



# RAPID PURIFICATION SILICA PHASES



CLEAN-UP®



ENVIRO

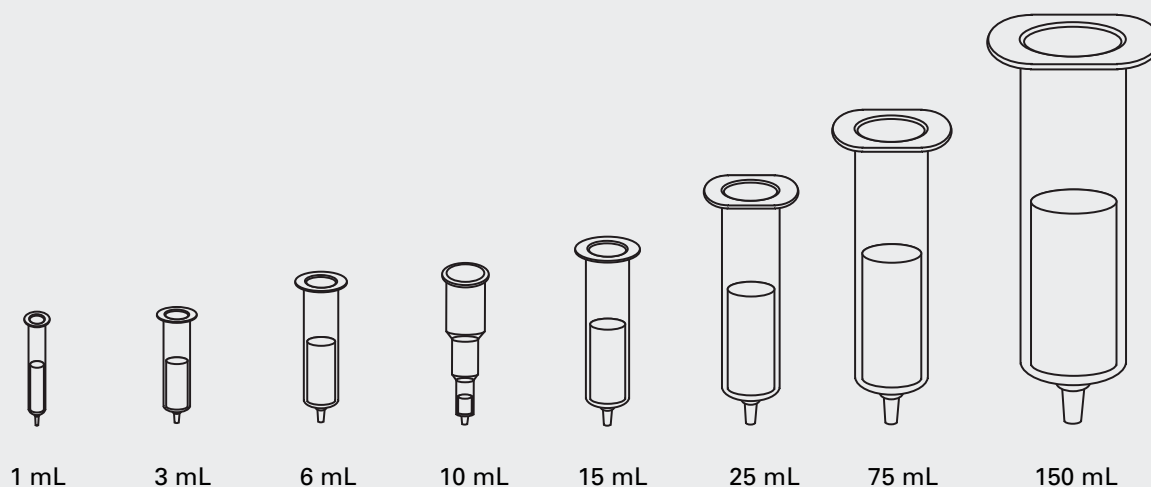


FORENSICS



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## Reservoirs for Bonded Phase Extractions



Chemistries are offered on these silica sizes...

- Small Particle (5-20  $\mu\text{m}$ )
- Intermediate Particle (25-40  $\mu\text{m}$ )
- Standard Particle (40-60  $\mu\text{m}$ )
- Large Particle (125-210  $\mu\text{m}$ )

Our sorbents can be packed in SPE columns, flash columns and well plates, and are also available in bulk quantities.

Stated Volume (mL)	Tube Configuration	Bed Diameter (mm)	Sorbent Mass (mg)
1	Cylindrical	5.5	50-200
3	Cylindrical	8.5	50-1000
6	Cylindrical	12.5	200-2000
10	Expanded	8.5	50-1000
15	Cylindrical	15.5	500-2000
25	Cylindrical	20	500-5000
75	Cylindrical	27.5	1000-10000
150	Cylindrical	38.0	1000-70000

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## Solid Phase Sorbent Selection

### Organic Loading & Exchange Capacity

#### Ion Exchange - Anion Phases

Sorbent	Structure	pK <sub>a</sub>	% Organic Loading	Exchange Capacity (meq/g)	Applications
Aminopropyl (1° amine)	-Si(CH <sub>2</sub> ) <sub>3</sub> NH <sub>2</sub>	9.8	6.65	0.310	Scavenger for acids, cyclic compounds, cholesterols, and other lipid type compounds.
N-2 Aminoethyl (1° & 2° amine)	-Si(CH <sub>2</sub> ) <sub>3</sub> NH(CH <sub>2</sub> ) <sub>2</sub> NH <sub>2</sub>	10.1, 10.9	9.70	0.320	Scavenger for acids, cyclic compounds, cholesterols, and other lipid type compounds.
Diethylamino (3° amine)	-Si(CH <sub>2</sub> ) <sub>3</sub> N(CH <sub>2</sub> CH <sub>3</sub> ) <sub>2</sub>	10.6	8.40	0.280	Scavenger for acids, cyclic compounds, cholesterols, and other lipid type compounds.
Quaternary Amine with Chloride counter ion	-Si(CH <sub>2</sub> ) <sub>3</sub> N <sup>+</sup> (CH <sub>3</sub> ) <sub>3</sub> Cl <sup>-</sup>	Always Charged	8.40	0.250	Scavenger for acids and sulfonyl chlorides, isocyanates and weak electrophiles. Useful when charge on ion being removed is stronger than the chloride counter ion.
Quaternary Amine with Acetate counter ion	-Si(CH <sub>2</sub> ) <sub>3</sub> N <sup>+</sup> (CH <sub>3</sub> ) <sub>3</sub> CH <sub>3</sub> CO <sub>2</sub> <sup>-</sup>	Always Charged	8.40	0.250	Scavenger for acids and sulfonyl chlorides, isocyanates and weak electrophiles. Useful when charge on ion being removed is stronger than the acetate counter ion.
Quaternary Amine with Hydroxide counter ion	-Si(CH <sub>2</sub> ) <sub>3</sub> N <sup>+</sup> CH <sub>3</sub> ) <sub>3</sub> OH <sup>-</sup>	Always Charged	8.40	0.250	Scavenger for acids and sulfonyl chlorides, isocyanates and weak electrophiles. Useful when charge on ion being removed is stronger than the hydroxide counter ion.
Quaternary Amine with Formate counter ion	-Si(CH <sub>2</sub> ) <sub>3</sub> N <sup>+</sup> (CH <sub>3</sub> ) <sub>3</sub> CHO <sub>2</sub> <sup>-</sup>	Always Charged	8.40	0.250	Scavenger for acids and sulfonyl chlorides, isocyanates and weak electrophiles. Useful when charge on ion being removed is stronger than the formate counter ion.
Polyimine	-Si(CH <sub>2</sub> ) <sub>3</sub> -R-[NHCH <sub>2</sub> CH <sub>2</sub> ] <sub>x</sub>		13.5	0.85	Scavenger for acids, sulfonyl chlorides, isocyanates and other electrophiles.



#### Ion Exchange - Cation Phases

Sorbent	Structure	pK <sub>a</sub>	% Organic Loading	Exchange Capacity (meq/g)	Applications
Carboxylic Acid	-SiCH <sub>2</sub> COOH	4.8	9.10	0.170	Scavenger for strong amines with quats.
Propylsulfonic Acid	-Si(CH <sub>2</sub> ) <sub>3</sub> SO <sub>3</sub> H	<1	7.10	0.180	Scavenger for amines, alcohols and other nucleophiles.
Benzenesulfonic Acid	-Si-(CH <sub>2</sub> ) <sub>2</sub> -⊖-SO <sub>3</sub> H	Always Charged	11.00	0.320	Scavenger for amines, alcohols and other nucleophiles.
Benzenesulfonic Acid High Load	-Si-(CH <sub>2</sub> ) <sub>2</sub> -⊖-SO <sub>3</sub> H	Always Charged	15.00	0.650	Scavenger for amines, alcohols and other nucleophiles.
Triacetic Acid	-Si(CH <sub>2</sub> ) <sub>3</sub> NH-(CH <sub>2</sub> ) <sub>2</sub> -N(CH <sub>2</sub> COOH) <sub>2</sub>   CH <sub>2</sub> COOH		7.61	Anion 0.17 Cation 0.06	Chelator for metal ions.

## Solid Phase Sorbent Selection

### Organic Loading & Exchange Capacity

#### Hydrophobic Phases

Sorbent	Structure	% Organic Loading	Applications
C2 ethyl	-SiCH <sub>2</sub> CH <sub>3</sub>	6.60	Removes larger or more hydrophobic compounds.
C3 propyl	-Si(CH <sub>2</sub> ) <sub>2</sub> CH <sub>3</sub>	7.60	
C4 n-butyl	-Si(CH <sub>2</sub> ) <sub>3</sub> CH <sub>3</sub>	8.50	
Ci4 isobutyl	-SiCH <sub>2</sub> CH(CH <sub>3</sub> ) <sub>2</sub>	8.80	
Ct4 tertiary	-SiC(CH <sub>3</sub> ) <sub>3</sub>	8.50	
C5 pentyl	-Si(CH <sub>2</sub> ) <sub>4</sub> CH <sub>3</sub>	9.50	
C6 hexyl	-Si(CH <sub>2</sub> ) <sub>5</sub> CH <sub>3</sub>	11.00	
C7 heptyl	-Si(CH <sub>2</sub> ) <sub>6</sub> CH <sub>3</sub>	11.00	
C8 octyl	-Si(CH <sub>2</sub> ) <sub>7</sub> CH <sub>3</sub>	11.10	
C10 n-decyl	-Si(CH <sub>2</sub> ) <sub>9</sub> CH <sub>3</sub>	15.70	
C12 n-dodecyl	-Si(CH <sub>2</sub> ) <sub>11</sub> CH <sub>3</sub>	15.50	
C18 octadecyl	-Si(CH <sub>2</sub> ) <sub>17</sub> CH <sub>3</sub>	21.70	
C20 eicosyl	-Si(CH <sub>2</sub> ) <sub>19</sub> CH <sub>3</sub>	24.30	Removes smallest or least hydrophobic compounds.
C30 tricontyl	-Si(CH <sub>2</sub> ) <sub>29</sub> CH <sub>3</sub>	26.00	
Cyclohexyl	-Si 	11.60	Scavenger for phenolic compounds.
Phenyl	-Si 	11.00	Scavenger for polar compounds.

#### Hydrophilic Phases

Sorbent	Structure	% Organic Loading	Exchange Capacity (meq/g)	Applications
Silica	-SiOH	N/A	N/A	Removal of hydrophilic (polar) impurities and purification of hydrophilic (polar) compounds.
Diol	-Si(CH <sub>2</sub> ) <sub>3</sub> OCH <sub>2</sub> -CHOHCH <sub>2</sub> OH	8.00	N/A	Removal of hydrophilic (polar) impurities and purification of hydrophilic (polar) compounds.
Cyanopropyl	-Si(CH <sub>2</sub> ) <sub>3</sub> CN	6.90	N/A	Removes steroid type compounds.
Florisil®		N/A	N/A	Removes polar type compounds.
Alumina-Acid		N/A	N/A	Removes polar type compounds.
Alumina-Neutral		N/A	N/A	Removes polar type compounds.
Alumina-Base		N/A	N/A	Removes polar type compounds.
Carbon		N/A	N/A	Removes polar type compounds.

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## Solid Phase Sorbent Selection

### Organic Loading & Exchange Capacity

#### Copolymeric (Multifunctional Phases)

Sorbent	Structure	% Organic Loading	Exchange Capacity (meq/g)	Applications
Aminopropyl + C8	$-\text{Si}(\text{CH}_2)_3\text{NH}_2$ & $-\text{Si}(\text{CH}_2)_7\text{CH}_3$	12.3	0.163	Dual functionality for strong acids and hydrophobic compounds
Quaternary Amine + C8	$-\text{Si}(\text{CH}_2)_3\text{N}^+(\text{CH}_3)_3$ & $-\text{Si}(\text{CH}_2)_7\text{CH}_3$	13.60	0.160	Dual functionality for strong acids and hydrophobic compounds
Carboxylic Acid + C8	$-\text{SiCH}_2\text{COOH}$ & $-\text{Si}(\text{CH}_2)_7\text{CH}_3$	12.50	0.105	Dual functionality for strong acids and hydrophobic compounds
Propylsulfonic Acid + C8	$-\text{Si}(\text{CH}_2)_3\text{SO}_3\text{H}$ & $-\text{Si}(\text{CH}_2)_7\text{CH}_3$	14.62	0.114	Dual functionality for strong acids and hydrophobic compounds
Benzenesulfonic Acid + C8	$-\text{Si}(\text{CH}_2)_2\text{-SO}_3\text{H}$ & $-\text{Si}(\text{CH}_2)_7\text{CH}_3$	12.30	0.072	Dual functionality for strong acids and hydrophobic compounds
Cyanopropyl + C8	$-\text{Si}(\text{CH}_2)_3\text{CN}$ & $-\text{Si}(\text{CH}_2)_7\text{CH}_3$	14.60	0.163	Dual functionality for strong acids and hydrophobic compounds
Cyclohexyl + C8	$-\text{Si}-\square$ & $-\text{Si}(\text{CH}_2)_7\text{CH}_3$	N/A	N/A	Dual functionality for strong acids and hydrophobic compounds

#### Covalent Phases

Sorbent	Structure	% Organic Loading	Exchange Capacity (meq/g)	Applications
Epoxy	$-\text{Si}(\text{CH}_2)_3-\text{O}-\text{CH}_2-\underset{\text{O}}{\text{CH}}-\text{CH}_2$	N/A	N/A	Covalent bond formation with proteins, amines and other nucleophiles.
Aldehyde	$-\text{Si}(\text{CH}_2)_4\text{CHO}$	N/A	N/A	Scavenger for primary amines, hydrazines, reducing agents and other nucleophiles. Covalent bonding for proteins, enzymes and other bioactive molecules.
Isocyanate	$-\text{Si}(\text{CH}_2)_3\text{NCO}$	7.1	N/A	Scavenger for amines, alkoxides and other nucleophiles.
Thiopropyl	$-\text{Si}(\text{CH}_2)_3\text{SH}$	6.50	N/A	Scavenger for alkylating agents, alcohols and amines.

### PRICES AND TERMS

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

### MINIMUM ORDERS

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

### SHIPMENTS

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

### SPECIAL PRICING

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

### RETURN POLICY

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

### WARRANTY

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

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

This warranty does not apply to damage resulting from misuse.

#### Placing An Order

Phone: 717.247.0896  
800.541.0559  
Fax: 717.247.0109

#### Mail

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