



ENVIRO



CONTROL BLANK AND SAMPLE CONTAMINATION USING ENVIRO-CLEAN® ZERO-BLANK FILTER™



ENVIRO-CLEAN® ZERO-BLANK FILTER™

(UCT Product # ECBLANK)

Sample preparation for environmental analysis by solid-phase extraction (SPE) has replaced many conventional methods for the determination of organic compounds in various matrices. As analytical techniques have become more sensitive, greater precautions are needed to prevent contamination of samples within the laboratory.

Common organic compounds such as phthalates, adipates, hydrocarbons, and PAH's can be found in laboratory air. These compounds can contaminate samples giving false-positive results.

Most methods call for the SPE cartridge to be air dried by drawing laboratory air through the cartridge after analyte extraction. During this drying step, large volumes of laboratory air are drawn through the cartridge at high flow. Since drying is required for up to 20 minutes prior to the solvent elution step, lab air contaminants can adsorb on the solid-phase. These contaminants then elute with analytes during the solvent elution step.

This Problem Is Eliminated by Using the Zero-Blank

The Zero-Blank cartridge is an air filter that contains multiple proprietary adsorbent materials. The Zero-Blank forms an air tight seal when attached to the top of an SPE cartridge. Lab air is forced through the Zero-Blank during the sorbent drying step, removing contaminants.

The Zero-Blank cartridge may be used in combination with most solid-phase sorbent cartridges made by UCT.

The ENVIRO-CLEAN® Zero-Blank Air Filter is suggested for use with any cartridge extraction method but is especially recommended for the following EPA methods:

- **Method 506** – Determination of Phthalate and Adipate Esters in Drinking Water by Liquid-Solid Extraction and Gas Chromatography with Photoionization Detection
- Polycyclic Aromatic Hydrocarbons (PAH) from a Water Matrix, UCT publication DCN-116210-207
- **Method 8015D** – Determination of Nonhalogenated Organics Using GC/FID
- **Method 8081** – Organochlorine Pesticides By Gas Chromatography
- **Method 8082** – Polychlorinated Biphenyls (PCBs) By Gas Chromatography
- Extraction of Diesel Range Organics, UCT publication DCN-903020-121
- **Method 525.2** – Determination of Organic Compounds In Drinking Water By Liquid-Solid Extraction and Capillary Column Gas Chromatography/Mass Spectrometry

Instructions for Use of the ENVIRO-CLEAN® Zero-Blank Filter with UCT Universal Cartridges

Zero-Blank Conditioning Procedure:

1. Attach the Zero-Blank filter to a vacuum manifold. Using low vacuum pressure, slowly draw approximately 50 mL of high purity methanol through the filter. The filter will become warm.
2. After all of the methanol has been drawn through the filter, increase to full vacuum and draw air through the filter until the filter is dry. Initially, the filter will be cool but will warm to room temperature when it is dry and ready to use.

Using the filter:

1. Place extraction cartridge(s) on a vacuum manifold
2. Proceed with the extraction
3. **Stop Procedure Before the Air Drying and Solvent Elution Steps**
4. Place the cartridge adapter **ECZERADP** on the extraction cartridge(s)
5. Firmly mount the **Zero-Blank Air Filter** on the adapter
6. Proceed with the required air drying step
7. After the air drying step is complete, remove the Zero-Blank filter and cartridge adapter
8. Proceed with the solvent elution steps

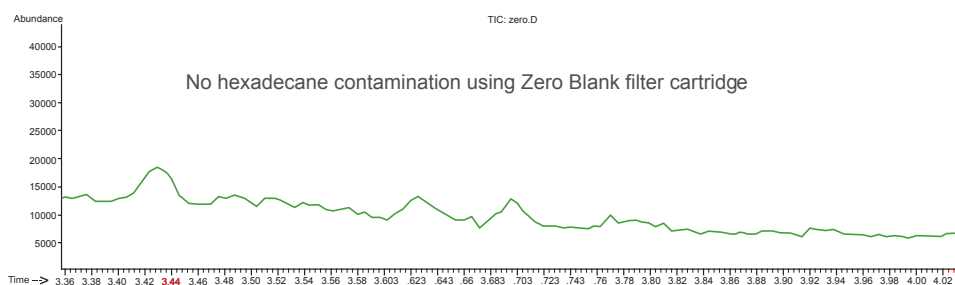
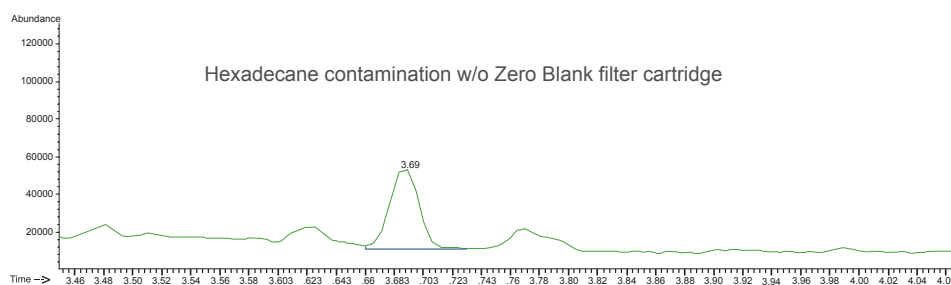
Note: Filter must be removed prior to elution steps

**The Zero-Blank filter may be saved for future re-use. The sorbents in the filter have a high capacity and may be used multiple times before the capacity is exhausted. It must be stored in its original metalized foil packaging in a clean environment to maintain the full activity of the filter sorbents.

Examples of Zero-Blank Filter Effectiveness

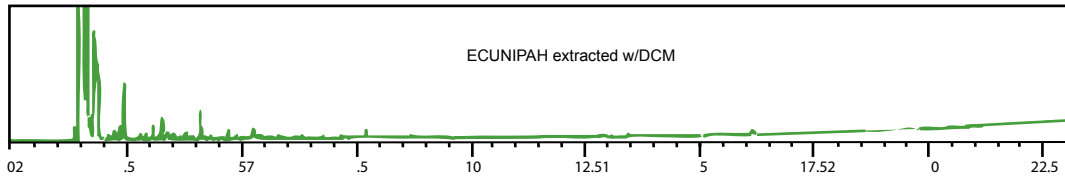
Experimental Setup:

A beaker containing hexadecane was placed adjacent to two ECUNIPAH cartridges mounted on a vacuum manifold apparatus. One cartridge was fitted with a Zero Blank filter. Room air was drawn through both cartridges for 10 minutes. Cartridges were eluted with MeCl₂, concentrated, then injected into a GC/MS.

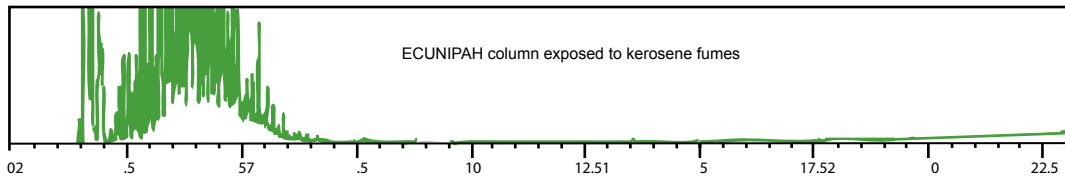


Experimental results using kerosene vapor.

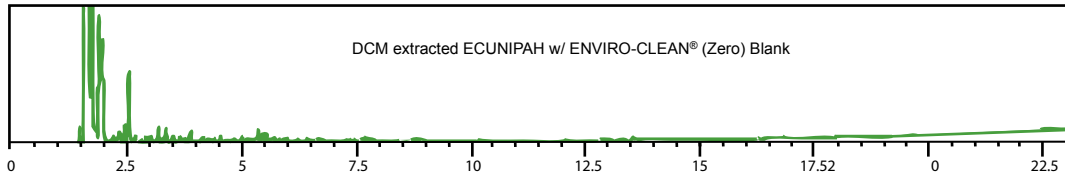
1) Chromatogram showing a PAH cartridge extracted with MeCl₂ after lab air was drawn through for 10 minutes. No Zero Blank cartridge used



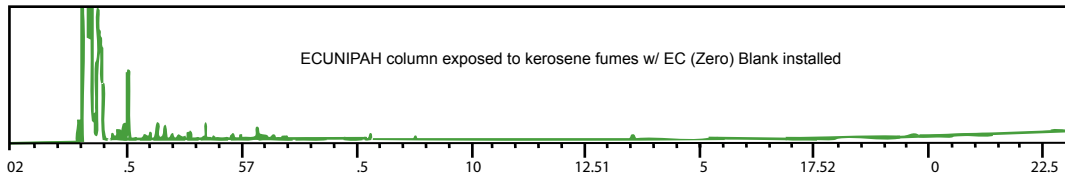
2) PAH cartridge after 10 minute exposure to kerosene vapor. No Zero Blank cartridge used



3) PAH cartridge w/ Zero Blank installed



4) PAH cartridge exposed to kerosene vapor while using Zero Blank cartridge



In both experiments the SPE cartridges protected by the Zero Blank air filter prevented contamination from ambient air drawn through the analytical cartridge.

PRICES AND TERMS

Our prices are subject to change without notice. The price in effect when we receive your order will apply. All prices are in US Dollars and are F.O.B. Lewistown, PA 17044. Terms of payment are net 30 days.

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We welcome all orders, therefore, we do not have a minimum order requirement. When ordering, please include your purchase order number, complete "Ship To" and "Bill To" address, catalog number, quantity, and description of product(s). Also include your name and a phone number where you can be reached should we have any questions concerning your order.

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SPECIAL PRICING

We offer special pricing for volume purchases and standing orders. These discounts apply to bonded phase extraction column purchases only. Please call a sales representative for more information on special pricing qualifications.

RETURN POLICY

Our Quality Manager will handle all returns. Before returning merchandise, please call to obtain a return authorization number from the quality manager. We will need to know the reason for the return, date of purchase, purchase order number and invoice number in order to issue a return authorization number. Return merchandise must be received before a credit can be issued. Returns will not be accepted after 90 days. A restocking fee of 25% of the price paid, or a minimum of \$25.00 (whichever is greater) will be charged on all returns.

WARRANTY

All products manufactured by UCT are guaranteed against defects in materials and workmanship for a period of 90 days after shipment. UCT, Inc. will replace any items that prove to be defective during this time period.

The exclusive remedy requires the end user to first advise UCT, Inc. of the defective product by phone or in writing. Secondly, the defective product must be returned within 30 days after proper approval from our Quality Manager. All returns must indicate the purchase order number, the lot number and the shipping date. UCT's total liability is limited to the replacement cost of UCT products.

This warranty does not apply to damage resulting from misuse.



*US Patent 7,666,686

** any cartridge that will hold a cartridge adapter

Contact Us

Phone: 215.781.9255 | UCT, Inc.
800.385.3153 | 2731 Bartram Rd.
Fax: 215.785.1226 | Bristol, PA 19007

