ENVIRO

UCT

CARTRIDGE FOR ANALYSIS OF ORGANIC COMPOUNDS IN DRINKING WATER

ENVIRO-CLEAN® METHOD 525.2

The Universal 525 cartridge (ECUNI525) provides a high level of performance specifically designed for USEPA Method 525. In addition to its high capture efficiency and broad analyte capture range, use of this fast flow cartridge can significantly increase laboratory sample turnaround time compared to traditional SPE cartridges.

Product Benefits

- Fast flow rates for rapid and efficient analyte capture
- Consistent lot-to-lot reproducibility
- PTFE frits eliminate analyte loss
- Cartridge manufactured from UCT polypropylene reducing a potential source of interferences
- Packaged in Mylar to maintain product cleanliness

Product Features

- Proprietary bonded C18 with excellent pH stability
- 80 mL polypropylene cartridge may be used with automated systems
- Can be used with single or multi-station manifold systems
- Each cartridge contains 1500 mg of active sorbent ensuring high analyte loading without breakthrough

Method 525.2 Analytes

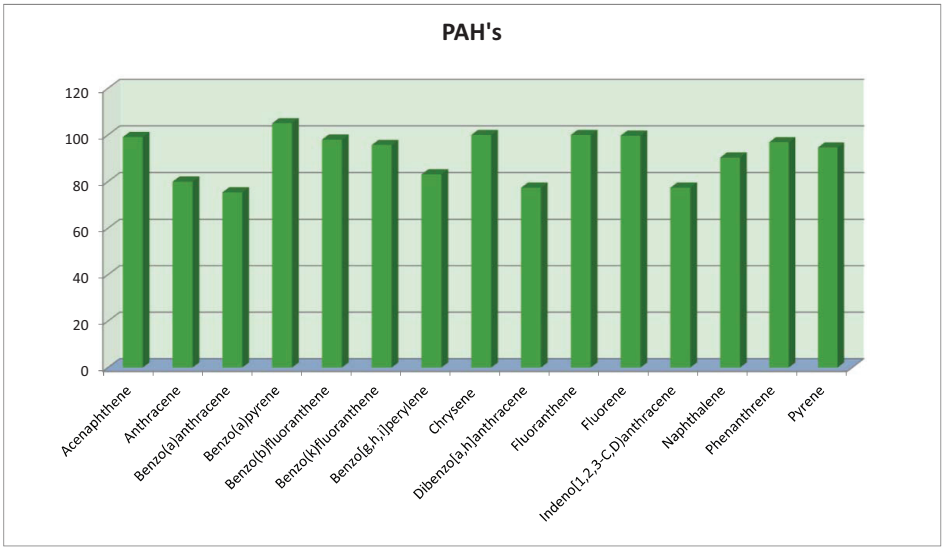
The analyte list for this method is comprised of over 120 compounds representative of several classes of pesticides, polynuclear aromatic hydrocarbons, PCBs, phthalates, adipates and other drinking water pollutants. Analyte recoveries range from 70-130%. Refer to the published method for compound specific MDL's.

The recovery data presented herein was determined on independent lots of ECUNI525.

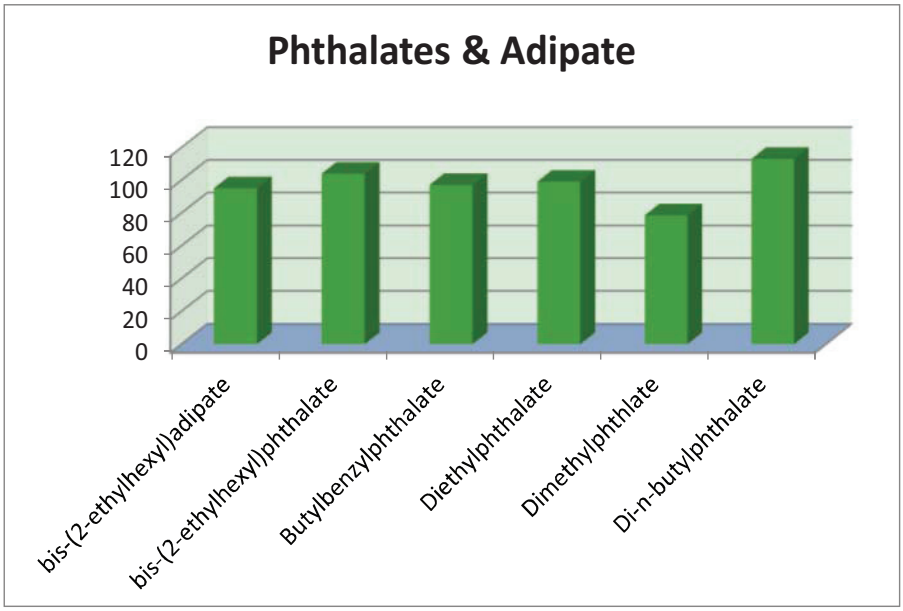
Table of Compounds Tested Using Method 525.2 and the ENVIRO-CLEAN® Universal 525 Cartridge

Analytes	% Rec	Analytes	% Rec
1,3-dimethyl-2-nitrobenzene	98	Endrin Aldehyde	97
2,4-dinitrotoluene	83	Endrin Ketone	90
2,6-dinitrotoluene	78	EPTC	102
4,4′-DDE	91	Ethoprophos	109
4,4′-DDT	94	Etridiazole (terrazole)	97
4,4′-DDD	94	Fenarimol	70
Acetochlor	115	Heptachlor	79
Alachlor	99	Heptachlor Epoxide Iso A	116
Aldrin	77	Hexachlorobenzene	94
Ametryn	95	Hexachlorocyclopentadiene	82
Atraton	84	Hexazinone (Velpar)	105
Atrazine	111	Metalochlor	111
BHC, alpha	108	Methoxychlor	123
BHC, beta	97	Methyl Paraxon (Parathion)	115
BHC, delta	109	Metribuzin	109
BHC, gamma	102	Mevinphos (phosdrin)	117
Bromacil	126	MGK 264	121
Butachlor	113	Molinate	114
Butylate	103	Napropamide (Devrinol)	115
Caffeine	90	Prometon	78.6
Carboxin	103	Prometryn	110
Chlordane, alpha	97	Pronamide	101
Chlordane, gamma	94	Propachlor	113
Chlordane, trans nonachlor	115	Propazine (propyzamide)	105
Chlorneb	113	Simazine	91.4
Chlorobenzilate	118	Simetryn	93
Chlorpropham	130	Stirofos (tetrachlorvinphos)	126
Chlorpyrifos (Dursban)	107	Tebuthiuron	85
Chlorthalonil	117	Terbacil	120
Cyanazine (Bladex)	126	Terbutryn	103
Cycloate	111	Triademefon	98
Diphenamid	119	Trifluralin	82
Disulfoton	92.1	Trifluran	83
Disulfoton Sulfone	108	Turbufos	95
Endosulfan I	116	Vernolate	107
Endosulfan sulfate	114		
Endrin	88		

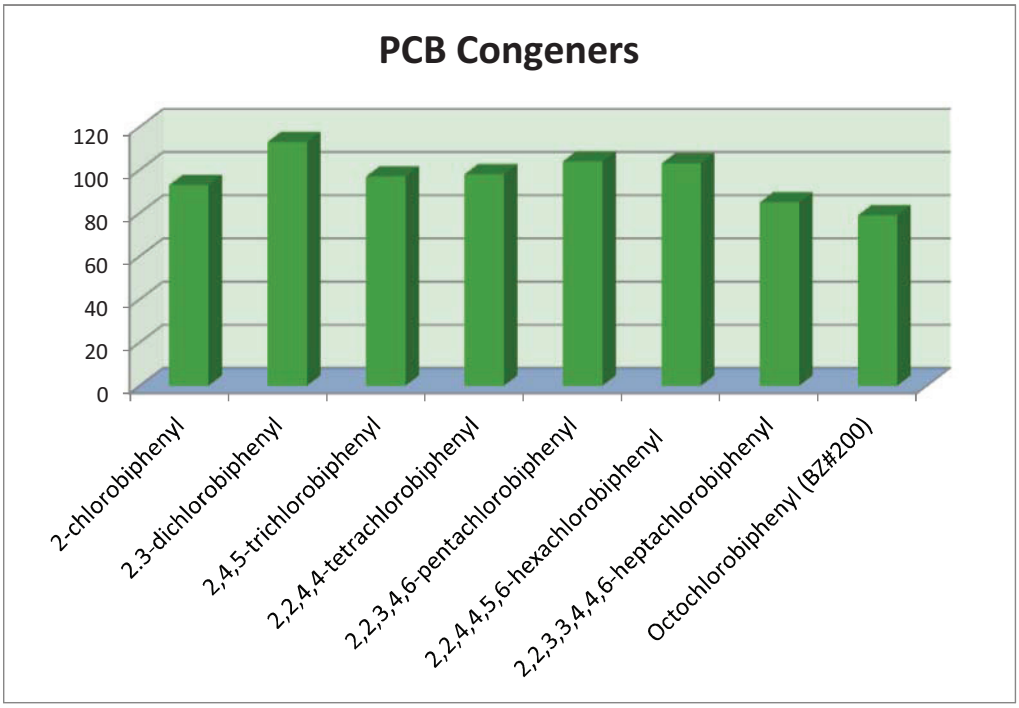
PAHs	% Rec
Acenaphthene	99.1
Anthracene	80
Benzo(a)anthracene	75.4
Benzo(a) pyrene	105
Benzo(b) fluoranthene	98
Benzo(k) fluoranthene	95.7
Benzo[g,h,i] perylene	83.1
Chrysene	100
Dibenzo[a,h]anthracene	77.4
Fluoranthene	100
Fluorene	99.7
Indeno[1,2,3-c,d] pyrene	77.4
Naphthalene	90.3
Phenanthrene	96.9
Pyrene	94.6



Phthalates and Adipate	% Rec
bis-(2-ethylhexyl)adipate	95.1
bis-(2-ethylhexyl)phthalate	104
Butylbenzylphthalate	97.1
Diethylphthalate	99.1
Dimethylphthlate	78.6
Di-n-butylphthalate	113



PCB Congeners	% Rec
2-chlorobiphenyl	93
2,3-dichlorobiphenyl	113
2,4,5-trichlorobiphenyl	97
2,2′,4,4′-tetrachlorobiphenyl	98
2,2′,3,4,6-pentachlorobiphenyl	104
2,2′,4,4′,5,6-hexachlorobiphenyl	103
2,2′,3,3′,4,4′,6-heptachlorobiphenyl	85
Octochlorobiphenyl (BZ#200)	79



EPA Method 525.2 Revision 2.0

Determination of Organic Compounds in Drinking Water by Liquid-Solid Extraction and Capillary Column Gas Chromatography/ Mass Spectrometry

Method Summary

A one liter water sample is adjusted to pH <2 using 6N HCL before passing through UCT's 83 mL Universal 525 cartridge (ECUNI525). Analytes are eluted from the cartridge with ethyl acetate and methylene chloride. The extract is reduced in volume to 1.0 mL and analyzed by GC/MS.

1. Rinse the extraction apparatus and cartridge

a) Add 10 mL of methylene chloride ($MeCl_2$) to the cartridge
b) Draw a small amount through the cartridge with vacuum
c) Turn off the vacuum and allow the cartridge to soak for about one minute
d) Draw the remaining solvent through the cartridge to waste
e) Allow the cartridge to dry for 3 minutes under full vacuum

2. Condition Cartridge

a) Add 10 mL of methanol to the cartridge
b) Draw a small amount through the cartridge using vacuum
c) Allow the methanol to soak for about one minute
d) Draw most of the remaining methanol through the cartridge, leaving 3 to 5 mm of methanol on the surface of the cartridge frit
e) Immediately add 20 mL of deionized water to the cartridge and draw most of the water through leaving 3 to 5 mm on the top of the cartridge frit

3. Extraction

Note: The sample should have been adjusted to ~ pH 2

a) Add 5 ml of methanol to the water sample and mix well
b) Add the water sample to the cartridge and under vacuum, filter at a rate of approximately 50 mL per minute or less (slower will provide higher recoveries). Draw sample through at a fast drip, but not a stream
c) After the sample has passed through the cartridge, dry the cartridge under full vacuum for 10 minutes

Note: Exceeding a 10-minute dry time could result in low recoveries. For faster drying, remove the cartridge and tap the excess moisture from the bottom of the cartridge before continuing vacuum drying.

6 Station Manifold Info

Description	Part #
6 station manifold	ECUCTVAC6
Glass cartridge adaptor	ECUCTADP
Bottle holder	ECUNIBHD
Vacuum pump	ECROCKER400
Waste trap	ECUCTTRAP20

UCT carries all the parts needed to run the 525.2 extraction.

4. Elution

a) Insert a suitable vial to collect eluate
b) Add 10 mL of EtAc to the sample bottle
c) Rinse the sample bottle thoroughly
d) Transfer the solvent to the cartridge
e) Draw half of the solvent through cartridge and then release the vacuum pressure. Allow the remaining solvent to soak in the cartridge for about three minutes
f) Draw the remainder of the solvent through the cartridge under vacuum and collect
g) Repeat the solvent rinse of the sample bottle with 10 mL of $MeCl_2$
h) Add the solvent to the cartridge and allow the solvent to soak for one minute
i) Draw the remainder of the solvent through the cartridge under vacuum and collect
j) Using a disposable pipette, rinse down the sides of the cartridge and bottle holder with another 10 mL aliquot of $MeCl_2$
k) Add the rinse to the cartridge, soak for one minute, and then draw through and collect

5. Dry the extract

a) Dry the extract using granular anhydrous sodium sulfate
b) After passing the extract through the sodium sulfate, rinse the extract vial and sodium sulfate with $MeCl_2$ and collect the combined extract in the concentrator tube
c) Concentrate the extract to ~1 mL under a gentle stream of nitrogen at 40 C, being careful not to spatter the contents
d) Make any final volume adjustments with ethyl acetate.

Note: Do not concentrate to <0.5 mL or loss of analytes could occur. Rapid extract concentration could result in loss of low molecular weight analytes.

6. Analyze by GC/MS

Revison 2.0, 1995. Method authors: Eichelberger, J. W., Behymer,T .D. Budde, W L., Munch, J., National Exposure Research Laboratory, Office of Research and Development, U.S. Environmental Protection Agency, Cincinnati, OH 45268

This summary highlights major steps in the 525.2 method. Complete details about the preparation and composition of reagent solutions can be found in method and should be referenced by anyone needing complete details. It is available as a part of Supplement 11 from National Technical Information Service (NTIS), Springfield, VA 22161; publication PB 92 207703. (800) 553-6847 or at www.epa.gov/safewater/methods/methods.html

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.

MINIMUM ORDERS

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.

SHIPMENTS

Normal processing is within 24 hours after receipt of an order. Unless special shipping requests have been made, our trained staff will send all orders by UPS Ground service. The appropriate shipping charges (freight & insurance costs) will be added to the invoice, unless otherwise instructed by the customer.

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 will replace any items that prove to be defective during this time period.

The exclusive remedy requires the end user to first advise UCT 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.

Placing An Order

Phone: 215.781.9255
800.385.3153
Fax: 215.785.1226

UCT, Inc.
2731 Bartram Rd.
Bristol, PA 19007

Email: info@unitedchem.com
Web: www.unitedchem.com