laminated poster)

With references, such as unit conversions, general constants, element symbols, atomic weights and solvent miscibility table with densities and boiling points.

Periodic Table poster available, please inquire.

Custom Formulations

Custom Quotation Requests

Custom formulations can be requested by contacting Technical Service: techservice@accustandard.com (Organic), inotech@accustandard.com (Inorganic) or by using our website. To assist us in providing the best formulation for your application, provide the following information with your custom request:

- **Name**
- **Contact information**
- **Desired solvent**
- **Analytes (name and CAS #)**
- **Concentration**
- **Quantity**
- **Application/Instrumentation**

Note that our minimum purchase for custom products is usually 5 mL for organic products and 500 mL for Inorganic products.

Contact / Order Information

For ordering information contact your AccuStandard Distributor
Visit our website www.accustandard.com

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