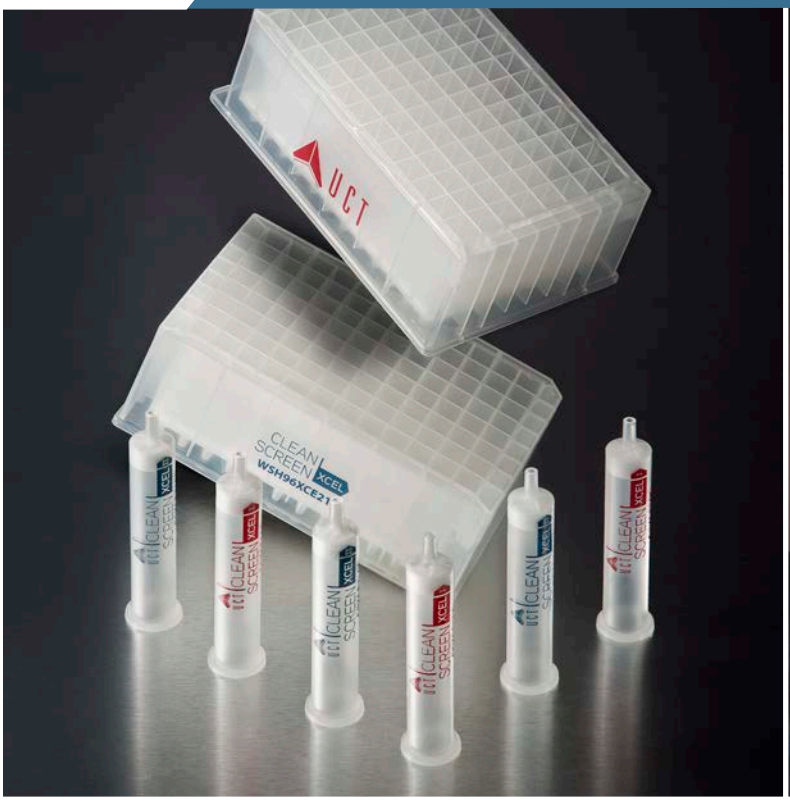
UCT

PRODUCTS CATALOG

FORENSICS CLINICAL PHARMA VETERINARY



Green Earth
page 4

800.385.3153 www.unitedchem.com

FORENSICS

CLINICAL

PHARMACEUTICAL

VETERINARY

UCT

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. Recently we launched several new product lines: SELECTRA® HPLC columns, SELECTRAZYME® Beta glucuronidase hydrolysis enzyme and Comprehensive Analytical Toxicology Kits. 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.

P. 800.385.3153 | 215.781.9255 | **F.** 215.785.1226

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 shipped F.O.B. 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.

Custom items will be evaluated on an individual basis; quantity requirements may be necessary.

SHIPMENTS

Normal processing is within 24-48 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. 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 your sales representative. 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. Returned merchandise must be received before a credit can be issued. Returns will not be accepted after 90 days. A restocking fee of 25% of the price paid, or a minimum of $25.00 (whichever is greater) will be charged on all returns.

WARRANTY

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

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

This warranty does not apply to damage resulting from misuse.

Contact Us

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A GREENER EARTH

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.

Organizations we support:
Arbor Day Foundation
Audubon Society
Sierra Club

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SORBENT CONDITIONING AND SOLVATION

The majority of the sorbents in UCT columns and plates are shipped dry. Sorbents with hydrophobic functionality need to be solvated in order to interact efficiently and reproducibly with aqueous matrices. Sample capacity is severely reduced on a dry column.

At low vacuum, about 3" Hg, add 1.5 mL of methanol or acetonitrile per 100 mg of sorbent to the column. Release the vacuum or begin flushing immediately upon completion. The more air which passes through the sorbent before sample loading, the less solvated the sorbent will be. If a very clean baseline is required, pre-rinse the sorbent bed with elution solvent. This can improve the LOD and LOQ.

Apply 1 mL deionized or distilled water per 100 mg sorbent to remove excess solvent. This will remove excess solvent which may interfere with hydrophobic bonding. A momentary high vacuum, from 5" to 8" Hg, may be necessary to restart flow. At 2.5" Hg, the column will resist air displacement (meaning the vacuum may be left on without drying the sorbent bed). If the sorbent is accidentally dried; then resolvate and reflush.

When using ion exchange sorbents, apply 1 mL of buffer to the column after flushing. This ensures that the sorbent pH is optimal for the sorbent analyte interaction desired.

Where ion exchange interactions are involved, follow guidelines concerning pKa, pH and ionic binding. Use the same vacuum guidelines as described for flushing as outlined above.

SAMPLE PREPARATION AND APPLICATION

Solid phase extraction may employ hydrophobic, polar, ionic or a combination of mechanisms. Frequently, an internal standard is added in order to provide quantifiable results. Sample application can be optimized by removing particulates via centrifugation or filtration. Viscous matrices may also be diluted with water or buffers (ensure that sample is at the correct pH for the desired retention mechanism being employed).

On ion exchange sorbents, sample analytes must be oppositely charged from the sorbent functional phase. Negatively charged (-) anionic compounds are drawn to positively charged (+) anion exchange sorbents. Positively charged (+) cationic compounds bind to negatively charged (-) cation exchange sorbents. During sample application, the analyte binds by displacing a counter ion on the sorbent.

The sample is applied to the sorbent bed at a rate of 1 mL / minute. A momentary increase in vacuum may be needed to initiate flow.

SORBENT WASHING AND ELUTION

Ideal washing removes as many interferences as possible while retaining the analyte(s). Ideal elution recovers 100% of the analyte(s) while leaving behind interferences.

Make certain the sorbent is dry when changing between aqueous solvents and organic solvents.

HYDROPHOBIC AND POLAR ANALYTES

The best approach towards retaining analytes bound to sorbents through hydrophobic or polar interactions during the wash step is to use a solvent mixture which is strong enough to remove the highest possible amount of matrix interferences without drawing off any analyte of interest. (Note that wash pH may have an effect on both cleanup and recovery and must be controlled during this step – keep in mind the analyte and sorbent pKa's when choosing a wash solvent).

Sample elution should be employed using an organic solvent that is strong enough to elute all of the analyte of interest without pulling off any remaining matrix interferences that may still be bound to the sorbent. Organic solvents in combination with a pH change may be employed in order to disrupt analyte binding.

ION EXCHANGE

Ionic bonds are strong enough to allow the analyte to remain bound while interferences are washed away with high percentages (up to 100%) of polar or nonpolar organic solvents. The pH of the elution solvent will also affect sample clean up.

Remember, for best analyte recoveries, remain 2 pH units from the relevant pKa of the analyte and sorbent, both of which need to remain charged for ionic retention.

Elute with aqueous buffers containing a stronger counter ion than the analyte or by changing pH to disrupt the ionic attraction. The pH of the elution solvent should be changed so that either 100% of the analyte or 100% of the SPE stationary phase is now in a neutral state. Make sure the elution solvent has enough organic character to overcome any adsorption to the packing material.

COPOLYMERIC EXCHANGE

For ionically bound analytes, use washes of high organic strength to remove interferences retained by hydrophobic (solvent strength dependent) interactions. If the analyte is also capable of hydrophobic binding, remove polar interferences ionically similar to the analyte by using aqueous or weak aqueous/organic washes while disrupting ionic (pH and ionic strength dependent) binding. Elute by simultaneously disrupting ionic and hydrophobic interactions.

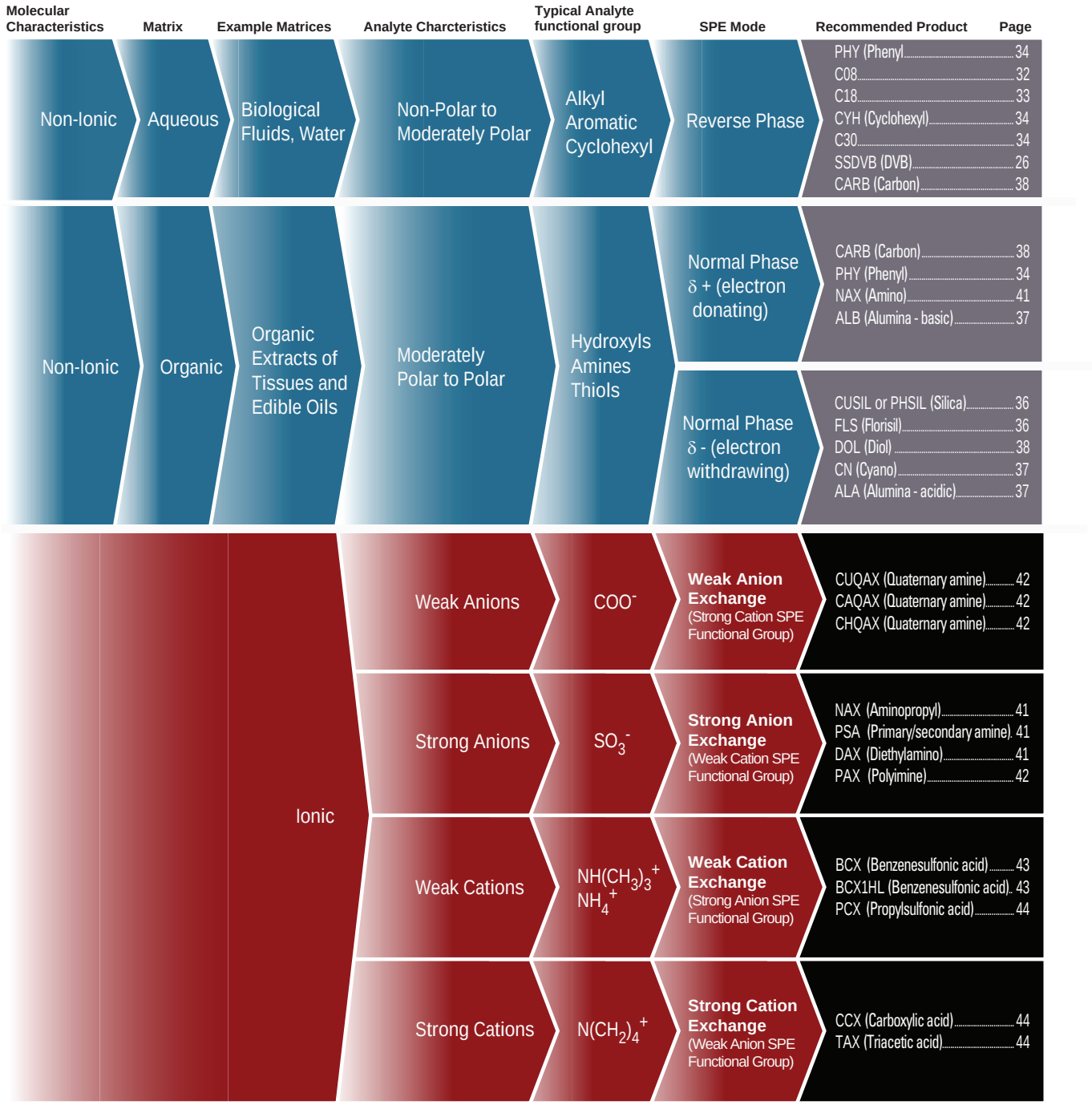
REVERSE PHASE		
HYDROPHOBIC		
Sorbent	**Sorbent Code**	**% Organic**
C2 Ethyl	C02	6.60
C4 n-Butyl	CN4	8.50
C8 Octyl	C08	11.10
C18 Octadecyl	C18	21.70
C30 Tricontyl	C30	20.00
Cyclohexyl	CYH1	11.60
Phenyl	PHY1	11.00

NORMAL PHASE		
HYDROPHILIC		
Sorbent	**Sorbent Code**	**% Organic**
Silica	SIL1	N/A
Diol	DOL1	8.00
Cyanopropyl	CNP1	6.90
Florisil®	FLS	N/A
Alumina, Acidic	ALA	N/A
Alumina, Basic	ALB	N/A
Alumina, Neutral	ALN	N/A
Carbon	CARB	N/A

ION EXCHANGE				
ANION EXCHANGE				
Sorbent	**Sorbent Code**	**pKa**	**% Organic**	**Exchange (meg/g)**
Aminopropyl (1° amine)	NAX1	9.8	6.65	0.310
N-2 Aminoethyl (1° & 2° amine)	PSA1	10.1, 10.9	9.70	0.320
Diethylamino	DAX1	10.6	8.40	0.280
Quaternary Amine Chloride	QAX1	Always Charged	8.40	0.250
Quaternary Amine Hydroxide	CHQAX1	Always Charged	8.40	0.250
Quaternary Amine Acetate	CAQAX1	Always Charged	8.40	0.250
Quaternary Amine Formate	CFQAX1	Always Charged	8.40	0.250
Polyimine	PAX	Always Charged	13.50	0.250
CATION EXCHANGE				
Sorbent	**Sorbent Code**	**pKa**	**% Organic**	**Exchange (meg/g)**
Carboxylic Acid	CCX1	4.8	9.10	0.170
Propylsulfonic Acid	PCX1	<1	7.10	0.180
Benzenesulfonic Acid	BCX1	Always Charged	11.00	0.320
Benzenesulfonic Acid, High Load	BCX1HL	Always Charged	15.00	0.650
Triacetic Acid	TAX		7.61	Anion 0.17/Cation 0.06

COPOLYMERIC PHASES			
MULTIFUNCTIONAL			
Sorbent	**Sorbent Code**	**% Organic**	**Exchange**
Aminopropyl + C8	NAX2	12.30	0.163
Quaternary Amine + C8	QAX2	13.60	0.160
Carboxylic Acid + C8	CCX2	2.50	0.105
Propylsulfonic Acid + C8	PCX2	14.62	0.114
Benzenesulfonic Acid + C8	BCX2	12.30	0.072
Cyanopropyl + C8	CNP2	14.60	0.163
Cyclohexyl + C8	CYH2	N/A	N/A

SORBENT SELECTION GUIDE



Co-polymeric Phases

UCT has created a series of true mixed mode functional phases. These phases incorporate two different funtional groups, typically a non-polar or hydrophobic functional group paired with an ion exchange functional group. A major use of these phases is for clinical or forensic separations. They are ideal for separating drug compounds which are frequently basic to neutral in nature from biological matrices.

DAU p.12
THC p.13
BNZ p.15
XCEL I p.17
XCEL II p.18

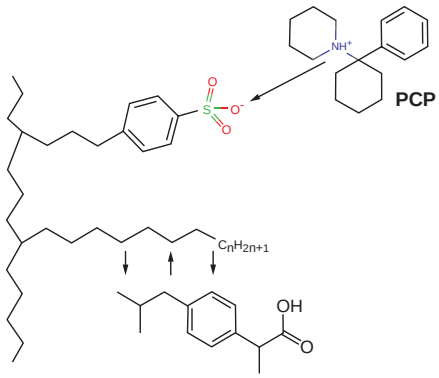
Other Specialty Phases

GHB p.14
ETG p.15
FASt p.19

CLEAN SCREEN® SAMPLE PREP PHASES

MECHANISM OF CLEAN SCREEN® DAU

When a sample is loaded onto the sorbent at pH 6, many carboxylic acid functionalities present in this sample are ionized. This creates a repulsion between the sorbent and many sample borne interferences, thereby reducing the likelihood of their adsorbing onto the sorbent. At this pH, ibuprofen and barbiturates are not ionized and are hydrophobically adsorbed on to the sorbent (figure 1). At the same time, drugs with amine functionalities such as cocaine and phencyclidine adsorb on to the sorbent via both hydrophobic and ionic attraction.



IBUPROFEN

figure 1

The sorbent can then be washed with water or weak aqueous buffers at or below pH 6 without risking the loss of the analytes. After drying the column, it is possible to elute the hydrophobically bound analytes using solvents of minimal polarity such as methylene chlorodie or a hexane/ethyl acetate mixture (figure 2). Cationic analytes will remain bound to the sorbent. Many compounds of intermediate polarity and potential interferences will also remain on the column. The majority of these potential interferences can be removed by using a methanol wash.

Elution 1

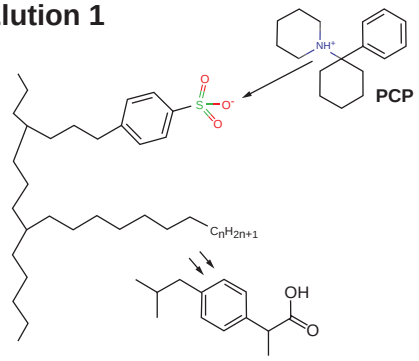


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figure 2

Cationic analytes bound to the column can be eluted after another drying step. The drying steps are necessary to remove water which would have prevented the water immiscible elution solvents from optimally interacting with the analytes (figure 3).

Dry Column

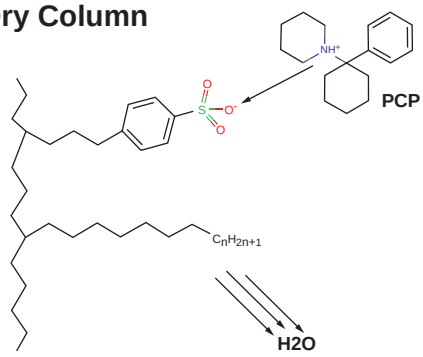


figure 3

To elute the cationic analytes, an organic solvent with a high pH should be used. A methylene chloride/ isopropanol/ ammonium hydroxide mixture will simultaneously disrupt these ionic interactions and successfully elute the desired compound (figure 4).

Elution 2

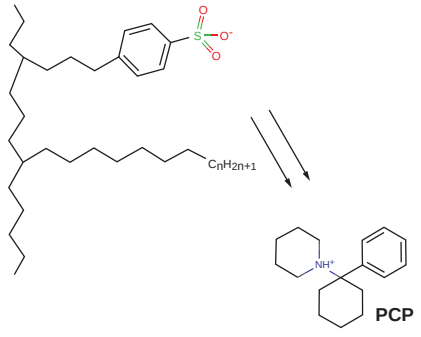


figure 4

Analytical demand for a more efficient, robust and clean extraction of drugs from biological matrices led to the development of CLEAN SCREEN® sorbents. Since 1986, CLEAN SCREEN® has led the clinical and forensic industries with dependable and reproducible Solid Phase Extraction products and applications. CLEAN SCREEN® columns are used extensively in many applications including:

- Post Mortem Investigations
- Criminal Investigations
- Urine Drug Testing
- Therapeutic Drug Monitoring
- Medical Drug Screening
- Athletic Drug Testing

Note:
If performing extractions out of viscous matrices, such as tissue or horse urine, turn to page 21, the location of UCT XtrackT® high flow sorbents.

CLEAN SCREEN® DAU (Drugs of Abuse)

CLEAN SCREEN® DAU is a copolymerized sorbent, utilizing both a reverse (C8) phase and an ion exchange (benzenesulfonic acid) phase bonded to the same particle. The mixed mode nature allows for maximum selectivity for the extraction of acids, neutrals and bases. This flexibility and versatility is ideal for both screening and confirmation analyses of virtually all drug categories.

Organic Loading = 12.4%
Surface Area = 500 m^2/g
Average Pore Size = 60Å
Pore Volume = 0.77 cm^3/g
Cation Exchange = 0.077 meq/g

COLUMNS				
Tube Volume (mL)	Sorbent Amount (mg)	Units per Pack	CLEAN-THRU® Tips Provided	Part Number
1	50	100	No	CSDAU1L1
1	130	100	No	CSDAU131
3	30	50	No	CSDAU033
3	50	50	No	CSDAU1L3
3	130	50	Yes	CCDAU133
3	130	50	No	CSDAU133
3	200	50	No	CSDAU203
3	300	50	No	CSDAU303
3	500	50	No	CSDAU503
6	150	50	No	CSDAU(150)03
6	200	50	Yes	CCDAU206
6	200	50	No	CSDAU206
6	500	50	Yes	CCDAU506
6	500	50	No	CSDAU506
6	1000	50	No	CSDAU1M6
10	50	50	No	ZSDAU005
10	130	50	No	ZSDAU013
10	200	50	Yes	ZCDAU020
10	200	50	No	ZSDAU020
10	300	50	No	ZSDAU030
15	500	50	No	CSDAU515
WELL PLATES				
Number of Wells	Sorbent Amount (mg)	Units per Pack	Extended Drip Tip	Part Number
48	100	1	NO	WIMDAU11
96	50	1	NO	WSHDAU105
96	100	1	NO	WSHDAU11
96	100	1	YES	WSHDAU11-LD
96	200	1	NO	WSHDAU12
96	200	1	YES	WSHDAU12-LD

Quick Tip

Condition Column:
Proper conditioning of the SPE column prior to sample application will result in accurate recovery, reduced interference and particulate removal. Conditioning is performed by adding methanol, followed by DI water and finally sample buffer.

CLEAN SCREEN® THC

CLEAN SCREEN® THC sorbent is copolymerized on a rigid, purified silica gel support. The two functional groups include a reverse phase and a primary amine ion exchanger. This sorbent is useful for analyzing THC and its metabolites. Additionally, its dual functionality is useful for acids and hydrophobic compounds.

CLEAN SCREEN® THC

Organic Loading = 12.1%
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	CLEAN-THRU® Tips Provided	Part Number
1	100	100	NO	CSTHC101
1	130	100	NO	CSTHC131
1	130	100	YES	CCTHC131
3	200	50	NO	CSTHC203
3	200	50	YES	CCTHC203
3	300	50	NO	CSTHC303
3	300	50	YES	CCTHC303
3	500	50	NO	CSTHC503
3	500	50	YES	CCTHC503
6	200	50	NO	CSTHC206
6	200	50	YES	CCTHC206
6	500	50	NO	CSTHC506
6	1000	30	NO	CSTHC1M6
6	1000	30	YES	CCTHC1M6
10	130	50	NO	ZSTHC013
10	130	50	YES	ZCTHC013
10	200	50	NO	ZSTHC020
10	200	50	YES	ZCTHC020

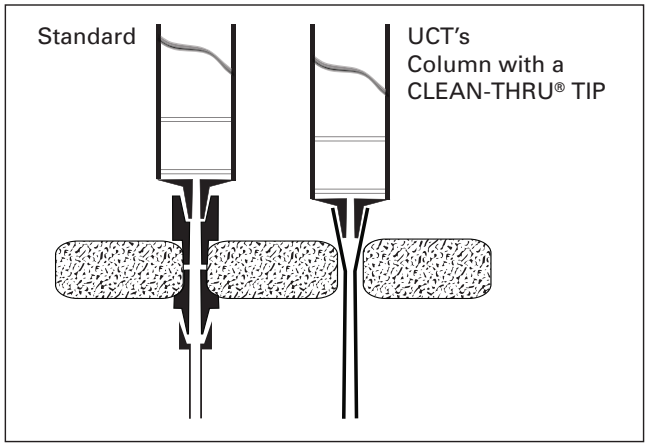
CLEAN SCREEN® GHB

CLEAN SCREEN® GHB sorbent is used for the extraction of free Gamma-hydoxy butyric acid (GHB). The small polar nature of the molecule and the lack of a UV chromaphore complicate the chromatographic and spectrophotometric analysis of GHB. Chemically, GHB is unstable and readily forms Gamma-butyrolactone when heated in acid conditions. Most analytical methods are based upon the interconversion to the lactone and chemical derivatization to form the TMS derivative. This sorbent isolates and extracts free GHB.

Organic Loading = 12.1%
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	CLEAN-THRU® Tips Provided	Part Number
3	200	50	NO	CSGHB203
6	200	50	NO	CSGHB206
10	200	50	NO	ZSGHB020
10	200	50	YES	ZCGHB020



Quick Tip

UCT SPE columns are produced to the highest quality standards. A pre-rinse of an SPE column with an elution solution prior to column conditioning may enhance the performance of a method as it will serve to remove any materials that may have ingressed or adsorbed prior to use.

CLEAN SCREEN® ETG

CLEAN SCREEN® ETG solid phase extraction sorbent is available exclusively from UCT. It is a proprietary carbon packing material for the extraction and concentration of ethyl glucuronide. Sample extracts can be analyzed by either GC/MS or LC/MS.

COLUMNS				
Tube Volume (mL)	Sorbent Amount (mg)	Units per Pack	CLEAN-THRU® Tips Provided	Part Number
3	200	50	NO	CSETG203
3	200	50	YES	CCETG203
10	400	50	NO	ZSETG040
WELL PLATES				
Number of Wells	Sorbent Amount (mg)	Units per Pack	Extended Drip Tip	Part Number
96	100	1	NO	WSHETG11
96	100	1	YES	WSHETG11-LD

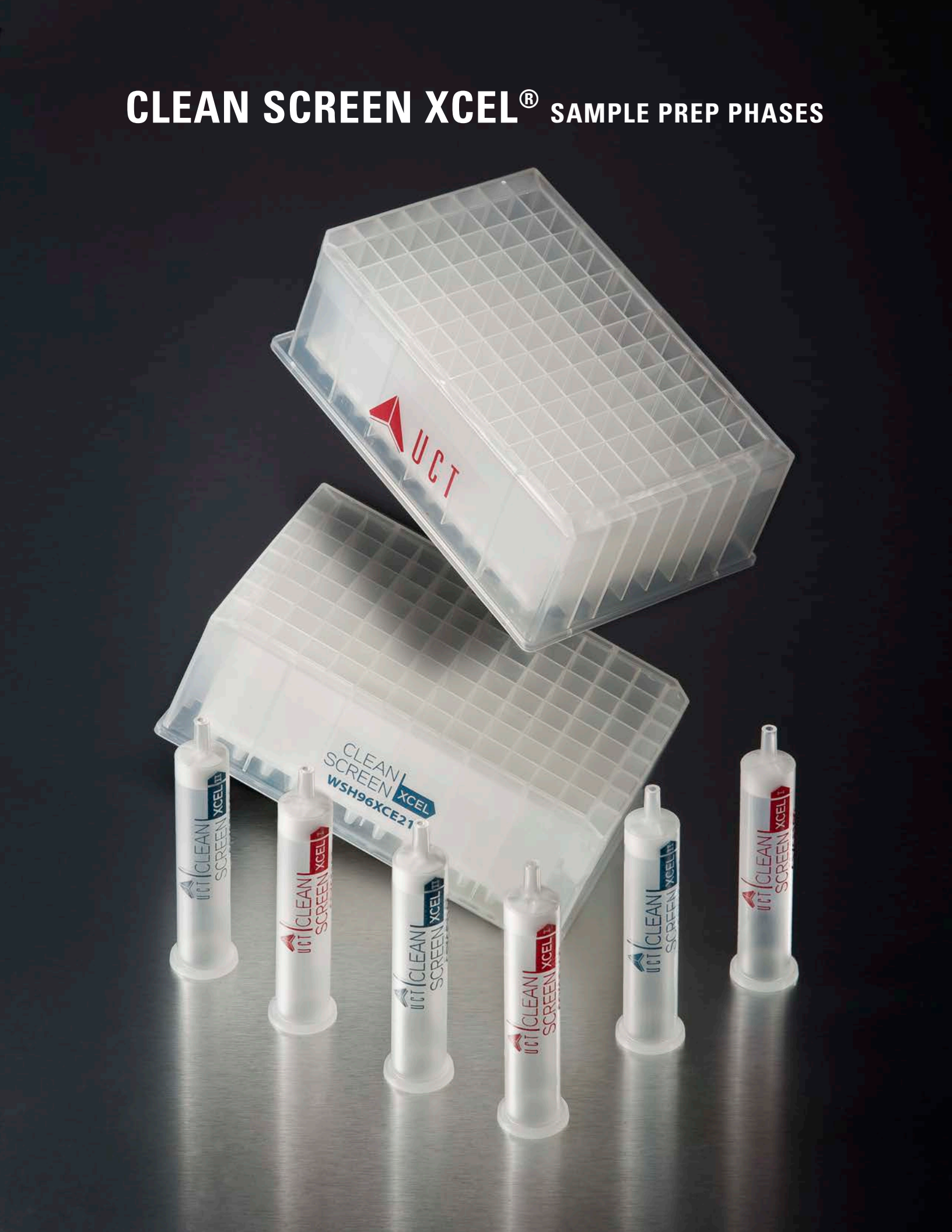
CLEAN SCREEN® BNZ

CLEAN SCREEN® BNZ solid phase extraction sorbent is a unique sorbent designed for benzodiazepine extractions, with specific focus on 7-amino benzodiazepines.

Organic Loading = 10.8%
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	CLEAN-THRU® Tips Provided	Part Number
3	200	50	NO	CSBNZ203
3	200	500	NO	CSBNZ203-D
3	200	50	YES	CCBNZ203
6	200	50	NO	CSBNZ206
10	200	50	NO	ZSBNZ020
10	300	50	NO	ZSBNZ030
10	300	50	YES	ZCBNZ030

CLEAN SCREEN XCEL® SAMPLE PREP PHASES



CLEAN SCREEN XCEL® solid phase extraction columns are designed to reduce the number of steps in the extraction. The result is a column that reduces sample prep times and minimizes the amount of solvent necessary. Additional advantages include reduced sample size and improved cleanliness and recovery.

Benefits:

- Conditioning of sorbent is eliminated
- Decreased extraction steps
- Reduced sample size
- Increased recovery values
- Increased sensitivity

CLEAN SCREEN XCEL® I:

The XCEL I sorbent will extract a wide array of basic drugs including benzodiazepines and opiates.

Organic Loading = 12.4%
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	130	100	CSXCE111
3	130	50	CSXCE103
3	130	500	CSXCE103-D
6	130	50	CSXCE106
6	130	500	CSXCE106-D
6	200	50	CSXCE206
10	130	50	ZSXCE010
10	130	500	ZSXCE010-D

WELL PLATES				
Number of Wells	Sorbent Amount (mg)	Units per Pack	Extended Drip Tip	Part Number
48	130	1	NO	WSH48XCE11
96	80	1	YES	WSH96XCE108-LD
96	130	1	NO	WSH96XCE11
96	130	1	YES	WSH96XCE11-LD

Quick Tip

When analyzing drugs such as Benzodiazepines, the addition of 2% ammonium hydroxide to ethyl acetate, as an elution solvent, has been shown to increase recoveries over ethyl acetate.

CLEAN SCREEN XCEL® II
QUICK PREP

CLEAN SCREEN XCEL® II:

The XCEL II sorbent is designed solely for rapid and clean extraction of the THC metabolite, THC-Δ^9-carboxylic acid.

Organic Loading = 16.7%
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	130	100	CSXCE211
3	130	50	CSXCE2103
3	130	500	CSXCE2103-D
6	130	50	CSXCE2106
6	130	500	CSXCE2106-D
6	200	50	ZSXCE2010
10	130	50	ZSXCE010
10	130	500	ZSXCE010-D

WELL PLATES				
Number of Wells	Sorbent Amount (mg)	Units per Pack	Extended Drip Tip	Part Number
48	130	1	NO	WSH48XCE211
96	80	1	YES	WSH96XCE208-LD
96	130	1	NO	WSH96XCE211

CLEAN SCREEN FASt® employs a process that uses positive pressure, solid phase sorbent bed and small pore frits to quickly and efficiently prepare urine samples for LC/MS analysis. The methodology eliminates timely centrifugation, reduces matrix suppression effects and removes particulates greater than 1 µm. Samples can be diluted at a ratio as low as 1:1, which is useful for detecting analytes at very low concentrations. CLEAN SCREEN FASt® products are available in both columns and well plates.

Benefits:

- Eliminate centrifuge and sample transfer steps
- Lower costs by decreasing turn-around time
- Reduce instrument and LC column maintenance

CLEAN SCREEN FASt®

The FASt® sorbent is for the extraction of drugs from urine.

Organic Loading = 8.4%
Surface Area = 500 m^2/g
Pore Volume = 0.77 cm^3/g
Average Pore Size = 60Å

COLUMNS			
Tube Volume (mL)	Sorbent Amount (mg)	Units per Pack	Part Number
3	200	50	CSFAS203
3	200	500	CSFAS203-D
10	200	50	ZSFAS020

WELL PLATE				
Number of Wells	Sorbent Amount (mg)	Units per Pack	Extended Drip Tip	Part Number
96	100	1	YES	WSH96FAS11-10LD

CLEAN SCREEN FASt® THC:

The FASt THC sorbent is for the extraction of the THC metabolite from a urine matrix.

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

COLUMNS			
Tube Volume (mL)	Sorbent Amount (mg)	Units per Pack	Part Number
3	200	50	CSFASTH203
3	200	500	CSFASTH203-D
10	200	50	ZSFASTH020

WELL PLATE				
Number of Wells	Sorbent Amount (mg)	Units per Pack	Extended Drip Tip	Part Number
96	100	1	YES	WSH96FASTH11-10LD

XtrackT® GRAVITY FLOW SPE COLUMNS

XtrackT® large particle bonded phases allow for uniform gravity flow for most blood and urine samples. A single column provides extraction for a broad spectrum of compounds with selective elution of acid neutrals, steroids and bases. XtrackT® large particle (80-200 µm) silica gels are available with hydrophobic, hydrophilic, ion exchange or copolymeric phases, including DAU mixed mode. XtrackT® is recommended for viscous sample matrices or for gravity flow applications.

GRAVITY FLOW XtrackT® DAU SORBENT (XRDAH)

Organic Loading = 12.4%
Surface Area = 500 m^2/g
Average Pore Size = 60 Å
Pore Volume = 0.77 cm^3/g
Cation Exchange = 0.077 meq/g

COLUMNS				
Tube Volume (mL)	Sorbent Amount (mg)	Units per Pack	CLEAN-THRU® Tips Provided	Part Number
3	150	50	No	XRDAH(150)03
3	200	50	No	XRDAH203
3	200	50	Yes	XCDAH203
3	300	50	No	XRDAH303
3	500	50	No	XRDAH503
3	500	50	YES	XCDAH503
6	200	50	NO	XRDAH206
6	500	50	NO	XRDAH506
10	130	50	NO	XRDAH13Z
10	130	500	NO	XRDAH13Z-D
10	200	50	NO	XRDAH20Z
10	200	50	YES	XCDAH20Z
10	500	50	NO	XRDAH50Z
15	500	50	NO	XRDAH515
15	500	50	YES	XCDAH515
15	1000	50	NO	XRDAHM15

GRAVITY FLOW XtrackT® ENDCAPPED C18 COLUMNS (XRODH)

Organic Loading = 21.6%
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	CLEAN-THRU® Tips Provided	Part Number
3	500	50	NO	XRODH503
3	500	500	NO	XRODH503-D
3	500	50	YES	XCODH503
6	500	50	NO	XRODH506
6	500	50	YES	XCODH506
6	1000	50	NO	XRODHM06
15	500	50	NO	XRODH515
15	1000	50	NO	XRODHM15
25	5000	20	NO	XRODH5M25
75	10000	10	NO	XRODH10M75

GRAVITY FLOW XtrackT® BENZENESULFONIC ACID SORBENT (XRBSH)

COLUMNS				
Tube Volume (mL)	Sorbent Amount (mg)	Units per Pack	CLEAN-THRU® Tips Provided	Part Number
10	500	50	NO	XRBSH50Z
15	500	50	NO	XRBSH515

GRAVITY FLOW XtrackT® CARBOXYLIC ACID SORBENT (XRCCH)

COLUMNS				
Tube Volume (mL)	Sorbent Amount (mg)	Units per Pack	CLEAN-THRU® Tips Provided	Part Number
3	500	50	NO	XRCCH503
6	500	50	NO	XRCCH506
15	1000	50	NO	XRCCHM15

GRAVITY FLOW XtrackT® PROPYLSULFONIC ACID SORBENT (XRPCH)

COLUMNS				
Tube Volume (mL)	Sorbent Amount (mg)	Units per Pack	CLEAN-THRU® Tips Provided	Part Number
3	200	50	NO	XRPCH203
3	500	50	NO	XRPCH503
10	500	50	NO	XRPCH50Z

GRAVITY FLOW XtrackT® PRIMARY/SECONDARY AMINE SORBENT (XRPSH)

COLUMNS				
Tube Volume (mL)	Sorbent Amount (mg)	Units per Pack	CLEAN-THRU® Tips Provided	Part Number
3	300	50	NO	XRPSH303

GRAVITY FLOW XtrackT® HEAT TREATED SILICA SORBENT (XRSIHT)

COLUMNS				
Tube Volume (mL)	Sorbent Amount (mg)	Units per Pack	CLEAN-THRU® Tips Provided	Part Number
10	500	50	NO	XRSIHT50Z
15	3000	24	NO	XRSIHT13M15

*XRSIHT13M15 also comes with Flange Caps and Luer Tips

Reduced Solvent Volume extraction sorbents are small particle (5-20 µm) micro bed packed columns which offer the advantages of disc technology while maintaining the proven track record of our conventional SPE particle technology. Results demonstrate that therapeutic and abused drugs in urine and blood matrices can be extracted with cleanliness, high recoveries and consistent reproducibility by using the Reduced Solvent Volume Extraction Column.

Advantages of Reduced Solvent Volume sorbents:

- Reduces total liquid volumes by 75%
- Lower cost per extraction
- Faster extraction times
- Lowers disposal cost
- Increases automated throughput
- Reduces eluate volume by 50%
- Greater linear range
- Reduces dry down times
- Minimizes exposure to organic solvents
- Excellent flow characteristics
- Less flow restriction from matrix proteins
- Reliable for automated process
- High capacity

CLEAN SCREEN® DAU REDUCED SOLVENT VOLUME SORBENT (CSDAUA)

CLEAN SCREEN® RSV DAU SORBENT is copolymerized on a rigid, purified silica gel support. The two functional groups include a reverse phase, and an ion exchanger, benzenesulfonic acid. This column is commonly used for analyzing a wide range of drugs of abuse, including acidic, basic and neutral drugs.

Organic Loading = 12.4% Average Pore Size = 60Å Cation Exchange = 0.077 meq/g
Surface Area = 500 m^2/g Pore Volume = 0.77 cm^3/g

COLUMNS				
Tube Volume (mL)	Sorbent Amount (mg)	Units per Pack	CLEAN-THRU® Tips Provided	Part Number
1	50	100	NO	CSDAUA51
1	50	100	YES	CCDAUA51
3	80	50	NO	CSDAUA83
3	80	50	YES	CCDAUA83
10	80	50	NO	ZSDAUA08
10	80	50	YES	ZCDAUA08

CLEAN SCREEN® THC REDUCED SOLVENT VOLUME SORBENT (CSTHCA)

CLEAN SCREEN® RSV THC is copolymerized on a rigid, purified silica gel support. The two functional groups include a reverse phase, and an ion exchanger, quaternary amine. This column is used for analyzing THC and its metabolites.

Organic Loading = 12.1% Average Pore Size = 60Å
Surface Area = 500 m^2/g Pore Volume = 0.77 cm^3/g

COLUMNS				
Tube Volume (mL)	Sorbent Amount (mg)	Units per Pack	CLEAN-THRU® Tips Provided	Part Number
1	50	100	NO	CSTHCA51
3	50	50	NO	CSTHCA53
3	80	50	NO	CSTHCA83
3	80	50	YES	CCTHCA83
10	80	50	NO	ZSTHCA08
10	80	50	YES	ZCTHCA08
WELL PLATE				
Number of Wells	Sorbent Amount (mg)	Units per Pack	Extended Drip Tip	Part Number
96	50	1	NO	WSHTHCA105

STYRE SCREEN® POLYMERIC RESIN EXTRACTION SORBENTS

STYRE SCREEN® 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 hydrophilic, hydrophobic, or ion exchange functionalities as well as copolymeric phases such as the DBX or THC phases. STYRE SCREEN® particles have an average particle size of 30 microns. This polymeric sorbent has a very high analyte capacity. This higher capacity translates into a lower bed mass. Lower bed mass means extractions can be run at faster flow rates and with less solvent usage. The STYRE SCREEN® sorbent also eliminates the need for an initial column conditioning step. All these attributes ultimately result in improved cost to the end user.

Advantages of STYRE SCREEN®

- No conditioning step
- High and reproducible recoveries
- Highly cross-linked sorbent minimizes bead swelling
- Reduced sorbent mass
- Improved flow rates
- pH stable from 1 – 14
- Reduced solvent use
- High sorbent capacity
- Methods for NIDA/SAMHSA 5 Drugs

STYRE SCREEN® DVB – Polystyrene Divinylbenzene

Application: Useful for screening applications where a broad range of analytes are to be extracted

Structure: Polymeric Bead

COLUMNS			
Tube Volume (mL)	Sorbent Amount (mg)	Units per Pack	Part Number
1	10	100	SSDVB0X1
1	30	100	SSDVB031
1	100	100	SSDVB111
3	30	50	SSDVB033
6	50	50	SSDVB056
6	200	30	SSDVB206
6	500	30	SSDVB506
10	100	50	SSDVB11Z

STYRE SCREEN® DBX – Octadecyl (C18) and Benzenesulfonic Acid – Mixed Mode

Application: Dual functionality for weak acids and hydrophobic compounds

Structure: Polymeric Bead + -Si-$(CH_2)_2$-C_6H_4-SO_3H & -Si-$(CH_2)_{17}CH_3$

COLUMNS			
Tube Volume (mL)	Sorbent Amount (mg)	Units per Pack	Part Number
1	30	100	SSDBX031
3	30	50	SSDBX033
3	30	500	SSDBX033-D
3	60	50	SSDBX063
6	50	50	SSDBX056
6	50	500	SSDBX056-D
6	150	50	SSDBX(150)06
6	200	50	SSDBX206
10	50	50	SSDBX05Z

STYRE SCREEN® BCX – Benzensulfonic Acid – Cation Exchange

Application: Scavenger for amines, alcohols and other nucleophiles

Structure: Polymeric Bead + -Si-$(CH_2)_2$-C_6H_4-SO_3H

COLUMNS			
Tube Volume (mL)	Sorbent Amount (mg)	Units per Pack	Part Number
1	30	100	SSBCX031
3	30	50	SSBCX033
3	60	50	SSBCX063
6	50	50	SSBCX056

STYRE SCREEN® C18 – Reverse Phase

Application: Removes hydrophobic impurities; de-salting and purification of hydrophobic compounds

Structure: Polymeric Bead  + -Si-$(CH_2)_{17}$-CH_3

COLUMNS			
Tube Volume (mL)	Sorbent Amount (mg)	Units per Pack	Part Number
1	30	100	SSC18031
3	30	50	SSC18033
6	50	50	SSC18056
6	200	50	SSC18206
6	300	50	SSC18306
6	500	50	SSC18506
75	5000	10	SSC1815M75

STYRE SCREEN® CCX – Carboxylic Acid – Cation Exchange

Application: Scavenger for strong anions, quaternary amines and metals

Structure: Polymeric Bead  + -Si-CH_2COOH

COLUMNS			
Tube Volume (mL)	Sorbent Amount (mg)	Units per Pack	Part Number
1	30	100	SSCCX031
3	30	50	SSCCX033
3	50	50	SSCCX053
3	60	50	SSCCX063
6	50	50	SSCCX056

WELL PLATE				
Number of Wells	Sorbent Amount (mg)	Units per Pack	Extended Drip Tip	Part Number
96	30	1	NO	WSHSSCCX103

STYRE SCREEN® QAX – Quaternary Amine – Anion Exchange

Application: Scavenger for acids, sulfonyl chlorides, isocyanates, and weak electrophiles

Structure: Polymeric Bead  + -Si-$(CH_2)_3N$ + $(CH_3)_3Cl$-

COLUMNS			
Tube Volume (mL)	Sorbent Amount (mg)	Units per Pack	Part Number
1	30	100	SSQAX031
3	30	50	SSQAX033
6	50	50	SSQAX056
6	150	50	SSQAX(150)06

STYRE SCREEN® THC – A Polymeric bead solution for the extraction of THC and THC metabolites

Advantages of STYRE SCREEN® THC

- Simple one-step extraction elutes all three THC analytes: THC-Δ-9, THC-hydroxy metabolite and THC-carboxy metabolite
- Enhanced dual mechanism to accommodate hydrophobic character of the THC parent and metabolites
- 30 µm particle size and minimum bed volume for consistent flow through column
- Eliimination of column conditioning
- Highly reproducible extraction

STYRE SCREEN® THC

Application: Extraction of THC and THC metabolites

Structure: Polymeric Bead ○ + Proprietary

COLUMNS			
Tube Volume (mL)	Sorbent Amount (mg)	Units per Pack	Part Number
1	30	100	SSTHC031
3	60	50	SSTHC063
3	100	50	SSTHC113
6	60	50	SSTHC066
6	100	50	SSTHC116
10	60	50	SSTHC06Z
10	100	50	SSTHC11Z

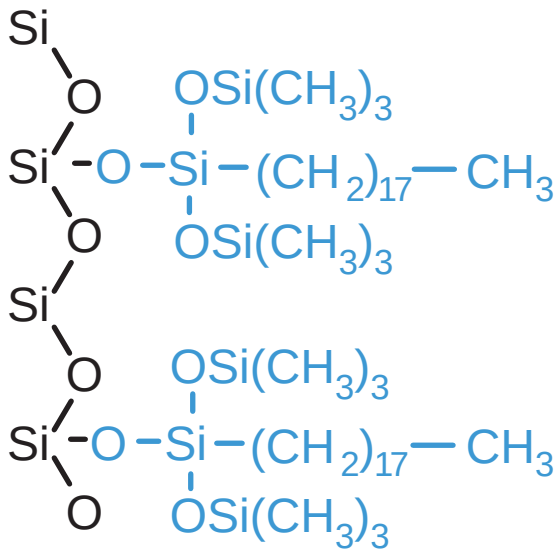
CLEAN-UP®

SOLID PHASE EXTRACTION COLUMNS

HYDROPHOBIC EXTRACTION SORBENTS

This sorbent is composed of a silica backbone bonded with hydrocarbon chains. It is used to extract compounds which exhibit non-polar or neutral characteristics out of complex matrices. The C18 phase is the most widely used 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. Several chain configurations are available as well as endcapped and unendcapped versions.

Example of a Hydrophobic Phase

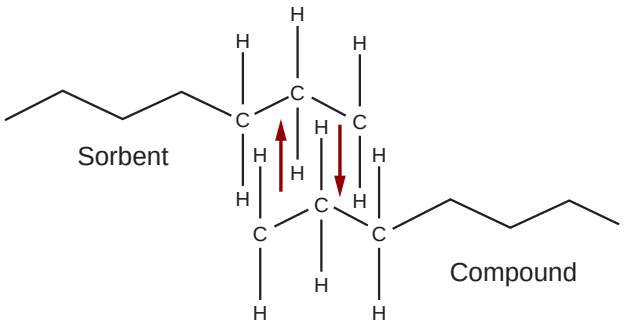


One can extract alkanes, alkenes, aromatic and neutral compounds using CLEAN UP® sorbents. These compounds are washed with aqueous solvent with some polar organic solvent included. The compounds are then eluted with solvent ranging from non-polar to polar organic solvents depending upon the analyte.

MECHANISM OF HYDROPHOBIC BONDING

Compounds are retained by non-polar interactions from polar solvents or matrix environments. They are bound by dispersion forces / van de Waals forces. Elution, or disruption, of the non-polar interactions is achieved by solvents or solvent mixtures with sufficient non-polar characteristics. Some polar solvents, such as acetonitrile have enough non-polar characteristics to disrupt nonpolar binding causing the elution of a compound from the sorbent. Methanol can be used as well, although it should be noted that it will take off both polar and non-polar analytes of interest as well as interferences.

Example of a Hydrophobic Bonding

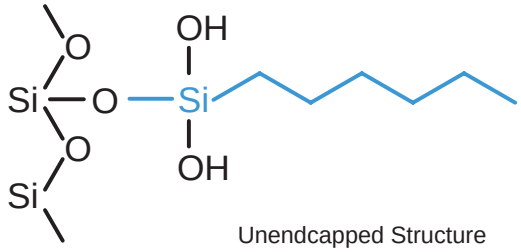


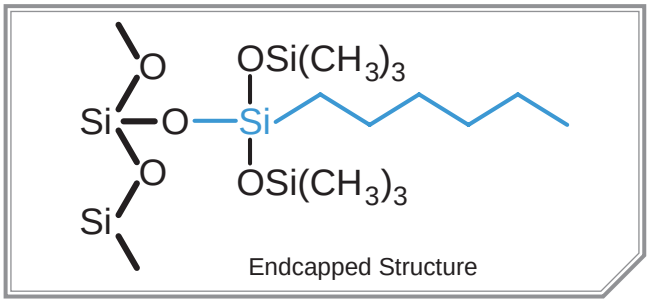
Hydrophobic Sorbents & Structures

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 decrease this slight polarity, these hydroxyl sites are deactivated. Proprietary bonding techniques ensure that these sites are 100% reacted, leading to a complete endcapping. Because there are no hydroxyl sites left, our endcapped columns are more hydrophobic than our unendcapped columns.





CLEAN UP®
C2, ETHYL SORBENT

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
1	100	100	YES	CEC02111
1	100	100	NO	CUC02111
3	200	50	YES	CEC02123
3	200	50	NO	CUC02123
3	500	50	NO	CUC02153
6	500	30	YES	CEC02156
6	1000	30	YES	CEC021M6
10	100	50	YES	CEC0211Z

CLEAN UP®
C4, n-BUTYL SORBENT

Organic Loading = 8.5%
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	YES	CECN4111
3	200	50	YES	CECN4123
6	500	50	YES	CECN4156
6	1000	30	YES	CECN41M6
75	10000	10	YES	CECN4110M75

CLEAN UP®
C8, OCTYL SORBENT

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	YES	CEC081L1
1	50	100	NO	CUC081L1
1	100	100	YES	CEC08111
3	50	50	YES	CEC081L3
3	50	50	NO	CUC081L3
3	100	50	YES	CEC08113
3	100	50	NO	CUC08113
3	200	50	YES	CEC08123
3	200	50	NO	CUC08123
3	500	50	YES	CEC08153
3	500	50	NO	CUC08153
6	500	50	YES	CEC08156
6	500	50	NO	CUC08156
6	1000	30	YES	CEC081M6
6	1000	30	NO	CUC081M6
10	100	50	YES	CEC0811Z
10	200	50	YES	CEC0812Z
10	500	50	YES	CEC0815Z
15	2000	20	YES	CEC0812M15
25	5000	20	YES	CEC0815M25
75	10000	10	YES	CEC08110M75

CLEAN UP®
C18, OCTADECYL SORBENT

Organic Loading = 21.7%
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	YES	CEC181L1
1	50	100	NO	CUC181L1
1	100	100	YES	CEC18111
1	100	100	NO	CUC18111
3	50	50	YES	CEC181L3
3	50	50	NO	CUC181L3
3	100	50	YES	CEC18113
3	100	50	NO	CUC18113
3	200	50	YES	CEC18123
3	200	500	YES	CEC18123-D
3	200	50	NO	CUC18123
3	500	50	YES	CEC18153
3	500	50	NO	CUC18153
3	1000	50	NO	CUC181M3
6	200	50	YES	CEC18126
6	500	50	YES	CEC18156
6	500	50	NO	CUC18156
6	500	500	NO	CUC18156-D
6	1000	30	YES	CEC181M6
6	1000	30	NO	CUC181M6
6	2000	30	YES	CEC1812M6
10	100	50	YES	CEC1811Z
10	100	50	NO	CUC1811Z
10	200	50	YES	CEC1812Z
10	200	50	NO	CUC1812Z
10	500	50	YES	CEC1815Z
10	500	50	NO	CUC1815Z
15	2000	20	YES	CEC1812M15
15	2000	20	NO	CUC1812M15
25	5000	20	YES	CEC1815M25
25	5000	20	NO	CUC1815M25

WELL PLATES					
Number of Wells	Sorbent Amount (mg)	Units per Pack	Extended Drip Tip	Endcapped	Part Number
96	50	1	NO	YES	WSHCEC18105
96	100	1	NO	YES	WSHCEC1811
96	100	1	NO	NO	WSHCUC1811
96	200	1	NO	YES	WSHCEC1812

CLEAN UP®
C30, TRICONTYL SORBENT

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
1	100	100	YES	CEC30111
3	100	50	YES	CEC30113
3	200	50	YES	CEC30123
6	200	50	YES	CEC30126
6	500	50	YES	CEC30156
6	1000	30	YES	CEC301M6
10	200	50	YES	CEC3012Z
10	500	50	YES	CEC3015Z

CLEAN UP®
CYH, CYCLOHEXYL SORBENT

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
1	100	100	YES	CECYH111
3	200	50	YES	CECYH123
3	200	50	NO	CUCYH123
3	500	50	YES	CECYH153
6	500	50	YES	CECYH156
6	1000	30	YES	CECYH1M6
15	2000	20	YES	CECYH12M15

CLEAN UP®
PHY, PHENYL SORBENT

Organic Loading = 11.0%
Surface Area = 500 m^2/g

Average Pore Size = 60Å
Pore Volume = 0.77 cm^3/g

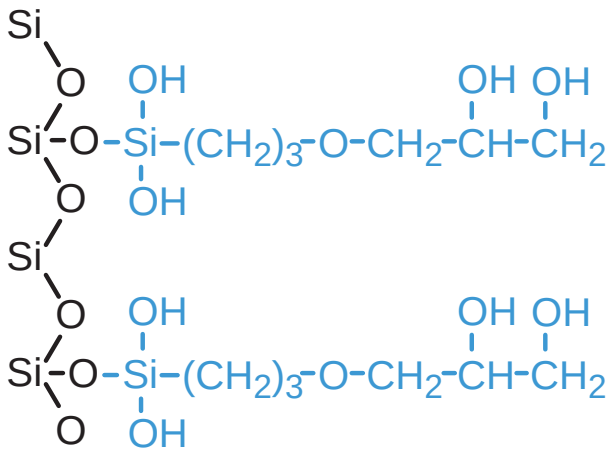
COLUMNS				
Tube Volume (mL)	Sorbent Amount (mg)	Units per Pack	Endcapped	Part Number
1	50	100	YES	CEPHY1L1
1	100	100	YES	CEPHY111
1	100	100	NO	CUPHY111
3	200	50	YES	CEPHY123
3	200	50	NO	CUPHY123
3	500	50	YES	CEPHY153
3	500	50	NO	CUPHY153
6	500	50	YES	CEPHY156
6	500	50	NO	CUPHY156
6	1000	30	YES	CEPHY1M6
10	100	50	YES	CEPHY11Z
10	200	50	YES	CEPHY12Z
10	200	50	NO	CUPHY12Z

WELL PLATE					
Number of Wells	Sorbent Amount (mg)	Units per Pack	Extended Drip Tip	Endcapped	Part Number
96	50	1	NO	YES	WSHPHY105

CLEAN-UP® HYDROPHILIC NORMAL PHASE EXTRACTION SORBENTS

This sorbent is composed of a silica backbone bonded with carbon chains containing polar functional groups. Examples of groups that have this functionality are amines, hydroxyls and carbonyls.

Example of Hydrophilic Phase



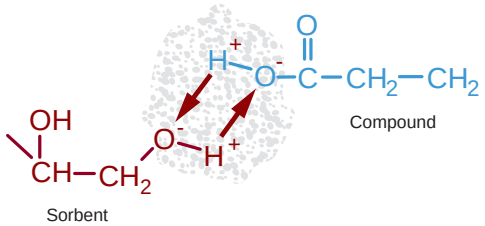
Mechanism of Hydrophilic Bonding

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 polarity. Compounds typically extracted on a hydrophilic column include analytes which have polar groups, such as amines, hydroxyls and carbonyls. Strong polar solvents, in turn, elute the analyte off of the sorbent.

Hydrophilic Sorbents & Structures

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

Example of Hydrophilic Bonding



CLEAN-UP®
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	CUSIL111
3	100	50	CUSIL113
3	200	50	CUSIL123
3	500	50	CUSIL153
6	100	50	CUSIL116
6	500	50	CUSIL156
6	1000	30	CUSIL1M6
10	100	50	CUSIL11Z
10	500	50	CUSIL15Z
15	2000	20	CUSIL12M15
25	5000	20	CUSIL15M25
75	10000	10	CUSIL110M75
75	20000	10	CUSIL120M75

CLEAN-UP®
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	50	100	PHSIL1L1
1	100	100	PHSIL111
3	200	50	PHSIL123
6	500	50	PHSIL156
6	1000	30	PHSIL1M6
10	500	50	PHSIL15Z
15	2000	20	PHSIL12M15
25	5000	20	PHSIL15M25

CLEAN-UP®
HIGH SURFACE SILICA

Organic Loading = N/A
Surface Area = 550 m^2/g

Average Pore Size = 60Å
Pore Volume = 0.75 cm^3/g

COLUMNS			
Tube Volume (mL)	Sorbent Amount (mg)	Units per Pack	Part Number
3	500	50	HSSIL153

CLEAN-UP®
FLORISIL®

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

COLUMNS			
Tube Volume (mL)	Sorbent Amount (mg)	Units per Pack	Part Number
1	100	100	CUFLS111
3	200	50	CUFLS123
3	500	50	CUFLS153
6	500	50	CUFLS156
6	1000	30	CUFLS1M6
10	100	50	CUFLS11Z
10	200	50	CUFLS12Z
10	500	50	CUFLS15Z
15	1000	30	CUFLS1M15
15	2000	30	CUFLS12M15
25	5000	20	CUFLS15M25
75	10000	10	CUFLS110M75

CLEAN-UP®
ALUMINA, ACIDIC

COLUMNS			
Tube Volume (mL)	Sorbent Amount (mg)	Units per Pack	Part Number
1	100	100	CUALA111
3	200	50	CUALA123
3	500	50	CUALA153
6	500	50	CUALA156
6	1000	30	CUALA1M6
15	2000	20	CUALA12M15
25	5000	20	CUALA15M25
75	10000	10	CUALA110M75

WELL PLATE				
Number of Wells	Sorbent Amount (mg)	Units per Pack	Extended Drip Tip	Part Number
96	50	1	NO	WSHALA05

CLEAN-UP®
ALUMINA, BASIC

COLUMNS			
Tube Volume (mL)	Sorbent Amount (mg)	Units per Pack	Part Number
3	200	50	CUALB123
3	500	50	CUALB153
6	500	50	CUALB156
6	1000	30	CUALB1M6
10	200	50	CUALB12Z
10	500	50	CUALB15Z
15	2000	20	CUALB12M15
25	5000	20	CUALB15M25
75	10000	10	CUALB110M75

WELL PLATE				
Number of Wells	Sorbent Amount (mg)	Units per Pack	Extended Drip Tip	Part Number
96	50	1	NO	WSHALB105

CLEAN-UP®
ALUMINA, NEUTRAL

COLUMNS			
Tube Volume (mL)	Sorbent Amount (mg)	Units per Pack	Part Number
1	50	100	CUALN1L1
1	100	100	CUALN111
3	200	50	CUALN123
3	500	50	CUALN153
6	500	50	CUALN156
6	1000	30	CUALN1M6
10	200	50	CUALN12Z
10	500	50	CUALN15Z
15	2000	20	CUALN12M15
25	5000	20	CUALN15M25
75	10000	10	CUALN110M75

CLEAN-UP®
CN, CYANOPROPYL

Organic Loading = 9.0%
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	End-capped	Part Number
1	50	100	YES	CECNP1L1
1	100	100	YES	CECNP111
1	100	100	NO	CUCNP111
3	100	50	NO	CUCNP113
3	200	50	YES	CECNP123
3	200	50	NO	CUCNP123
3	500	50	YES	CECNP153
6	500	50	YES	CECNP156
6	500	50	NO	CUCNP156
6	1000	30	YES	CECNP1M6
6	1000	30	NO	CUCNP1M6
10	200	50	YES	CECNP12Z
15	2000	20	YES	CECNP12M15
15	2000	20	NO	CUCNP12M15
75	10000	10	YES	CECNP110M75

CLEAN-UP® DIOL

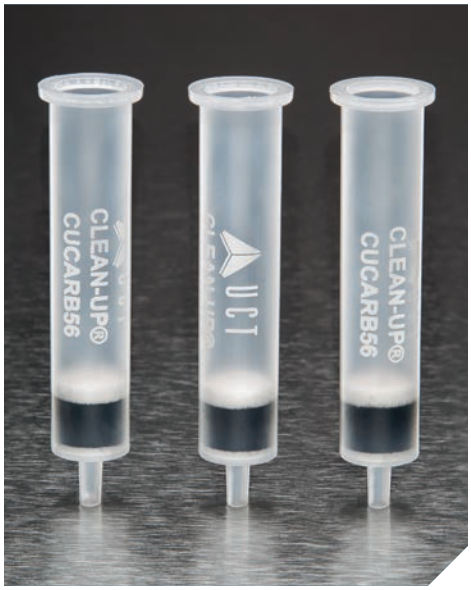
Organic Loading = 8.0%
Surface Area = 500 m^2/g

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	100	100	CUDOL111
3	200	50	CUDOL123
3	500	50	CUDOL153
6	500	50	CUDOL156
15	2000	20	CUDOL12M15
25	5000	20	CUDOL15M25

CLEAN-UP® CARBON, GRAPHITIZED NON-POROUS, 120/400 MESH

Carbon supports have been used to isolate extremely polar organic compounds. Carbon adsorbtion involves a hydrophobic mechanism with a high surface area and ion exchange. This interaction can happen in a wide range of polar and non-polar solvents.

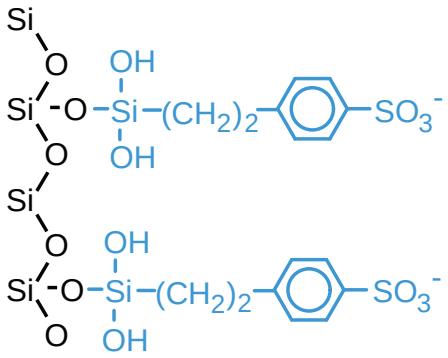


COLUMNS			
Tube Volume (mL)	Sorbent Amount (mg)	Units per Pack	Part Number
1	50	100	CUCARBL1
3	150	50	CUCARB1L3
3	200	50	CUCARB23
3	250	50	CUCARB2L3
3	500	50	CUCARB53
6	250	30	CUCARB26
6	500	30	CUCARB56
6	1000	20	CUCARBM6
10	500	50	CUCARB5Z
15	1000	20	CUCARBM15

MECHANISM OF ION EXCHANGE BONDING

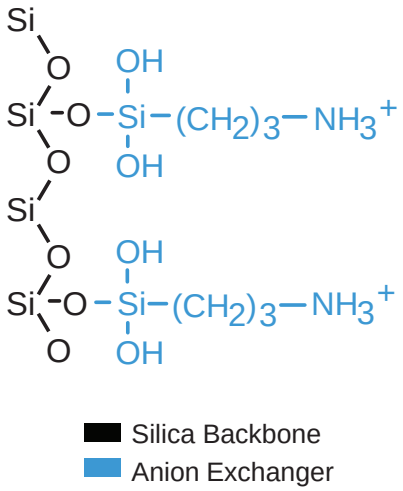
Compounds are retained on the sorbent through ionic bonds. Therefore, it is essential that the sorbent and the analyte to be extracted are charged. Generally, the number of molecules with charged cationic groups increases at pH values below the molecules pKa value. The number of molecules with charged anionic groups decreases at pH values below the molecule's pKa value. 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 solvent 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.

Example of a Cation Exchange Phase



This sorbent is composed of a silica backbone bonded with carbon chains terminated by a negatively or positively charged functional group. Ion exchange interactions occur between a sorbent that carries a charge and a compound of opposite charge.

Example of a Anion Exchange Phase



This electrostatic interaction is reversible by neutralizing the sorbent and/or analyte. Ion exchange bonds can also be disrupted by the introduction of a counter ion to compete with the analyte for binding sites on the sorbent.

ION EXCHANGE SORBENTS & STRUCTURES

Sorbent	Structure	pKa
Anion Exchangers		
Aminopropyl (1° amine)	$-Si-(CH_2)_3NH_3^+$	9.8
N-2 Aminoethyl (1° & 2° amine)	$-Si-(CH_2)_3NH_2^+(CH_2)_2NH_3^+$	10.1, 10.9
Diethylamino (3° amine)	$-Si-(CH_2)_3NH^+(CH_2CH_3)_2$	10.6
Quaternary Amine Chloride	$-Si-(CH_2)_3N^+(CH_3)_3$ Cl^-	Always charged
Quaternary Amine Hydroxide	$-Si-(CH_2)3N^+(CH_3)_3$ OH	Always charged
Quaternary Amine Acetate	$-Si-(CH_2)_3N^+(CH_3)_3$ CH_3COO	Always charged
Quaternary Amine Formate	$-Si-(CH_2)_3N^+(CH_3)_3$ HCOO	Always charged
Polyimine	$-Si-(CH_2)_3-R^-$ $[NHCH_3CH_3]_x$	
Cation Exchangers		
Carboxylic Acid	$-Si-CH_2COOH$	
Propylsulfonic Acid	$-Si-(CH_2)_3SO_3H$	<1
Benzenesulfonic Acid	$-Si-(CH_2)_2$  SO_3H	Always charged
Benzenesulfonic Acid High Load	$-Si-(CH_2)_2$  SO_3H	Always charged
Triacetic Acid	$-Si-(CH_2)_3NH-(CH_2)_2N(CH_2COOH)_2$ CH_2COOH	

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

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

CLEAN UP® AMINOPROPYL SORBENT

Organic Loading = 6.65%
Surface Area = 500 m^2/g
Pore Volume = 0.77 cm^3/g

Average Pore Size = 60Å
Anion Exchange = 0.302 meq/g

COLUMNS			
Tube Volume (mL)	Sorbent Amount (mg)	Units per Pack	Part Number
1	50	100	CUNAX1L1
1	100	100	CUNAX111
3	200	50	CUNAX123
3	500	50	CUNAX153
6	500	50	CUNAX156
6	1000	30	CUNAX1M6
10	100	50	CUNAX11Z
10	200	50	CUNAX12Z
10	500	50	CUNAX15Z
15	2000	20	CUNAX12M15
25	5000	20	CUNAX15M25
75	10000	10	CUNAX110M75

WELL PLATES				
Number of Wells	Sorbent Amount (mg)	Units per Pack	Extended Drip Tip	Part Number
48	100	1	NO	WIMNAX11
48	300	1	NO	WIMNAX13
96	50	1	NO	WSHNAX105
96	100	1	NO	WSHNAX11
96	200	1	NO	WSHNAX12
96	300	1	NO	WSHNAX13

CLEAN UP® PRIMARY/SECONDARY AMINE SORBENT

Organic Loading = 10.30%
Surface Area = 500 m^2/g
Pore Volume = 0.77 cm^3/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	CUPSA1L1
1	100	100	CUPSA111
3	200	50	CUPSA123
3	500	50	CUPSA153
6	500	50	CUPSA156
6	1000	30	CUPSA1M6
10	100	50	CUPSA11Z
10	200	50	CUPSA12Z
15	2000	20	CUPSA12M15
75	10000	10	CUPSA110M75

WELL PLATE				
Number of Wells	Sorbent Amount (mg)	Units per Pack	Extend-ed Drip Tip	Part Number
96	100	1	NO	WSHPSA11

CLEAN UP® DIETHYLAMINO SORBENT

Organic Loading = 9.80%
Surface Area = 500 m^2/g
Pore Volume = 0.77 cm^3/g

Average Pore Size = 60Å
Anion Exchange = 0.315 meq/g

COLUMNS			
Tube Volume (mL)	Sorbent Amount (mg)	Units per Pack	Part Number
1	100	100	CUDAX111
3	200	50	CUDAX123
3	500	50	CUDAX153
6	500	50	CUDAX156
6	1000	30	CUDAX1M6
10	500	50	CUDAX15Z
15	2000	20	CUDAX12M15
25	5000	20	CUDAX15M25

WELL PLATE				
Number of Wells	Sorbent Amount (mg)	Units per Pack	Extended Drip Tip	Part Number
96	50	1	NO	WSHDAX105

CLEAN UP® QUATERNARY AMINE WITH CHLORIDE COUNTER ION SORBENT

Organic Loading = 8.40%
Surface Area = 500 m^2/g
Pore Volume = 0.77 cm^3/g

Average Pore Size = 60Å
Anion Exchange = 0.230 meq/g

COLUMNS			
Tube Volume (mL)	Sorbent Amount (mg)	Units per Pack	Part Number
1	50	100	CUQAX1L1
1	100	100	CUQAX111
3	200	50	CUQAX123
3	500	50	CUQAX153
6	500	50	CUQAX156
6	1000	30	CUQAX1M6
10	100	50	CUQAX11Z
10	200	50	CUQAX12Z
15	2000	20	CUQAX12M15

WELL PLATE				
Number of Wells	Sorbent Amount (mg)	Units per Pack	Extended Drip Tip	Part Number
96	100	1	YES	WSHQAX11-LD

CLEAN UP® QUATERNARY AMINE WITH HYDROXIDE COUNTER ION SORBENT

Organic Loading = 8.40%
Surface Area = 500 m^2/g
Pore Volume = 0.77 cm^3/g

Average Pore Size = 60Å
Anion Exchange = 0.230 meq/g

COLUMNS			
Tube Volume (mL)	Sorbent Amount (mg)	Units per Pack	Part Number
1	50	100	CUQAX1L1
1	100	100	CUQAX111
3	200	50	CUQAX123
3	500	50	CUQAX153
6	500	50	CUQAX156
6	1000	30	CUQAX1M6
10	100	50	CUQAX11Z
10	200	50	CUQAX12Z
15	2000	20	CUQAX12M15

CLEAN UP® QUATERNARY AMINE WITH ACETATE COUNTER ION SORBENT

Organic Loading = 8.40%
Surface Area = 500 m^2/g
Pore Volume = 0.77 cm^3/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	CAQAX111
3	200	50	CAQAX123
3	500	50	CAQAX153
6	1000	30	CAQAX1M6
10	200	50	CAQAX12Z
10	500	50	CAQAX15Z
25	5000	20	CAQAX15M25

CLEAN UP® POLYIMINE SORBENT

Organic Loading = 14.25%
Surface Area = 500 m^2/g
Pore Volume = 0.77 cm^3/g

Average Pore Size = 60Å
Anion Exchange = 0.865 meq/g

COLUMNS			
Tube Volume (mL)	Sorbent Amount (mg)	Units per Pack	Part Number
1	100	100	CUPAX111
3	200	50	CUPAX123
3	500	50	CUPAX153
6	150	50	CUPAX(150)6
6	500	50	CUPAX156
6	1000	30	CUPAX1M6

WELL PLATES				
Number of Wells	Sorbent Amount (mg)	Units per Pack	Extended Drip Tip	Part Number
48	300	1	NO	WIMPAX13
96	100	1	NO	WSHPAX11
96	200	1	NO	WSHPAX12
96	300	1	NO	WSHPAX13

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CLEAN UP®
BENZENESULFONIC ACID SORBENT

Organic Loading = 10.69%
Surface Area = 500 m^2/g
Pore Volume = 0.77 cm^3/g

Average Pore Size = 60Å
Cation Exchange = 0.324 meq/g

COLUMNS			
Tube Volume (mL)	Sorbent Amount (mg)	Units per Pack	Part Number
1	50	100	CUBCX1L1
1	100	100	CUBCX111
3	200	50	CUBCX123
3	500	50	CUBCX153
6	100	50	CUBCX116
6	500	50	CUBCX156
6	1000	30	CUBCX1M6
10	100	50	CUBCX11Z
10	200	50	CUBCX12Z
10	500	50	CUBCX15Z
15	1000	30	CUBCX1M15
15	2000	30	CUBCX12M15
75	10000	10	CUBCX110M75

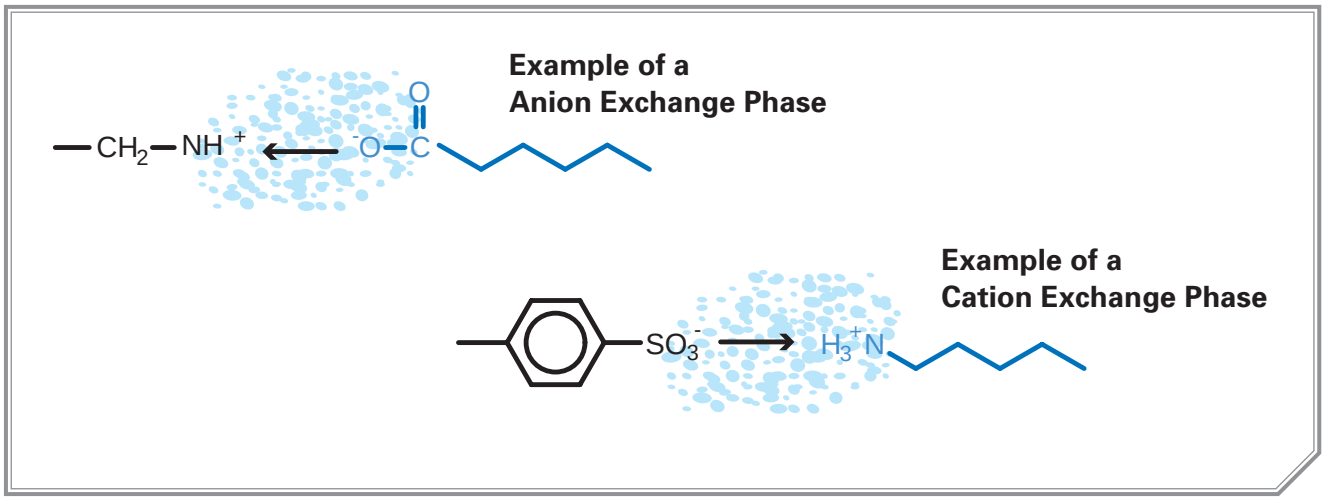
WELL PLATES				
Number of Wells	Sorbent Amount (mg)	Units per Pack	Extended Drip Tip	Part Number
48	100	1	NO	WIMBCX11
96	50	1	NO	WSHBCX105

CLEAN UP®
BENZENESULFONIC ACID HIGH LOAD SORBENT

Organic Loading = 16.50%
Surface Area = 500 m^2/g
Pore Volume = 0.77 cm^3/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	CUBCX1HL11
3	200	50	CUBCX1HL23
3	500	50	CUBCX1HL53
6	150	50	CUBCX1HL(150)06
6	500	50	CUBCX1HL56
6	1000	50	CUBCX1HL1M6
10	100	50	CUBCX1HL1Z
10	200	50	CUBCX1HL2Z
15	2000	20	CUBCX1HL2M15
75	10000	10	CUBCX1HL10M75



CLEAN UP®
CARBOXYLIC ACID SORBENT

Organic Loading = 8.75%
Surface Area = 500 m^2/g
Pore Volume = 0.77 cm^3/g

Average Pore Size = 60Å
Cation Exchange = 0.043 meq/g

COLUMNS			
Tube Volume (mL)	Sorbent Amount (mg)	Units per Pack	Part Number
1	50	100	CUCCX1L1
1	100	100	CUCCX111
3	200	50	CUCCX123
3	500	50	CUCCX153
6	500	50	CUCCX156
6	1000	30	CUCCX1M6
10	100	50	CUCCX11Z
10	200	50	CUCCX12Z
15	2000	20	CUCCX12M15
25	5000	20	CUCCX15M25

WELL PLATES				
Number of Wells	Sorbent Amount (mg)	Units per Pack	Extended Drip Tip	Part Number
48	100	1	NO	WIMCCX11
48	300	1	NO	WIMCCX13
96	50	1	NO	WSHCCX105
96	100	1	NO	WSHCCX11
96	100	1	YES	WSHCCX11-LD

CLEAN UP®
PROPYLSULFONIC ACID SORBENT

Organic Loading = 6.75%
Surface Area = 500 m^2/g
Pore Volume = 0.77 cm^3/g

Average Pore Size = 60Å
Cation Exchange = 0.180 meq/g

COLUMNS			
Tube Volume (mL)	Sorbent Amount (mg)	Units per Pack	Part Number
1	100	100	CUPCX111
3	200	50	CUPCX123
3	500	50	CUPCX153
6	500	50	CUPCX156
6	1000	30	CUPCX1M6
10	100	50	CUPCX11Z
10	200	50	CUPCX12Z

CLEAN UP®
TRIACETIC ACID SORBENT

Organic Loading = 7.50%
Surface Area = 500 m^2/g
Pore Volume = 0.77 cm^3/g

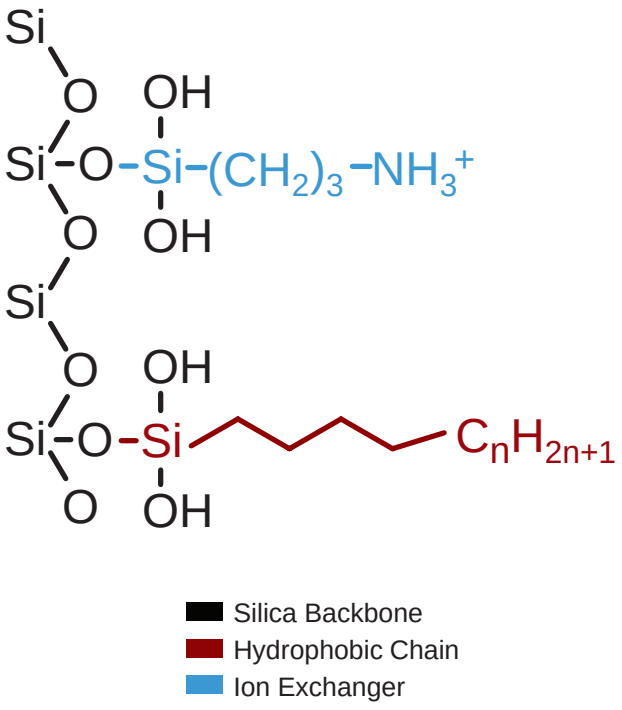
Average Pore Size = 60Å
Cation Exchange = 0.098 meq/g
Anion Exchange = 0.210 meq/g

COLUMNS			
Tube Volume (mL)	Sorbent Amount (mg)	Units per Pack	Part Number
1	100	100	CUTAX111
3	200	50	CUTAX123
3	500	50	CUTAX153
6	300	50	CUTAX136
6	500	50	CUTAX156
6	1000	30	CUTAX1M6
10	200	50	CUTAX12Z
75	10000	10	CUTAX110M75

CLEAN UP® COPOLYMERIC EXTRACTION SORBENTS

This sorbent is composed of a silica backbone bonded with two types of functional chains. One type is either an ion exchanger or polar chain. The other is a hydrophobic carbon chain. The copolymeric phases manufactured by UCT are produced in a way to allow for equal parts of each functional group to attach to the silica substrate. This copolymerization technique yields reproducible bonded phases and unique copolymeric chemistries which allow the controlled use of mixed mode separation mechanisms. This type of dual chemistry is beneficial when one is looking to extract both a neutral and a charged compound.

Example of Copolymeric Bonding



Sorbent	Category	Structure	pKa
Benzenesulfonic Acid (BCX2)	Strong Cation	-Si-$(CH_2)_2$-Ph-SO_3H	Always Charged
Propylsulfonic Acid (PCX2)	Strong Cation	-Si-$(CH_2)_3SO_3H$	<1
Carboxylic Acid (CCX2)	Weak Cation	-Si-$(CH_2)_2COOH$	4.8
Quaternary Amine (QAX2)	Strong Anion	-Si-$(CH_2)_3N+(CH_3)_3$	Always Charged
Aminopropyl (NAX2)	Weak Anion	-Si-$(CH_2)_3NH_3$	9.8
Cyanopropyl (CNP2)	Hydrophilic	-Si-$(CH_2)_3CN$	N/A
Cyclohexyl (CYH2)	Hydrophobic	-Si-(CH_2)-C_6H_{12}	N/A

Analytes	Washes	Elutions
Cations/Anions Alkanes Alkenes Aromatics	1) Aqueous to disrupt hydrophilic interactions. 2) Methanol to disrupt residual hydrophobic and hydrophilic interferences.	1) Organic, possibly with some aqueous to elute hydrophobic-ally bound analytes. 2) Aqueous buffer with a pH that would neutralize ionically bound analytes or an aqueous with high ionic strength or a solvent with a counter ion that would bond to sorbent.

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, many 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, 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 taking care to ensure the column is free of any residual aqueous phase that would interfere with 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.

Sample Application

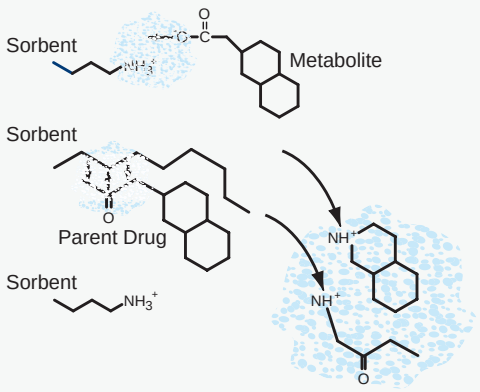


figure 1

Column Wash

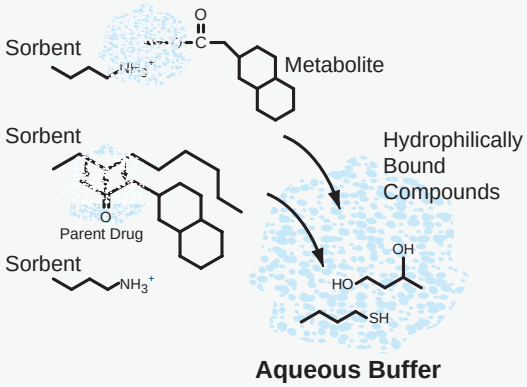


figure 2

First Elution

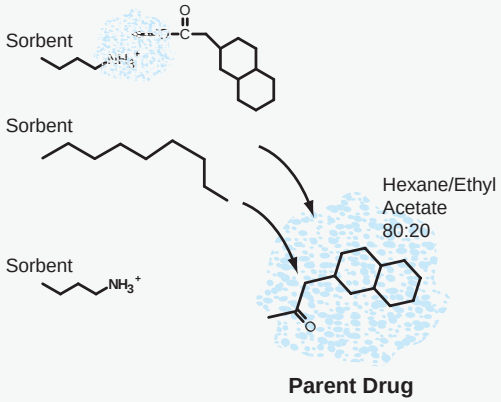


figure 3

Second Elution

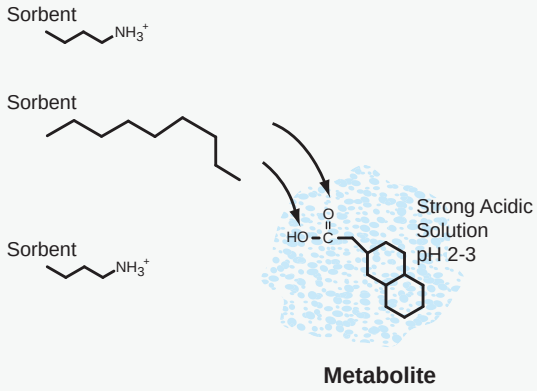


figure 4

CLEAN UP®
OCTYL PLUS CYCLOHEXYL SORBENT

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
6	500	50	CUCYH256
6	1000	30	CUCYH21M6
6	100	50	CUCYH21Z

CLEAN UP®
OCTYL PLUS PROPYLSULFONIC SORBENT

Organic Loading = 14.00%
Surface Area = 500 m^2/g
Pore Volume = 0.77 cm^3/g
Average Pore Size = 60Å
Exchange Capacity = 0.11 meq/g

COLUMNS			
Tube Volume (mL)	Sorbent Amount (mg)	Units per Pack	Part Number
1	50	100	CUPCX2L1
1	100	100	CUPCX211
3	200	50	CUPCX223
6	500	50	CUPCX256
10	200	50	CUPCX22Z

CLEAN UP®
OCTYL PLUS CARBOXYLIC ACID SORBENT

Organic Loading = 11.45%
Surface Area = 500 m^2/g
Pore Volume = 0.77 cm^3/g
Average Pore Size = 60Å
Exchange Capacity = 0.110 meq/g

COLUMNS			
Tube Volume (mL)	Sorbent Amount (mg)	Units per Pack	Part Number
1	50	100	CUCCX2L1
1	100	100	CUCCX211
3	200	50	CUCCX223
6	500	50	CUCCX256
75	10000	10	CUCCX210M75

CLEAN UP®
OCTYL PLUS BENZENESULFONIC ACID SORBENT

Organic Loading = 12.40%
Surface Area = 500 m^2/g
Pore Volume = 0.77 cm^3/g
Average Pore Size = 60Å
Exchange Capacity = 0.076 meq/g

COLUMNS			
Tube Volume (mL)	Sorbent Amount (mg)	Units per Pack	Part Number
1	50	100	CUBCX2L1
1	100	100	CUBCX211
3	200	50	CUBCX223
3	500	50	CUBCX253
6	500	50	CUBCX256
6	1000	30	CUBCX2M6
10	100	50	CUBCX21Z
10	200	50	CUBCX22Z
10	500	50	CUBCX25Z

WELL PLATES				
Number of Wells	Sorbent Amount (mg)	Units per Pack	Extended Drip Tip	Part Number
48	500	1	NO	WIMBCX25
48	1000	1	NO	WIMBCX2M
96	50	1	NO	WSHBCX205
96	100	1	NO	WSHBCX21

CLEAN UP®
OCTYL PLUS QUATERNARY AMINE SORBENT

Organic Loading = 13.00%
Surface Area = 500 m^2/g
Pore Volume = 0.77 cm^3/g

Average Pore Size = 60Å
Exchange Capacity = 0.170 meq/g

COLUMNS			
Tube Volume (mL)	Sorbent Amount (mg)	Units per Pack	Part Number
1	50	100	CUQAX2L1
1	100	100	CUQAX211
3	200	50	CUQAX223
3	500	50	CUQAX253
6	500	50	CUQAX256
6	1000	30	CUQAX2M6
10	200	50	CUQAX22Z
10	500	50	CUQAX25Z
15	2000	20	CUQAX22M15

WELL PLATE				
Number of Wells	Sorbent Amount (mg)	Units per Pack	Extended Drip Tip	Part Number
96	50	1	NO	WSHQAX205

CLEAN UP®
OCTYL PLUS AMINOPROPYL SORBENT

Organic Loading = 12.10%
Surface Area = 500 m^2/g
Pore Volume = 0.77 cm^3/g

Average Pore Size = 60Å
Exchange Capacity = 0.144 meq/g

COLUMNS			
Tube Volume (mL)	Sorbent Amount (mg)	Units per Pack	Part Number
1	50	100	CUNAX2L1
1	100	100	CUNAX211
3	50	50	CUNAX2L3
3	200	50	CUNAX223
3	500	50	CUNAX253
6	1000	30	CUNAX2M6
10	100	50	CUNAX21Z
10	200	50	CUNAX22Z
15	2000	20	CUNAX22M15

WELL PLATE				
Number of Wells	Sorbent Amount (mg)	Units per Pack	Extended Drip Tip	Part Number
96	100	1	NO	WSHNAX21

CLEAN UP®
OCTADECYL PLUS
BENZENESULFONIC ACID SORBENT

Organic Loading = %
Surface Area = 500 m^2/g
Pore Volume = 0.77 cm^3/g

Average Pore Size = 60Å
Exchange Capacity = 0. meq/g

COLUMNS			
Tube Volume (mL)	Sorbent Amount (mg)	Units per Pack	Part Number
1	100	100	CUBCX311
3	50	50	CUBCX3L3
3	100	50	CUBCX313
3	200	50	CUBCX323
3	300	50	CUBCX333
3	500	50	CUBCX353
6	500	50	CUBCX356
6	1000	30	CUBCX3M6
10	100	50	CUBCX31Z
10	200	50	CUBCX32Z
10	300	50	CUBCX33Z
10	500	50	CUBCX35Z
15	2000	20	CUBCX32M15

WELL PLATE				
Number of Wells	Sorbent Amount (mg)	Units per Pack	Extended Drip Tip	Part Number
96	30	1	YES	WSHBCX303-LD

CLEAN UP® COVALENT EXTRACTION SORBENTS

Covalent sorbents have either epoxy, aldehyde, isocyanate or thiopropyl functional groups that are bound to the silica backbone by a hydrocarbon chain. These groups will react selectively with analyte functional groups causing a formal bond between the stationary support and the analyte.

MECHANISM OF COVALENT BONDING

In the case of the aldehyde sorbent, an analyte with a primary amine performs a nucleophilic attack on the aldehyde functionality in the sorbent. This attack results in a Schiff base, with the amine immobilized on the stationary support. This chemistry can be utilized to bind proteins, such as antibodies, to the support, allowing highly specific extractions.

The thiopropyl functional group scavenges for alkylating agents, alcohols and amines.

CLEAN UP® THIOPROPYL SORBENT

Organic Loading = 6.50%
Surface Area = 500 m^2/g
Average Pore Size = 60Å
Pore Volume =0.77 cm^3/g

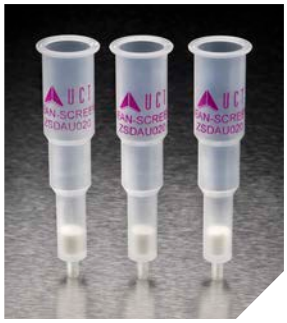
COLUMNS			
Tube Volume (mL)	Sorbent Amount (mg)	Units per Pack	Part Number
1	100	100	CUTHX111
3	200	200	CUTHX123

Contact us about availability of these additional sorbents: Aldehyde (ALD), Epoxy (EPX), Isocyanate (ICN) and Thiopropyl (THX).


UCT
UCT
FORENSICS
COMPREHENSIVE ANALYTICAL TOXICOLOGY KIT

Comprehensive Analytical Toxicology Kits



UCT, LLC has joined with Lipomed to offer forensic toxicology analytical kits. Comprehensive Analytical Toxicology Kits simplify your ordering and are a quick and easy way to help with forensic method development and transfer. Each kit provides analysts with all the components needed to perform an extraction and analysis.

Contents

- CLEAN SCREEN® SPE cartridges
- Select pH Buffer Pouches
- Lipomed's Drug Standards with Cerificates of Analysis
- Selectrazyme® Beta-glucuronidase
- SELECTRA® HPLC Column
- Extraction and Analytical Protocols

Amphetamines Kit UCT Part Number: CAT-AMP-KIT				
Description	**Extended Description**		**Part Number**	**Units**
Select pH Buffer Pouch	100 mM pH 6 phosphate buffer; 1000 mL		SPHPHO6001-1	1 Pouch
CSDAU Cartridge	Clean Screen® DAU 200 mg/6 mL		CSDAU206	50/PK
Selectra® DA HPLC Column	10 cm x 2.1 mm; 3 µm HPLC Column		SLDA100ID21-3UM	1
Amphetamine Standards	Amphetamine	1.0 mg / mL	AMP-96-HC-1LM	1 ampoule
	Methamphetamine	1.0 mg / mL	AMP-301-HC-1LM	1 ampoule
	MDA	1.0 mg / mL	MDA-79-HC-1LM	1 ampoule
	MDMA	1.0 mg / mL	MDM-94-HC-1LM	1 ampoule
	MDEA	1.0 mg / mL	MDE-191-HC-1LM	1 ampoule
	Phentermine	1.0 mg / mL	PHE-844-HC-1LM	1 ampoule
	Ephedrine +	1.0 mg / mL	EPH-888-HC-1LM	1 ampoule
	Psuedoephedrine +	1.0 mg / mL	EPH-775-FB-1LA	1 ampoule
	Amphetamine d6	1.0 mg / mL	AMP-976-HC-0.1LM	1 ampoule
	Methamphetamine d5	1.0 mg / mL	AMP-623-HC-0.1LM	1 ampoule
	Ephedrine d3 +	1.0 mg / mL	EPH-845-HC-0.1LM	1 ampoule

Opiate Kit UCT Part Number: CAT-OPIATE-KIT				
Description	**Extended Description**		**Part Number**	**Units**
Beta-glucuronidase	abalone enzyme (Haliotis rufescens)		BETA-GLUC-10	10mL
Select pH Buffer Pouch	100 mM pH 6 phosphate buffer; 1000 mL		SPHPHO6001-1	1 Pouch
Select pH Buffer Pouch	100 mM pH 4.5 acetate buffer; 500 mL		SPHACE4501-1	1 Pouch
Select pH Buffer Pouch	100 mM pH 5 acetate buffer; 500 mL		SPHACE5001-1	1 Pouch
CSDAU Cartridge	Clean Screen® DAU 200 mg/10 mL		ZSDAU020	50/PK
Selectra® DA HPLC Column	5 cm x 2.1 mm; 5 µm HPLC Column		SLDA50ID21-5UM	1
Opiate Standards	Morphine	1.0 mg / mL	M-35-FB-1LM	1 ampoule
	Codeine	1.0 mg / mL	C-69-HC-1LM	1 ampoule
	Hydrocodone	1.0 mg / mL	C-405-FB-1LM	1 ampoule
	Hydromorphone	1.0 mg / mL	M-407-FB-1LM	1 ampoule
	Oxycodone	1.0 mg / mL	C-404-HC-1LM	1 ampoule
	Oxymorphone	1.0 mg / mL	M-406-FB-1LM	1 ampoule
	6 MAM	1.0 mg / mL	M-43-HC-1LM	1 ampoule
	Morphine d3	0.1 mg / mL	M-39-FB-0.1LM	1 ampoule
	Codeine d6	0.1 mg / mL	C-409-FB-0.1LM	1 ampoule

Illicits Kit UCT Part Number: CAT-ILLICIT-KIT				
Description	**Extended Description**		**Part Number**	**Units**
Select pH Buffer Pouch	100 mM pH 6 phosphate buffer; 1000 mL		SPHPHO6001-1	1 Pouch
CSDAU Cartridge	Clean Screen® DAU 200 mg/10 mL		ZSDAU020	50/PK
Selectra® DA HPLC Column	10 cm x 2.1 mm; 3 µm HPLC Column		SLDA100ID21-3UM	1
Illicits Standards	Cocaine	1.0 mg / mL	COC-156-FB-1LA	1 ampoule
	Benzoylecgnonine	1.0 mg / mL	COC-204-FB-1LM	1 ampoule
	Cocaethylene	1.0 mg / mL	COC-207-FB-1LA	1 ampoule
	PCP	1.0 mg / mL	PCP-436-HC-1LM	1 ampoule
	PCP-d5	0.1 mg / mL	PCP-437-HC-0.1LM	1 ampoule
	Ketamine	1.0 mg / mL	KET-663-HC-1LM	1 ampoule
	LSD	1.0 mg / mL	LSD-397-FB-1LA	1 ampoule
	Cocaine d3	0.1 mg / mL	COC-292-FB-0.1LA	1 ampoule
	Benzoylecgnonine d3	0.1 mg / mL	COC-294-HY-0.1LM	1 ampoule
	Cocaethylene d3	0.1 mg / mL	COC-298-FB-0.1LA	1 ampoule

Benzodiazepines Kit UCT Part Number: CAT-BENZ-KIT				
Description	**Extended Description**		**Part Number**	**Units**
Beta-glucuronidase	abalone enzyme (Haliotis rufescens)		BETA-GLUC-10	10mL
Select pH Buffer Pouch	100 mM pH 6 phosphate buffer; 1000 mL		SPHPHO6001-1	1 Pouch
Select pH Buffer Pouch	100 mM pH 5 acetate buffer; 500 mL		SPHACE5001-1	1 Pouch
CSDAU Cartridge	Clean Screen® DAU 200 mg/10 mL		ZSDAU020	50/PK
Selectra® DA HPLC Column	5 cm x 2.1 mm; 5 µm HPLC Column		SLDA50ID21-5UM	1
Benzodiazepine Standards	Diazepam	1.0 mg / mL	DIA-107-1LM	1 ampoule
	Temazepam	1.0 mg / mL	TEM-123-1LM	1 ampoule
	Oxazepam	1.0 mg / mL	OXA-122-1LA	1 ampoule
	Nordiazepam	1.0 mg / mL	DIA-108-1LM	1 ampoule
	Lorazepam	1.0 mg / mL	LOR-142-1LA	1 ampoule
	Alprazolam	1.0 mg / mL	ALP-118-FB-1LM	1 ampoule
	α-OH Alprazolam	0.1 mg / mL	ALP-536-FB-0.1LM	1 ampoule
	7-amino Clonazepam	1.0 mg / mL	CLO-106-FB-1LA	1 ampoule
	Diazepam d5	0.1 mg / mL	DIA-826-0.1LM	1 ampoule
	Oxazepam d5	0.1 mg / mL	OXA-860-0.1LA	1 ampoule
	Midazolam	1.0 mg / mL	MID-111-FB-1LM	1 ampoule

THC Kit UCT Part Number: CAT-THC-KIT				
Description	**Extended Description**		**Part Number**	**Units**
SS THC Cartridge	Styre Screen® THC 100 mg/6 mL		SSTHC116	50/PK
Selectra® DA HPLC Column	10 cm x 2.1 mm; 3 µm HPLC Column		SLDA100ID21-3UM	1
THC Standards	THC	1.0 mg / mL	THC-135-1LE	1 ampoule
	Carboxy-THC	0.1 mg / mL	THC-726-0.1LM	1 ampoule
	THC-OH	0.1 mg / mL	THC-318-0.1LM	1 ampoule
	Cannabinol	1.0 mg / mL	THC-377-1LM	1 ampoule
	Cannabidiol	1.0 mg / mL	THC-303-1LM	1 ampoule
	THC d3	0.1 mg / mL	THC-315-0.1LE	1 ampoule
	Carboxy-THC d9	0.1 mg / mL	THC-1013-0.1LM	1 ampoule
	(-)-11-nor-Δ^9-THC carboxylic acid	0.1 mg / mL	THC-316-0.1LM	1 ampoule

CLEAN SCREEN®
COPOLYMERIC BONDED PHASES
FOR DRUG OF ABUSE TESTING

CSDAU	
Sorbent Amount	**Part Number**
10 g	CSDAU00X
100 g	CSDAU00C
1 kg	CSDAU00K
CSTHC	
Sorbent Amount	**Part Number**
10 g	CSTHC00X
100 g	CSTHC00C
1 kg	CSTHC00K

CLEAN UP®
COPOLYMERIC BONDED PHASES

CUBCX BENZENESULFONIC ACID + C8	
Sorbent Amount	**Part Number**
10 g	CUBCX20X
100 g	CUBCX20C
1 kg	CUBCX20K
CARBOXYLIC ACID + C8	
Sorbent Amount	**Part Number**
10 g	CUCCX20X
100 g	CUCCX20C
1 kg	CUCCX20K
QUATERNARY AMINE + C8	
Sorbent Amount	**Part Number**
10 g	CUQAX20X
100 g	CUQAX20C
1 kg	CUQAX20K
AMINOPROPYL + C8	
Sorbent Amount	**Part Number**
10 g	CUNAX20X
100 g	CUNAX20C
1 kg	CUNAX20K

CLEAN UP®
HYDROPHOBIC BONDED PHASES

ENDCAPPED C8, OCTYL	
Sorbent Amount	**Part Number**
10 g	CEC0800X
100 g	CEC0800C
1 kg	CEC0800K
UNENDCAPPED C8, OCTYL	
Sorbent Amount	**Part Number**
10 g	CUC0800X
100 g	CUC0800C
1 kg	CUC0800K
ENDCAPPED C18, OCTADECYL	
Sorbent Amount	**Part Number**
10 g	CEC1800X
100 g	CEC1800C
1 kg	CEC1800K
UNENDCAPPED C18, OCTADECYL	
Sorbent Amount	**Part Number**
10 g	CUC1800X
100 g	CUC1800C
1 kg	CUC1800K

CLEAN UP®
HYDROPHILIC BONDED PHASES

ENDCAPPED CYANOPROPYL	
Sorbent Amount	**Part Number**
10 g	CECNP00X
100 g	CECNP00C
1 kg	CECNP00K

UNENDCAPPED CYANOPROPYL	
Sorbent Amount	**Part Number**
10 g	CUCNP00X
100 g	CUCNP00C
1 kg	CUCNP00K

UNBONDED SILICA (40-63 µm)	
Sorbent Amount	**Part Number**
10 g	CUSIL00X
100 g	CUSIL00C
1 kg	CUSIL00K

PHARMA-SIL® (40-63 µm)	
Sorbent Amount	**Part Number**
10 g	PHSIL00X
100 g	PHSIL00C
1 kg	PHSIL00K

HIGH SURFACE SILICA (40-63 µm)	
Sorbent Amount	**Part Number**
10 g	HSSIL00X
100 g	HSSIL00C
1 kg	HSSIL00K

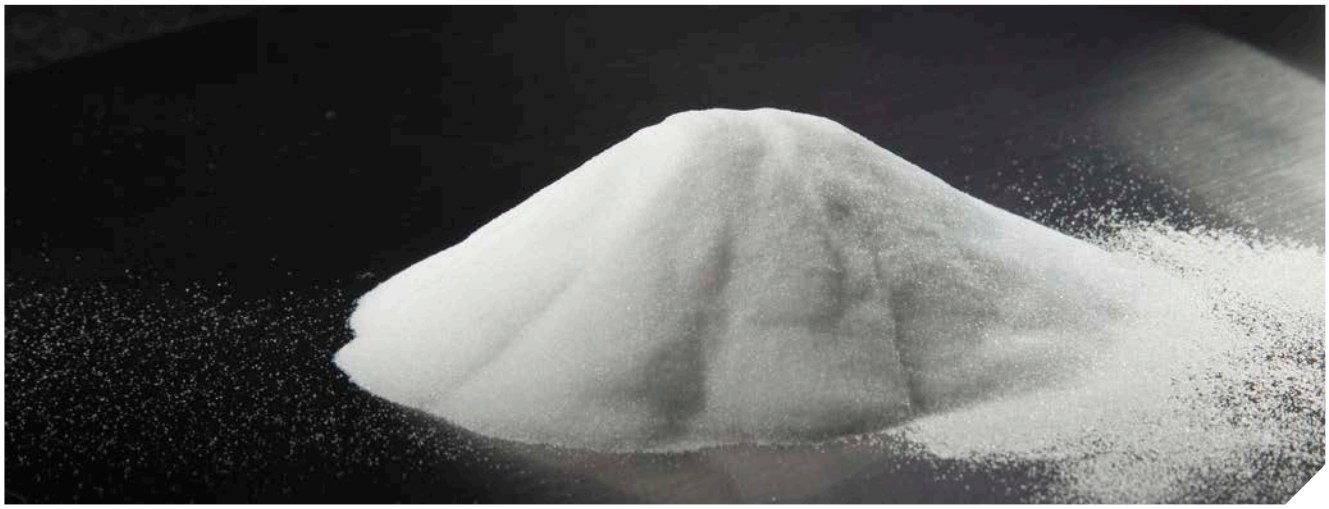
DIOL	
Sorbent Amount	**Part Number**
10 g	CUDOL00X
100 g	CUDOL00C
1 kg	CUDOL00K

FLORISIL® Registered Trademark of US Silica	
Sorbent Amount	**Part Number**
10 g	CUFLS00X
100 g	CUFLS00C
1 kg	CUFLS00K

ACIDIC ALUMINA	
Sorbent Amount	**Part Number**
10 g	CUALA00X
100 g	CUALA00C
1 kg	CUALA00K

BASIC ALUMINA	
Sorbent Amount	**Part Number**
10 g	CUALB00X
100 g	CUALB00C
1 kg	CUALB00K

NEUTRAL ALUMINA	
Sorbent Amount	**Part Number**
10 g	CUALN00X
100 g	CUALN00C
1 kg	CUALN00K



CLEAN UP® ANION EXCHANGE

PRIMARY/SECONDARY AMINE	
Sorbent Amount	**Part Number**
10 g	CUPSA00X
100 g	CUPSA00C
1 kg	CUPSA00K

AMINOPROPYL	
Sorbent Amount	**Part Number**
10 g	CUNAX00X
100 g	CUNAX00C
1 kg	CUNAX00K

DIETHYLAMINO	
Sorbent Amount	**Part Number**
10 g	CUDAX00X
100 g	CUDAX00C
1 kg	CUDAX00K

QUATERNARY AMINE CHLORIDE COUNTERION	
Sorbent Amount	**Part Number**
10 g	CUQAX00X
100 g	CUQAX00C
1 kg	CUQAX00K

QUATERNARY AMINE ACETATE COUNTERION	
Sorbent Amount	**Part Number**
10 g	CAQAX00X
100 g	CAQAX00C
1 kg	CAQAX00K

QUATERNARY AMINE HYDROXIDE COUNTERION	
Sorbent Amount	**Part Number**
10 g	CHQAX00X
100 g	CHQAX00C
1 kg	CHQAX00K

POLYIMINE	
Sorbent Amount	**Part Number**
10 g	CUPAX00X
100 g	CUPAX00C
1 kg	CUPAX00K

CLEAN UP® CATION EXCHANGE

CARBOXYLIC ACID	
Sorbent Amount	**Part Number**
10 g	CUCCX00X
100 g	CUCCX00C
1 kg	CUCCX00K

PROPYLSULFONIC ACID	
Sorbent Amount	**Part Number**
10 g	CUPCX00X
100 g	CUPCX00C
1 kg	CUCCX00K

BENZENESULFONIC ACID	
Sorbent Amount	**Part Number**
10 g	CUBCX00X
100 g	CUBCX00C
1 kg	CUBCX00K

BENZENESULFONIC ACID HIGH LOAD	
Sorbent Amount	**Part Number**
10 g	CUBCXHL00X
100 g	CUBCXHL00C
1 kg	CUBCXHL00K

TRIACETIC ACID	
Sorbent Amount	**Part Number**
10 g	CUTAX00X
100 g	CUTAX00C
1 kg	CUTAX00K

STYRE SCREEN®
POLYMERIC RESIN

BENZENESULFONIC ACID + C18	
Sorbent Amount	**Part Number**
10 g	SSDBX00X
100 g	SSDBX00C

POLYSTYRENE DIVINYLBENZENE	
Sorbent Amount	**Part Number**
10 g	SSDVB00X
100 g	SSDVB00C

REVERSE PHASE OCTADECYL	
Sorbent Amount	**Part Number**
10 g	SSC1800X
100 g	SSC1800C

BENZENESULFONIC ACID	
Sorbent Amount	**Part Number**
10 g	SSBCX00X
100 g	SSBCX00C

QUATERNARY AMINE	
Sorbent Amount	**Part Number**
10 g	SSQAX00X
100 g	SSQAX00C

CARBOXYLIC ACID	
Sorbent Amount	**Part Number**
10 g	SSCCX00X
100 g	SSCCX00C

FOR THC AND THC METABOLITES	
Sorbent Amount	**Part Number**
10 g	SSTHC00X
100 g	SSTHC00C

POSITIVE PRESSURE MANIFOLD

A complete Positive Pressure Manifold (PPM) System consists of the PPM base, a rack for holding either 10 mL or 15 mL SPE columns, a test tube holder collection rack and a pre-drilled waste container. The PPM can be ordered with either a 13 x 100 mm collection rack or a 16 x 100 mm collection rack.

All 48 positions of the PPM System are individually regulated to provide even pressure to each column. There are 4 rows of 12 positions. Each row has a switch to control flow. The PPM System can accommodate 1 – 48 columns. Acceptable column sizes include: 1 mL, 3 mL, 6 mL, 10 mL or 15 mL. Dual pressure regulators allow different pressure settings for the extraction step and the column drying step. Each PPM comes with a waste reservoir that can be emptied between waste steps if desired. A single switch raises and lowers the sample racks creating an airtight seal. The PPM requires a supplied pressure of 75 psi with either nitrogen or compressed air. The compressed air must be filtered to 10 µm.

Description	Part Number
Complete Positive Pressure Manifold System with collection rack for 13 x 100 mm sized test tubes, 10mL/15mL SPE Tube Rack, and Pre-Drilled Waste Container	VMFPPM13
Complete Positive Pressure Manifold System with collection rack for 16 x 100 mm sized test tubes, 10mL/15mL SPE Tube Rack, and Pre-Drilled Waste Container	VMFPPM16

POSITIVE PRESSURE MANIFOLD ACCESSORIES

Description	Units	Part Number
PPM Installation Kit – Includes 25 ft of ¼" OD Tubing, Inline air filter and two ¼" compression fittings	1	VMFPPMIK
10 & 15 mL SPE Rack – Plate used to hold 10 mL and 15 mL SPE columns	1	VMFPPMRK10
Adapter Extraction Plate for 1 mL Columns – Conversion plate designed to hold 1 mL SPE Columns	1	VMFPPMRKA1
Adapter Extraction Plate for 3 mL Columns - Conversion plate designed to hold 3 mL SPE Columns	1	VMFPPMRKA3
Adapter Extraction Plate for 6 mL Columns - Conversion plate designed to hold 6 mL SPE Columns	1	VMFPPMRKA6
Collection Rack for 13 x 100 mm Test Tubes – Rack designed to hold test tubes that are 13 mm in diameter and 100 mm in length	1	VMFPPMCRKG13
Collection Rack for 16 x 100 mm Test Tubes – Rack designed to hold test tubes that are 13 mm in diameter and 100 mm in length	1	VMFPPMCRKG16
Waste Container – Pre-drilled for optional tubing attachment	1	VMFPPMWBND
Frit (Restrictor) Plate – Fritted plate that controls air flow, note there is one plate per row	1	VMFPPMFRPLT
Brown PPM Gasket – Seal used in contact of PPM to the extraction columns	1	VMFPPMGSKBL
Orange PPM Gasket – Seal used for frit plate	1	VMFPPMGSKOR


PPM Installation Kit

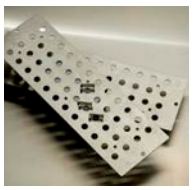

Collection Rack for 16 x 100 mm Test Tubes


10 & 15 mL SPE Rack

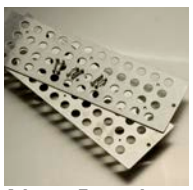

Waste Container


Adapter Extraction Plate for 1 mL Colimns

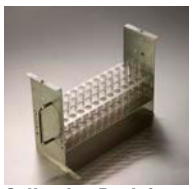

Frit (Restrictor) Plate


Adapter Extraction Plate for 3 mL Colimns


Brown PPM Gasket


Adapter Extraction Plate for 6 mL Colimns


Orange PPM Gasket


Collection Rack for 13 x 100 mm Test Tubes

96 WELL PLATE POSITIVE PRESSURE MANIFOLD

- Small instrument footprint (9”x 9”x 14”) does not take up valuable bench space
- Accommodates a wide range of commercially available 96 well plates
- Works with both 96 and 48 well plates
- Restrictor plate allows even gas flow across all 96 wells – even when some positions are empty
- Two gas flow regulators on the front panel – one high flow regulator used for sorbent bed drying and one low flow regulator used for sample loading, washing, and eluting
- Positive pressure is well suited for viscous sample matrices
- Instrument gas regulator on the back can be set and locked into place
- Gas Supply: N_2 or compressed air regulated to 40 – 45 psi and filtered to 10 µm
- All pneumatic – only a gas supply is needed, there are no electrical connections

96 WELL PLATE PPM		
Part Number	**Description**	**Unit**
VMF96PPM	96 Well Plate Positive Pressure Manifold	1

Accessories		
Part Number	**Description**	**Unit**
VMFPPMIK	Installation kit (25’ of ¼” O.D. tubing; 2 x ¼” compression fittings; 1 in-line air filter)	Kit
VMF96PPMGSK	Replacement Brown Gasket – 96 well plate manifold	1
WSH96WT	96 well waste collection plate	1
WSH96CP	96 well sample collection plate	1

UNIVERSAL VACUUM MANIFOLD

Description

Universal Vacuum Manifold Complete System –
This is a manifold system that accommodates 24 individual columns, 48 individual columns and well plate configurations. System includes all collection plates, all extraction plates, manifold, vacuum gauge, vacuum tubing, vacuum relief valve, vacuum flask and waste base.

Part Number

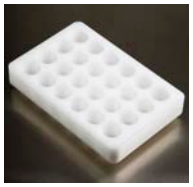
VMFUVWP

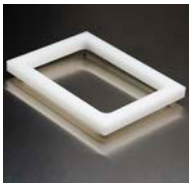
	Description	Part Number
	**24 Column Manifold System** – System includes a 24 GC vial collection plate, a 24 column extraction plate and manifold.	VMF24WP
	**48 Column Manifold System** – System includes a 48 GC vial collection plate, a 48 column extraction plate and manifold.	VMF48WP
	**Well Plate Manifold System** – System includes a manifold. This system can accommodate the various configurations of well plates including 24, 48 and 96 well plates and their respective collection plates.	VMF96WP

UNIVERSAL VACUUM MANIFOLD ACCESSORIES


24 Column Extraction Plate


EPDM Gasket


24 Vial Collection Plate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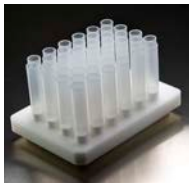
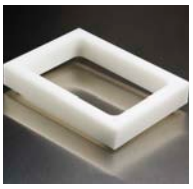
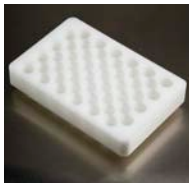

48 Column Extraction Plate


Spacer 1"


48 Vial Collection Plate


Collection Plate Riser


Manifold Top


Vacuum Pump


Neoprene Gasket


Spigot


Manifold Base


Vacuum Base, Waste Gauge and Vacuum Flask

Description	Units	Part Number
24 Column Extraction Plate – This plate can accommodate 24 of UCT's 1 mL, 3 mL or 6 mL extraction columns.	1	VMF24EP
24 Vial Collection Plate – This plate holds 24 standard 2 mL GC vials	1	VMF24CP
48 Column Extraction Plate – This plate can accommodate 48 of UCT's 1 mL and 3 mL extraction columns.	1	VMF48EP
48 Vial Collection Plate – This plate holds 48 standard 2 mL GC vials	1	VMF48CP
Manifold Top – This is the part of the Universal Vacuum Manifold that houses the well plates or the Extraction Plates.	1	VMFUVMT
Neoprene Gasket – This gasket seals the bottom of the extraction plates, or well plates to the Manifold Top.	1	VMFUVNG
Manifold Base – This houses the collection plates	1	VMFUVMB
EPDM Gasket – This gasket is fitted between the Manifold Top and Manifold Base.	1	VMFUVEG
Spacer ½" – This spacer adds ½ inches between the Manifold Top and the Manifold Base to accommodate collection vials of higher height.	1	VMFUV05SP
Spacer 1" – This spacer adds 1 inches between the Manifold Top and the Manifold Base to accommodate collection vials of higher height.	1	VMFUV10SP
Collection Plate Riser – The purpose of the riser is to add a little extra height to the collection plate to allow the tip of the SPE column to be inside the collection vial.	1	VMFUVR1
Vacuum Pump – These vacuum pumps are used in conjunction with the vacuum manifold. The pump is 1/8 hp, 4.2 amps and 60 Hz. The pumps are available in 115 and 230 volts.	115 V 230V	ECROCKER400 ECROCKER400-220V
Spigot – In order to pull vacuum on the Universal Vacuum Manifold, the spigot is the connection point for the vacuum tubing.	1	VMFUVST
Vacuum Base, Waste Gauge and Vacuum Flask – This set up is needed to prevent solvent from entering the vacuum system.	1	VMFUVVGWB

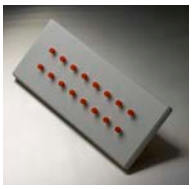
GLASS BLOCK VACUUM MANIFOLD

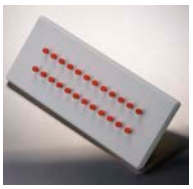
A complete Vacuum Manifold System consists of a glass block, Corian® manifold lid, a cover gasket, vacuum gauge and assembly, PTFE tips, an adjustable collection rack, bulkhead luer fittings, plugs and a glass block safety tray. The Vacuum Manifold System is available in either 16 or 24 positions.

These manifold systems are durable and chemically resistant units 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


Glass Block


Manifold Lid
(16 Position)


Manifold Lid
(24 Position)


Manifold Lid Legs


Gasket


Collection Rack
(16 Position)


Collection Rack
(24 Position)


Collection Rack
(12 Position)


Collection Rack Posts


Collection Rack
Retaining Clips


Vacuum Gauge and
Bleed Valve


Bulkhead Luer
Fittings


Luer Plugs


Flange Caps

Description	Units	Part Number
Glass Block – The vacuum chamber is a clear glass block which is designed for clear visibility and easy cleaning.	1	VMF04123
Manifold Lid (16 position) – A rigid Corian® lid which resists warping with extended use. Lids come with caps, bulkhead fittings and gasket.	1	VMF06120
Manifold Lid (24 position) – A rigid Corian® lid which resists warping with extended use. Lids come with caps, bulkhead fittings and gasket.	1	VMF04120
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

GLASS BLOCK VACUUM MANIFOLD

Description	Units	Part Number
Luer Caps – Luer caps are used in tandem with flange caps to seal the SPE cartridge.	50	LUER50
PTFE Luer Tips – These tips allow direct transfer of sample to the test tube.	12	VMF020TT
Clean-Thru® Tips - A disposable tip that eliminates potential sample carryover from the vacuum manifold lid. Tips connect to the luer tip on the SPE column and are passed through the manifold directly into the waste or collection vessel. The disposable nature eliminates repeated use and therefore any concern of sample carryover.	50	CLTTP050
Manifold Safety Tray – A safety tray comes as part of the complete manifold system, so as to prevent the glass block form cracking or chipping.	1	VMF02072
Adapters – Adapter cap has a tapered fit for 1, 3, 6, 10 and 15 mL size reservoirs with a standard luer fitting on top. These adapters are ideal when a sample volume exceeds the capacity of the SPE column or when sequential extractions are desired.	15	AD0000AS
Kynar® Stopcocks – Made from Kynar®, a PFDV polymer that is solvent resistant, these reusable luer fitted valves are used in conjunction with a vacuum manifold. The purpose is to provide individual flow control to each SPE cartridge.	16 24	VMF02116 VMF02024
PTFE Stopcocks – Made from PTFE, these stopcocks allow an increased level of solvent resistivity.	6	ECVMF06
Sample Transfer Tubes – These tubes are a hands-free system designed to transfer sample from a larger container into the SPE cartridge via vacuum.	6 pack 12 pack	VMFSTFR06 VMFSTFR12
Vacuum Pump – These vacuum pumps are used in conjunction with the vacuum manifold. The pump is 1/8 hp, 4.2 amps and 60 Hz. The pumps are available in 115 and 230 volts.	115 V 230 V	ECROCKER400 ECROCKER400-220V


Luer Caps


PTFE Luer Tips


Clean-Thru Tips


Manifold Safety Tray


Adapters


Kynar® Stopcocks


Sample Transfer Tubes


Vacuum Pump

Purpose of Derivatization:

Derivatization is performed for two significant reasons. The first of which is to reduce the polarity and enhance the volatility of high molecular weight polar drugs, making them more suitable for analysis via GC-MS (Figure 1).

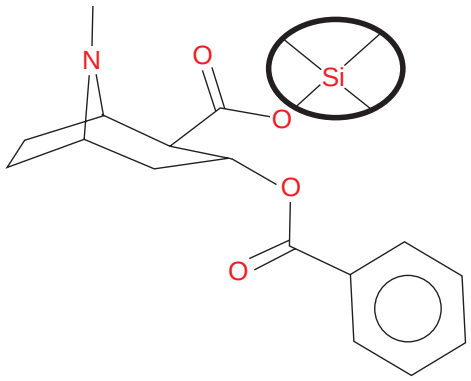


Figure 1. Trimethylsilyl derivative of benzoylecgonine. The underivatized compound has a carboxyl group and is too polar to pass through a GC column.

The second reason is to increase the molecular weight of very volatile drugs. This derivatization results in a more complex mass spectrum that improves the selectivity for that particular drug. When derivatizing drugs for GC/MS analysis, the spectrum of the resulting compounds should contain at least three ions that are unique to that analyte and not a result of the matrix.

Choosing a Derivatizing Agent

Silylation Reagents

Silylation is the most popular derivatization procedure for GC sample analysis. Of the silylation reagents, the most common is BSTFA (N,O-bis(trimethylsilyl)trifluoroacetamide). Silylation reagents are easy to use and readily form derivatives. In silylation, an active hydrogen found in molecules such as acids, alcohols, thiols, amines, amides, enolizable ketones and aldehydes is replaced by trimethylsilyl (TMS) or t-butyldimethylsilyl (t-BDMS). Compared to their parent compounds, silyl derivatives are more volatile, less polar, and more thermally stable. As a result, GC separation is improved and detection is enhanced. It is important to evaporate the analytes to complete dryness prior to derivatization. The higher boiling points of silylation reagents allow for greater room temperature stability, as long as the reagent is maintained in dry conditions.

Acylation Reagents

The next preferred derivatizing reagent is acylation reagents. These are typically available as acid anhydrides, acyl derivatives, or acyl halides. Common varieties of acylation reagents are TFAA (trifluoroacetic acid anhydride), PFAA (pentafluoropropionic acid anhydride) and HFAA (heptafluorobutyric acid anhydride). These reagents react with alcohols, phenols and amines to form fluoroacyl esters and amides. Acylation reagents offer similar advantages to silylation reagents. They create less polar, more volatile derivatives, however opposed to silylating reagents, acylating reagents target highly polar, multi-functional compounds, such as carbohydrates and amino acids. Acylating reagents also introduce electron capturing groups to the derivatized sample; enhancing analytical detection. Acyl halides and acyl derivatives are highly reactive. Typically they are used where steric hindrance may be an issue. Due to the corrosive nature of these reagents, any excess material or byproducts must be removed by evaporation prior to analysis. The derivatized analytes are then dissolved in another solvent and injected onto the GC-MS to prevent any column degradation.

Alkylation Reagents

Another group of derivatizing reagents are alkylation reagents, which replace active hydrogens with an alkyl group. These reagents are used to modify compounds having acidic hydrogens, such as carboxylic acids and phenols. Alkylation reagents can be used alone to form esters, ethers, and amides or they can be used in combination with acylation or silylation reagents. Esterification is the most popular method of alkylation. Alkyl esters are stable and form quickly and quantitatively. Alteration of the length of the substituted alkyl group can be used to alter the retention time of derivatives.

Derivatizing reagents are usually stored at room temperature or in a dessicator. Refrigeration should be avoided due to humid conditions shortening the life and effectiveness of the product. If refrigeration of reagents is desired, the reagent must come to room temperature in a dessicator prior to use. It is recommended to utilize reagents within six months of their ship date.

Common compounds found in a forensic/clinical setting along with the their targeted functional groups and derivatizatizing reagent of choice are listed below:

Volatility of target compounds is an important consideration for gas chromatographic analysis. Polar functional groups such as amines, hydroxyls and carboxylic acids frequently hinder chromatographic resolution due to low volatility and/or hydrogen bonding effects with reactive sites on glassware, injector ports and analytical columns.

SELECTRA-SIL® Reagents are packaged by weight, but are liquid in form. UCT's derivatizing reagents are synthesized and purified by UCT to exacting standards of purity and consistency. The reagents are packaged under nitrogen, sealed with a PTFE stopper and crimp topped to maintain an inert atmosphere. If stability of the reagents are a concern, UCT offers reagents packaged in sealed glass ampules, packaged under an inert atmosphere.

SILYLATION REAGENTS

Silyl derivatives are the most widely used chemical derivatization reagents. Silyl derivatization requires an "active" hydrogen as seen in acids, alcohols, thiols, amines, amide, enolizable ketones and aldehydes to be replaced by a trimethylsilyl group or tertiary butyl dimethylsilyl. Trimethylsilyl derivatives tend to be moisture sensitive, so a derivative with tertiary butyl dimethylsilyl may be preferred.

BSTFA N,O-bis(trimethylsilyl)trifluoroacetamide – CAS# 25561-30-2

Derivatizes most amines, alcohols, carboxylic acids and hydroxyls

Packaging	Units	Part Number
1 g sealed ampule	10 ampules / pack	SBSTFA-0-1-AMP
1 g vial	10 vials / pack	SBSTFA-0-1
10 g vial	1 vial	SBSTFA-0-10
25 g vial	1 vial	SBSTFA-0-25
100 g bottle	1 bottle	SBSTFA-0-100

BSTFA N,O-bis(trimethylsilyl)trifluoroacetamide with 1% TMCS trimethylchlorosilane

Derivatizes most amines, alcohols, carboxylic acids and hydroxyls, TMCS serves as a catalyst to improve reaction yield for sterically hindered hydroxyls, some amines and amides

Packaging	Units	Part Number
1 g sealed ampule	10 ampules / pack	SBSTFA-1-1-AMP
1 g vial	10 vials / pack	SBSTFA-1-1
10 g vial	1 vial	SBSTFA-1-10
25 g vial	1 vial	SBSTFA-1-25
100 g bottle	1 bottle	SBSTFA-1-100

BSTFA N,O-bis(trimethylsilyl)trifluoroacetamide with 10% TMCS trimethylchlorosilane

Derivatizes most amines, alcohols, carboxylic acids and hydroxyls, TMCS serves as a catalyst to improve reaction yield for sterically hindered hydroxyls, some amines and amides

Packaging	Units	Part Number
1 g sealed ampule	10 ampules / pack	SBSTFA-10-1-AMP
1 g vial	10 vials / pack	SBSTFA-10-1
10 g vial	1 vial	SBSTFA-10-10
25 g vial	1 vial	SBSTFA-10-25
100 g bottle	1 bottle	SBSTFA-10-100

MSTFA N-Methyl-N-trimethylsilyltrifluoroacetamide – CAS# 24589-78-4

Derivatizes most amines, alcohols, carboxylic acids and hydroxyls – most volatile of the trimethylsilyl derivatives, but with donor strength equal to BSTFA

Packaging	Units	Part Number
1 g sealed ampule	10 ampules / pack	SMSTFA-0-1-AMP
1 g vial	10 vials / pack	SMSTFA-0-1
10 g vial	1 vial	SMSTFA-0-10
25 g vial	1 vial	SMSTFA-0-25
100 g bottle	1 bottle	SMSTFA-0-100

MSTFA N-Methyl-N-trimethylsilyltrifluoroacetamide with 1% Trimethylchlorosilane

Derivatizes most amines, alcohols, carboxylic acids and hydroxyls – most volatile of the trimethylsilyl derivatives, but with donor strength equal to BSTFA. TMCS serves as a catalyst to improve reaction yield for sterically hindered hydroxyls, some amines and amides

Packaging	Units	Part Number
1 g sealed ampule	10 ampules / pack	SMSTFA-1-1-AMP
1 g vial	10 vials / pack	SMSTFA-1-1
10 g vial	1 vial	SMSTFA-1-10
25 g vial	1 vial	SMSTFA-1-25
100 g bottle	1 bottle	SMSTFA-1-100

MTBSTFA N-Methyl-N-(tert-butyldimethylsilyl)trifluoroacetamide – CAS# 77377-52-7

Derivatizes hydroxyl, carboxyl, thiol and amines (primary and secondary).

Packaging	Units	Part Number
1 g sealed ampule	10 ampules / pack	SMTBSTFA-0-1-AMP
1 g vial	10 vials / pack	SMTBSTFA-0-1
10 g vial	1 vial	SMTBSTFA-0-10
25 g vial	1 vial	SMTBSTFA-0-25
100 g bottle	1 bottle	SMTBSTFA-0-100

MTBSTFA N-Methyl-N-(tert-butyldimethylsilyl)trifluoroacetamide w/ 1% Tert-butyldimethylchlorosilane

Derivatizes hydroxyl, carboxyl, thiol and amines (primary and secondary). Addition of tert-butyldimethylchlorosilane increases the silylation ability to derivatize sterically hindered alcohols and amines. The TBDMCS derivatives are more stable than the related TMS analogs.

Packaging	Units	Part Number
1 g sealed ampule	10 ampules / pack	SMTBSTFA-1-1-AMP
1 g vial	10 vials / pack	SMTBSTFA-1-1
10 g vial	1 vial	SMTBSTFA-1-10
25 g vial	1 vial	SMTBSTFA-1-25
100 g bottle	1 bottle	SMTBSTFA-1-100

MTBSTFA N-Methyl-N-(tert-butyldimethylsilyl)trifluoroacetamide w/ 10% Tert-butyldimethylchlorosilane

Derivatizes hydroxyl, carboxyl, thiol and amines (primary and secondary). Addition of tert-butyldimethylchlorosilane increases the silylation ability to derivatize sterically hindered alcohols and amines. The TBDMCS derivatives are more stable than the related TMS analogs.

Packaging	Units	Part Number
1 g sealed ampule	10 ampules / pack	SMTBSTFA-10-1-AMP
1 g vial	10 vials / pack	SMTBSTFA-10-1
10 g vial	1 vial	SMTBSTFA-10-10
25 g vial	1 vial	SMTBSTFA-10-25
100 g bottle	1 bottle	SMTBSTFA-10-100

TMCS Trimethylchlorosilane – CAS# 75-77-4

Catalyst used to increase the reactivity of other silylation reagents.
Is also used to form trimethyl esters of organic acids.

Packaging	Units	Part Number
1 g sealed ampule	10 ampules / pack	STMCS-0-1-AMP
1 g vial	10 vials / pack	STMCS-0-1
10 g vial	1 vial	STMCS-0-10
25 g vial	1 vial	STMCS-0-25
100 g bottle	1 bottle	STMCS-0-100

ACYLATION REAGENTS

Acylation is the conversion of compounds with active hydrogens, such as thiols, hydroxyls, and amines, into thioesters, esters and amides respectively by forming a carboxylic acid derivative. The primary usage of acylation chemistry is to form compounds that chromatograph better than the parent molecule.

MBTFA N-Methyl-bis-trifluoroacetamide – CAS# 685-27-8

MBTFA reacts with primary and secondary amines, hydroxyl and thiol groups under mild, non-acidic conditions. It can also be used to selectively acelyate amines in the presence of hydroxyl and carboxyl groups that have been protected by silylation

Packaging	Units	Part Number
1 g sealed ampule	10 ampules / pack	SMBTFA-0-1-AMP
1 g vial	10 vials / pack	SMBTFA-0-1
10 g vial	1 vial	SMBTFA-0-10
25 g vial	1 vial	SMBTFA-0-25
100 g bottle	1 bottle	SMBTFA-0-100

TFAA Trifluoroacetic acid anhydride – CAS# 407-25-0

TFAA reacts readily with alcohols, phenols and amines producing stable volatile derivatives for TCD, FID, ECD and other detectors. Most reactive of all the perfluoroacid anhydrides and frequently used to identify methamphetamine

Packaging	Units	Part Number
1 g sealed ampule	10 ampules / pack	STFAA-0-1-AMP
1 g vial	10 vials / pack	STFAA-0-1
10 g vial	1 vial	STFAA-0-10
25 g vial	1 vial	STFAA-0-25
100 g bottle	1 bottle	STFAA-0-100

PFAA Pentafluoropropionic acid anhydride – CAS# 356-42-3

PFAA is commonly used in the determination of benzoylecgonine and opiates. Acidic by-products of this reaction must be removed before the derivative can be injected onto the GC

Packaging	Units	Part Number
1 g sealed ampule	10 ampules / pack	SPFAA-0-1-AMP
1 g vial	10 vials / pack	SPFAA-0-1
10 g vial	1 vial	SPFAA-0-10
25 g vial	1 vial	SPFAA-0-25
100 g bottle	1 bottle	SPFAA-0-100

HFAA Heptafluorobutyric acid anhydride – CAS#336-59-4

HFAA is commonly used in the determination of benzoylecgonine and opiates.
Acidic by-products of this reaction must be removed before the derivative can be injected onto the GC

Packaging	Units	Part Number
1 g sealed ampule	10 ampules / pack	SHFAA-0-1-AMP
1 g vial	10 vials / pack	SHFAA-0-1
10 g vial	1 vial	SHFAA-0-10
25 g vial	1 vial	SHFAA-0-25

TFAI N-Trifluoroacetylimidazole – CAS#68739-25-3

TFAI offers considerable advantages over the anhydrides for the preparation of perfluoroacyl derivatives; the reactions are quantitative and produce relatively inert imidazole by-products.

Packaging	Units	Part Number
1 g sealed ampule	10 ampules / pack	STFAI-0-1-AMP
1 g vial	10 vials / pack	STFAI-0-1
10 g vial	1 vial	STFAI-0-10
25 g vial	1 vial	STFAI-0-25
100 g bottle	1 bottle	STFAI-0-100

PIA Propionic Anhydride – CAS#123-62-6

PIA is used in the derivatization of opiates if there is more morphine in the sample than 6-MAM.
This derivatization allows the 6-MAM peak to elute before morphine

Packaging	Units	Part Number
1 g sealed ampule	10 ampules / pack	SPIA-0-1-AMP
1 g vial	10 vials / pack	SPIA-0-1
10 g vial	1 vial	SPIA-0-10
25 g vial	1 vial	SPIA-0-25

Acetic Anhydride – CAS#108-24-7

Packaging	Units	Part Number
1 g sealed ampule	10 ampules / pack	SACETICANH-0-1-AMP

ALKYLATION REAGENTS

TMPAH 0.2M Trimethylanilium hydroxide in methanol

Packaging	Units	Part Number
1 g sealed ampule	10 ampules / pack	STMPAH-0-1-AMP
1 g vial	10 vials / pack	STMPAH-0-1
10 g vial	1 vial	STMPAH-0-10
25 g vial	1 vial	STMPAH-0-25
100 g	2 x 50g vial	STMPAH-0-100
100 g bottle	1 bottle	SBSTFA-0-100

PFPOH Pentafluoropropanol – CAS# 771-61-9		
Packaging	**Units**	**Part Number**
1 g sealed ampule	10 ampules / pack	SPFPOH-0-1-AMP
1 g vial	10 vials / pack	SPFPOH-0-1
10 g vial	1 vial	SPFPOH-0-10
25 g vial	1 vial	SPFPOH-0-25
100 g vial	1 vial	SPFPOH-0-100

4 CB 4-Carbethoxyhexafluorobutyryl Chloride – CAS# 18381-53-8		
Packaging	**Units**	**Part Number**
1 g vial	10 vials / pack	S4CB-0-1
10 g vial	1 vial	S4CB-0-10
25 g vial	1 vial	S4CB-0-25

HFIP Hexafluoro-2-propanol – CAS# 920-66-1		
Packaging	**Units**	**Part Number**
1 g vial	10 vials / pack	SHFIP-0-1
10 g vial	1 vial	SHFIP-0-10
25 g vial	1 vial	SHFIP-0-25
100 g vial	1 vial	SHFIP-0-100

DERIVATIZING REAGENT SOLVENTS

ACN Acetonitrile – CAS# 75-05-8		
Packaging	**Units**	**Part Number**
50 g vial	1 vial	SACN-0-50

PYR Pyridine – CAS# 110-86-1		
Packaging	**Units**	**Part Number**
25 g vial	1 vial	SPYR-0-25
50 g vial	1 vial	SPYR-0-50
100 g vial	1 vial	SPYR-0-100

Product Description

Abalone derived ß-glucuronidase has been used for the enzymatic hydrolysis of glucuronides from urine, blood and serum prior to analysis by enzyme immunoassay, mass spectrometry, high performance liquid chromatography, and other means. Typically, between 1 to 10 units of glucuronidase is used per microliter of the sample matrix [1,2,3,4]. The exact amount needed will depend on the specific conditions used and must be determined empirically.

Abalone derived ß-glucuronidase is a crude solution of enzymes. Many ß-glucuronidases derived from mollusks also contain sulfatase activity. For this reason, the sulfatase activity of the material is also determined. Abalone derived ß-glucuronidase is more thermal tolerant as compared to enzymes derived from E. coli, H. pomatia and bovine liver. Therefore the hydrolysis reaction can be carried out at a higher temperature providing hydrolysis in less time and achieving a higher degree of hydrolysis of metabolites like morphine-3-glucuronide[1].

Another application of Abalone derived ß-glucuronidase is for the deconjugation of steroids in human and animal urine samples. When compared with H. pomatia, Limpet and bovine liver, abalone derived ß-glucuronidase gave the best results [4,5].

Our Abalone derived ß-glucuronidase has proven to be the best option for hydrolysis of Cannabidiol in human urine [6].

Typical hydrolysis parameters:

Metabolite	Optimum pH	Duration (hrs).
Opioids	4.0	1 - 3
Benzodiazepines	5.0	1 - 2
Steroids	5.2	1 - 20

References

1. Romberg, R.W. and Lee, L., J. Anal. Toxicol., 19, 157-162 (1995).
2. Marin, S.J. and McMillin, G.A. Methods Mol Biol., 603, 89-105 (2010).
3. Dahn, T., et al., Methods Mol Biol., 603, 411-422 (2010).
4. Ferchaud, V., et al., Analyst., 125, 2255-2259 (2000).
5. Impens, S., et. al., Anal Chim Acta, 586, 43-48 (2007).
6. Bergamaschi, M.M., et al., Anal Bioanal Chem., [Epub ahead of print] (2013).

Liquid Form

Glucuronidase Activity: ≥ 100,000 units per mL.
Unit Definition: One unit will liberate 1.0 µg of phenolphthalein from phenolphthalein glucuronide per hour at 37 °C at pH 5.0 (30 min assay).

Sulfatase Activity: ≤ 8,000 units per mL.
Unit Definition: One unit of sulfatase will hydrolyze 1.0 µmole p-nitrocatechol sulfate per hour at 37 °C at pH 5.0.

Storage / Stability
Store at +2 to +8 °C. When stored at +2 to +8 °C, the enzyme retains activity for at least 1 year. After this period we recommend retesting the activity.

Liquid		
Part Number	**Vol. (mL)**	**Activity (units)**
BETA-GLUC-10	10	≥100,000units/mL
BETA-GLUC-25	25	≥100,000units/mL
BETA-GLUC-50	50	≥100,000units/mL

Solid Form

Glucuronidase Activity: 1,000,000 to 3,500,000 units per gram.
Unit Definition: One unit will liberate 1.0 µg of phenolphthalein from phenolphthalein glucuronide per hour at 37 °C at pH 5.0 (30 min assay).

Sulfatase Activity:
≤ 150,000 units per gram. Unit Definition: One unit of sulfatase will hydrolyze 1.0 µmole p-nitrocatechol sulfate per hour at 37 °C at pH 5.0.

Storage / Stability
Store at -20 ºC. When stored at -20 °C, the enzyme retains activity for at least 3 years. After this period we recommend retesting the activity.

Lyophilized Powder	
Part Number	**Activity (units)**
BETA-GLUC-250KU	250,000
BETA-GLUC-500KU	500,000
BETA-GLUC-1MU	1,000,000
BETA-GLUC-2MU	2,000,000

Certificate of Analysis

Every bottle comes with a Certificate of Analysis specifying actual enzyme activity as well as recommended re-test date.

SELECT pH BUFFER POUCHES

To help simplify the process of sample preparation, UCT has developed a line of 'ready-to-use' phosphate and acetate buffer pouches. The UCT buffer pouches are a convenient way of accurately preparing the necessary reagents, at the proper pH and concentration, for solid phase extraction methods. These pre-measured pouches eliminate time and more importantly, any potential error in the buffer preparation, insuring the highest efficiency in the extraction method. As with all UCT products, these buffer pouches are prepared with the same high quality standards used in the manufacture of the entire line of SPE products.

SELECT pH BUFFER POUCHES 100mM ACETATE pH 4.5

Instructions: Add 300 mL of deionized water to a 500 mL volumetric flask. Mix in the contents of the buffer pouch and shake/stir well. Add 3.24 mL of glacial acetic acid to the volumetric flask and dilute to the mark with deionized water. Ensure pH is 4.5+/-0.5. **Yield:** 500 mL of solution

Contents	Units per Pack	Part Number
5.86 g Sodium Acetate Trihydrate	5	SPHACE4501-5
	10	SPHACE4501-10

SELECT pH BUFFER POUCHES 100mM ACETATE pH 5.00

Instructions: Add 300 mL of deionized water to a 500 mL volumetric flask. Mix in the contents of the buffer pouch and shake/stir well. Add 1.04 mL of glacial acetic acid to the volumetric flask and dilute to the mark with deionized water. Ensure pH is 5.0+/-0.5. **Yield:** 500 mL of solution

Contents	Units per Pack	Part Number
4.29 g Sodium Acetate Trihydrate	5	SPHACE5001-5
	10	SPHACE5001-10

SELECT pH BUFFER POUCHES 1M ACETATE pH 5.0

Instructions: Add 300 mL of deionized water to a 500 mL volumetric flask. Mix in the contents of the buffer pouch and shake/stir well. Add 10.4 mL of glacial acetic acid to the volumetric flask and dilute to the mark with deionized water. Ensure pH is 5.0+/-0.5. **Yield:** 500 mL of solution

Contents	Units per Pack	Part Number
42.9 g Sodium Acetate Trihydrate	5	SPHACE4501-5
	10	SPHACE4501-10

SELECT pH BUFFER POUCHES 100mM PHOSPHATE pH 6.0

Instructions: Add 600 mL of deionized water to a 1000 mL volumetric flask. Add in the contents of the buffer pouch and mix/stir. Dilute to the mark with deionized water. Ensure the pH is 6.0+/-0.5. **Yield:** 1000 mL of solution

Contents	Units per Pack	Part Number
4.29 g Sodium Acetate Trihydrate	5	SPHPHO6001-5
	10	SPHPHO6001-10

SELECT pH BUFFER POUCHES 100mM PHOSPHATE pH 7.0

Instructions: Add 600 mL of deionized water to a 1000 mL volumetric flask. Add in the contents of the buffer pouch and mix/stir. Dilute to the mark with deionized water. Ensure the pH is 7.0+/-0.5. **Yield:** 1000 mL of solution

Contents	Units per Pack	Part Number
7.82 g Disodium Hydrogen Phosphate and 6.22 g Sodium Dihydrogen Phosphate Hydrate	5	SPHPHO7001-5
	10	SPHPHO7001-10

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.

SELECTRA® DA

- Unique polyaromatic phase
- Excellent Selectivity for a wide range of therapeutic drugs, drugs of abuse, mycotoxins 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

SELECTRA® DA			
Column Length (mm)	**Column i.d. (mm)**	**Particle Size**	**Part Number**
50	2.1	1.8	SLDA50ID21-18UM
100	2.1	1.8	SLDA100ID21-18UM
50	4.6	1.8	SLDA50ID46-18UM
100	4.6	1.8	SLDA100ID46-18UM
50	2.1	3	SLDA50ID21-3UM
100	2.1	3	SLDA100ID21-3UM
50	4.6	3	SLDA50ID46-3UM
100	4.6	3	SLDA100ID46-3UM
150	4.6	3	SLDA150ID46-3UM
50	2.1	5	SLDA50ID21-5UM
100	2.1	5	SLDA100ID21-5UM
50	4.6	5	SLDA50ID46-5UM
100	4.6	5	SLDA100ID46-5UM
150	4.6	5	SLDA150ID46-5UM
250	4.6	5	SLDA250ID46-5UM
Guard Cartridge Columns (2/pack)*			
10	2.0	1.8	SLDAGDC20-18UM
10	2.0	3	SLDAGDC21-3UM
10	2.0	5	SLDAGDC21-5UM

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

Guard Column Holder	
Description	**Part Number**
Guard Cartridge Holder	SLGRDHLDR

Quick Tip

Evaluation and 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.

SELECTRA® C18

- Good choice for converting current C18 methods
- Suitable for most traditional reverse phase analyses
- Excellent Carbon loading
- Fully end-capped
- Carbon Load 20%
- Conforms to USP L1

SELECTRA® C18			
Column Length (mm)	**Column i.d. (mm)**	**Particle Size**	**Part Number**
50	2.1	1.8	SLC-1850ID21-18UM
100	2.1	1.8	SLC-18100ID21-18UM
50	4.6	1.8	SLC-1850ID46-18UM
100	4.6	1.8	SLC-18100ID46-18UM
50	2.1	3	SLC-1850ID21-3UM
100	2.1	3	SLC-18100ID21-3UM
50	4.6	3	SLC-1850ID46-3UM
100	4.6	3	SLC-18100ID46-3UM
150	4.6	3	SLC-18150ID46-3UM
50	2.1	5	SLC-1850ID21-5UM
100	2.1	5	SLC-18100ID21-5UM
50	4.6	5	SLC-1850ID46-5UM
100	4.6	5	SLC-18100ID46-5UM
150	4.6	5	SLC-18150ID46-5UM
250	4.6	5	SLC-18250ID46-5UM
Guard Cartridge Columns (2/pack)*			
10	2.0	1.8	SLC-18GDC20-18UM
10	2.0	3	SLC-18GDC20-3UM
10	2.0	5	SLC-18GDC20-5UM

SELECTRA® PFPP

- Can be used for Reverse Phase, Normal Phase, or HILIC separations
- Excellent first choice column for method development
- Excellent column for LC/MS/MS analyses
- Strongly retentive for basic compounds
- Special selectivity versus C18
- May exhibit pi-pi overlap
- Fully endcapped
- Carbon Load 11%
- Conforms to USP L43

SELECTRA® PFPP			
Column Length (mm)	**Column i.d. (mm)**	**Particle Size**	**Part Number**
50	2.1	1.8	SLPFPP50ID21-18UM
100	2.1	1.8	SLPFPP100ID21-18UM
50	4.6	1.8	SLPFPP50ID46-18UM
100	4.6	1.8	SLPFPP100ID46-18UM
50	2.1	3	SLPFPP50ID21-3UM
100	2.1	3	SLPFPP100ID21-3UM
50	4.6	3	SLPFPP50ID46-3UM
100	4.6	3	SLPFPP100ID46-3UM
150	4.6	3	SLPFPP150ID46-3UM
50	2.1	5	SLPFPP50ID21-5UM
100	2.1	5	SLPFPP100ID21-5UM
50	4.6	5	SLPFPP50ID46-5UM
100	4.6	5	SLPFPP100ID46-5UM
150	4.6	5	SLPFPP150ID46-5UM
250	4.6	5	SLPFPP250ID46-5UM
Guard Cartridge Columns (2/pack)*			
10	2.0	1.8	SLPFPPGDC20-18UM
10	2.0	3	SLPFPPGDC20-3UM
10	2.0	5	SLPFPPGDC20-5UM

SELECTRA® Aqueous C18			
Column Length (mm)	Column i.d. (mm)	Particle Size	Part Number
50	2.1	1.8	SLAQ50ID21-18UM
100	2.1	1.8	SLAQ100ID21-18UM
50	4.6	1.8	SLAQ50ID46-18UM
100	4.6	1.8	SLAQ100ID46-18UM
50	2.1	3	SLAQ50ID21-3UM
100	2.1	3	SLAQ100ID21-3UM
50	4.6	3	SLAQ50ID46-3UM
100	4.6	3	SLAQ100ID46-3UM
150	4.6	3	SLAQ150ID46-3UM
50	2.1	5	SLAQ50ID21-5UM
100	2.1	5	SLAQ100ID21-5UM
50	4.6	5	SLC-1850ID46-5UM
100	4.6	5	SLAQ100ID46-5UM
150	4.6	5	SLAQ150ID46-5UM
250	4.6	5	SLAQ250ID46-5UM
Guard Cartridge Columns (2/pack)*			
10	2.0	1.8	SLAQGDC20-18UM
10	2.0	3	SLAQGDC20-3UM
10	2.0	5	SLAQGDC20-5UM

SELECTRA® Aqueous C18

- Similar non-polar retention to traditional C18
- Some selectivity differences for polar analytes,
- Suitable in up to 100% aqueous mobile phases
- Greater range of mobile phase options
- Carbon Load 10%
- Conforms to USP L1

SELECTRA® Diol			
Column Length (mm)	Column i.d. (mm)	Particle Size	Part Number
50	2.1	1.8	SLDIOL50ID21-18UM
100	2.1	1.8	SLDIOL100ID21-18UM
50	4.6	1.8	SLDIOL50ID46-18UM
100	4.6	1.8	SLDIOL100ID46-18UM
50	2.1	3	SLDIOL50ID21-3UM
100	2.1	3	SLDIOL100ID21-3UM
50	4.6	3	SLDIOL50ID46-3UM
150	4.6	3	SLDIOL150ID46-3UM
50	2.1	5	SLDIOL50ID21-5UM
100	2.1	5	SLDIOL100ID21-5UM
50	4.6	5	SLDIOL50ID46-5UM
100	4.6	5	SLDIOL100ID46-5UM
150	4.6	5	SLDIOL150ID46-5UM
250	4.6	5	SLDIOL250ID46-5UM
Guard Cartridge Columns (2/pack)*			
10	2.0	1.8	SLDIOLGDC20-18UM
10	2.0	3	SLDIOLGDC20-3UM
10	2.0	5	SLDIOLGDC20-5UM

SELECTRA® Diol

- Can be used for HILIC type separations
- Excellent / improved sensitivity for LC/MS analyses
- Better selectivity / retentiveness than bare silica for normal phase separations
- More tolerant of water in the mobile phase than bare silica for normal phase separations
- Carbon Load 7%
- Conforms to USP L20

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

EMPTY 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	10	RFV1F150P
150 mL	10	2	10	RFV2F150P
150 mL	10	1	20	RFT1F150P
150 mL	10	2	20	RFT2F150P

EMPTY FLANGELESS POLYPROPYLENE RESERVOIRS

Volume Capacity	Units per Pack	No. of Frits	Porosity of Frits (µm)	Part Number
4 mL	50	0	N/A	RFT00R3P
4 mL	50	1	20	RFT1FR3P
10 mL	50	1	20	RFT1FR10P

EMPTY GLASS RESERVOIRS

Volume Capacity	Units per Pack	No. of Frits	Porosity of Frits (µm)	Part Number
4 mL	30	0	N/A	RFV0004G
4 mL	30	1	10	RFV01F4G
8 mL	30	0	N/A	RFV0008G
8 mL	30	1	10	RFV01F8G

48 DEEP WELL FILTER PLATES

Description	Part Number	Units
Empty 48 deep well plate with one frits inserted	WIM481F	1
Loose 48 deep well plate square frits	FR10481P	48
48 deep well collection plate	WIM48CP	1

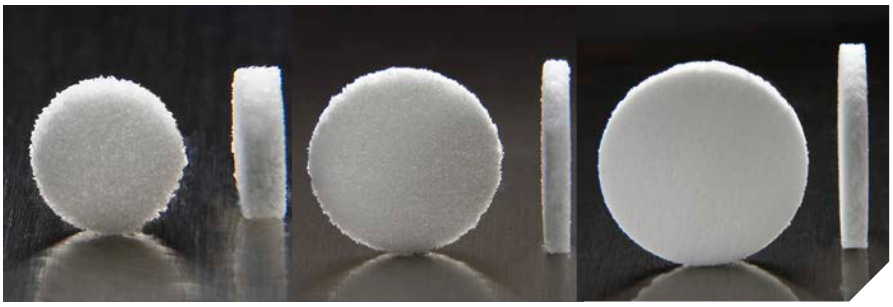
96 DEEP WELL FILTER PLATES

Description	Part Number	Units
Empty 96 deep well plate with one frits inserted	WSH961FR	1
Loose 96 deep well plate square frits	FRSH2096P	96
96 well collection plate	WSH96CP	1
96 well plate sealable lid	WSH96PS	1

EMPTY POLYPROPYLENE CARTRIDGES

Volume Capacity	Units per Pack	No. of Frits	Porosity of Frits (µm)	Part Number
600 mg (Medium)	50	0	N/A	RFV000MC
600 mg (Medium)	50	2	20	RFT02FMC
900 mg (Large)	50	0	N/A	RFV000LC
900 mg (Large)	50	2	20	RFT02FLC

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	0.792″	20 µm	1/16″	100	FR20251P
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	1/16″	100	FR20751P
75 mL	1.050″	20 µm	1/8″	100	FT20751P
150 mL	1.515″	20 µm	1/16″	20	FR201501P
150 mL	1.515″	20 µm	1/8″	20	FT201501P
PTFE FRITS					
Column Size	**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	FR50081T
15 mL	0.641″	10 µm	1.5 mm	60	FR10151T
15 mL	0.641″	50 µm	1.5 mm	100	FR50151T

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

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SOLID PHASE EXTRACTION PRODUCTS CATALOG