INNOVATION THROUGH CHEMISTRY || 1(800)-385-3153

PRODUCT CATALOG

ENVIRO | FOOD | CANNABIS

UNITED CHEMICAL TECHNOLOGIES

WWW.UNITEDCHEM.COM

UCT

UCT ENVIRO

Founded in 1986, UCT has grown to be a respected leader in the drug testing, pharmaceutical, clinical, environmental and agricultural industries. Our wide range of highly reproducible solid-phase extraction columns allow the chromatographer a consistent extraction technique, and our expertise in silane manufacturing allows greater control of the chemical processes involved in producing our high quality bonded phases.

We manufacture our complete product line of bonded silica sorbents, packaged in a variety of formats, including SPE columns, 96 & 48 well plates, Universal cartridges and micro-centrifuge tubes. We also offer a variety of SPE accessories including derivatizing reagents, GC liners, and manifolds. Our commitment to ensuring the satisfaction of our customers is accomplished by delivering on our promises: top-quality, dependable solid-phase extraction and chromatography products, and unmatched technical support.

A GREENER EARTH

ORGANIZATIONS WE SUPPORT: ARBOR DAY FOUNDATION, AUDUBON SOCIETY, SIERRA CLUB

Here at UCT, Inc. we are making an effort to keep the planet cleaner and greener for everyone. It is our belief that we must act now to preserve our environment for future generations to come.

UCT

Quality Management ISO 9001:2015 DEKRA Certified

ENVIRO FOOD

UCT, Inc. | 2731 Bartram Rd | Bristol, PA 19007 | USA
P. 800.541.0559 | 215.781.9255 | F. 215.785.1226
www.unitedchem.com

TABLE OF CONTENTS

QuEChERS


ENVIRO-CLEAN®
PAH
UCT
ChloroFiltr
ECMPSGG15CT
MgSO4PSAGCHF
UCT
ENVIRO-CLEAN®
ECMSSA50CT
MgSO4NaAcl

QuEChERS Methods Schematic Flow Chart

STEP 1 - EXTRACTION PROCESSES

Original QuEChERS Anastassiades and Lehotay 2003 Unbuffered	AOAC QuEChERS AOAC 2007.01 Acetate Buffered	CEN QuEChERS EN 15662 Citrate Buffered
Add 10 mL of ACN to 10 g homogenized/hydrated sample in a 50 mL centrifuge tube Add ISTD Shake	Add 15 mL of 1% HOAc in ACN to 15 ml homogenized/hydrated sample in a 50 mL centrifuge tube Add ISTD Shake	Add 10 mL of ACN to 10 g homogenized/hydrated sample in a 50 mL centrifuge tube Add ISTD Shake
↓	↓	↓
Add 4 g $MgSO_4$ & 1 g NaCl Shake vigorously for 1 minute Centrifuge at >3000 rcf for 1 minute **(ECMSSC50CT-MP)**	Add 6 g $MgSO_4$ & 1.5 g NaOAc Shake vigorously for 1 minute Centrifuge at >3000 rcf for 1 minute **(ECMSSA50CT-MP)**	Add 4 g $MgSO_4$, 1 g NaCl, 1 g $Na_3Citrate{\cdot}2H_2O$, 0.5 g $Na2HCitr{\cdot}1.5H_2O$ Shake vigorously for 1 minute Centrifuge at >3000 rcf for 1 minute **(ECQUEU750CT-MP)**

STEP 2 - DISPERSIVE SPE CLEAN-UP PROCESSES

↓	↓	↓
Transfer 1 mL aliquot of supernatant to a dSPE clean-up tube containing 150 mg $MgSO_4$ and 50 mg PSA. Shake for 30 seconds Centrifuge at >1500 rcf for 1 minute **(CUMPS2CT)**	Transfer 1 mL aliquot of supernatant to a dSPE clean-up tube containing $MgSO_4$, PSA (C18, GCB or ChloroFiltr can be added for additional clean-up) Shake for 30 seconds Centrifuge at >1500 rcf for 1 minute **(CUMPS2CT) OR (CUMPS2C1875CB2CT)**	Transfer 1 mL aliquot of supernatant to a dSPE clean-up tube containing 25 mg of PSA and 150 mg $MgSO_4$, (plus 2.5 or 7.5 mg of GCB to remove pigments) Shake for 30 seconds Centrifuge at >1500 rcf for 1 minute **(ECQUEU32CT) OR (ECQUEU42CT)**
↓	↓	↓
Transfer 0.5 mL to vial for GC or LC analysis	Preserve with toluene for GC/MS or add 6.7mM formic acid for LC/MS/MS Add TPP surrogate	Preserve with 5% formic acid in ACN. Analyze by GC/MS or LC/MS/MS

Extraction Components and Their Functions

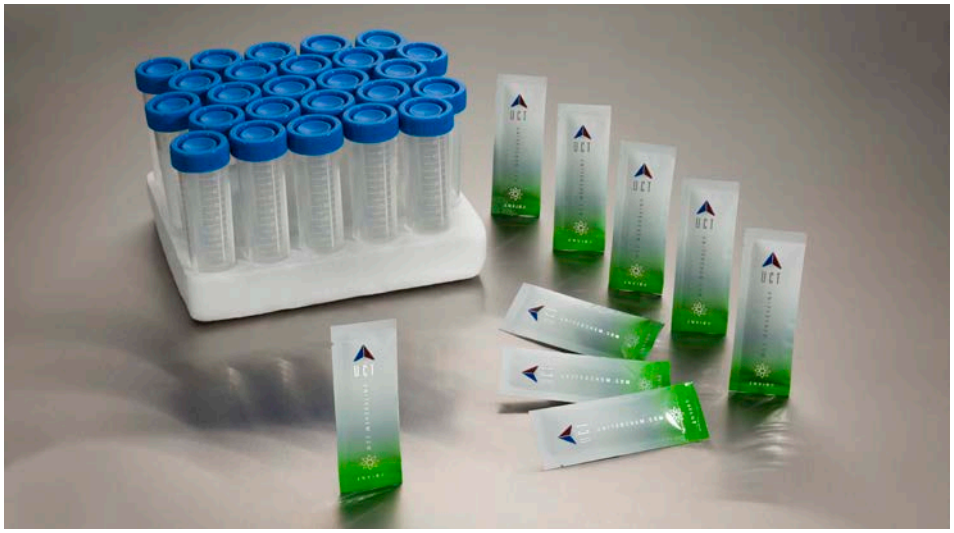
$MgSO_4$ - Facilitates solvent partitioning
ACN - Provides the extraction of broadest range of pesticides with least amount of undesired matrix
HoAC - Adjusts pH
Buffer Salts - Prevent degredation of pH sensitive analytes
PSA - Removes sugars, acids, and some pigments
GCB - Strong sorbent for pigment removal
C18 - Removes long-chain fatty compounds and other non-polar interferences

ACN-acetonitrile
$MgSO_4$-magnesium sulfate
HoAC-acetic acid
NaCl-sodium chloride
Na_3Citr.-sodium citrate tribasic dihydrate
Na_2HCitr.-sodium citrate dibasic sesquihydrate
PSA-primary secondary amine
TPP-triphenyl phosphate (surrogate)
GCB-graphitized carbon black

QuEChERS Extraction Salts

Multi-Packs - Mylar Pouches + Centrifuge Tubes

QuEChERS extraction salts for all of the popular QuEChERS methods are available in individual mylar pouches for your convenience. Each pack of 50 pouches comes with a rack of 50 empty centrifuge tubes.



Part Number	Description	Quantity	Contents
ECMSSC50CT-MP	Non-Buffered Extraction	50/Pack	4000 mg $MgSO_4$ 1000 mg NaCl
ECQUUS250CT-MP	Non-Buffered Extraction	50/Pack	4000 mg $MgSO_4$ 2000 mg NaCl
ECMSSC50CTFS-MP	Non-Buffered Extraction	50/Pack	6000 mg $MgSO_4$ 1500 mg NaCl
EC4MSSA50CT-MP	AOAC 2007.01 Method	50/Pack	4000 mg $MgSO_4$ 1000 mg NaOAc
ECMSSA50CT-MP	AOAC 2007.01 Method	50/Pack	6000 mg $MgSO_4$ 1500 mg NaOAc
ECQUEU750CT-MP	EN 15662 Method	50/Pack	4000 mg $MgSO_4$ 1000 mg NaCl 500 mg $Na_2HCitr.1.5H_2O$ 1000 mg $Na_3Citr.2H_2O$
EUMIV50CT-MP	EN 15662 Method	50/Pack	6000 mg $MgSO_4$ 1500 mg NaCl 750 mg $Na_2HCitr.1.5H_2O$ 1500 mg $Na_3Citr.2H_2O$
ECQUUS950CT-MP	THC Potency & Pesticides	50/Pack	Proprietary Salt Blend for THC Potency & Pesticide Testing

UCT, Inc. | 2731 Bartram Rd | Bristol, PA 19007 | USA
P. 800.541.0559 | 215.781.9255 | F. 215.785.1226
www.unitedchem.com

QuEChERS Extraction Salts

Mylar Pouch Format

Part Number	Description	Quantity	Contents
ECMSSC-MP	Non-Buffered Extraction	50/Pack	4000 mg $MgSO_4$ 1000 mg NaCl
ECQUUS2-MP	Non-Buffered Extraction	50/Pack	4000 mg $MgSO_4$ 2000 mg NaCl
ECMSSCFS-MP	Non-Buffered Extraction	50/Pack	6000 mg $MgSO_4$ 1500 mg NaCl
ECQUVIN-MP	Non-Buffered Extraction	50/Pack	8000 mg $MgSO_4$ 2000 mg NaCl
EC4MSSA-MP	AOAC 2007.01 Method	50/Pack	4000 mg $MgSO_4$ 1000 mg NaOAc
ECMSSA-MP	AOAC 2007.01 Method	50/Pack	6000 mg $MgSO_4$ 1500 mg NaOAc
ECGMSSA-MP	AOAC 2007.01 Method	50/Pack	6000 mg $MgSO_4$ (granular) 1500 mg NaOAc
ECQUEU7-MP	EN 15662 Method	50/Pack	4000 mg $MgSO_4$ 1000 mg NaCl 500 mg $Na_2HCitr.1.5H_2O$ 1000 mg $Na_3Citr.2H_2O$
ECGQUEU7-MP	EN 15662 Method	50/Pack	4000 mg $MgSO_4$ (granular) 1000 mg NaCl 500 mg $Na_2HCitr.1.5H_2O$ 1000 mg $Na_3Citr.2H_2O$
EUMIV-MP	EN 15662 Method	50/Pack	6000 mg $MgSO_4$ 1500 mg NaCl 750 mg $Na_2HCitr.1.5H_2O$ 1500 mg $Na_3Citr.2H_2O$

QuEChERS Extraction Salts

Centrifuge Tube Format

UCT offers an extensive selection of QuEChERS
extraction salts pre-packed in either 15 or 50 ml polypropylene centrifuge tubes.

Part Number	Description	Volume	Quantity	Contents
ECMS4MSC550CT	Non-Buffered Extraction	50 mL	50/Pack	4000 mg $MgSO_4$ 500 mg NaCl
ECMSSC50CT	Non-Buffered Extraction	50 mL	50/Pack	4000 mg $MgSO_4$ 1000 mg NaCl
ECMSSC50CTFS	Non-Buffered Extraction	50 mL	50/Pack	6000 mg $MgSO_4$ 1500 mg NaCl
ECQUVIN50CT	Non-Buffered Extraction	50 mL	50/Pack	8000 mg $MgSO_4$ 2000 mg NaCl
ECMS4MSA1M50CT	AOAC 2007.01 Method	50 mL	50/Pack	6000 mg $MgSO_4$ 1500 mg NaOAc
ECMSSA50CT	AOAC 2007.01 Method	50 mL	50/Pack	6000 mg $MgSO_4$ 1500 mg NaOAc
ECQUEU750CT	EN 15662 Method	50 mL	50/Pack	4000 mg $MgSO_4$ 1000 mg NaCl 500 mg $Na_2HCitr.1.5H_2O$ 1000 mg $Na_3Citr.2H_2O$
EUMIV50CT	EN 15662 Method	50 mL	50/Pack	6000 mg $MgSO_4$ 1500 mg NaCl 750 mg $Na_2HCitr.1.5H_2O$ 1500 mg $Na_3Citr.2H_2O$
ECQUUS1015CT	Non-Buffered Extraction	15 mL	50/Pack	400 mg $MgSO_4$ 100 mg NaCl
ECQUUS1115CT	Non-Buffered Extraction	15 mL	50/Pack	800 mg $MgSO_4$ 200 mg NaCl
ECQUUS15CT	AOAC 2007.01 Method	15 mL	50/Pack	400 mg $MgSO_4$ 100 mg NaOAc
ECQUEU415CT	EN 15662 Method	15 mL	50/Pack	4000 mg $MgSO_4$ 1000 mg NaCl 500 mg $Na_2HCitr.1.5H_2O$ 1000 mg $Na_3Citr.2H_2O$

UCT, Inc. | 2731 Bartram Rd | Bristol, PA 19007 | USA
P. 800.541.0559 | 215.781.9255 | F. 215.785.1226
www.unitedchem.com

Dispersive-SPE (dSPE) Sorbents

dSPE Clean-Up

UCT offers the most extensive line of dSPE products, conveniently packaged in centrifuge tube format. Each corresponding part number contains pre-weighed sorbents for use with Original, Association of Analytical Communities (AOAC) and European Committee for Standardization (CEN) QuEChERS methods. UCT dSPE kits make sample prep quick and easy for multi-residue analysis in a wide variety of matrices.

Part Number	Volume	Quantity	Contents
ECQUEU12CT	2 mL	100/Pack	150 mg $MgSO_4$ + 25 mg PSA
CUMPS2CT	2 mL	100/Pack	150 mg $MgSO_4$ + 50 mg PSA
CUMC182CT	2 mL	100/Pack	150 mg $MgSO_4$ + 50 mg C18
ECQUEU252CT	2 mL	100/Pack	150 mg $MgSO_4$ + 7.5 mg GCB
ECQUEU22CT	2 mL	100/Pack	150 mg $MgSO_4$ + 25 mg PSA + 25 mg C18
CUMPSC18CT	2 mL	100/Pack	150 mg $MgSO_4$ + 50 mg PSA + 50 mg C18
CUMPS15C18CT	2 mL	100/Pack	150 mg $MgSO_4$ + 150 mg PSA + 50 mg C18
ECQUEU32CT	2 mL	100/Pack	150 mg $MgSO_4$ + 25 mg PSA + 2.5 mg GCB
ECQUEU42CT	2 mL	100/Pack	150 mg $MgSO_4$ + 25 mg PSA + 7.5 mg GCB
CUMPSCB2CT	2 mL	100/Pack	150 mg $MgSO_4$ + 50 mg PSA + 50 mg GCB
CUMSC1875CB2CT	2 mL	100/Pack	150 mg $MgSO_4$ + 50 mg C18 + 7.5 mg GCB
ECQUUS72CT	2 mL	100/Pack	50 mg PSA + 50 mg C18 + 25 mg GCB
CUMPSC1875CB2CT	2 mL	100/Pack	150 mg $MgSO_4$ + 50 mg PSA + 50 mg C18 + 7.5 mg GCB
ECQUEU122CT	2 mL	100/Pack	150 mg $MgSO_4$ + 50 mg PSA + 50 mg C18 + 50 mg GCB

*** All C18 sorbent utilized in dSPE clean-up configurations above is endcapped.**

Dispersive-SPE (dSPE) Sorbents

15/50 mL Format

Part Number	Volume	Quantity	Contents
ECC18515CT	15 mL	50/Pack	500 mg C18
ECQUAS815CT	15 mL	50/Pack	300 mg DVB
ECQUEU2515CT	15 mL	50/Pack	450 mg $MgSO_4$ + 450 mg C18
ECQUAS315CT	15 mL	50/Pack	750 mg $MgSO_4$ + 250 mg C18
ECQUUS515CT	15 mL	50/Pack	900 mg $MgSO_4$ + 150 mg C18
ECMPS15CT	15 mL	50/Pack	900 mg $MgSO_4$ + 150 mg PSA
ECQUAS415CT	15 mL	50/Pack	900 mg $MgSO_4$ + 300 mg PSA
ECMPSA15CT	15 mL	50/Pack	1200 mg $MgSO_4$ + 200 mg PSA
ECMS12CPSA415CT	15 mL	50/Pack	1200 mg $MgSO_4$ + 400 mg PSA
ECMMCCNAX215CT	15 mL	50/Pack	1200 mg $MgSO_4$ + 200 mg Aminopropyl
ECQUEU2115CT	15 mL	50/Pack	450 mg $MgSO_4$ + 450 mg PSA + 150 mg C18
ECQUEU2415CT	15 mL	50/Pack	750 mg $MgSO_4$ + 750 mg PSA + 250 mg C18
ECQUEU315CT	15 mL	50/Pack	900 mg $MgSO_4$ + 150 mg PSA + 150 mg C18
ECMPSC1815CT	15 mL	50/Pack	900 mg $MgSO_4$ + 300 mg PSA + 150 mg C18
ECQUAS515CT	15 mL	50/Pack	900 mg $MgSO_4$ + 300 mg PSA + 300 mg C18
CUMPSC1815CT2	15 mL	50/Pack	1200 mg $MgSO_4$ + 400 mg PSA + 400 mg C18
ECQUEU515CT	15 mL	50/Pack	900 mg $MgSO_4$ + 150 mg PSA + 15 mg GCB
ECQUEU615CT	15 mL	50/Pack	900 mg $MgSO_4$ + 150 mg PSA + 45 mg GCB
ECMPSCB15CT	15 mL	50/Pack	900 mg $MgSO_4$ + 300 mg PSA + 150 mg GCB
ECQUEU1115CT	15 mL	50/Pack	1200 mg $MgSO_4$ + 400 mg PSA + 400 mg GCB
ECQUHK315CT	15 mL	50/Pack	700 mg $MgSO_4$ + 200 mg PSA + 200 mg C18 + 35 mg GCB
ECQUAS615CT	15 mL	50/Pack	900 mg $MgSO_4$ + 450 mg PSA + 300 mg C18 + 50 mg GCB
ECQUUS215CT	15 mL	50/Pack	1200 mg $MgSO_4$ + 400 mg PSA + 400 mg C18 + 400 mg GCB
ECC1850CT	50 mL	50/Pack	500 mg C18
ECMSC1850CT	50 mL	50/Pack	1500 mg $MgSO_4$ + 500 mg C18

UCT, Inc. | 2731 Bartram Rd | Bristol, PA 19007 | USA
P. 800.541.0559 | 215.781.9255 | F. 215.785.1226
www.unitedchem.com

Dispersive-SPE (dSPE) Sorbents

dSPE Multi-Packs - Mylar Pouches + 15 mL Centrifuge Tubes

UCT also offers it's diverse dSPE product line in Mylar pouch format.

Part Number	Volume	Quantity	Contents
ECMPS15CT-MP	15 mL	50/Pack	900 mg $MgSO_4$ 150 mg PSA
ECMS12CPSA415CT-MP	15 mL	50/Pack	1200 mg $MgSO_4$ 400 mg PSA
ECMPSCB15CT-MP	15 mL	50/Pack	900 mg $MgSO_4$ 300 mg PSA 150 mg GCB

dSPE Mylar Pouches

Part Number	Quantity	Contents
ECMPS-MP	50/Pack	900 mg $MgSO_4$ + 150 mg PSA
ECMS12CPSA4-MP	50/Pack	1200 mg $MgSO_4$ + 400 mg PSA
ECMSC18-MP	50/Pack	1500 mg $MgSO_4$ + 500 mg C18
ECQUEU315-MP	50/Pack	900 mg $MgSO_4$ + 150 mg PSA + 150 mg C18
CUMPSC182-MP	50/Pack	1200 mg $MgSO_4$ + 400 mg PSA + 400 mg C18
ECQU001-MP	50/Pack	750 mg $MgSO_4$ + 125 mg PSA + 12.5 mg GCB
ECQU002-MP	50/Pack	750 mg $MgSO_4$ + 125 mg PSA + 37.5 mg GCB
ECQUEU5-MP	50/Pack	900 mg $MgSO_4$ + 150 mg PSA + 15 mg GCB
ECMPSCB-MP	50/Pack	900 mg $MgSO_4$ + 300 mg PSA + 150 mg GCB
ECQUEU12-MP	50/Pack	150 mg $MgSO_4$ + 50 mg PSA + 50 mg C18 + 50 mg GCB

ChloroFiltr®

Traditional QuEChERS methods use graphitized carbon black (GCB) to remove chlorophyll from sample extracts. Although GCB is very effective in removing chlorophyll, it can also remove planar pesticides. UCT has developed a unique sorbent that removes chlorophyll without the loss of planar pesticides. ChloroFiltr® is used as an alternative to GCB during dSPE clean-up with no method modifications needed.

Part Number	Volume	Quantity	Contents
CUMPSGG2CT	2 mL	100/Pack	150 mg $MgSO_4$ + 50 mg PSA + 50 mg Chlorofiltr®
ECQUCHL12CT	2 mL	100/Pack	150 mg $MgSO_4$ + 50 mg C18 + 50 mg Chlorofiltr®
CUMPSGGC182CT	2 mL	100/Pack	150 mg $MgSO_4$ + 50 mg PSA + 50 mg C18 + 50 mg Chlorofiltr®
ECMSGG15CT	15 mL	50/Pack	900 mg $MgSO_4$ + 150 mg Chlorofiltr®
ECMPSGG15CT	15 mL	50/Pack	900 mg $MgSO_4$ + 300 mg PSA + 150 mg Chlorofiltr®
ECQUCHL115CT	15 mL	50/Pack	900 mg $MgSO_4$ + 300 mg PSA + 300 mg Chlorofiltr®
ECQUCHL215CT	15 mL	50/Pack	900 mg $MgSO_4$ + 300 mg C18 + 300 mg Chlorofiltr®
ECQUCHL315CT	15 mL	50/Pack	900 mg $MgSO_4$ + 300 mg PSA + 300 mg C18 + 300 mg Chlorofiltr®
ECMPSGG50CT	50 mL	50/Pack	1800 mg $MgSO_4$ + 600 mg PSA + 300 mg Chlorofiltr®
ECQUCHL150CT	50 mL	50/Pack	1800 mg $MgSO_4$ + 600 mg PSA + 600 mg Chlorofiltr®
ECQUCHL250CT	50 mL	50/Pack	1800 mg $MgSO_4$ + 600 mg C18 + 600 mg Chlorofiltr®
ECQUCHL350CT	50 mL	50/Pack	1800 mg $MgSO_4$ + 600 mg PSA + 600 mg C18 + 600 mg Chlorofiltr®

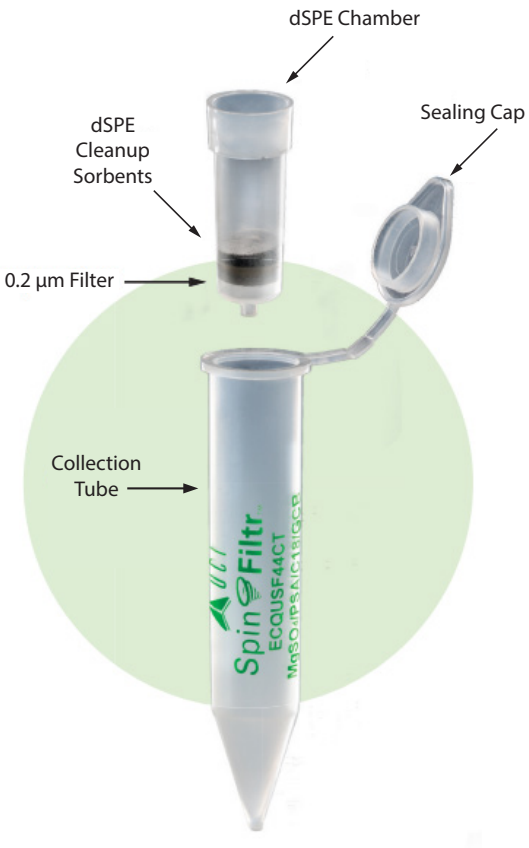
UCT, Inc. | 2731 Bartram Rd | Bristol, PA 19007 | USA
P. 800.541.0559 | 215.781.9255 | F. 215.785.1226
www.unitedchem.com

SpinFiltr®

UCT's SpinFiltr® takes the hassle out of dSPE

- dSPE + Ultrafiltration in a single step.
- Obtain enhanced extract purification with the built-in 0.2 µm PTFE filter
- Recover additional sample volume without worrying about the disruption of centrifugation layers.
- Simply discard dSPE chamber containing unwanted matrix and sorbet following centrifugation.

Part Number	Top Chamber Capacity	Quantity	Contents
ECQUSF14CT	1 mL	50/Pack	150 mg $MgSO_4$ 50 mg PSA
ECQUSF24CT	1 mL	50/Pack	50 mg $MgSO_4$ 50 mg PSA 50 mg C18
ECQUSF34CT	1 mL	50/Pack	150 mg $MgSO_4$ 25 mg PSA 2.5 mg GCB
ECQUSF44CT	1 mL	50/Pack	150 mg $MgSO_4$ 50 mg PSA 50 mg C18 7.5 mg GCB
ECQUSF54CT	1 mL	50/Pack	150 mg $MgSO_4$ 50 mg PSA 50 mg C18 50 mg Chlorofiltr®
ECQUSF64CT	1 mL	50/Pack	150 mg $MgSO_4$ 50 mg C18 50 mg Chlorofiltr®
ECQUSF74CT	1 mL	50/Pack	150 mg $MgSO_4$ 50 mg C18



Discover a whole new approach to dSPE!

LipiFiltr®

The easy-to-use Lipifiltr® push-thru cartridge was designed to remove lipids from acetonitrile extracts. Samples are extracted using a standard QuEChERS procedure and an aliquot of the supernatant is simply pushed through the Lipifiltr® purification cartridge using a disposable syringe. The purified extract is collected in an autosampler vial and analyzed by UHPLC-MS/MS. The ability to obtain significantly cleaner extracts, ease of use, and time and cost savings make the new Lipifiltr® push-thru cartridges an attractive cleanup option for laboratories conducting pesticide residue analysis in complex fatty samples.

LipiFiltr® Push Thru Cartridge	
Part Number	**Unit**
LPFLTR01	50/Pack

UCT, Inc. | 2731 Bartram Rd | Bristol, PA 19007 | USA
P. 800.541.0559 | 215.781.9255 | F. 215.785.1226
www.unitedchem.com

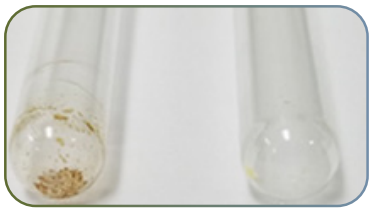
LipiFiltr®

Gravimetric Analysis

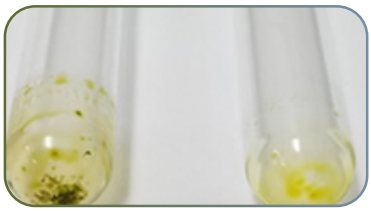
The performance of the LipiFiltr® push-thru cartridges to remove lipids and other matrix components was evaluated gravimetrically by collecting 2 mL of sample before and after cleanup in pre-weighed test tubes and heating them to dryness at 110 °C in an oven.

Matrix	Matrix Removal (%)
Beef	79.1
Black Olives	84.3
Avocado	54.7
Salmon	80.9
Chicken fat	71.7
Olive oil	61.5
Nuts	84.3
Swordfish	80.9

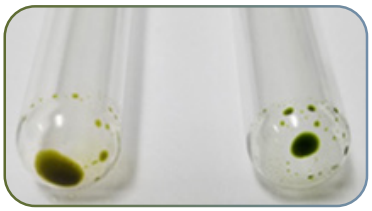
Extract Concentration Before and After LipiFiltr® Cleanup



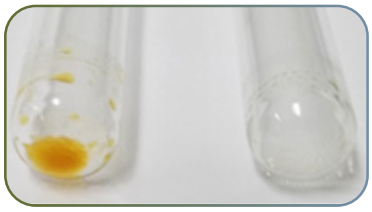
Beef



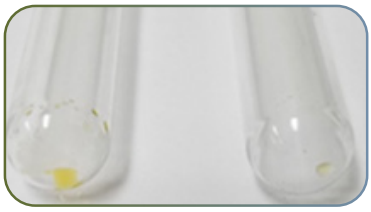
Black Olives



Avocado

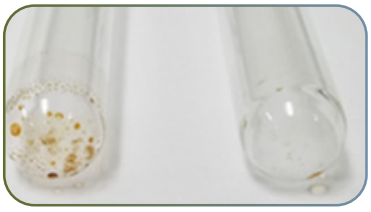


Salmon

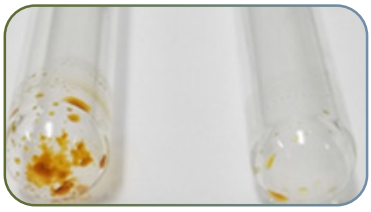


Chicken Fat

Olive Oil



Nuts



Swordfish

Quick QuEChERS

Simple, Fast, Efficient Cartridges for Clean-Up of QuEChERS Extracts

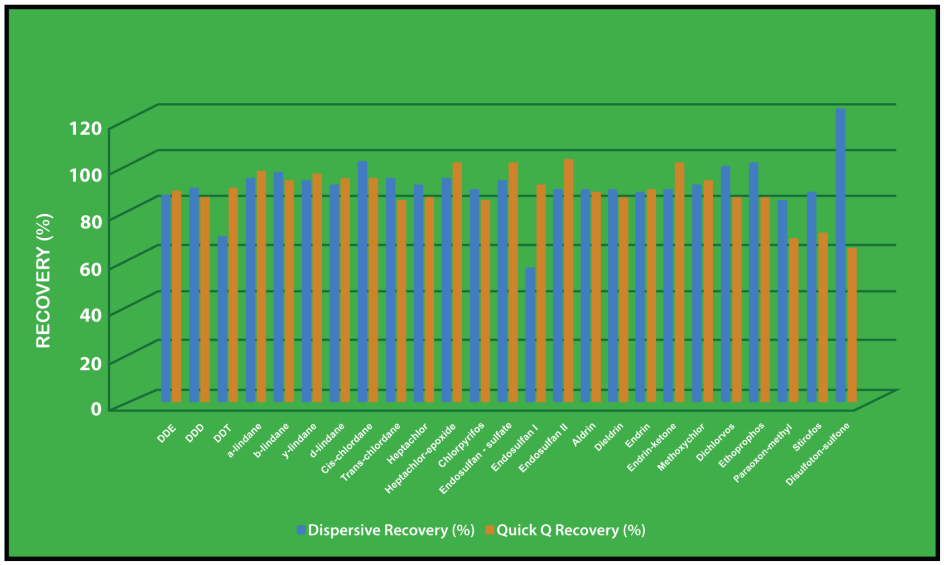
UCT's QuICK QuEChERS push-thru cartridge eliminates the need for shaking and centrifugation of extracts during clean-up, significantly reducing sample processing time. In addition, any residual sorbent is filtered via the frit providing a clean, final extract for analysis.*

After QuEChERS sample extraction:

1. Draw the extract into a disposable syringe
2. Push the extract through the cartridge into a sample vial
3. Sample is ready for analysis by LC or GC

The UCT QuICK QuEChERS Cartridge provides results comparable to traditional dSPE but without the need for centrifugation.

dSPE Recovery Data vs. QuICK QuEChERS



Part Number	Cartridge Size	Contents
ECPURMPSMC	Medium	110 mg $MgSO_4$ (top layer); PTFE Frit; 180 mg PSA (bottom layer)
ECPURMPSLC	Large	110 mg $MgSO_4$ (top layer); PTFE Frit; 600 mg PSA (bottom layer)

* Product developed by Steven C. Moser - OK Department of Agriculture, Food and Forestry

UCT, Inc. | 2731 Bartram Rd | Bristol, PA 19007 | USA
P. 800.541.0559 | 215.781.9255 | F. 215.785.1226
www.unitedchem.com

SPE Dual Phase Cartridge Clean-Up

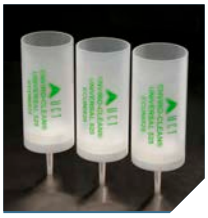
SPE dual phase cartridges provide an alternative clean-up option for complicated matrices and/or when dSPE does not provide adequate cleanliness of sample extracts. Examples of matrices that are suitable for SPE include tea, herbs, spices and high lipid content samples.

Part Number	Volume	Quantity	Frit Type	Contents
ECPSACB6	6 mL	30/Pack	PTFE	200 mg GCB 400 mg PSA
ECPSACB256	6 mL	30/Pack	PTFE	250 mg GCB 500 mg PSA
ECPSACB256-PE	6 mL	30/Pack	PE	250 mg GCB 500 mg PSA
ECPSACB21M6	6 mL	30/Pack	PTFE	250 mg GCB 1000 mg PSA
ECPSACB506	6 mL	30/Pack	PTFE	500 mg GCB 500 mg PSA
ECPSACB506P	6 mL	30/Pack	PE	500 mg GCB 500 mg PSA
ECNAXCB506	6 mL	30/Pack	PTFE	500 mg GCB 500 mg CUNAX
EUMSPSA6	6 mL	30/Pack	PTFE	500 mg PSA 750 mg $MgSO_4$
ECPSAC1856	6 mL	30/Pack	PTFE	500 mg PSA 500 mg C18
ECMSPSACB6	6 mL	30/Pack	PTFE	250 mg GCB 500 mg PSA 750 mg $MgSO_4$
EUSILMSSM26	6 mL	30/Pack	PTFE	1000 mg silica 200 mg muffled anhydrous sodium sulfate
EUCARBC18515	15 mL	20/Pack	PTFE	500 mg GCB 500 mg C18
EEMSC1811M15	15 mL	20/Pack	PTFE	1000 mg C18 1000 mg $MgSO_4$
EEMS2C181M15	15 mL	20/Pack	PTFE	1000 mg C18 2000 mg $MgSO_4$
EUPSAC181M15	15 mL	20/Pack	PTFE	1000 mg PSA 1000 mg C18

Enviro-Clean®
Universal & Specialty Cartridges

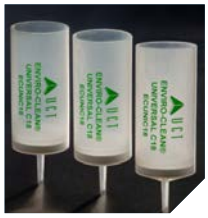
ENVIRO-CLEAN® Universal Cartridges

UNIVERSAL OIL & GREASE



UNIVERSAL 525

UNIVERSAL PAH / DRO



UNIVERSAL C18

UNIVERSAL 549

UNIVERSAL Zero-Blank Filter™

Part Number	Product Name	Description	Quantity	Amount/Tube Vol.
ECUNIOGXF	UNIVERSAL OIL & GREASE	For EPA Method 1664 / Sorbent C18	15/Pack	2000 mg / 83 mL
ECUNI525	UNIVERSAL 525	For EPA Method 525.2 & 525.3 / Sorbent C18	8/Pack	1500 mg / 83 mL
ECUNIPAH	UNIVERSAL PAH / DRO	For PAH and Diesel Range Organics extractions / Sorbent C18	8/Pack	2000 mg / 83 mL
ECUNIC18	UNIVERSAL C18	For extraction of pesticides, herbicides and PCBs, etc. / Sorbent C18	8/Pack	1100 mg / 83 mL
ECUNI549	UNIVERSAL 549	For EPA Method 549 / Sorbent C8	8/Pack	500 mg / 83 mL
ECUNIDVB500	UNIVERSAL DVB	For extraction of a wide range of analytes / Sorbent PS-DVB	8/Pack	500 mg / 83 mL
ECBLANK	UNIVERSAL Zero-Blank Filter™	Proprietary adsorbent for filtration of lab air for use during sorbent drying	6/Pack	200 mg / 83 mL

ENVIRO-CLEAN® UNIVERSAL CARTRIDGE RESERVOIRS

Part Number	Description	Quantity
ERFT1FUNIP	1 10µm PTFE frit	10/Pack
ERTFT1FUNIP	1 50µm PTFE frit	10/Pack
ERFV00UNIP	Empty Reservoir	10/Pack

FITS THE HORIZON SPE-DEX® 4790 AUTOMATED EXTRACTION SYSTEM

ENVIRO-CLEAN® Specialty Cartridges

For Environmental & EPA Extractions

Product Name	Description	Part Number	Amount/Tube Vol.	Units/Pack
Clean-Elute™	Diatomaceous Earth for EPA Method 509	CLEAN-ELUTE	25,000 mg / 200mL	108
Enviro-Clean® HL DVB	For use in EPA Methods 526, 528, 529, 530, 544, 553, 1694, 8321B, 8141B, 8330	ECHLD156-P	500 mg / 6mL	30
Enviro-Clean® 521 & 522	Activated Carbon for EPA Methods 521 & 522	EU52112M6	2000 mg / 6mL	30
Enviro-Clean® 523	Graphitized Carbon for EPA Method 523	EC5232506	250 mg / 6mL	30
Enviro-Clean® 525	Novel C18 blend for use in EPA Method 525.2	EC525006	1500 mg / 6mL	30
Enviro-Clean® 535 (90 m^2/g SA)	For EPA Method 535 or in applications requiring Graphitized Carbon Black with lower surface area	EC535156	500 mg / 6mL	30
Enviro-Clean® 537.1	For EPA Method 537 Perfluorinated Alkyl Acids	ECDVB156-P	500 mg / 6mL	30
Enviro-Clean® 541	For EPA Method 541 Polar Organic Compounds in Drinking Water	EU541163	600 mg / 3mL	50
Enviro-Clean® 548	For EPA Method 548.1 Endothall Extraction	EC548006	548 Slurry / 6mL	30
Enviro-Clean® C8	For EPA Method 549 Diquat & Paraquat	EEC08156	500 mg / 6mL	50
Enviro-Clean® EPH Fractionation	Developed for fractionation of MA EPH (gravity flow)	XRSIHT13M15 XRSIHT15M25 CUSILHT15M25	3000 mg / 15mL 5000 mg / 25mL 5000 mg / 25mL	24 20 20
Enviro-Clean® Silica Gel	For silica gel clean-up applications	EUSILMSSM26	1000 mg silica: 200 mg muffled anhydrous sodium sulfate / 6mL	30
Enviro-Clean® Anhydrous Sodium Sulfate Drying Cartridge	Used for the removal of water from extracts prior to concentration and analysis	ECSS15M6	5000 mg / 6mL	30
Enviro-Clean® Anhydrous Sodium Sulfate Muffled – Glass Reservoir	Used for the removal of water from extracts prior to concentration and analysis	CUSS25M6G	2500 mg / 6mL	30
Enviro-Clean® Alumina & Silica Dual-Phase Cartridge	For environmental clean-up	ECALNSIL25M25	2500 mg alumina neutral: 5000 mg silica / 25mL	20
Enviro-Clean® Sodium Sulfate & Florisil Dual-Phase Cartridge	For environmental clean-up	EUSSFL2M6	2000 mg sodium sulfate: 2000 mg florisil / 6mL	30

UCT, Inc. | 2731 Bartram Rd | Bristol, PA 19007 | USA
P. 800.541.0559 | 215.781.9255 | F. 215.785.1226
www.unitedchem.com

PFAS Solution Guide

Enviro-Clean® WAX

UCT's polymeric weak-anion exchange (WAX) SPE cartridges feature enhanced cleanliness for minimal background in addition to unrivaled exchange capacities. Available in 100, 150, 200, and 500 mg bed sizes, these robust cartridges can be used for sample analysis in drinking water, ground water, surface water, and waste water. The use of this phase can be assessed in UCT's new US EPA Method 533 application solution in addition to an internally developed method for the sensitive quantification of 26 PFASs in drinking water, including the 14 covered in the US EPA Method 537.

Enviro-Clean® HL DVB

In addition to UCT's weak-anion exchange polymeric sorbent, we also offer our ENVIRO-CLEAN® HL DVB extraction cartridge manufactured from an extremely clean, and highly cross-linked divinylbenzene based sorbent. It has been successfully used to clean up water samples for testing a wide range of analytes to include acidic, neutral (both polar & non-polar), and basic compounds. This highly retentive, reverse phase sorbent has been used successfully in US EPA Method 537 and US EPA Method 537.1.

Enviro-Clean® WAX
200mg and 500mg / 6mL

Enviro-Clean® Free-Flowing Dual Phase Cartridges

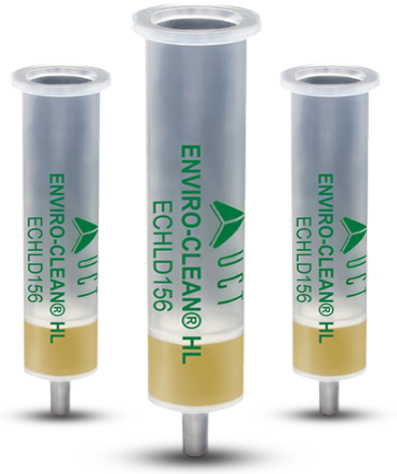
Avoid time intensive dSPE and cumbersome dual stacked cartridges to meet the additional DOD B-15 method-required carbon purification for PFAS testing. Through the use of UCT's Enviro-Clean dual phase WAX+ Graphitized Carbon Black (GCB) cartridge, clean-up can be targeted in one step minimizing loss of long chain PFAS compounds. Cartridges are available in 2 varying configurations, 200mg of WAX+ 50mg of GCB and 500 mg of WAX+ 50mg GCB. This sample clean-up approach is quickly becoming the "go-to" method for non-potable water and soil in advance of an official EPA published method.

EPA Method	Part Number	Description	UoM
533	**ECWAX116-P**	Enviro-Clean WAX - PE Frits 100mg 6ml	30/Pkg
533	**ECWAX(150)6-P**	Enviro-Clean WAX - PE Frits 150mg 6ml	30/Pkg
533	**ECWAX126-P**	Enviro-Clean WAX - PE Frits 200mg 6ml	30/Pkg
533	**ECWAX156-P**	Enviro-Clean WAX - PE Frits 500mg 6ml	30/Pkg
537.1	**ECHLD116-P**	Enviro-Clean HL DVB - PE Frits 100mg 6ml	30/Pkg
537.1	**ECHLD(150)6-P**	Enviro-Clean HL DVB - PE Frits 150mg 6ml	30/Pkg
537.1	**ECHLD126-P**	Enviro-Clean HL DVB- PE Frits 200mg 6ml	30/Pkg
1633	**ECHLD156-P**	Enviro-Clean HL DVB - PE Frits 500mg 6ml	30/Pkg
DoD QSM 5.3	**ECWAXCB206-B**	PFAS Analysis-Dual Phase Cartridge-200mg ECWAX+SOmg Graphitized Carbon Black-PE Frits	30/Pkg
DoD QSM 5.3	**ECWAXCB506-B**	PFAS Analysis-Dual Phase Cartridge-S0Omg ECWAX+SOmg Graphitized Carbon Black-PE Frits	30/Pkg

ENVIRO-CLEAN® HL DVB

ENVIRO-CLEAN® HL DVB extraction columns are manufactured from an extremely clean, highly cross-linked divinylbenzene based sorbent. The material was developed with the environmental market in mind. It has been successfully used to extract a wide range of analytes from water samples. By varying the sample pH, wash and elution solvents ENVIRO-CLEAN® HL DVB can be used to analyze acidic, basic, and neutral (both polar & non-polar) compounds.

Part Number	Description	Quantity
ECHLD(150)6-P	150 mg / 6mL Cartridge	30/Pack
ECHLD126-P	200 mg / 6mL Cartridge	30/Pack
ECHLD156-P	500 mg / 6mL Cartridge	30/Pack



UCT, Inc. | 2731 Bartram Rd | Bristol, PA 19007 | USA
P. 800.541.0559 | 215.781.9255 | F. 215.785.1226
www.unitedchem.com

ENVIRO-CLEAN® Specialty Cartridges

EPA METHOD 8270 - Extraction of Acids, Bases, and Neutrals in Water using Solid Phase Extraction

UCT offers a 2 cartridge system and extraction procedure for EPA Method 8270. A wide range of 137 target analytes and 6 surrogates can be successfully analyzed using this method. The procedure is reliable, efficient, and cost-effective. The tandem cartridge system uses UCT's proprietary 8270 cartridge in-line with our activated carbon cartridge. High throughout can be achieved by extracting multiple samples simultaneously using a multi-port SPE manifold combined with a 12 position collection rack, which allows for the simultaneous extraction of up to 12 samples at once. A set of 24 samples can be extracted in 5 to 6 hours.

Product Benefits

- Cost-effective
- Reduced usage of organic solvents
- Only one sample pass is needed

5-6 hrs for a batch of 24 samples.

- No emulsion or white precipitate generated
- Shorter solvent evaporation time
- Shorter sample turnaround time
- High sample throughput
- Excellent recovery
- Cleaner extracts and chromatograms
- Cartridge body manufactured from special, proprietary polypropylene – minimizing potential source of interferences
- Packaged in Mylar to maintain cleanliness

ENVIRO-CLEAN® Specialty Cartridges

8270 Cartridge Kits

1 Liter Sample Size		
Part Number	**Description**	**Quantity**
EC8270-KIT1L	ENVIRO-CLEAN® 8270 STARTER KIT	Kit
Contents	30 x 8270 Extraction Cartridges (p/n **EC82702M15**), 30 x Carbon Extraction Cartridges (p/n **EU52113M6**), 30 x Cartridge Adapters (p/n **AD0000AS**), 12 x Large Volume Transfer Tubes (p/n **VMFSTFR12**)	
EC8270-1000REFL	ENVIRO-CLEAN® 8270 REFILL KIT	Kit
Contents	30 x 8270 Extraction Cartridges (p/n **EC82702M15**), 30 x Carbon Extraction Cartridges (p/n **EU52113M6**)	

500 mL Sample Size		
Part Number	**Description**	**Quantity**
EC8270-KIT	ENVIRO-CLEAN® 8270 STARTER KIT	Kit
Contents	30 x 8270 Extraction Cartridges (p/n **EC82701M15**), 30 x Carbon Extraction Cartridges (p/n **EU52112M6**), 30 x Cartridge Adapters (p/n **AD0000AS**), 12 x Large Volume Transfer Tubes (p/n **VMFSTFR12**)	
EC8270-500REFL	ENVIRO-CLEAN® 8270 REFILL KIT	Kit
Contents	30 x 8270 Extraction Cartridges (p/n **EC82701M15**), 30 x Carbon Extraction Cartridges (p/n **EU52112M6**)	

<100 mL Sample Size		
Part Number	**Description**	**Quantity**
EC8270-KIT	ENVIRO-CLEAN® 8270 STARTER KIT	Kit
Contents	30 x 8270 Extraction Cartridges (p/n **EC8270506**), 30 x Carbon Extraction Cartridges (p/n **EU5211M6**), 30 x Cartridge Adapters (p/n **AD0000AS**), 12 x Large Volume Transfer Tubes (p/n **VMFSTFR12**)	
EC8270-500REFL	ENVIRO-CLEAN® 8270 REFILL KIT	Kit

8270 Cartridge Refills		
Part Number	**Description**	**Quantity**
EC8270506	500 mg in a 6mL Cartridge	30/Pack
EC82701M15	1000 mg in a 15mL Cartridge	30/Pack
EC82702M15	2000 mg in a 15mL Cartridge	30/Pack

Carbon Cartridge Refills		
Part Number	**Description**	**Quantity**
EU5211M6	1000 mg in a 6mL Cartridge	30/Pack
EU52112M6	2000 mg in a 6mL Cartridge	30/Pack
EU52113M6	3000 mg in a 6mL Cartridge	30/Pack

Extraction Manifold		
Part Number	**Description**	**Quantity**
VMF016GL	16 Position Complete Vacuum Manifold System	Complete Unit
Contents	1 x Glass Block, 1 x 16 Position Corian Lid 1 x Cover Gasket, 1 x Vacuum Gauge 1 x 16 Position Adjustable Collection Rack 1 x Glass Block Safety Tray, 16 x PTFE Tips 16 x Bulkhead Luer Fittings, 16 x Plugs	

UCT, Inc. | 2731 Bartram Rd | Bristol, PA 19007 | USA
P. 800.541.0559 | 215.781.9255 | F. 215.785.1226
www.unitedchem.com

ENVIRO-CLEAN® Push-Thru Purification Cartridges

UCT's wide sorbent range is also offered in a convenient push-thru format, providing simple, fast, and efficient sample clean-up. The analyst can choose from a wide range of sorbent types tailored to the specific requirements of each analysis. The small, medium, and large push-thru cartridges allow for the filtration and removal of unwanted matrix that can otherwise lead to significant ion suppression during sample analysis.

SMALL

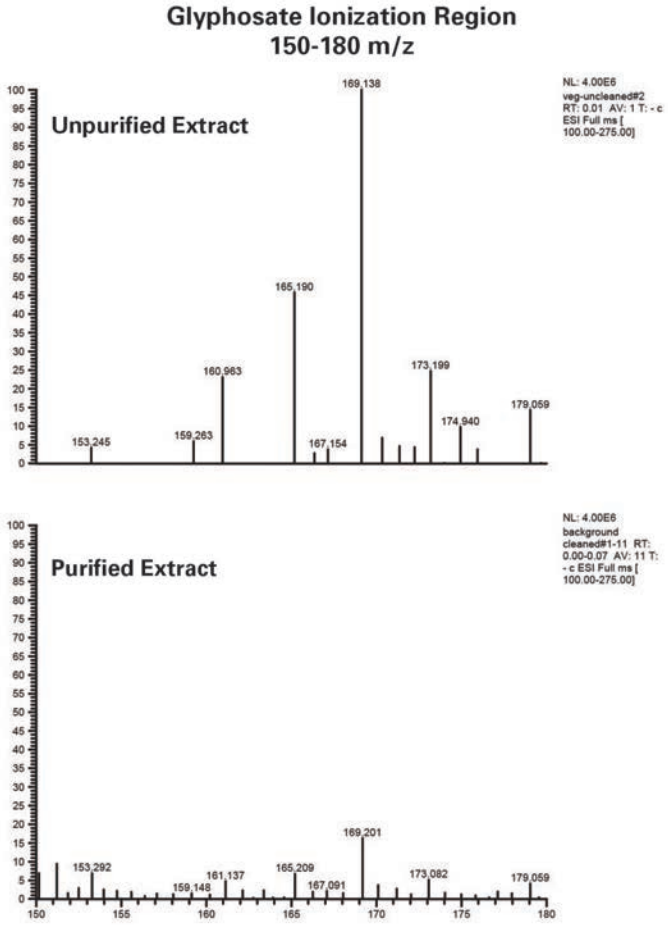
MEDIUM

LARGE

Part Number	Cartridge Size	Quantity	Frit Type	Contents
EEC18MC	Medium	50/Pack	PTFE	Enviro-Clean® Encapped C18
EEC1815MC-P	Medium	50/Pack	PE	Enviro-Clean® Encapped C18
EUCARBMC	Medium	50/Pack	PTFE	Enviro-Clean®Graphitized Carbon – 120/400 Mesh
EUFLSLC	Large	50/Pack	PTFE	Enviro-Clean® Florisil® PR
EUALNLC-P	Large	50/Pack	PE	Enviro-Clean® Alumina Neutral
EUQAXLC	Large	50/Pack	PTFE	Enviro-Clean® Quaternary Amine
EUPSAMC	Medium	50/Pack	PTFE	Enviro-Clean® Primary/Secondary Amine
EUPSALC	Large	50/Pack	PTFE	Enviro-Clean® Primary/Secondary Amine

ENVIRO-CLEAN® Push-Thru Glyphosate Purification Cartridges

Remove unwanted matrix interferences that can lead to significant suppression and loss of ionization for glyphosate and glufosinate. Water and vegetation/fruits/swabs and other non-soil samples extracted with water are simply pushed through the Glyphosate cartridge to purify final extracts.



Part Number	Size
ECGLYSC	Small Cartridge
ECGLYLC	Large Cartridge
*** Proprietary polymeric sorbent blend**	

* Source: Steven C. Moser OK Department of Agriculture, Food & Forestry
**Glyphosate is found at 168 m/z in ESI- mode.

Infused samples were injected onto LC/MS Ion Trap in full scan mode for an average of a 30 second infusion pre and post clean-up using UCT's Glyphosate Purification Cartridges. Background matrix peaks that can lead to significant suppression and compete with glyphosate and glufosinate during ionization were significantly reduced following clean-up.

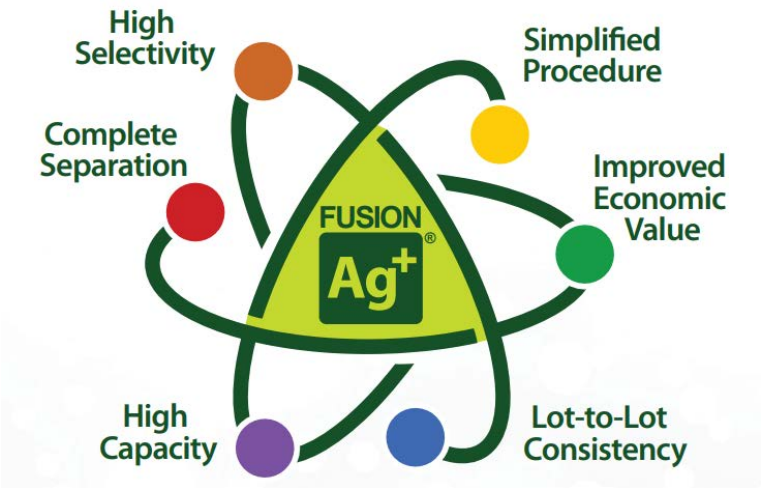
UCT, Inc. | 2731 Bartram Rd | Bristol, PA 19007 | USA
P. 800.541.0559 | 215.781.9255 | F. 215.785.1226
www.unitedchem.com

ENVIRO-CLEAN® Fusion® Ag+

Fractionation of aliphatic and aromatic hydrocarbons are routinely assessed to identify the risks posed by petroleum in the environment. Solid Phase Extraction (SPE) with heat-treated silica gel is the traditional approach for the fractionation of aliphatic and aromatic hydrocarbons.

The biggest challenge of this approach is the deactivation of the silica gel due to its hygroscopic nature, which leads to inconsistent results, incomplete separation, and low recoveries. The process to optimize each batch of silica cartridges is time consuming and exhausts copious amounts of hexane solvent.

UCT's Enviro-Clean Fusion® Ag^+ SPE sorbent is designed to help overcome the challenges associated with traditional silica gel fractionation. The new EPH fractionation sorbent consists of silver ions anchored onto a solid support to provide the best selectivity, capacity, and performance.



Aromatic hydrocarbons form a charge-transfer complex with silver ions ensuring complete separation of aliphatic from aromatic fractions without breakthrough.

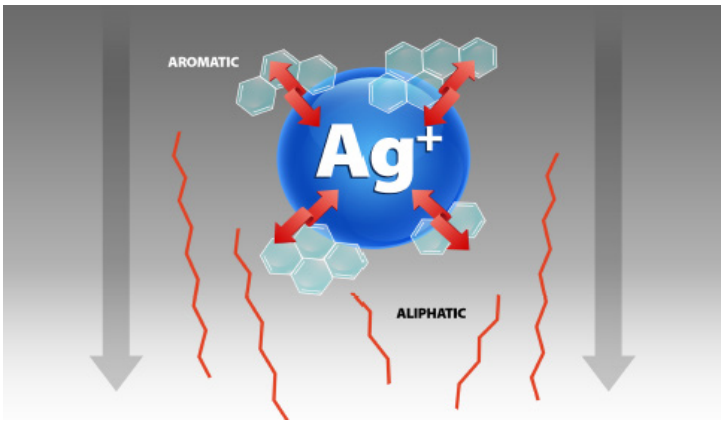
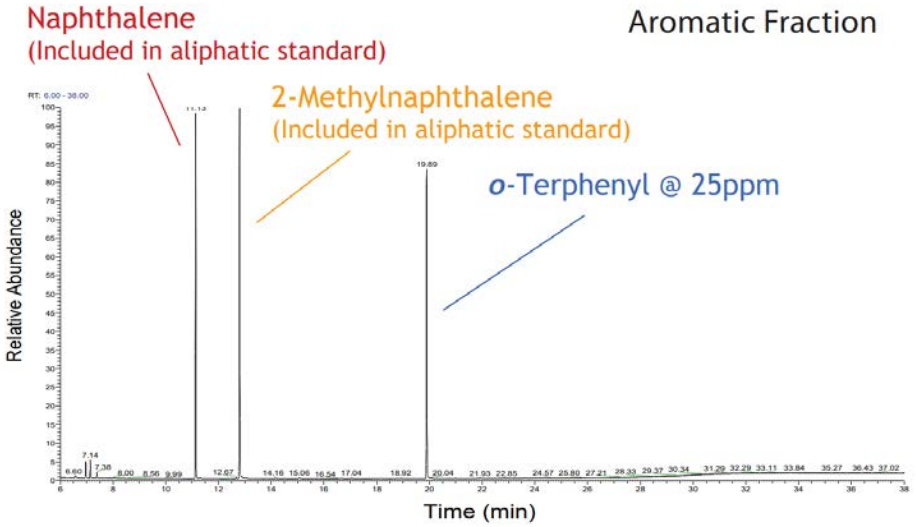
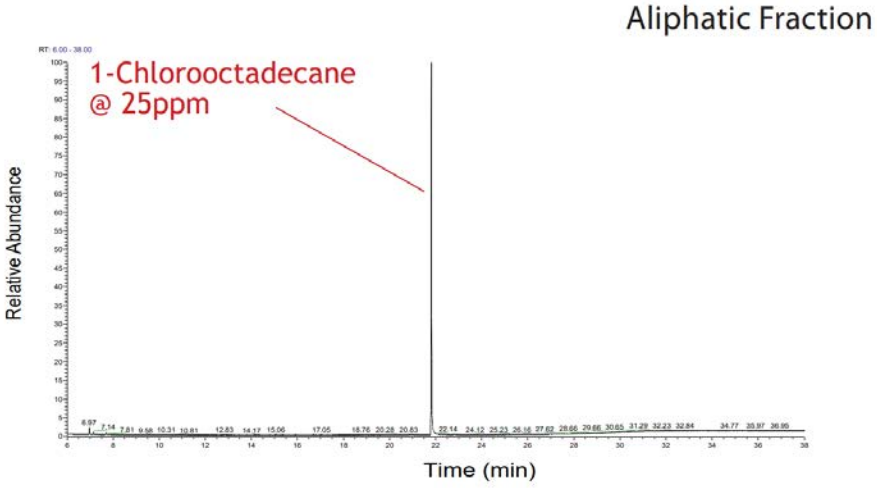


Figure 2. Illustration of Ag^+ interaction with aromatic and aliphatic hydrocarbons.

ENVIRO-CLEAN® Fusion® Ag+

ENVIRO-CLEAN® Fusion® Ag+ Order Information	
Description	**Part Number**
Fusion® Ag+ / 0.5 g, 6mL cartridge	**ECFUSAG156**
Fusion® Ag+ / 1g, 6mL cartridge	**ECFUSAG1M6**
Fusion® Ag+ / 2g, 6mL cartridge	**ECFUSAG2M6**





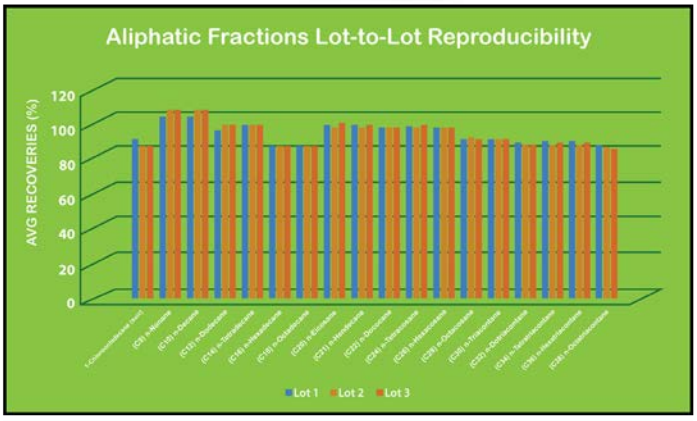
Experiment conditions: Fusion® Ag+ 1g/6mL cartridge; Sample: NJDEP EPH 10/08 Rev.2 aliphatics calibration standard and aromatic calibration standard; Concentration: 200 µg/mL in hexane; GC-MS system: Thermo Trace 1300 GC & ISQ MS; Restek Rxi®-5sil MS, 30m x 0.25mm, 0.25µm with Integra-Guard; Injection volume: 1µL split (1:100) at 300°C; GC liner: 4 mm split liner with deactivated glass wool; Temperature: Transfer line = 275°C; Ion source = 275°C; Oven temp. program: Initial temperature at 50°C, hold for 3 min; ramp at 10°C/min to 320°C, hold for 10 min; Full scan range: 35-600 amu.

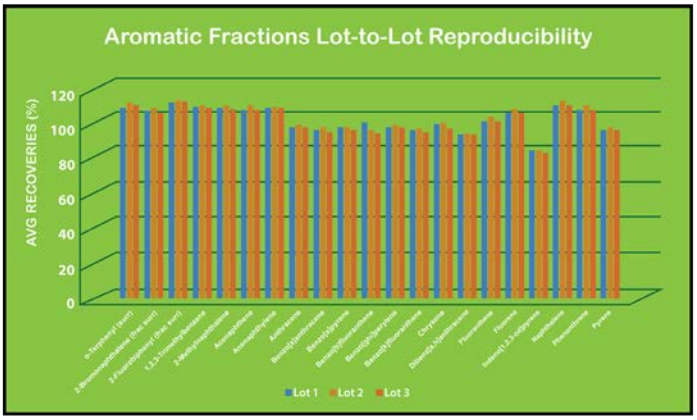
UCT, Inc. | 2731 Bartram Rd | Bristol, PA 19007 | USA
P. 800.541.0559 | 215.781.9255 | F. 215.785.1226
www.unitedchem.com

ENVIRO-CLEAN® Fusion® Ag+

Fusion® Ag+ requires less solvent consumption and reduced extraction times as compared to silica cartridges with a similar configuration (Table 2, 3). Due to the strong ionic interaction of the silver ions with the aromatic hydrocarbon fraction, there is no need to optimize the hexane volume for each lot of silica cartridges. This results in a simplified process procedure.

Fewer solvent requirements and shortened extraction time improves cost efficiencies and laboratory productivity. The small configurations: 0.5g/6mL and 1g/6mL are ideal for automated high throughput analysis. The 2g/6mL configuration is best for higher loading capacity. In addition, using acetone instead of dichloromethane as the elution solvent for the aromatic fraction is more environmentally friendly.





Experimental conditions are the same as **Figure 3**. Three samples were tested from each lot.

Table 2 - Fusion® Ag+ reduces solvent consumption

Solvent Consumption (mL)			
Extraction Steps		Fusion® Ag+ 1g/6mL	Heat-treated Silica 2g/6mL
Conditioning	Acetone	4	
	Dichloromethane		3
	Hexane	4	6
Sample Loading	Hexane	1	1
Aliphatic Fraction	Hexane	4	4
Aromatic Fraction	Acetone	4	
	Dichloromethane		6
Total Solvent Consumption (mL)		**9**	**20**
Total Chlorinated Solvent Used (mL)		**0**	**9**

Table 3 - Fusion® Ag+ shortens extraction time

Extraction Time (min)			
Extraction Steps		Fusion® Ag+ 1g/6mL	Heat-treated Silica 2g/6mL
Conditioning	Acetone	1.8	
	Dichloromethane (5-min hold)		5.8
	Hexane	1.7	1.9
Sample Loading	Hexane	0.5	0.5
Aliphatic Fraction	Hexane	1.7	1.4
Aromatic Fraction	Acetone	1.5	
	Dichloromethane		2.8
Total Extraction Time (min)		**7.2**	**12.4**

Enviro-Clean®
Solid-Phase Extraction Cartridges

HYDROPHOBIC / HYDROPHILIC /
ION EXCHANGE / COPOLYMERIC / POLYMERIC

ENVIRO-CLEAN® Sorbents

ENVIRO-CLEAN® solid-phase extraction (SPE) cartridges are designed specifically for the isolation and purification of environmental analytes such as pesticides, herbicides, polyaromatic hydrocarbons, polychlorinated biphenyls and other environmentally related compounds. By utilizing ultra-clean extraction sorbents along with chemically resistant PTFE frits, an end-user not only has the ability to purify complex matrices, but also reduce ion suppression or enhancement, and most importantly enrich compunds present at trace concentration levels.

To successfully conduct SPE, a mechanistic understanding of the interaction between sorbent and analyte of interest is vital for producing optimal results. The most common retention mechanisms include non-polar interactions (van der Waals forces), polar interactions (hydrogen bonding, dipole-dipole forces), and ionic interactions (cation-anion exchange).

Non-polar phases are universal but often are considered to exhibit the least selective retention mechanisms when compared to normal phase or ion-exchange SPE. C18 is the most widely used of these phases. While this retention mechanism happens to lack specificity, it is very useful for extracting analytes that are very diverse in structure within the same sample. Several EPA approved methods for analyzing organics in water mandate the use of a C18 phase.

Retention of an analyte under normal phase conditions is primarily due to interactions between polar functional groups of the analyte and polar groups on the sorbent surface. This could include hydrogen bonding, pi-pi, and dipole-dipole interactions. This mode is classically used to separate neutral organic compounds whose chemical nature ranges from hydrophobic to moderately polar.

Ion-exchange phases are often applied when analytes of interest carry a charge while in solution. The primary retention mechanism of the compound is based mainly on the electrostatic attraction of the charged functional group on the compound to the charged group that is bonded to the sorbent surface. ENVIRO-CLEAN® sorbents are available in either cation or anion exchangers and exhibit both weak and strong characteristics.

Lastly, copolymeric phases offer a dual retention mechanism providing superior cleanliness. Hydrophobic interactions in addition to ion exchange contribute to a higher degree of analyte selectivity than what was previously possible. Compounds of interest can be retained by multiple mechanisms, resulting in greater removal of matrix-related contamination.

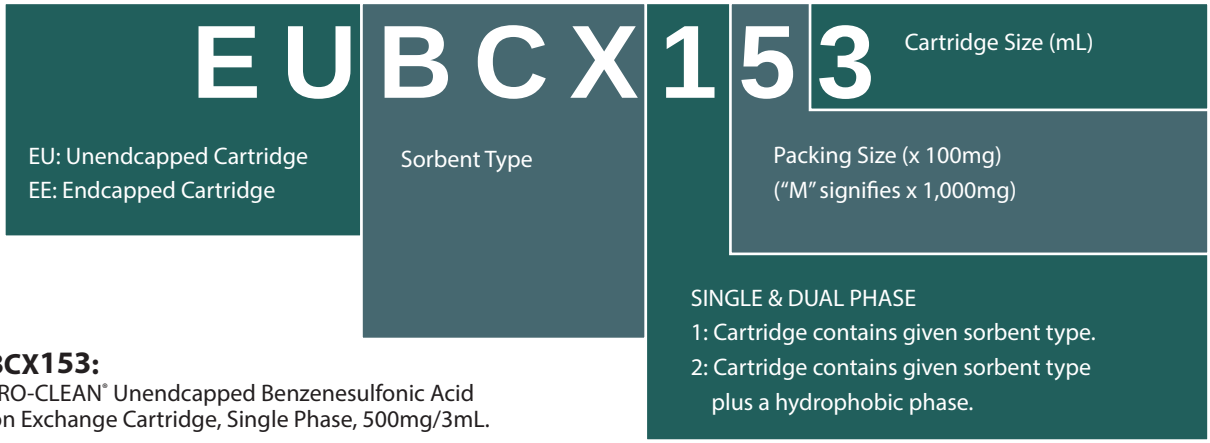
SPE TERMINOLOGY

- Sorbent –The solid-phase material to which analytes attach during the extraction process
- Bed Volume – The quantity of solvent needed to cover the sorbent
- Capacity – The amount of analyte that a sorbent can retain
- Activation – a process of rinsing the sorbent with a solvent to clean the bed and extend the bonded groups (i.e. C18) to maximize its effectiveness
- Wash Solvent – Solvent used to wash interferences off of the sorbent prior to elution
- Retention – The attraction a solid-phase has for the analyte that causes the analyte to "adsorb" to the sorbent
- Elution – The process of removing an analyte from the sorbent for analysis

ENVIRO-CLEAN® SPE Cartridges

HOW TO READ ENVIRO-CLEAN® PART NUMBERS:

ENVIRO-CLEAN® CODE



EUBCX153:
ENVIRO-CLEAN® Unendcapped Benzenesulfonic Acid Cation Exchange Cartridge, Single Phase, 500mg/3mL.

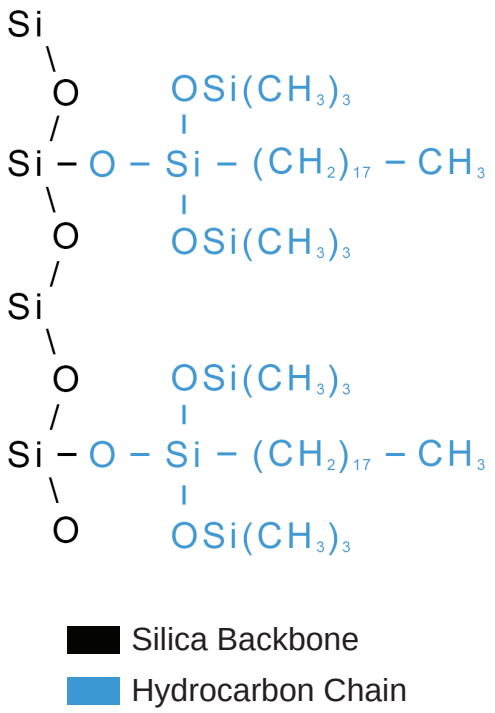
Sorbent Type	
Code	**Description**
C08, C18, C30	Carbon Chains
SIL	Unbonded Silica
PSA	n-2 Aminoethyl
BCX	Benzenesulfonic Acid Cation Exchanger
PCX	Propylsulfonic Acid Cation Exchanger
CCX	Carboxylic Acid Cation Exchanger
QAX	Quaternary Amine Anion Exchanger
NAX	Aminopropyl Anion Exchanger
FLS	Florisil® PR
ALA	Alumina - Acid
ALB	Alumina - Base
ALN	Alumina - Neutral
CNP	Cyanopropyl
CYH	Cyclohexyl
DOL	Diol
PHY	Phenyl

UCT, Inc. | 2731 Bartram Rd | Bristol, PA 19007 | USA
P. 800.541.0559 | 215.781.9255 | F. 215.785.1226
www.unitedchem.com

HYDROPHOBIC EXTRACTION SORBENTS

UCT's ENVIRO-CLEAN® hydrophobic sorbents feature silanol groups at the surface of the raw silica packing that have been chemically modified with hydrophobic alkyl or aryl functional groups. These phases are commonly utilized to extract compounds that exhibit medium non-polar characteristics from a variety of complex matrices. The C18 phase is the most widely used phase for non-polar interactions because of its non-selective nature; C18 will extract a large number of compounds with differing chemical properties. To enhance selectivity, UCT offers a variety of hydrophobic sorbents ranging from C2 all the way to C30, as well as endcapped and unendcapped versions.

Example of a Hydrophobic Phase

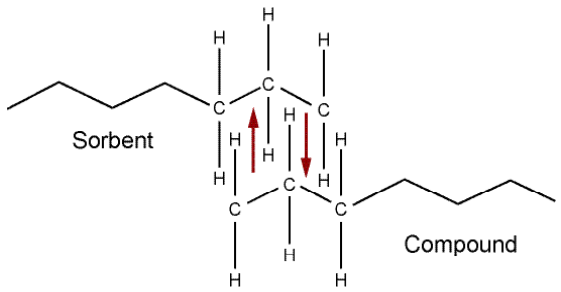


ENVIRO-CLEAN® Hydrophobic Phase

MECHANISM OF HYDROPHOBIC BONDING

Retention of organic analytes from polar solutions (e.g. water) onto these SPE materials is due primarily to the attractive forces between the carbon-hydrogen bonds in the analyte and the functional groups. These nonpolar-nonpolar attractive forces are commonly called van der Waals forces, or dispersion forces. To elute an adsorbed compound from a reversed phase sorbent, use a nonpolar solvent to disrupt the forces that bind the compound to the packing. Some polar solvents, such as methanol and acetonitrile have enough non-polar characteristics to disrupt nonpolar binding triggering compound elution. Methanol can be used as well, although it should be noted that it will remove both polar and non-polar analytes of interest as well as interferences.

Example of a Hydrophobic Bonding

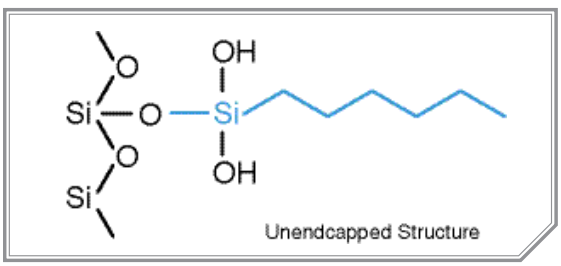


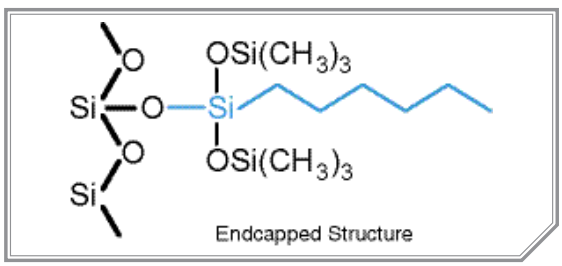
Hydrophobic Sorbents & Structures

Sorbent	Structure
C2 Ethyl	$-SiCH_2CH_3$
C4 n-Butyl	$-Si(CH_2)_3CH_3$
C8 Octyl	$-Si(CH_2)_7CH_3$
C18 Octadecyl	$-Si(CH_2)_{17}CH_3$
C30 Tricontyl	$-Si(CH_2)_{29}CH_3$
Cyclohexyl	-Si
Phenyl	-Si

ENDCAPPED VS. UNENDCAPPED

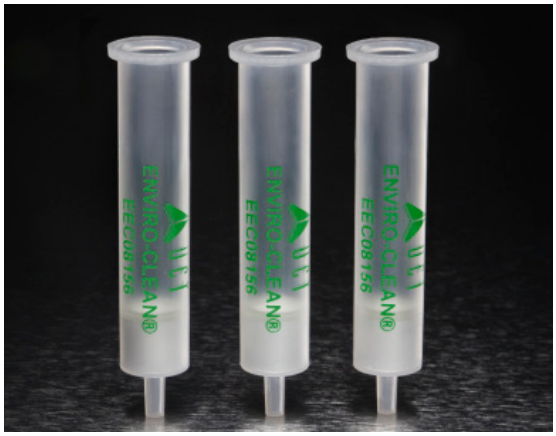
Bonded phases are manufactured by the reaction of organosilanes with activated silica. During the polymerization reaction of carbon chains to the silica backbone, a very stable silyl ether linkage forms. Our unendcapped columns allow hydroxyl sites to remain, thus making these columns slightly hydrophilic. In order to minimize this slight polarity, the hydroxyl sites are deactivated. Proprietary bonding techniques ensure that these sites are 100% reacted, leading to complete endcapping. Because there are no hydroxyl sites left, our endcapped columns render the silica non-acidic and non-polar.





UCT, Inc. | 2731 Bartram Rd | Bristol, PA 19007 | USA
P. 800.541.0559 | 215.781.9255 | F. 215.785.1226
www.unitedchem.com

ENVIRO-CLEAN® Hydrophobic Phase



C18, OCTADECYL

Organic Loading = 21.5%
Surface Area = 500 m^2/g
Average Pore Size = 60Å
Pore Volume = 0.77 cm^3/g

COLUMNS				
Tube Volume (mL)	Sorbent Amount (mg)	Units per Pack	Endcapped	Part Number
1	100	100	NO	EUC18111
1	100	100	YES	EEC18111
3	200	50	NO	EUC18123
3	200	50	YES	EEC18123
3	500	50	NO	EUC18153
3	500	50	YES	EEC18153
6	500	50	NO	EUC18156
6	500	50	YES	EEC18156
6	1000	30	NO	EUC181M6
6	1000	30	YES	EEC181M6
10	100	50	YES	EEC1811Z
10	200	50	NO	EUC1812Z
10	200	50	YES	EEC1812Z
10	500	50	NO	EUC1815Z
10	500	50	YES	EEC1815Z
15	1000	20	YES	EEC1811M15
15	2000	20	NO	EUC1812M15
15	2000	20	YES	EEC1812M15
25	5000	20	NO	EUC1815M25
25	5000	20	YES	EEC1815M25
75	10000	10	NO	EUC18110M75

C8, OCTYL

Organic Loading = 11.1%
Surface Area = 500 m^2/g
Average Pore Size = 60Å
Pore Volume = 0.77 cm^3/g

COLUMNS				
Tube Volume (mL)	Sorbent Amount (mg)	Units per Pack	Endcapped	Part Number
1	50	100	NO	EUC081L1
1	100	100	NO	EUC08111
1	100	100	YES	EEC08111
3	200	50	NO	EUC08123
3	200	50	YES	EEC08123
3	500	50	NO	EUC08153
3	500	50	YES	EEC08153
6	500	50	NO	EUC08156
6	500	50	YES	EEC08156
6	1000	30	NO	EUC081M6
6	1000	30	YES	EEC081M6
10	100	50	NO	EUC0811Z
10	200	50	NO	EUC0812Z
10	200	50	YES	EEC0812Z
10	500	50	NO	EUC0815Z
10	500	50	YES	EEC0815Z
15	2000	20	NO	EUC0812M15
15	2000	20	YES	EEC0812M15
25	5000	20	NO	EUC0815M25
25	2000	20	YES	EEC0815M25
75	5000	20	NO	EUC08110M75

ENVIRO-CLEAN® Hydrophobic Phase

C2, ETHYL

Organic Loading = 6.2%
Surface Area = 500 m^2/g
Average Pore Size = 60Å
Pore Volume = 0.77 cm^3/g

COLUMNS				
Tube Volume (mL)	Sorbent Amount (mg)	Units per Pack	Endcapped	Part Number
6	500	50	YES	**EEC02156**
10	500	50	YES	**EEC0215Z**

C30, TRICONTYL

Organic Loading = 20.0%
Surface Area = 500 m^2/g
Average Pore Size = 60Å
Pore Volume = 0.77 cm^3/g

COLUMNS				
Tube Volume (mL)	Sorbent Amount (mg)	Units per Pack	Endcapped	Part Number
3	200	50	NO	**EUC30123**
3	500	50	NO	**EUC30153**
6	1000	30	YES	**EEC301M6**
10	500	50	NO	**EUC3015Z**

PHY, PHENYL

Organic Loading = 10.8%
Surface Area = 500 m^2/g
Average Pore Size = 60Å
Pore Volume = 0.77 cm^3/g

COLUMNS				
Tube Volume (mL)	Sorbent Amount (mg)	Units per Pack	Endcapped	Part Number
3	500	50	NO	**EUPHY153**
3	500	50	YES	**EEPHY153**

CYH, CYCLOHEXYL

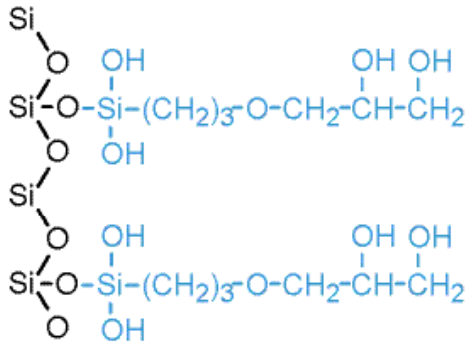
Organic Loading = 11.6%
Surface Area = 500 m^2/g
Average Pore Size = 60Å
Pore Volume = 0.77 cm^3/g

COLUMNS				
Tube Volume (mL)	Sorbent Amount (mg)	Units per Pack	Endcapped	Part Number
3	500	50	NO	**EUCYH153**
6	500	50	YES	**EECYH156**

ENVIRO-CLEAN® HYDROPHILIC NORMAL PHASE EXTRACTION SORBENTS

Hydrophilic sorbents are composed of a silica backbone bonded with carbon chains containing polar functional groups. Examples of phases that feature this functionality include bare silica, diol, and cyanopropyl phases.

Example of
Hydrophilic Phase



Silica Backbone
Hydrophilic Chain

UCT, Inc. | 2731 Bartram Rd | Bristol, PA 19007 | USA
P. 800.541.0559 | 215.781.9255 | F. 215.785.1226
www.unitedchem.com

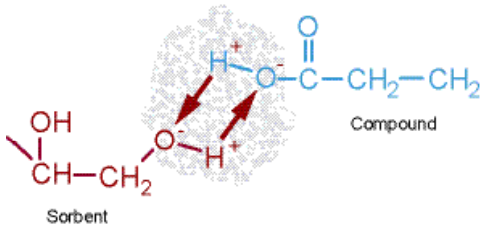
MECHANISM OF HYDROPHILIC BONDING

Compounds are retained on hydrophilic sorbents through polar interactions including hydrogen bonding, pi-pi or dipole-dipole interactions. These types of interactions occur when the distribution of electrons between individual atoms in functional groups is unequal, causing negative and positive polarit y. Polar-functionalized bonded silicas and polar adsorption media are typically used under normal phase conditions.

Hydrophilic Sorbents & Structures

Sorbent	Structure
Silica	-SiOH
Diol	$-Si(CH_2)_3OCH_3OHCH_2OH$
Cyanopropyl	$-Si(CH_2)_3CN$

Example of Hydrophilic Bonding



UNBONDED SILICA, ACID WASHED

Organic Loading = N/A
Surface Area = 500 m^2/g
Average Pore Size = 60Å
Pore Volume = 0.77 cm^3/g

COLUMNS			
Tube Volume (mL)	Sorbent Amount (mg)	Units per Pack	Part Number
1	100	100	EUSIL111
3	200	50	EUSIL123
3	500	50	EUSIL153
6	500	50	EUSIL156
6	1000	30	EUSIL1M6
15	2000	20	EUSIL12M15
25	5000	20	EUSIL15M25

PHARMA-SIL®

Organic Loading = N/A
Surface Area = 500 m^2/g
Average Pore Size = 60Å
Pore Volume = 0.82 cm^3/g

COLUMNS			
Tube Volume (mL)	Sorbent Amount (mg)	Units per Pack	Part Number
1	100	100	EPHSIL111
3	500	50	EPHSIL153
6	500	50	EPHSIL156
6	1000	30	EPHSIL1M6
10	200	50	EPHSIL12Z
15	2000	20	EPHSIL12M15
25	5000	20	EPHSIL15M25

ALUMINA, ACIDIC

COLUMNS			
Tube Volume (mL)	Sorbent Amount (mg)	Units per Pack	Part Number
3	200	50	EUALA123
3	500	50	EUALA153
6	500	50	EUALA156
6	1000	30	EUALA1M6
6	2000	30	EUALA2M6

ALUMINA, BASIC

COLUMNS			
Tube Volume (mL)	Sorbent Amount (mg)	Units per Pack	Part Number
1	50	100	EUALB1L1
3	500	50	EUALB153
6	500	50	EUALB156
6	1000	30	EUALB1M6

ENVIRO-CLEAN® Hydrophilic Phase

ALUMINA, NEUTRAL

COLUMNS			
Tube Volume (mL)	Sorbent Amount (mg)	Units per Pack	Part Number
1	50	100	EUALN1L1
1	100	100	EUALN111
3	200	50	EUALN123
6	500	50	EUALN156
6	1000	30	EUALN1M6
15	2000	20	EUALN12M15
25	5000	20	EUALN15M25

CARBON, GRAPHITIZED NON-POROUS, 120/400 MESH

COLUMNS			
Tube Volume (mL)	Sorbent Amount (mg)	Units per Pack	Part Number
1	100	100	EUCARB111
3	200	50	EUCARB123
3	500	50	EUCARB153
6	200	50	EUCARB126
6	250	30	EUCARB2L6
6	500	50	EUCARB156
6	1000	30	EUCARB1M6
10	100	50	EUCARB11Z
10	200	50	EUCARB12Z

DIOL

Organic Loading = 8.0%
Surface Area = 500 m^2/g
Average Pore Size = 60 Å
Pore Volume = 0.77 cm^3/g

COLUMNS			
Tube Volume (mL)	Sorbent Amount (mg)	Units per Pack	Part Number
1	50	100	EUDOL1L1
1	100	100	EUDOL111
1	200	100	EUDOL121
3	200	50	EUDOL123
3	500	50	EUDOL153
6	500	50	EUDOL156
6	1000	30	EUDOL1M6
10	500	50	EUDOL15Z
15	2000	20	EUDOL12M15

FLORISIL® PR

Florisil® is the trademark of U.S. Silica Co.

COLUMNS			
Tube Volume (mL)	Sorbent Amount (mg)	Units per Pack	Part Number
1	100	100	EUFLS111
3	200	50	EUFLS123
3	500	50	EUFLS153
6	500	50	EUFLS156
10	100	50	EUFLS11Z
10	500	50	EUFLS15Z
15	2000	20	EUFLS12M15
25	5000	20	EUFLS15M25

FLORISIL® A (100 / 120 Mesh)

Florisil® is the trademark of U.S. Silica Co.

COLUMNS			
Tube Volume (mL)	Sorbent Amount (mg)	Units per Pack	Part Number
3	500	50	EUFLSA153

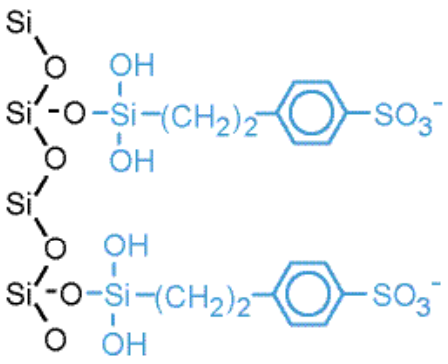
UCT, Inc. | 2731 Bartram Rd | Bristol, PA 19007 | USA
P. 800.541.0559 | 215.781.9255 | F. 215.785.1226
www.unitedchem.com

MECHANISM OF ION EXCHANGE BONDING

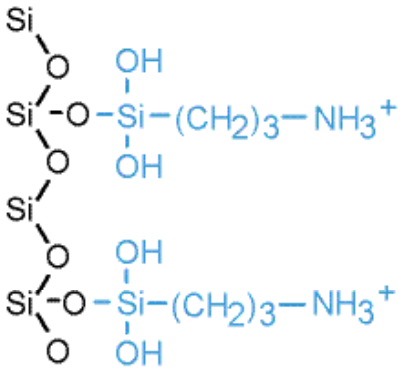
The retention mechanism in ion exchange bonding is the electrostatic attraction of the charged functional group on the compound to the charged functional group on the SPE sorbent. In order for an optimal interaction, both the compound of interest and the functional group on the bonded silica must be fully charged. To ensure 99% or more ionization, the pH should be at least two pH units below the pKa of the cation and two pH units above the pKa of the anion. Elution occurs by using a solution/buffer to raise the pH above the pKa of the cationic group or to lower the pH below the pKa of the anion to disrupt retention. At this point, the sorbent or compound is neutralized. Ion exchange resins come in two varying forms: strong and weak. The number of charges on a strong ion exchanger remains constant regardless of the buffer pH. Weak ion exchangers display pH-dependent functionality and therefore deliver optimal performance over only a small pH range.

Percent of Compound in Ionic State						
Functionality	**Ionization**	**pH units away from pKa**				
		2 < pKa	1 < pKa	At pKa	1 > pKa	2 > pKa
ACID	Anionic (-)	1	9	50	91	99
BASE	Cationic (+)	99	91	50	9	1

Example of a Cation Exchange Phase

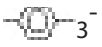
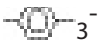


Example of a Anion Exchange Phase



ENVIRO-CLEAN® Ion Exchange Phase

ION EXCHANGE SORBENTS & STRUCTURES

Sorbent	Structure	pKa
Anion Exchangers		
NAX - Aminopropyl (1° amine)	$-Si-(CH_2)_3NH_2$	9.8
PSA - N-2 Aminoethyl (1° & 2° amine)	$-Si-(CH_2)_3NH(CH_2)_2NH_2$	10.1, 10.9
DAX - Diethylamino (3° amine)	$-Si-(CH_2)_3N(CH_2CH_3)_2$	10.6
EUQAX - Quaternary Amine Chloride	$-Si-(CH_2)_3N^+(CH_3)_3 \quad Cl^-$	Always charged
EHQAX - Quaternary Amine Hydroxide	$-Si-(CH_2)3N^+(CH_3)_3 \quad OH^-$	Always charged
EAQAX - Quaternary Amine Acetate	$-Si-(CH_2)_3N^+(CH_3)_3 \quad CH_3COO^-$	Always charged
EFQAX - Quaternary Amine Formate	$-Si-(CH_2)_3N^+(CH_3)_3 \quad HCOO^-$	Always charged
PAX - Polyimine	$-Si-(CH_2)_3-R\ [NHCH_3CH_3]_X$	
Cation Exchangers		
CCX - Carboxylic Acid	$-Si-CH_2COOH$	4.8
PCX - Propylsulfonic Acid	$-Si-(CH_2)_3SO_3H$	<1
BCX - Benzenesulfonic Acid	$-Si-(CH_2)_2$ 	Always charged
BCXHL- Benzenesulfonic Acid High Load	$-Si-(CH_2)_2$ 	Always charged
TAX - Triacetic Acid	$-Si-(CH_2)_3NH-(CH_2)_2N(CH_2COOH)_2$ CH_2COOH	

	Goal	Anion Exchange Sorbent	Cation Exchange Sorbent
		pH	pH
WASH	To promote bonding between sorbent and analyte	> Analyte pKa and / or < Sorbent pKa	< Analyte pKa and / or > Sorbent pKa
ELUTION	To disrupt bonding between sorbent and analyte	< Analyte pKa and / or > Sorbent pKa	> Analyte pKa and / or < Sorbent pKa

UCT, Inc. | 2731 Bartram Rd | Bristol, PA 19007 | USA
P. 800.541.0559 | 215.781.9255 | F. 215.785.1226
www.unitedchem.com

ENVIRO-CLEAN® Anion Exchange Phase

AMINOPROPYL

Organic Loading = 6.65%
Surface Area = 500 m^2/g
Pore Volume = 0.77 cm^3/g
Average Pore Size = 60Å
Anion Exchange = 0.28 meq/g

COLUMNS			
Tube Volume (mL)	Sorbent Amount (mg)	Units per Pack	Part Number
3	200	50	EUNAX123
3	500	50	EUNAX153
6	500	50	EUNAX156
6	1000	30	EUNAX1M6
10	100	50	EUNAX11Z
15	2000	20	EUNAX12M15

QUATERNARY AMINE WITH ACETATE COUNTER ION

Organic Loading = 8.40%
Surface Area = 500 m^2/g
Average Pore Size = 60Å
Anion Exchange = 0.230 meq/g

COLUMNS			
Tube Volume (mL)	Sorbent Amount (mg)	Units per Pack	Part Number
3	500	50	EAQAX153
6	1000	30	EAQAX1M6
10	100	50	EAQAX11Z

QUATERNARY AMINE WITH FORMATE COUNTER ION

Organic Loading = 8.40%
Surface Area = 500 m^2/g
Average Pore Size = 60Å
Anion Exchange = 0.230 meq/g

COLUMNS			
Tube Volume (mL)	Sorbent Amount (mg)	Units per Pack	Part Number
3	500	50	EFQAX153

QUATERNARY AMINE WITH CHLORIDE COUNTER ION

Organic Loading = 8.40%
Surface Area = 500 m^2/g
Average Pore Size = 60Å
Anion Exchange = 0.230 meq/g

COLUMNS			
Tube Volume (mL)	Sorbent Amount (mg)	Units per Pack	Part Number
1	100	100	EUQAX111
3	200	50	EUQAX123
3	500	50	EUQAX153
6	500	50	EUQAX156
6	1000	30	EUQAX1M6
10	100	50	EUQAX11Z
10	200	50	EUQAX12Z

QUATERNARY AMINE WITH HYDROXIDE COUNTER ION

Organic Loading = 8.40%
Surface Area = 500 m^2/g
Average Pore Size = 60Å
Anion Exchange = 0.230 meq/g

COLUMNS			
Tube Volume (mL)	Sorbent Amount (mg)	Units per Pack	Part Number
3	500	50	EAQAX153

POLYIMINE

Organic Loading = 8.40%
Surface Area = 500 m^2/g
Average Pore Size = 60Å
Anion Exchange = 0.230 meq/g

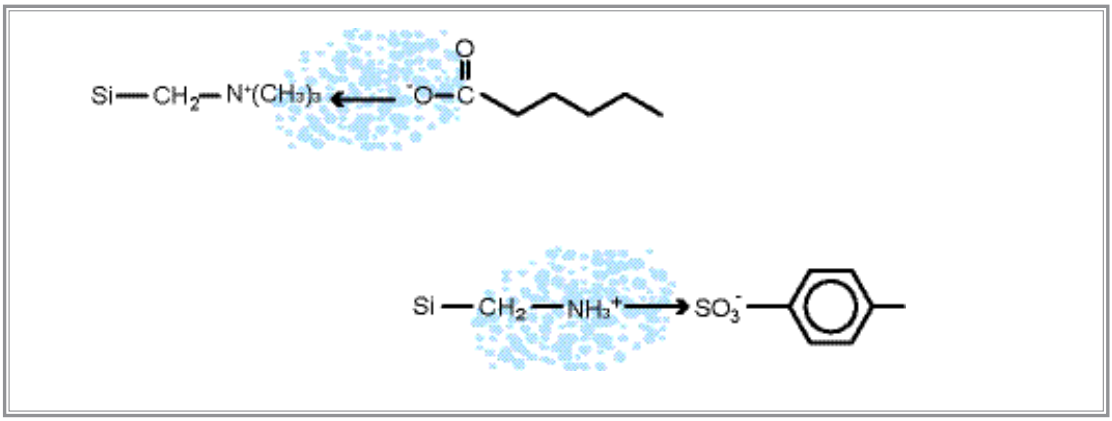
COLUMNS			
Tube Volume (mL)	Sorbent Amount (mg)	Units per Pack	Part Number
3	500	50	EUPAX153
3	1000	50	EUPAX1M3
6	500	50	EUPAX156

ENVIRO-CLEAN® Anion Exchange Phase

PRIMARY/SECONDARY AMINE

Organic Loading = 11.1%
Surface Area = 500 m^2/g
Average Pore Size = 60Å
Anion Exchange = 1.100 meq/g

COLUMNS			
Tube Volume (mL)	**Sorbent Amount (mg)**	**Units per Pack**	**Part Number**
1	50	100	**EUPSA1L1**
1	100	100	**EUPSA111**
3	200	50	**EUPSA123**
3	500	50	**EUPSA153**
6	500	50	**EUPSA156**
6	1000	30	**EUPSA1M6**



UCT, Inc. | 2731 Bartram Rd | Bristol, PA 19007 | USA
P. 800.541.0559 | 215.781.9255 | F. 215.785.1226
www.unitedchem.com

ENVIRO-CLEAN® Cation Exchange Phase

CARBOXYLIC ACID

Organic Loading = 8.75%
Surface Area = 500 m^2/g
Average Pore Size = 60Å
Cation Exchange = 0.043 meq/g

COLUMNS			
Tube Volume (mL)	Sorbent Amount (mg)	Units per Pack	Part Number
1	100	100	EUCCX111
3	200	50	EUCCX123
3	500	50	EUCCX153
6	500	50	EUCCX156
6	1000	30	EUCCX1M6

TRIACETIC ACID

Organic Loading = 7.50%
Surface Area = 500 m^2/g
Pore Volume = 0.77 cm^3/g
Average Pore Size = 60Å
Cation Exchange = 0.10 meq/g
Anion Exchange = 0.15 meq/g

COLUMNS			
Tube Volume (mL)	Sorbent Amount (mg)	Units per Pack	Part Number
1	100	100	EUCCX111
3	200	50	EUCCX123
3	500	50	EUCCX153
6	500	50	EUCCX156
6	1000	30	EUCCX1M6

BENZENESULFONIC ACID

Organic Loading = 10.69%
Surface Area = 500 m^2/g
Average Pore Size = 60Å
Cation Exchange = 0.320 meq/g

COLUMNS			
Tube Volume (mL)	Sorbent Amount (mg)	Units per Pack	Part Number
3	100	50	EUBCX113
3	200	50	EUBCX123
3	500	50	EUBCX153
6	500	50	EUBCX156
6	1000	30	EUBCX1M6
10	100	50	EUBCX11Z
10	200	50	EUBCX12Z
10	500	50	EUBCX15Z
15	2000	20	EUBCX12M15

BENZENESULFONIC ACID HIGH LOAD

Organic Loading = 16.50%
Surface Area = 500 m^2/g
Average Pore Size = 60Å
Cation Exchange = 0.650 meq/g

COLUMNS			
Tube Volume (mL)	Sorbent Amount (mg)	Units per Pack	Part Number
1	100	100	EUBCX1HL11
3	50	50	EUBCX1HLL3
3	100	50	EUBCX1HL13
6	500	50	EUBCX1HL56
6	1000	30	EUBCX1HLM6
10	200	50	EUBCX1HL2Z
10	500	50	EUBCX1HL5Z

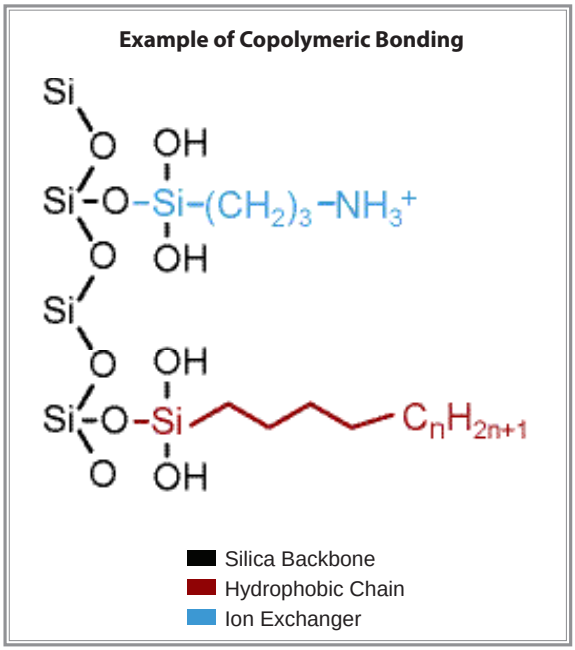
PROPYLSULFONIC ACID

Organic Loading = 7.00%
Surface Area = 500 m^2/g
Average Pore Size = 60Å
Cation Exchange = 0.180 meq/g

COLUMNS			
Tube Volume (mL)	Sorbent Amount (mg)	Units per Pack	Part Number
3	500	50	EUPCX153
10	500	50	EUPCX15Z

ENVIRO-CLEAN® COPOLYMERIC EXTRACTION SORBENTS

Copolymeric sorbents are composed of a silica backbone bonded with two types of functional chains. One is either an ion exchanger or polar chain, while the other is a hydrophobic carbon chain. The copolymeric phases manufactured by UCT are produced in a way as to allow for equal parts of each functional group to attach to the silica substrate yielding reproducible bonded phases and unique copolymeric chemistries. This type of mixed- mode seperation is beneficial when one is looking to extract both neutral and charged compounds and typically results in a cleaner, final extract.



Sorbent	Category	Structure	pKa
Benzenesulfonic Acid (BCX2)	Strong Cation	C8+-Si-(CH2)2-Ph-SO3-	Always Charged
Benzenesulfonic Acid (BCX3)	Strong Cation	C18+-Si-(CH2)2-Ph-SO3-	Always Charged
Propylsulfonic Acid (PCX2)	Strong Cation	C8+-Si-(CH2)3SO3H	<1
Carboxylic Acid (CCX2)	Weak Cation	C8+-Si-(CH2)2COOH	4.8
Quaternary Amine (QAX2)	Strong Anion	C8+-Si-(CH2)3N+(CH3)3	Always Charged
Quaternary Amine (QAX3)	Strong Anion	C18+-Si-(CH2)3N+(CH3)3	Always Charged
Aminopropyl (NAX2)	Weak Anion	C8+-Si-(CH2)3NH2	9.8
Cyanopropyl (CNP2)	Hydrophilic	C8+-Si-(CH2)3CN	N/A
Cyclohexyl (CYH2)	Hydrophobic	C8+-Si-(CH2)-C6H12	N/A

UCT, Inc. | 2731 Bartram Rd | Bristol, PA 19007 | USA
P. 800.541.0559 | 215.781.9255 | F. 215.785.1226
www.unitedchem.com

ENVIRO-CLEAN® Copolymeric Exchange Phase

Analytes	Washes	Elutions
Cations/Anions Alkanes Alkenes Aromatics	1) Aqueous to remove polar matrix components. 2) Methanol to disrupt residual hydrophobic interferences and to remove any remaining residual matrix.	1) Organic to elute hydrophobically bound analytes. 2) Organic with a pH that would neutralize ionically bound analytes. 3) Aqueous buffer with high ionic strength. 4) Solvent possessing a counter ion that would bond to sorbent and displace analyte of interest.

EXTRACTION MECHANISMS OF COPOLYMERIC BONDED PHASES

A sample composed of a theoretical neutral parent drug and its charged (acidic) metabolite is applied at a pH of 6 (**Figure 1**). At this pH, most amine groups are positively charged. Since this sorbent is positively charged, compounds with positively charged cations are repelled. Depending on the pKa of the metabolite, the carboxylic acid groups may be negatively charged, allowing the metabolite to bond to the positively charged sorbent. The column also possesses a hydrophobic chain which allows the neutral parent drug to bond to the sorbent. Water or a weak aqueous buffer (pH 6) washes away hydrophilically bound interferences (**Figure 2**). The column is then dried utilizing organic solvent to ensure it's free of any residual aqueous phase that would hinder effective elution. After drying, analytes of interest can be eluted using a two-step process. During the first elution (**Figure 3**), the hydrophobically bound neutral parent drug is eluted with a solvent of minimal polarity, such as hexane/ethyl acetate (80:20). The second elution (**Figure 4**) employs an acid to neutralize the charge of acidic analytes. The ionic interaction is released, and analytes are eluted in an appropriate solvent mixture. If a tiered elution scheme is not desired, a universal solvent can be put to use that can effectively disrupt both bonding mechanisms at once to elute all analytes of interest within one single elution step.

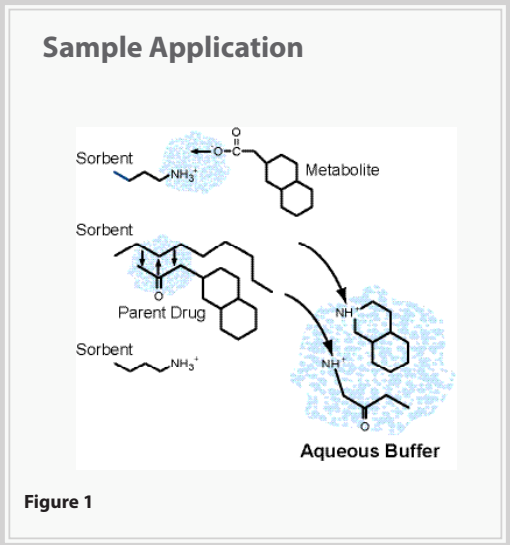


Figure 1

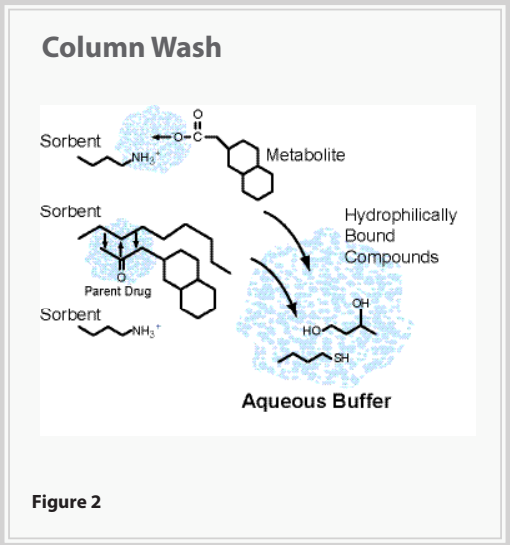


Figure 2

ENVIRO-CLEAN® Copolymeric Exchange Phase

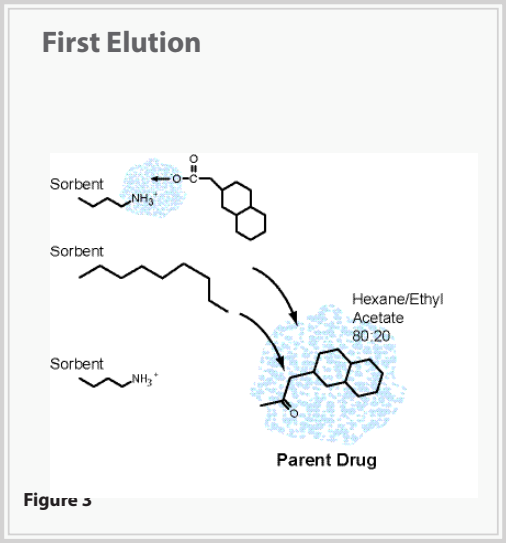


Figure 3

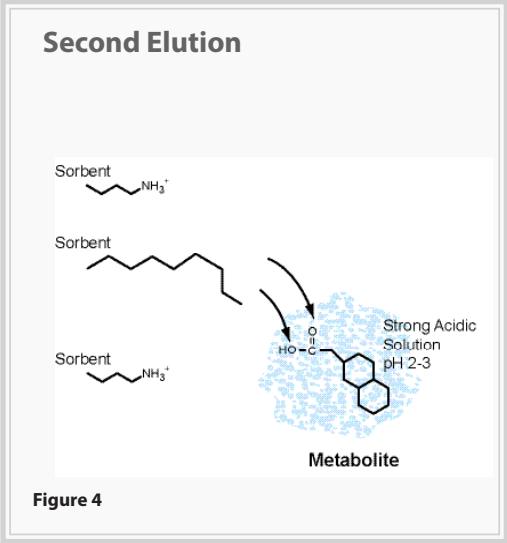


Figure 4

C8 PLUS CYCLOHEXYL

Organic Loading = 14.0%
Surface Area = 500 m^2/g
Average Pore Size = 60Å
Pore Volume = 0.77 cm^3/g

COLUMNS			
Tube Volume (mL)	Sorbent Amount (mg)	Units per Pack	Part Number
3	200	50	EUCYH223
6	500	50	EUCYH256

C8 PLUS CYANOPROPYL

Organic Loading = 14.0%
Surface Area = 500 m^2/g
Average Pore Size = 60Å
Pore Volume = 0.77 cm^3/g

COLUMNS			
Tube Volume (mL)	Sorbent Amount (mg)	Units per Pack	Part Number
3	200	50	EUCYH223

C8 PLUS PROPYLSULFONIC

Organic Loading = 14.62%
Surface Area = 500 m^2/g
Pore Volume = 0.77 cm^3/g
Average Pore Size = 60Å
Exhange Capacity = 0.11 meq/g

COLUMNS			
Tube Volume (mL)	Sorbent Amount (mg)	Units per Pack	Part Number
3	200	50	EUPCX223

C8 PLUS CARBOXYLIC ACID

Organic Loading = 11.45%
Surface Area = 500 m^2/g
Average Pore Size = 60Å
Exhange Capacity = 0.110 meq/g

COLUMNS			
Tube Volume (mL)	Sorbent Amount (mg)	Units per Pack	Part Number
3	200	50	EUCCX223
6	1000	30	EUCCX2M6

UCT, Inc. | 2731 Bartram Rd | Bristol, PA 19007 | USA
P. 800.541.0559 | 215.781.9255 | F. 215.785.1226
www.unitedchem.com

ENVIRO-CLEAN® Copolymeric Exchange Phase

C8 PLUS BENZENESULFONIC ACID

Organic Loading = 12.40%
Surface Area = 500 m^2/g
Pore Volume = 0.77 cm^3/g
Average Pore Size = 60Å
Exhange Capacity = 0.077 meq/g

COLUMNS			
Tube Volume (mL)	Sorbent Amount (mg)	Units per Pack	Part Number
3	200	50	EUBCX223
6	500	50	EUBCX256
6	1000	30	EUBCX2M6
10	200	50	EUBCX22Z
10	500	50	EUBCX25Z

C8 PLUS AMINOPROPYL

Organic Loading = 12.10%
Surface Area = 500 m^2/g
Pore Volume = 0.77 cm^3/g
Average Pore Size = 60Å
Exhange Capacity = 0.144 meq/g

COLUMNS			
Tube Volume (mL)	Sorbent Amount (mg)	Units per Pack	Part Number
3	200	50	EUNAX223
3	500	50	EUNAX253
6	1000	30	EUNAX2M6
10	100	50	EUNAX21Z
75	1000	10	EUNAX210M75

C18 PLUS BENZENESULFONIC ACID

Organic Loading = 12.4%
Surface Area = 500 m^2/g
Average Pore Size = 60Å
Exhange Capacity = 0.077 meq/g

COLUMNS			
Tube Volume (mL)	Sorbent Amount (mg)	Units per Pack	Part Number
3	50	50	EUBCX3L3
3	100	50	EUBCX313

C8 PLUS QUATERNARY AMINE

Organic Loading = 13.00%
Surface Area = 500 m^2/g
Average Pore Size = 60Å
Exhange Capacity = 0.170 meq/g

COLUMNS			
Tube Volume (mL)	Sorbent Amount (mg)	Units per Pack	Part Number
3	200	50	EUQAX223
3	500	50	EUQAX253
6	500	50	EUQAX256
6	1000	30	EUQAX2M6

ENVIRO-CLEAN® POLYMERIC DVB EXTRACTION SORBENT

Enviro-Clean® polymeric extraction sorbents are formulated with an ultra- clean, highly cross-linked styrene and divinylbenzene polymer sorbent. The sorbent can be functionalized with many of the same phases as our silica based sorbents. Possibilities include standard ion exchange functionalities. Enviro-Clean® particles have an average particle size of 30 microns with enhanced loading capacity. This higher capacity translates into lower requirements for bed mass. The Enviro-Clean® sorbent also eliminates the need for the initial column conditioning step. All of these attributes ultimately result in improved cost to the end user.

ADVANTAGES OF ENVIRO-CLEAN® DVB SORBENT:

- No conditioning steps
- High and reproducible recoveries
- Cross-linked sorbent minimized bead swelling
- Reduced sorbent mass
- Improved flow rates
- pH stable from 1-14
- High sorbent capacity

COLUMNS				
Tube Volume (mL)	**Sorbent Amount (mg)**	**Frit Type**	**Units per Pack**	**Part Number**
3	50	PTFE	50	**ECDVB1L3**
3	60	PE	100	**ECDVB063P**
3	100	PTFE	50	**ECDVB113**
6	200	PE	30	**ECDVB126P**
6	500	PTFE	30	**ECDVB156**
6	500	PE	30	**ECDVB156P**

UCT, Inc. | 2731 Bartram Rd | Bristol, PA 19007 | USA
P. 800.541.0559 | 215.781.9255 | F. 215.785.1226
www.unitedchem.com

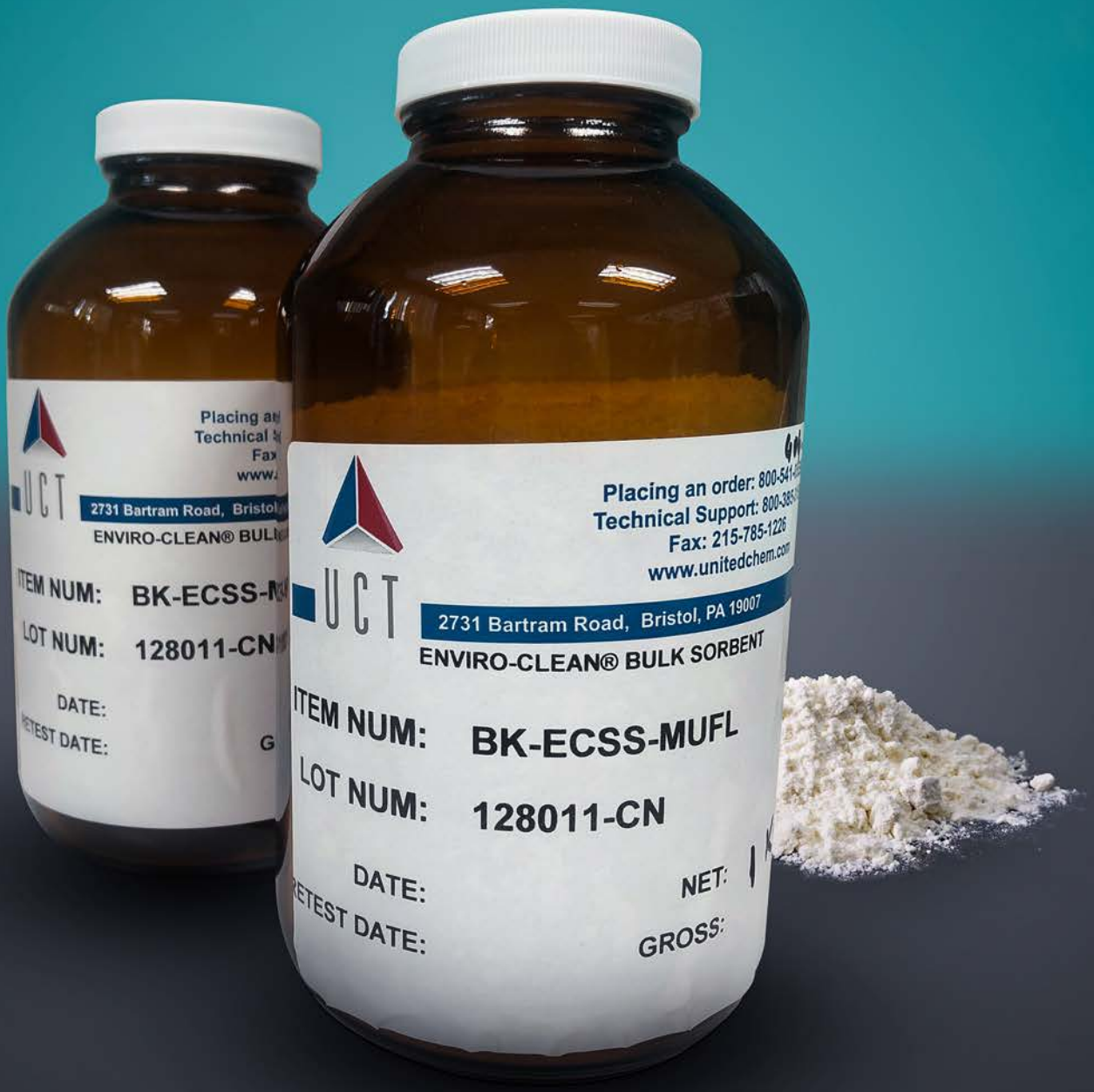
ENVIRO-CLEAN® Glass Cartridge

ENVIRO-CLEAN® INERT GLASS CARTRIDGE

For ultra-clean extractions, UCT offers inert, 6 mL glass cartridges in a variety of bonded phases packed between two PTFE frits.

COLUMNS					
Tube Volume (mL)	**Sorbent Amount (mg)**	**Bonded Phase**	**Endcapped**	**Units per Pack**	**Part Number**
6	500	C2-ETHYL	YES	100	**EEC02156G**
6	500	C8-OCTYL	YES	50	**EEC08156G**
6	500	C18-OCTADECYL	NO	50	**EUC18156G**
6	500	C18-OCTADECYL	YES	50	**EEC18156G**
6	1000	C18-OCTADECYL	NO	30	**EUC181M6G**
6	1000	C18-OCTADECYL	YES	50	**EEC181M6G**
6	1000	CYCLOHEXL	YES	50	**EECYH1M6G**
6	1000	PHENYL	NO	50	**EUPHY1M6G**
6	1000	ALUMINA-NEUTRAL	N/A	30	**EUALN1M6G**
6	500	SILICA-ACID WASHED	N/A	10	**EUSIL156G**
6	1000	SILICA-ACID WASHED	N/A	10	**EUSIL1M6G**
6	500	PHARMA-SIL® SILICA	N/A	10	**EPHSIL156G**
6	200	POLYSTYRENE DVB	N/A	10	**ECDVB126G**

ENVIRO-CLEAN® Bulk Sorbent Guide



ENVIRO-CLEAN® BULK SORBENT GUIDE

UCT sorbents are available in bulk quantities in a variety of sizes ranging from 10g to 50Kg. Common bulk sorbents used in environmental analysis are listed below, but all varities of bonded phases can be packaged in comparable quantities.

PRODUCT NAME	PART NUMBER	QUANTITY
Florisil® A 100-200 Mesh	ECFLOR00D	500g
	ECFLOR03K	3kg
Florisil® PR	ECFLS00D	500g
	ECFLS03K	3kg
Silica Gel 100-200 Mesh suitable for column chromatography	ECSIOH00D	500g
	ECSIOH03K	3kg
Sodium Sulfate Anhydrous ACS Grade Granular 60 Mesh	ECSS01K	1kg
	ECSS05K	5kg
	ECSS10K	10kg
	ECSS25K	25kg
Magnesium Sulfate Anhydrous Organic Free Powder Reagent, 99.5% min.	ECMAG00C	100g (1 unit)
	ECMAG00D	500g (1 unit)
	ECMAG00DCS	1 case (4 units)
Celite 566 Hydromatrix Substitute	EC56601K	1kg
	EC56603K	3kg
	EC566030K	30kg
Ottawa Sand	ECOTT01K	1kg
	ECOTT05K	5kg
	ECOTT10K	10kg
	ECOTT25K	25kg
Graphitized Carbon 120/400 Mesh	EUCARB00C	100g
	EUCARB00K	1kg

UCT

HydraFlow®

4 Channel Disc/Cartridge Manifold

HYDRAFLOW® 4 CHANNEL CARTRIDGE MANIFOLD

FEATURES

- **Liquid Channel Switching –** Patented channel-switching design to ensure the convenient and efficient transition between sample collection and waste discharge. This optimized feature improves the overall user experience and robustness of the manifold by eliminating the need for reopening the vacuum chamber mid-extraction, repeated on/off switching of the vacuum pump, time-consuming venting and relocation of collection bottles, and the cumbersome draining of the waste liquid and voiding of the vacuum chamber.
- **Multi-Sample Processing –** Four channels can be used individually or simultaneously based on the user preference.
- **No Need for Glass Cartridge Adapters –** HydraFlow® does not require the use of expensive glass cartridge adapters which too often break with prolonged usage and lead to costly replacement.
- **Precise Flow Control Capabilities –** Featured control valves ensure accurate sample flow rates ranging from 1 mL/min to 45 mL/min and high reproducibility across a wide range of extractions.
- **Rugged Anti-Corrosion Design –** Manifold parts feature PTFE or stainless-steel composition which can resist degradation from prolonged exposure to organic solvents, such as Dichloromethane, and acids. This provides enhanced chemical resistance and long-term durability to the unit.
- **Liquid Level Visualization –** Graduated tick marks on Universal cartridge adapters allow for staged liquid-level visualization during an extraction.
- **Separation of Organic and Aqueous Waste –** Separate channels for aqueous waste collection and organic waste collection contribute to long-term cost savings when it comes to waste disposal.
- **Lightweight and Compact Footprint –** Simple design allows for fume hood setup if desired and easy relocating when necessary, throughout the lab.

TECHNICAL SPECIFICATIONS

Dimensions: 520 mm x 290 mm x 440 mm (L x W x H)

Weight: 12 Kgs (26 lbs)

Vacuum Requirements: 25" Hg (minimum)

Collection Devices Used: 40 mL Collection Vials

Sample Capacity Per Unit: 1-4 Samples

COMPLETE CONFIGURATION

4 x Front Flow Path Valves – These valves control individual channels and are used to switch between Waste Flow, Elution Flow, and OFF position.

1 x Waste Separator Valve – Contains 3 varying positions: Aqueous, Waste (OFF) and Organic to segregate and simultaneously collect different solvent classes.

Aqueous – Used when processing water samples. This valve channels all the waste to the 20L Aqueous Waste Collection Container.
Waste (OFF) – Used to turn off the vacuum.
Organic – Used during pre-rinsing and/or pre-conditioning the SPE cartridge. This valve channels all the waste to the 1L Organic Waste Collection Bottle.

2 x Fine-Tuning Flow Control Knobs – The front solvent channel switches can be further refined using these independent controls for Waste Flow and Elution Flow.

Waste Flow Control Knob – Allows for the simultaneous flow regulation of all 4 channels when the waste is being collected during pre-conditioning, sample addition and wash procedure. When using this control knob, the Front Flow Path Valve should be set to the "Waste Flow" to begin.
Elution Flow Control Knob – Allows for the simultaneous flow regulation of all 4 channels during the elution step into the sample collection vials. When using this control knob, the Front Flow Path Valve should be set to the "Elution Flow" to begin.

UCT, Inc. | 2731 Bartram Rd | Bristol, PA 19007 | USA
P. 800.541.0559 | 215.781.9255 | F. 215.785.1226
www.unitedchem.com

MANIFOLDS

ENVIRO-CLEAN® DISK MANIFOLD

DISK MANIFOLD AND ACCESSORIES


6 Station Manifold


Glass Cartridge Adapter


Bottle Holder


Jar Holder

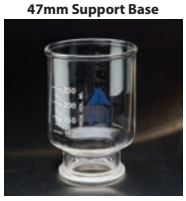

Universal Cartridge Adapter

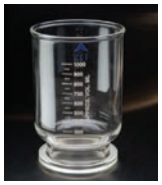

47mm Aluminum Clamp


90mm Aluminum Clamp


47mm Support Base


90mm Support Base


47mm 300ml Funnel


90mm 1000ml Funnel


47mm/90mm KEL-F Screen


Vacuum Pump


Teflon Stopcock and Body


Waste Trap

Description	Units	Part Number
Manifolds		
1 Station Manifold	1	**ECUCTVAC1**
3 Station Manifold	1	**ECUCTVAC3**
6 Station Manifold	1	**ECUCTVAC6**
NOTE: The above numbers indicate the stainless steel manifolds base only.		
UCT Universal Cartridge Accessories		
Glass cartridge adapter	1	**ECUCTADP**
Universal cartridge bottle holder adapter	1	**ECUNIBHD-PP**
Universal cartridge jar bottle holder adapter	1	**ECUNIJHD100-PP**
Universal cartridge adapter (Compatible with JT Baker Manifold*)	1	**ECBMADP**
SPE Disk Accessories		
47mm aluminum clamp	1	**ECCG1420**
90mm aluminum clamp	1	**ECUC0502**
47mm support base	1	**ECQSB47**
90mm support base	1	**ECQSB90**
47mm 300 mL funnel	1	**ECQFN300**
90mm 1000 mL funnel	1	**ECQFN1000**
47mm KEL-F screen	1	**ECUCT47**
90mm KEL-F screen	1	**ECUCT90**
Additional Accessories		
Vacuum pump - 110 volt	1	**ECROCKER400**
Vacuum pump - 220 volt	1	**ECROCKER400-220V**
Teflon stopcock and body	1	**ECUCTSC**
Waste trap	1	**ECUCTTRAP20**

UCT, Inc. | 2731 Bartram Rd | Bristol, PA 19007 | USA
P. 800.541.0559 | 215.781.9255 | F. 215.785.1226
www.unitedchem.com

ENVIRO-CLEAN® GLASS BLOCK MANIFOLD

GLASS BLOCK MANIFOLD

A complete Vacuum Manifold System consists of a glass block, Corian® manifold lid, a cover gasket, vacuum gauge and assembly, PTFE tips, an adjustable collection rack, bulkhead luer fittings, plugs and a glass block safety tray. The Vacuum Manifold System is available in either 16 or 24 positions. These manifold systems are durable and highly chemical resistant, designed to provide years of trouble-free extractions.

Description	Part Number
Complete 16 Position Vacuum Manifold System	VMF016GL
Complete 24 Position Vacuum Manifold System	VMF024GL

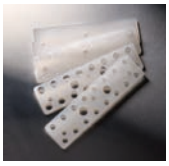
ENVIRO-CLEAN® GLASS BLOCK MANIFOLD

GLASS BLOCK MANIFOLD ACCESSORIES


Glass Block


Manifold Lid Legs


Gasket


Collection Rack


Collection Rack (12 Position)


Collection Rack Posts


Collection Rack Retaining Clips


Vacuum Gauge and Bleed Valve


Bulkhead Luer Fittings


Luer Plugs


Flange Caps


Large Volume Transfer Tubes


Cartridge Adapters


20L Waste Trap

Description	Units	Part Number
Manifold Lid Legs – The lid legs can be used to set the manifold lid on a surface while loading columns, changing collection tubes or removing waste.	4	**VMF02120-1**
Gasket – A foam gasket that fits both the 16 and 24 position lids.	2	**VMF04121**
Collection Rack (16 position) – A polypropylene rack that is highly resistant to chemical degradation and abuse. This rack allows the use of 13 and 16 mm disposable test tubes.	1	**VMF06125**
Collection Rack (24 position) – A polypropylene rack that is highly resistant to chemical degradation and abuse. This rack allows the use of 13 and 16 mm disposable test tubes.	1	**VMF04125**
Collection Rack (12 position) – A polypropylene rack that is highly resistant to chemical degradation and abuse. This rack is designed for the use of 27 mm (VOA vials) and smaller disposable collection vials.	1	**VMF02125**
Collection Rack Posts – These posts can be ordered as replacements parts for the posts in all collection racks.	3	**VMF02127**
Collection Rack Retaining Clips – These clips are replacement parts for the clips included in all collection racks.	12	**VMF02129**
Vacuum Gauge and Bleed Valve – This system is used in monitoring and adjusting vacuum.	1	**VMF02122**
Bulkhead Luer Fittings – These fittings screw into the lid allowing the sample to transfer from the column into the PTFE Luer tip to the test tube.	12	**VMF21BFN**
Luer Plugs – These plugs fit into the bulkhead fittings in order to seal unused bulkhead fittings. These can also be used to break vacuum to the manifold.	12	**VMF21PLN**
Flange Caps – Used with the Luer Caps, Flange Caps plug the top of SPE cartridges.	1 mL 3 mL 6 & 10 mL 15 mL 25 mL	50 50 50 50 50	**CR0001P** **CR0004P** **CR0008P** **CR0015P** **CR0025P**
Large Volume Transfer Tubes – Used to transfer large volumes (100-1000mL) from a water collection bottle to an SPE cartridge.	6 12		**VMFSTFR06** **VMFSTFR12**
Large Volume Transfer Tubes For Perfluorinated Compound Analysis – Used to transfer large volumes (100-1000mL) from a water collection bottle to an SPE cartridge.	6 12		
1, 3, 6, 10 mL Cartridge Adapters	15 100		**AD0000AS** **AD00000C**
20L Waste Trap	1		**ECUCTTRAP20**
20L Waste Trap Adapter – 3/8" x 1/4" PVDF ADPT for fitting to glass block manifold.	1		**ECUCTTRAP20-ADPT**

UCT, Inc. | 2731 Bartram Rd | Bristol, PA 19007 | USA
P. 800.541.0559 | 215.781.9255 | F. 215.785.1226
www.unitedchem.com

SELECTRA® U/HPLC Columns

SELECTRA® U/HPLC COLUMNS

The SELECTRA® line of HPLC columns is created using an ultra-high purity, Type B, spherical silica. This support material minimizes surface activity and allows for high density functional group bonding. Columns are available with either 1.8, 3, or 5 µm particle sizes

Guard Column Holder	
Description	**Part Number**
HPLC Guard Cartridge Holder	**SLGRDHLDR**
UHPLC Direct Connect Guard Cartridge Holder	**SLGRDHLDR-HPOPT**
Replacement Peek Tip for Holder	**SLGRDHLDR-TIP (2/pk)**

SELECTRA® DA			
Column Length (mm)	**Column i.d. (mm)**	**Particle Size**	**Part Number**
50	2.1	1.8 µm	**SLDA50ID21-18UM**
100	2.1	1.8 µm	**SLDA100ID21-18UM**
50	4.6	1.8 µm	**SLDA50ID46-18UM**
100	4.6	1.8 µm	**SLDA100ID46-18UM**
50	2.1	3 µm	**SLDA50ID21-3UM**
100	2.1	3 µm	**SLDA100ID21-3UM**
50	4.6	3 µm	**SLDA50ID46-3UM**
100	4.6	3 µm	**SLDA100ID46-3UM**
150	4.6	3 µm	**SLDA150ID46-3UM**
50	2.1	5 µm	**SLDA50ID21-5UM**
100	2.1	5 µm	**SLDA100ID21-5UM**
50	4.6	5 µm	**SLDA50ID46-5UM**
100	4.6	5 µm	**SLDA100ID46-5UM**
150	4.6	5 µm	**SLDA150ID46-5UM**

Guard Cartridge Columns (2/pack)*			
10	2.0	1.8 µm	**SLDAGDC20-18UMOPT**
10	2.0	3 µm	**SLDAGDC21-3UM**
10	2.0	5 µm	**SLDAGDC21-5UM**
10	4.6	1.8 µm	**SLDAGDC46-18UMOPT**
10	4.6	3 µm	**SLDAGDC46-3UM**
10	4.6	5 µm	**SLDAGDC46-5UM**

***Guard Cartridge columns must be used with a UCT guard cartridge holder.**

SELECTRA® DA

- Unique Biphenyl phase.
- Excellent selectivity for a wide range of compounds including therapeutic drugs, drugs of abuse, mycotoxins, veterinary drugs and pesticides.
- Ability to retain compounds that can be difficult to retain on a C18
- Can achieve significant selectivity changes with the choice of acetonitrile or methanol as the organic solvent.
- Carbon Load 13%.
- Conforms to USP L11.
- Fully endcapped.

Storage of LC Columns:

Do not allow LC analytical columns to stand uncapped for any length of time. Store an LC column in methanol or an appropriate organic solvent, capped at both ends. A dry LC column is sometimes difficult to reactivate and may not recover to full performance status.

UCT, Inc. | 2731 Bartram Rd | Bristol, PA 19007 | USA
P. 800.541.0559 | 215.781.9255 | F. 215.785.1226
www.unitedchem.com

SELECTRA® U/HPLC COLUMNS

SELECTRA® C18

- Optimum retention for traditional reverse phase analysis.
- Highest hydrophobic interactions in the Selectra® column line.
- Carbon Load 20%.
- Conforms to USP L1.
- Fully endcapped.

SELECTRA® Aqueous C18

- Polar modified C18.
- Similar non-polar retention to traditional C18.
- Enhanced selectivity and retention for difficult to retain polar analytes.
- Suitable in up to 100% aqueous mobile phases.
- Carbon Load 10%.
- Conforms to USP L1.
- Fully endcapped.

SELECTRA® C18			
Column Length (mm)	Column i.d. (mm)	Particle Size	Part Number
50	2.1	1.8 µm	SLC-1850ID21-18UM
100	2.1	1.8 µm	SLC-18100ID21-18UM
50	4.6	1.8 µm	SLC-1850ID46-18UM
100	4.6	1.8 µm	SLC-18100ID46-18UM
50	2.1	3 µm	SLC-1850ID21-3UM
100	2.1	3 µm	SLC-18100ID21-3UM
50	4.6	3 µm	SLC-1850ID46-3UM
100	4.6	3 µm	SLC-18100ID46-3UM
150	4.6	3 µm	SLC-18150ID46-3UM
50	2.1	5 µm	SLC-1850ID21-5UM
100	2.1	5 µm	SLC-18100ID21-5UM
50	4.6	5 µm	SLC-1850ID46-5UM
100	4.6	5 µm	SLC-18100ID46-5UM
150	4.6	5 µm	SLC-18150ID46-5UM
Guard Cartridge Columns (2/pack)*			
10	2.0	1.8 µm	SLC-18GDC20-18UMOPT
10	2.0	3 µm	SLC-18GDC20-3UM
10	2.0	5 µm	SLC-18GDC20-5UM
10	4.6	1.8 µm	SLC-18GDC46-18UMOPT
10	4.6	3 µm	SLC-18GDC46-3UM
10	4.6	5 µm	SLC-18GDC46-5UM

*Guard Cartridge columns must be used with a UCT guard cartridge holder.

SELECTRA® Aqueous C18			
Column Length (mm)	Column i.d. (mm)	Particle Size	Part Number
50	2.1	1.8 µm	SLAQ50ID21-18UM
100	2.1	1.8 µm	SLAQ100ID21-18UM
50	4.6	1.8 µm	SLAQ50ID46-18UM
100	4.6	1.8 µm	SLAQ100ID46-18UM
50	2.1	3 µm	SLAQ50ID21-3UM
100	2.1	3 µm	SLAQ100ID21-3UM
50	4.6	3 µm	SLAQ50ID46-3UM
100	4.6	3 µm	SLAQ100ID46-3UM
150	4.6	3 µm	SLAQ150ID46-3UM
50	2.1	5 µm	SLAQ50ID21-5UM
100	2.1	5 µm	SLAQ100ID21-5UM
50	4.6	5 µm	SLAQ50ID46-5UM
100	4.6	5 µm	SLAQ100ID46-5UM
150	4.6	5 µm	SLAQ150ID46-5UM
Guard Cartridge Columns (2/pack)*			
10	2.0	1.8 µm	SLAQGDC20-18UMOPT
10	2.0	3 µm	SLAQGDC20-3UM
10	2.0	5 µm	SLAQGDC20-5UM
10	4.6	1.8 µm	SLAQGDC46-18UMOPT
10	4.6	3 µm	SLAQGDC46-3UM
10	4.6	5 µm	SLAQGDC46-5UM

*Guard Cartridge columns must be used with a UCT guard cartridge holder.

SELECTRA® U/HPLC COLUMNS

SELECTRA® PFPP

- Can be used for reverse phase, normal phase, or HILIC separations.
- Exhibits multiple selectivity mechanisms including hydrogen bonding, dipole dipole, pi-pi over lap, hydrophilic (HILIC), and hydrophobic interactions.
- Carbon Load 11%.
- Conforms to USP L43.
- Fully endcapped.

SELECTRA® C8

- Less retentive, less hydrophobic than standard C18 column.
- Selectivity similar to C18 for non-polar compounds.
- Carbon Load 12%.
- Conforms to USP L7.
- Fully endcapped.

SELECTRA® PFPP			
Column Length (mm)	Column i.d. (mm)	Particle Size	Part Number
50	2.1	1.8 µm	SLPFPP50ID21-18UM
100	2.1	1.8 µm	SLPFPP100ID21-18UM
50	4.6	1.8 µm	SLPFPP50ID46-18UM
100	4.6	1.8 µm	SLPFPP100ID46-18UM
50	2.1	3 µm	SLPFPP50ID21-3UM
100	2.1	3 µm	SLPFPP100ID21-3UM
50	4.6	3 µm	SLPFPP50ID46-3UM
100	4.6	3 µm	SLPFPP100ID46-3UM
150	4.6	3 µm	SLPFPP150ID46-3UM
50	2.1	5 µm	SLPFPP50ID21-5UM
100	2.1	5 µm	SLPFPP100ID21-5UM
50	4.6	5 µm	SLPFPP50ID46-5UM
100	4.6	5 µm	SLPFPP100ID46-5UM
150	4.6	5 µm	SLPFPP150ID46-5UM
250	4.6	5 µm	SLPFPP250ID46-5UM

Guard Cartridge Columns (2/pack)*			
10	2.0	1.8 µm	SLPFPPGDC20-18UMOPT
10	2.0	3 µm	SLPFPPGDC20-3UM
10	2.0	5 µm	SLPFPPGDC20-5UM
10	4.6	1.8 µm	SLPFPPGDC46-18UMOPT
10	4.6	3 µm	SLPFPPGDC46-3UM
10	4.6	5 µm	SLPFPPGDC46-5UM

*Guard Cartridge columns must be used with a UCT guard cartridge holder.

SELECTRA® C8			
Column Length (mm)	Column i.d. (mm)	Particle Size	Part Number
50	2.1	1.8 µm	SLC-850ID21-18UM
100	2.1	1.8 µm	SLC-8100ID21-18UM
50	4.6	1.8 µm	SLC-850ID46-18UM
100	4.6	1.8 µm	SLC-8100ID46-18UM
50	2.1	3 µm	SLC-850ID21-3UM
100	2.1	3 µm	SLC-8100ID21-3UM
50	4.6	3 µm	SLC-850ID46-3UM
100	4.6	3 µm	SLC-8100ID46-3UM
150	4.6	3 µm	SLC-8150ID46-3UM
50	2.1	5 µm	SLC-850ID21-5UM
100	2.1	5 µm	SLC-8100ID46-5UM
50	4.6	5 µm	SLC-850ID46-5UM
100	4.6	5 µm	SLC-8100ID46-5UM
150	4.6	5 µm	SLC-8150ID46-5UM
250	4.6	5 µm	SLC-8250ID46-5UM

Guard Cartridge Columns (2/pack)*			
10	2.1	1.8 µm	SLC-8GDC21-18UMOPT
10	2.1	3 µm	SLC-8GDC21-3UM
10	2.1	5 µm	SLC-8GDC21-5UM
10	4.6	1.8 µm	SLC-8GDC46-18UMOPT
10	4.6	3 µm	SLC-8GDC46-18UMOPT
10	4.6	5 µm	SLC-8GDC46-5UM

*Guard Cartridge columns must be used with a UCT guard cartridge holder.

UCT, Inc. | 2731 Bartram Rd | Bristol, PA 19007 | USA
P. 800.541.0559 | 215.781.9255 | F. 215.785.1226
www.unitedchem.com

UCT

SELECTRACORE®

Core-Shell Columns

C18 | DA | PFPP

SELECTRACORE® CORE-SHELL COLUMNS

SelectraCore® C18 **Core-Shell Columns**				
Length	**i.d.**	**Particle Size**	**Pore Size**	**Part Number**
50 mm	2.1 mm	2.7 µm	90 Å	**SCS27-C18521**
100 mm	2.1 mm	2.7 µm	90 Å	**SCS27-C181021**
150 mm	2.1 mm	2.7 µm	90 Å	**SCS27-C181521**
50 mm	4.6 mm	2.7 µm	90 Å	**SCS27-C18546**
100 mm	4.6 mm	2.7 µm	90 Å	**SCS27-C181046**
150 mm	4.6 mm	2.7 µm	90 Å	**SCS27-C181546**

SelectraCore® C18 **Guard Columns (3/pk)**				
Length	**i.d.**	**Particle Size**	**Pore Size**	**Part Number**
5 mm	2.1 mm	2.7 µm	90 Å	**SCS27-C18GDC21**
5 mm	4.6 mm	2.7 µm	90 Å	**SCS27-C18GDC46**

SelectraCore® PFPP **Core-Shell Columns**				
Length	**i.d.**	**Particle Size**	**Pore Size**	**Part Number**
50 mm	2.1 mm	2.7 µm	90 Å	**SCS27-PFP521**
100 mm	2.1 mm	2.7 µm	90 Å	**SCS27-PFP1021**
150 mm	2.1 mm	2.7 µm	90 Å	**SCS27-PFP1521**
50 mm	4.6 mm	2.7 µm	90 Å	**SCS27-PFP546**
100 mm	4.6 mm	2.7 µm	90 Å	**SCS27-PFP1046**
150 mm	4.6 mm	2.7 µm	90 Å	**SCS27-PFP1546**

SelectraCore® DA **Core-Shell Columns**				
Length	**i.d.**	**Particle Size**	**Pore Size**	**Part Number**
50 mm	2.1 mm	2.7 µm	90 Å	**SCS27-DA521**
100 mm	2.1 mm	2.7 µm	90 Å	**SCS27-DA1021**
150 mm	2.1 mm	2.7 µm	90 Å	**SCS27-DA1521**
50 mm	4.6 mm	2.7 µm	90 Å	**SCS27-DA546**
100 mm	4.6 mm	2.7 µm	90 Å	**SCS27-DA1046**
150 mm	4.6 mm	2.7 µm	90 Å	**SCS27-DA1546**

SelectraCore® PFPP **Guard Columns (3/pk)**				
Length	**i.d.**	**Particle Size**	**Pore Size**	**Part Number**
5 mm	2.1 mm	2.7 µm	90 Å	**SCS27-PFPGDC21**
5 mm	4.6 mm	2.7 µm	90 Å	**SCS27-PFPGDC46**

SelectraCore® DA **Guard Columns (3/pk)**				
Length	**i.d.**	**Particle Size**	**Pore Size**	**Part Number**
5 mm	2.1 mm	2.7 µm	90 Å	**SCS27-DAGDC21**
5 mm	4.6 mm	2.7 µm	90 Å	**SCS27-DAGDC46**

SelectraCore® C18

- Popular Choice for Method Development
- Excellent reversed-phase retention capacity
- Applicable to a wide range of analyte polarities
- **Target** - Suitable for most acidic, basic, & neutral compounds
- **Applications** - Food, enviro, forensic, & pharmaceutical analysis

SelectraCore® DA

- Unique polyaromatic stationary phase with alternate C18 selectivity
- Reversed-phase retention based on pi-pi interaction
- Allows analysis of compounds that are difficult to resolve on C18
- **Target** - Aromatic, conjugated or unsaturated analytes
- **Applications** - Drugs of abuse, pain
- management drugs, pesticides & mycotoxins

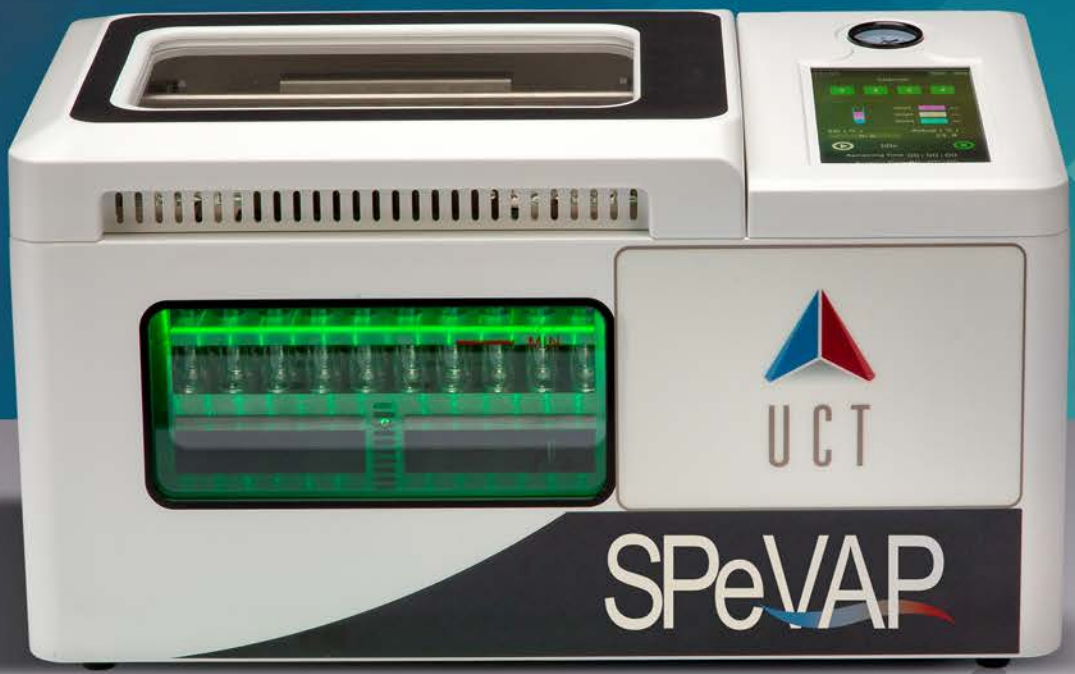
SelectraCore® PFPP

- Fluorinated stationary phase with electron-deficient phenyl rings
- Multiple retention mechanisms include dipole-dipole, pi-pi & ion exchange interactions
- Can also be used for Normal phase and HILIC separations
- Alternate selectivity to C8 & C18
- **Target** - Suitable for acidic, basic & neutral compounds
- **Applications** - Panels consisting of Beta-blockers, Benzodiazepines, TCAs & Catecholamines

UCT, Inc. | 2731 Bartram Rd | Bristol, PA 19007 | USA
P. 800.541.0559 | 215.781.9255 | F. 215.785.1226
www.unitedchem.com

SPeVAP

32 and 48 Position Multi-function Solven Evaporator



SPeVAP SPECIFICATIONS

ACCESSORIES

- Required space: 23" x 18"
- Suitable electrical supply
- Dedicated 20 Amp circuit / per every three SPeVAP® modules
- Purified compressed air or N2 source
- Flathead Screwdriver and Allen Wrench

CONTENTS

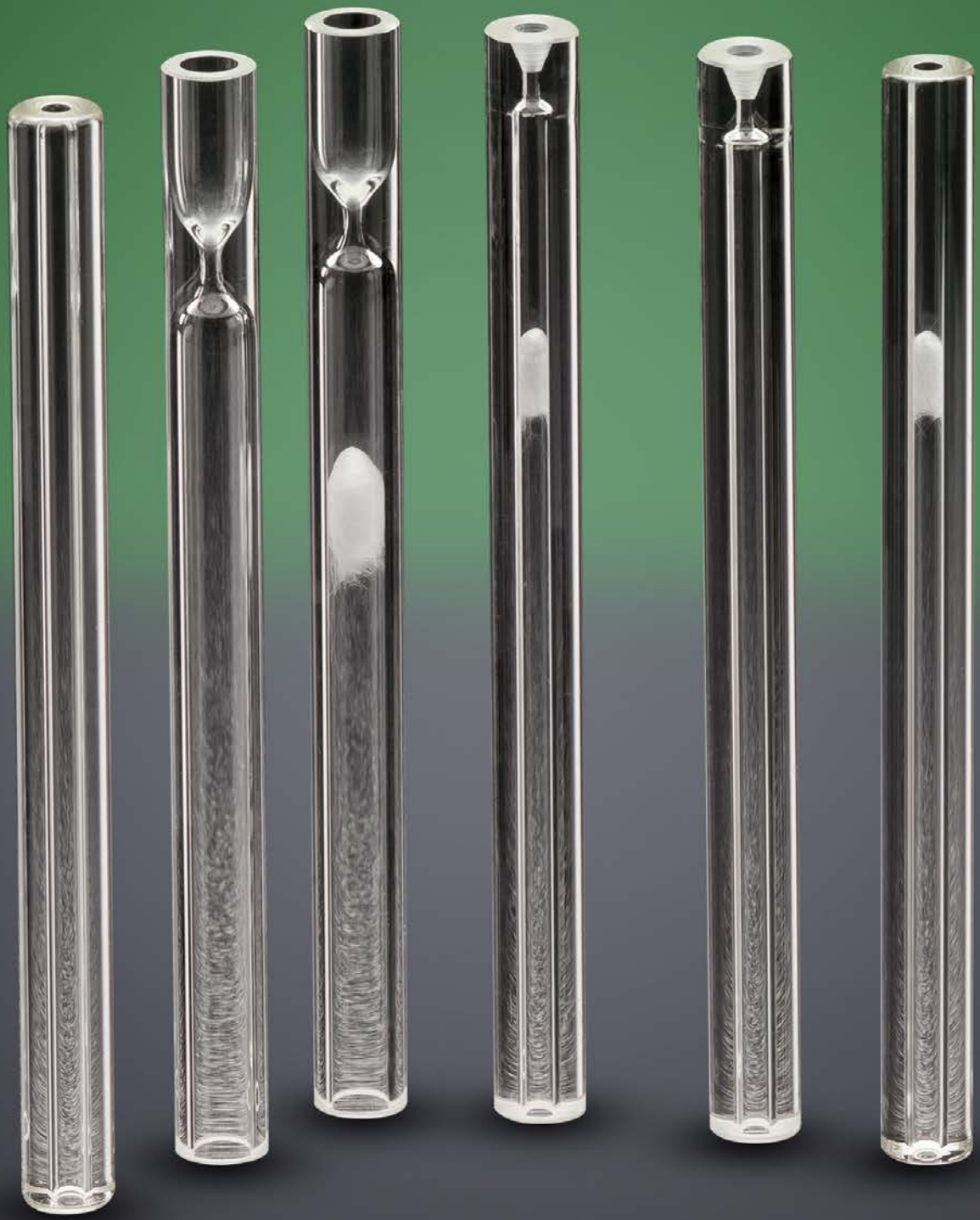
- Exhaust Line and Clamp
- Drain hose and Air line
- Manual and Installation Specs
- Fuse and Power Cord

TECHNICAL SPECIFICATIONS	
Supply Voltage Power Max Output Power Fuse	100-240 VAC. 50,60HZ Dedicated 20AMP circuit per 3 SPeVAP® units 500W / Max Amperage – 6A 5mm x 20mm, 10A Slow Blow
Gas Supply Pressure	Moisture Free inert Gas or compressed air filtered to 5µm < 60psi 0-60psi / Max Supply Flow – 96L/min.
Water Temperature Water Bath Volume	Ambient up to 90°C 6.5L / Use DI or Distilled Water
Interface Bench Space Ventilation Paint	7.7' touch screen 23" x 18" Exhaust hose that can be routed to a fume hood or other ventilation shaft Acrylic Polyurethane which is resistant to Acetone, Ethyl Acetate, Cyclohexane, Hexane, and DCM

Part Number	Description
VMFSPEVAP-32	SPeVAP® 32 Position
VMFSPEVAP-48	SPeVAP® 48 Position
VMFSPEVAP-2102	Replacement Nozzle, PTFE Coated
VMFSPEVAP-2103	Nozzle O-ring, Pack of 50
VMFSPEVAP-TB309	Exhaust hose, extension (multiples of 5 ft)
VMFSPEVAP-PN0199	Air Filter
VMFSPEVAP-SC1277	Exhaust line clamp
VMFSPEVAP-TB311	Air line (multiples of 25 ft)
VMFSPEVAP-FT512	Air line quick-disconnect fitting
VMFSPEVAP-TB310	Drain hose
VMFSPEVAP-FT256	Replacement barb fitting for water bath drain
VMFSPEVAP-TB312-4	Exhaust hose coupler
VMFSPEVAP-FO4811	Gasket, 48-position, 12-13mm or Autosampler Vials
VMFSPEVAP-F04812	Gasket, 48-position, 15-18mm
VMFSPEVAP-F03211	Gasket, 32-position, 12-13mm or Autosampler Vials
VMFSPEVAP-F03212	Gasket, 32-position, 15-18mm

UCT, Inc. | 2731 Bartram Rd | Bristol, PA 19007 | USA
P. 800.541.0559 | 215.781.9255 | F. 215.785.1226
www.unitedchem.com

ACCESSORIES | GC LINERS | RESERVOIRS | FRITS



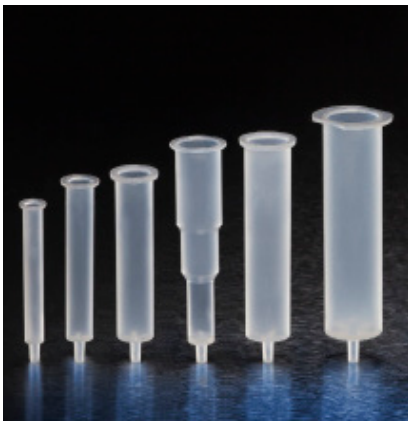
GC LINERS

Gas Chromatograph Glass Liners manufactured by UCT are deactivated using a proprietary silane. The silane is manufactured by UCT Specialties, LLC, a leader in high purity, specialty silanes for the chromatographic industry.

DESCRIPTION	INNER DIAMETER (mm)	OUTER DIAMETER (mm)	LENGTH (mm)	INSTRUMENT	UNITS	UCT Part Number
2 mm Straight Split/Splitless	2.0	6.5	78.5	Agilent	1 5 25	**GCL2MM** **GCL2MM-5** **GCL2MM-25**
2 mm Straight Split/Splitless with Deactivated Glass Wool	2.0	6.5	78.5	Agilent	1 5 25	**GCL2MMGW** **GCL2MMGW-5** **GCL2MMGW-25**
2 mm Gooseneck Split/Splitless	2.0	6.5	78.5	Agilent	1 5 25	**GCLGN2MM** **GCLGN2MM-5** **GCLGN2MM-25**
2 mm Gooseneck Split/Splitless with Deactivated Glass Wool	2.0	6.5	78.5	Agilent	1 5 25	**GCLGN2MMGW** **GCLGN2MMGW-5** **GCLGN2MMGW-25**
4 mm Straight Split/Splitless	4.0	6.5	78.5	Agilent	1 5 25	**GCL4MM** **GCL4MM-5** **GCL4MM-25**
4 mm Straight Split/Splitless with Deactivated Glass Wool	4.0	6.5	78.5	Agilent	1 5 25	**GCL4MMGW** **GCL4MMGW-5** **GCL4MMGW-25**
4 mm Recessed Gooseneck Split/Splitless	4.0	6.5	78.5	Agilent	1 5 25	**GCLRG4MM** **GCLRG4MM-5** **GCLRG4MM-25**
4 mm Recessed Gooseneck Split/Splitless with Deactivated Glass Wool	4.0	6.5	78.5	Agilent	1 5 25	**GCLRG4MMGW** **GCLRG4MMGW-5** **GCLRG4MMGW-25**
4 mm Gooseneck Split/Splitless	4.0	6.5	78.5	Agilent	1 5 25	**GCLGN4MM** **GCLGN4MM-5** **GCLGN4MM-25**
4 mm Gooseneck Split/Splitless with Deactivated Glass Wool	4.0	6.5	78.5	Agilent	1 5 25	**GCLGN4MMGW** **GCLGN4MMGW-5** **GCLGN4MMGW-25**
3.4 mm Straight Split 1078/1079 Inlet	3.4	5.0	54	Varian/ Bruker	1 5 25	**GCL3.4MM** **GCL3.4MM-5** **GCL3.4MM-25**
3.4 mm Straight Split with Frit Inserted 1078/1079 Inlet	3.4	5.0	54	Varian/ Bruker	1 5 25	**GCL3.4MMFR** **GCL3.4MMFR-5** **GCL3.4MMFR-25**

UCT, Inc. | 2731 Bartram Rd | Bristol, PA 19007 | USA
P. 800.541.0559 | 215.781.9255 | F. 215.785.1226
www.unitedchem.com

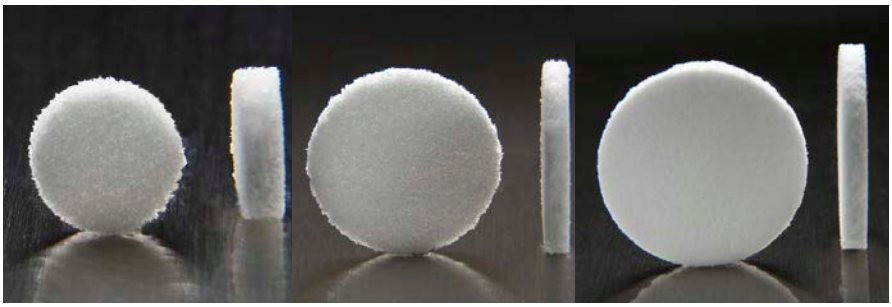
RESERVOIRS



Polypropylene Reservoirs				
Volume Capacity	Units per Pack	No. of Frits	Porosity of Frits (µm)	Part Number
1 mL	50	0	N/A	**RFV0001P**
1 mL	50	1	10	**RFV01F1P**
1 mL	50	2	10	**RFV02F1P**
1 mL	50	1	20	**RFT01F1P**
1 mL	50	2	20	**RFT02F1P**
4 mL	50	0	N/A	**RFV0004P**
4 mL	50	1	10	**RFV01F4P**
4 mL	50	2	10	**RFV02F4P**
4 mL	50	1	20	**RFT01F4P**
4 mL	50	2	20	**RFT02F4P**
8 mL	50	0	N/A	**RFV0008P**
8 mL	50	1	10	**RFV01F8P**
8 mL	50	2	10	**RFV02F8P**
8 mL	50	1	20	**RFT01F8P**
8 mL	50	2	20	**RFT02F8P**
10 mL	50	0	N/A	**RFV0010P**
10 mL	50	1	10	**RFV1F10P**
10 mL	50	2	10	**RFV2F10P**
10 mL	50	1	20	**RFT1F10P**
10 mL	50	2	20	**RFT2F10P**
15 mL	50	0	N/A	**RFV0015P**
15 mL	50	1	10	**RFV1F15P**
15 mL	50	2	10	**RFV2F15P**
15 mL	50	1	20	**RFT1F15P**
15 mL	50	2	20	**RFT2F15P**
25 mL	50	0	N/A	**RFV0025P**
25 mL	50	1	10	**RFV1F25P**
25 mL	50	2	10	**RFV2F25P**
25 mL	50	1	20	**RFT1F25P**
25 mL	50	2	20	**RFT2F25P**
75 mL	50	0	N/A	**RFV0075P**
75 mL	50	1	10	**RFV1F75P**
75 mL	50	2	10	**RFV2F75P**
75 mL	50	1	20	**RFT1F75P**
75 mL	50	2	20	**RFT2F75P**
150 mL	10	0	N/A	**RFV00150P**
150 mL	10	1	20	**RFT1F150P**
150 mL	10	2	20	**RFT2F150P**

Glass Reservoirs				
Volume Capacity	Units per Pack	No. of Frits	Porosity of Frits (µm)	Part Number
8 mL	30	0	N/A	RFV0008G
8 mL	30	1	10	RFV01F8G

FRITS



Polyethylene Frits					
Column Size	**Diameter**	**Porosity**	**Thickness**	**Units**	**Part Number**
1 mL	0.232″	10 µm	1/16″	100	**FR10011P**
1 mL	0.232″	20 µm	1/16″	100	**FR20011P**
1 mL	0.232″	20 µm	1/8″	100	**FT20011P**
4 mL	0.357″	7 µm	1/16″	100	**FR07041P**
4 mL	0.357″	10 µm	1/16″	100	**FR10041P**
4 mL	0.357″	20 µm	1/16″	100	**FR20041P**
4 mL	0.357″	20 µm	1/8″	100	**FT20041P**
4 mL	0.357″	100 µm	1/16″	100	**FR100041P**
8 mL	0.498″	10 µm	1/16″	100	**FR10081P**
8 mL	0.498″	20 µm	1/16″	100	**FR20081P**
8 mL	0.513″	20 µm	1/8″	100	**FT20081P**
10 mL	0.357″	10 µm	1/16″	100	**FR10101P**
10 mL	0.357″	20 µm	1/16″	100	**FR20101P**
10 mL	0.357″	20 µm	1/8″	100	**FT20101P**
15 mL	0.630″	10 µm	1/16″	100	**FR10151P**
15 mL	0.641″	20 µm	1/16″	100	**FR20151P**
15 mL	0.641″	20 µm	1/8″	100	**FT20151P**
25 mL	0.792″	10 µm	1/16″	100	**FR10251P**
25 mL	0.816″	20 µm	1/8″	100	**FT20251P**
75 mL	1.050″	10 µm	1/16″	100	**FR10751P**
75 mL	1.050″	20 µm	1/8″	100	**FT20751P**
150 mL	1.515″	20 µm	1/8″	20	**FT201501P**

PTFE Frits					
FR10081T	**Diameter**	**Porosity**	**Thickness**	**Units**	**Part Number**
4 mL	0.357″	10 µm	1.5 mm	60	**FR10041T**
8 mL	0.498″	10 µm	1.5 mm	60	**FR10081T**
8 mL	0.498″	50 µm	1.5 mm	60	**FR10081T**
15 mL	0.641″	10 µm	1.5 mm	60	**FR10151T**
15 mL	0.641″	50 µm	1.5 mm	100	**FR50151T**

UCT, Inc. | 2731 Bartram Rd | Bristol, PA 19007 | USA
P. 800.541.0559 | 215.781.9255 | F. 215.785.1226
www.unitedchem.com

CUSTOMER SERVICE

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 and must include order number, the lot number and the shipping date.

To initiate this action, photographs of the product, including packaging and labeling of the containers, must be submitted to the UCT Representative for approval. With approval a return authorization can be initiated, and must be received within 30 days. Once the materials arrive at UCT a further inspection of the materials must be completed and accepted by our Quality Manager prior to further action of credits or replacement. 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

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

MADE IN USA

4101-02-02

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

Phone: 800.385.3153
Fax: 215.785.1226
www.unitedchem.com

www.chromatographydirect.com
Unit12, Beeston Court, Manor Park, Runcorn, Cheshire WA1 1ST, U.K.