

UCT

UNITED CHEMICAL TECHNOLOGIES, INC.

ENVIRO-CLEAN® Products





United Chemical Technologies organically modified silica gels are a benchmark in the solid phase extraction industry. They are widely utilized in pharmaceutical, environmental, clinical, forensic, medical and research laboratories. A full range of pore size and particle size sorbents are available to meet the requirements of the most demanding separations.

United Chemical Technologies' Trademarks
CLEAN-ELUTE™ / CLEAN SCREEN® / CLEAN-UP® / ENVIRO-CLEAN® ,
SELECTRASORB™ / STYRE SCREEN™ / XtrackT®

Chemistries are offered on these particles sizes...

Small Particle (5-20 μm)
 Intermediate Particle (25-40 μm)
 Standard Particle (40-60 μm)
 Large Particle (125-210 μm)

- Polypropylene columns are available in the following formats:

Stated Volume (ml)	Tube Configuration	Bed Diameter (mm)	Sorbent Mass (mg)
1	Cylindrical	5.5	50-200
3	Cylindrical	8.5	50-1000
6	Cylindrical	12.5	200-2000
10	Expanded	8.5	50-1000
15	Cylindrical	15.5	500-2000
25	Cylindrical	20	500-5000
75	Cylindrical	27.5	1000-10000

Also available are:

- Glass Syringe Barrels
- Bulk packaging



Available in the following sizes:
1mL, 3mL, 6mL, 10mL, 25mL,
and 75mL

Polypropylene Columns

Highest Quality Polypropylene Housing Available:

- Special solvent resistant, durable polypropylene
 - Low level of extractable contaminants such as plasticizers
- *Also available in deactivated and chemically modified formats

Comparison of UCT Polypropylene Column to Glass Column by GC-MSD.

Figure 1. UCT Polypropylene column with 500 mg of silica.

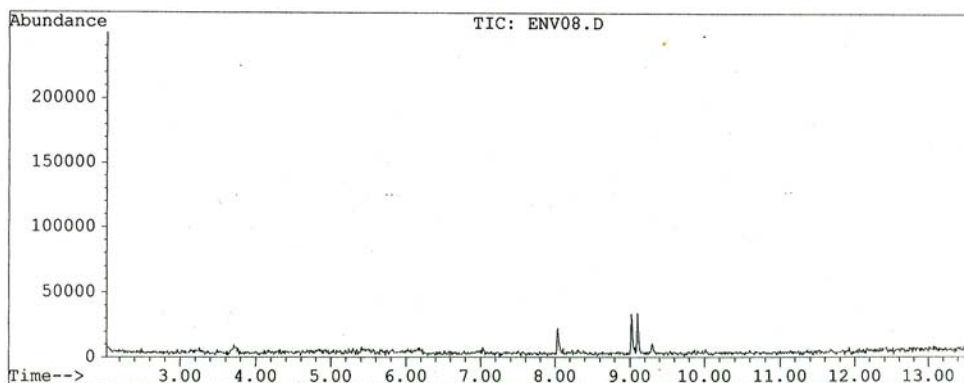
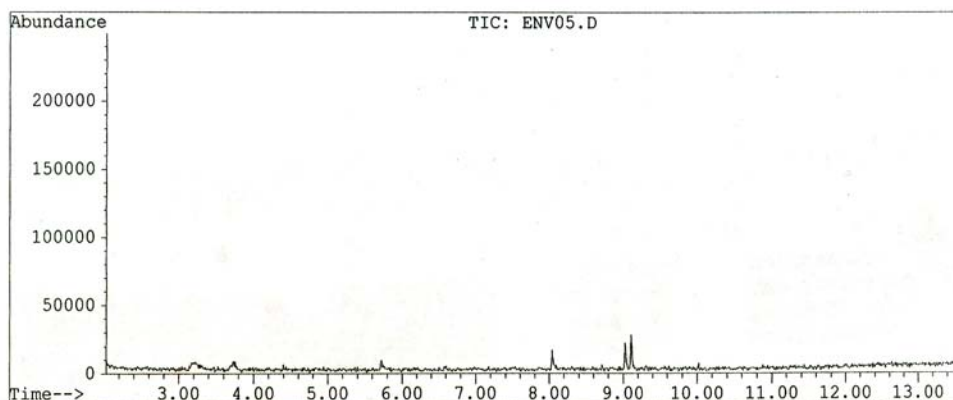


Figure 2. Glass column with 500 mg of silica.



* Four milliliters of methanol passed through each column and collected, then evaporated to dryness and reconstituted with 200 μ L of methanol.



Available in the following sizes:
3mL, 6mL and 10mL

Inert Glass Syringe Barrel

- Resistant to solvents and aggressive chemicals
- Filter tube with teflon frit
- Packed with a variety bonded phase sorbents

Summary of all phases offered by UCT

Reverse Phase (Hydrophobic)

SORBENT	SORBENT CODE	STRUCTURE
C2 ethyl	C02	-SiCH ₂ CH ₃
C3 propyl	C03	-Si-(CH ₂) ₂ CH ₃
C4 n-butyl	Cn4	-Si-(CH ₂) ₃ CH ₃
Ci4 isobutyl	Ci4	-Si-CH ₂ CH(CH ₃) ₂
Ct4 tertiary butyl	Ct4	-Si-C(CH ₃) ₃
C5 pentyl	C05	-Si-(CH ₂) ₄ CH ₃
C6 hexyl	C06	-Si-(CH ₂) ₅ CH ₃
C7 heptyl	C07	-Si-(CH ₂) ₆ CH ₃
C8 octyl	C08	-Si-(CH ₂) ₇ CH ₃
C10 decyl	C10	-Si-(CH ₂) ₉ CH ₃
C12 dodecyl	C12	-Si-(CH ₂) ₁₁ CH ₃
C18 octadecyl	C18	-Si-(CH ₂) ₁₇ CH ₃
C20 eicosyl	C20	-Si-(CH ₂) ₁₉ CH ₃
C30 tricontyl	C30	-Si-(CH ₂) ₂₉ CH ₃
Cyclohexyl	CYH1	-Si-◯
Phenyl	PHY1	-Si-⊙

Normal Phase (Hydrophilic)

Silica	SIL1	-SiOH
Diol	DOL1	-Si-(CH ₂) ₃ OCH ₂ CHOHCH ₂ OH
Cyanopropyl	CNP1	-Si-(CH ₂) ₃ CN
Florisil®	FLS	
Alumina-Acid	ALA	
Alumina-Neutral	ALN	
Alumina-Base	ALB	
Carbon		

Ion Exchange

Anion

			pKa
Aminopropyl (1° amine)	NAX1	-Si-(CH ₂) ₃ NH ₂	9.8
n-2 aminoethyl (2° amine)	PSA1	-Si-(CH ₂) ₃ NH(CH ₂) ₂ NH ₂	10.1, 10.9
Diethylamino (3° amine)	DAX1	-Si-(CH ₂) ₃ N(CH ₂ CH ₃) ₂	10.6
Quaternary Amine Chloride	QAX1	-Si-(CH ₂) ₃ N ⁺ (CH ₃) ₃	always charged
Quaternary Amine Hydroxide	CHQAX1	-Si-(CH ₂) ₃ N ⁺ (CH ₃) ₃	always charged
Quaternary Amine Acetate	CAQAX1	-Si-(CH ₂) ₃ N ⁺ (CH ₃) ₃	always charged
NEW Polyimine	PAX	-Si-(CH ₂) ₃ -R-[NHCH ₂ CH ₂] _x	

Cation

Carboxylic Acid	CCX1	-Si-CH ₂ COOH	4.8
Propylsulfonic Acid	PCX1	-Si-(CH ₂) ₃ SO ₃ H	<1
Benzenesulfonic Acid	BCX1	-Si-(CH ₂) ₂ -⊖-SO ₃ H	always charged
Benzenesulfonic Acid High Load	BCXHL1	-Si-(CH ₂) ₂ -⊖-SO ₃ H	always charged
NEW Triacetic Acid	TAX	-Si-(CH ₂) ₃ N(CH ₂ COOH)(CH ₂) ₂ N(CH ₂ COOH) ₂	

Copolymeric (Multifunctional Phases)*

Aminopropyl + C8	NAX2	-Si-(CH ₂) ₃ NH ₂ & -Si-(CH ₂) ₇ CH ₃
Quaternary Amine + C8	QAX2	-Si-(CH ₂) ₃ N ⁺ (CH ₃) ₃ & -Si-(CH ₂) ₇ CH ₃
Carboxylic Acid + C8	CCX2	-Si-CH ₂ COOH & -Si-(CH ₂) ₇ CH ₃
Propylsulfonic Acid + C8	PCX2	-Si-(CH ₂) ₃ SO ₃ H & -Si-(CH ₂) ₇ CH ₃
Benzenesulfonic Acid + C8	BCX2	-Si-(CH ₂) ₂ -⊖-SO ₃ H & -Si-(CH ₂) ₇ CH ₃
Cyanopropyl + C8	CNP2	-Si-(CH ₂) ₃ CN & -Si-(CH ₂) ₇ CH ₃
Cyclohexyl + C8	CYH2	-Si-◯ & -Si-(CH ₂) ₇ CH ₃

Covalent Phases

NEW Epoxy	EPX	-Si-(CH ₂) ₃ -O-CH ₂ -CH-CH ₂
Aldehydic	ALD	-Si-(CH ₂) ₄ CHO
Isocyanate	ICN	-Si-(CH ₂) ₃ NCO
Thiopropyl	THX	-Si-(CH ₂) ₃ SH

*UCT manufactures true copolymeric sorbents by dually reacting their high purity silicas. The product is not a mixed bed sorbent.

Organic Loading and Ion Exchange Capacity

Reverse Phase (Hydrophobic)

SORBENT	% Organic Loading	Exchange (meq/g)
C2 ethyl	6.60	
C3 propyl	7.60	
C4 n-butyl	8.50	
Ci4 isobutyl	8.80	
Ct4 tertiary butyl	8.50	
C5 pentyl	9.50	
C6 hexyl	11.00	
C7 heptyl	not tested	
C8 octyl	11.1	
C10 decyl	15.70	
C12 dodecyl	not tested	
C18 octadecyl	21.70	
C20 eicosyl	24.30	
C30 tricontyl	26.00	
Cyclohexyl	11.60	
Phenyl	11.00	

Normal Phase (Hydrophilic)

Silica	N/A	N/A
Diol	8.00	N/A
Cyanopropyl	6.90	N/A
Florisil®	N/A	N/A
Alumina-Acid	N/A	N/A
Alumina-Neutral	N/A	N/A
Alumina-Base	N/A	N/A

Ion Exchange

Anion

Aminopropyl (1° amine)	6.65	0.310
n-2 aminoethyl (2° amine)	9.70	0.320
Diethylamino (3° amine)	8.40	0.280
Quaternary Amine Chloride	8.40	0.250
Quaternary Amine Hydroxide	8.40	0.250
Quaternary Amine Acetate	8.40	0.250
NEW Polyimine	13.5	0.250

Cation

Carboxylic Acid	9.10	0.170
Propylsulfonic Acid	7.10	0.180
Benzenesulfonic Acid	11.00	0.320
Benzenesulfonic Acid High Load	15.00	0.650
NEW Triacetic Acid	7.61	

Anion 0.17 / Cation 0.06

Copolymeric (Multifunctional Phases)

Aminopropyl + C8	12.3	0.163
Quaternary Amine + C8	13.60	0.160
Carboxylic Acid + C8	12.50	0.105
Propylsulfonic Acid + C8	14.62	0.114
Benzenesulfonic Acid + C8	12.30	0.072
Cyanopropyl + C8	14.60	0.163
Cyclohexyl + C8	N/A	N/A

Covalent Phases

Epoxy	N/A	N/A
Aldehydic	N/A	N/A
NEW Isocyanate	7.1	N/A
Thiopropyl	6.50	N/A



United Chemical Technologies offers two grades of Florisil®:
PR 60-100 mesh
and
A 100-200 mesh

Florisil® PR*

Florisil® is a weak negatively charged adsorbent consisting of magnesium silicate. Florisil® is commonly used in environmental applications involving pesticide.

*Florisil is a registered name of U.S. Silica Company



United Chemical Technologies Alumina available in
acidic, basic
and
neutral reactivity grades

Alumina

Alumina is a weak positively charged adsorbent consisting of aluminum oxide commonly used in environmental applications.



United Chemical Technologies offer different particle sizes including:
5-20µm, 40-60µm
and
125-210µm

Silica

Silica gel is an adsorbent consisting of silicon dioxide with numerous polar silanol groups. Silica's chemistry allows for the retention of polar compounds.



Available in the following sizes:
1mL, 3mL, 6mL, 10mL,
25mL, and 75mL

Copolymers

Copolymeric phases offer a new approach to the environmental analyst by providing very clean extracts and high compound recovery. Dual functionalities, hydrophobic plus ion-exchange or polar allow a higher degree of selectivity than was previously possible. Analytes retained by multiple mechanisms can be washed by disrupting only one mechanism.



United Chemical Technologies Carbon available in the following column sizes:
1mL, 3mL, 6mL, 10mL,
25mL and 75mL

CLEAN-UP® Carbon

Carbon supports have been used to isolate extremely polar organic compounds. They work by a hydrophobic mechanism with a high surface area and ion exchange. These interactions can happen in a wide range of polar and non-polar solvents.



CLEAN-ELUTE™

CLEAN-ELUTE™ pre-packed columns offer the chemist an efficient solution for performing liquid / liquid extractions. The columns consist of a diatomaceous earth matrix which can be used within a pH-range of 1-13.

ORDER PROCESSING INFORMATION

CUSTOMER SUPPORT

Our customer service staff will process all orders from 8:00 a.m. to 5:00 p.m. Eastern Standard Time, Monday through Friday. After 5:00 p.m. EST, voice mail will be available for messages and orders. We will gladly return your calls as soon as possible.

PLACING AN ORDER

United Chemical Technologies - Lewistown

PHONE ORDERS: (717) 247-0896 or (800) 541-0559
FAX ORDERS: (717) 247-0109
E-MAIL ORDERS: info@unitedchem.com
MAIL ORDERS: United Chemical Technologies, Inc.
MCIDC Plaza Bldg 10
6395 State Route 103 N.
Lewistown, PA 17044

TECHNICAL SUPPORT

United Chemical Technologies - Bristol

PHONE: (215) 781-9255 or (800) 385-3153
FAX : (215) 785-1226
WEB: www.unitedchem.com

ADDRESS:
United Chemical Technologies, Inc.
2731 Bartram Road, Bristol, PA 19007

ORDERING INFORMATION

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 19007. 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 phone number where we can contact you if 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 Regular UPS. 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 products list price or a minimum of \$25.00 (which ever is greater) will be charged on all returns.

WARRANTY

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

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

This warranty does not apply to damage resulting from misuse.