Solid Phase Extraction (SPE)
Discovery Products

Solid Phase Extraction Products

Designed to meet the exacting requirements of pharmaceutical and clinical analysis, Discovery SPE products are ideal for all application areas including: Food & Beverage, Environmental, Petrochemical, Argiculture, Consumer Products and more...

The multitude of phase chemistries and hardware configurations available within the Discovery SPE line offer the comprehensive level of selection and flexibility required to handle today's increasingly complex and diverse sample prep challenges.

Each Discovery SPE product includes an extensive Certificate of Analysis ensuring optimal performance and reproducible properties for each Discovery product shipped from Supelco.

Discovery SPE allows you to:

- Achieve greater and more reproducible recoveries for diverse compounds from difficult sample matrices
- Removes endogenous sample interference for improved accuracy and sensitivity
- Concentrate target analytes for increased sensitivity
- Protects analytical instrument from unwanted sample matrix components

Discovery SPE offers the quality and performance you need to bridge the sample prep gap between sample collection and analysis.

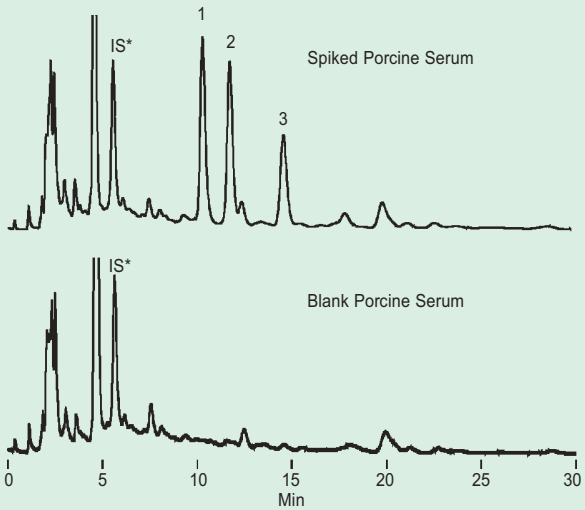
Discovery SPE Products:

- Developed, tested and quality controlled for pharmaceutical and clinical applications
- Twelve different phase chemistries ranging from polymerically bonded C18 to polyamide adsorbents
- Available in 96-well plate configurations for high throughput parallel processing
- Available in Buchner Funnel configurations for easier scalability (combinatorial chemistry clean-up)
- Ultra clean phases for highly sensitive analyses
- Narrower pore size distribution for improved extraction selectivity
- Acid washed to reduce metal chelating activity
- Consistent particle size and specific surface area coverage to ensure reproducible recoveries
- Low fines (<12µm) content to minimize injection port fouling

PROPERTIES

Base Silica:	Irregular shape, acid washed
Mean Particle Size:	50µm
Mean Pore Diameter:	70Å
Total Pore Volume:	0.9cm³/g
Specific Surface Area:	480m²/g
Endcapped:	Yes

Extraction of Anti-Ulcer Compounds from Porcine Serum using Discovery DSC-18 SPE

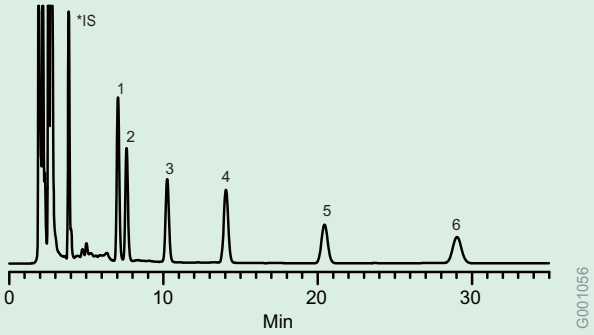


Compound	Concentration (µg/mL)	%Recovery ± RSD (n = 6)
1. Ranitidine	0.25	92.5 ± 5.4
	0.50	95.5 ± 5.1
2. Cimetidine	0.25	94.5 ± 5.2
	0.50	98.2 ± 3.2
3. Nizatidine	0.25	97.0 ± 7.0
	0.50	94.8 ± 3.4

Analyzed with a Discovery C18 HPLC Column, 15cm x 4.6mm ID, 5µm particles

* IS = Famotidine (internal standard).

Barbiturates from serum, using 500mg/3mL Discovery DSC-18Lt SPE tubes and Zymark RapidTrace SPE Workstation.



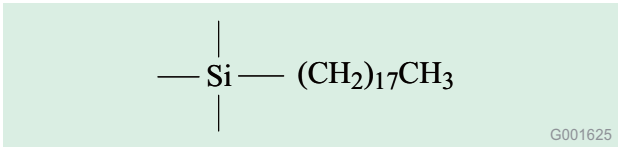
Analyzed with a Discovery C18 HPLC column, 15cm x 4.6mm ID, 5µm particles.

Efficiency of Recovery

Compound	Concentration (µg/mL)	%Recovery	%RSD (n=6)
1. Phenobarbital	0.5	96.2	±1.6
	1.0	94.9	±1.7
2. Aprobarbital	0.5	98.5	±2.1
	1.0	100.8	±0.8
3. Butabarbital	0.5	97.2	±1.9
	1.0	98.7	±1.8
4. Mephobarbital	0.5	99.7	±2.4
	1.0	101.0	±2.0
5. Pentobarbital	0.5	96.4	±1.7
	1.0	96.4	±1.9
6. Secobarbital	0.5	98.2	±1.7
	1.0	97.7	±1.8

* IS = Barbital (internal standard).

Discovery DSC-18 SPE Products



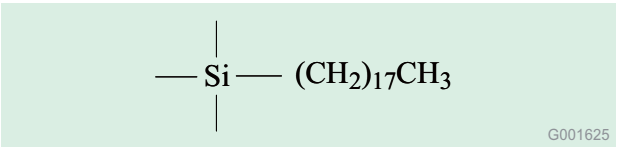
Retention Mechanism:Reversed-phase

Sample Matrix Compatibility: Aqueous solutions (biological fluids, water)

- Polymerically bonded, octadecyl (18%C), endcapped
- Higher 18%C loading for increased binding capacities and higher recoveries
- The least selective phase: retains most organic analytes from aqueous matrices
- Can also be used for desalting aqueous matrices
- Beneficial for extracting structurally diverse analytes from the same sample

DESCRIPTION	QTY.	CAT. NO.	PRICE
SPE TUBES			
50mg/1mL	108	52601-U	
100mg/1mL	108	52602-U	
500mg/3mL	54	52603-U	
500mg/6mL	30	52604-U	
1g/6mL	30	52606-U	
2g/12mL	20	52607-U	
5g/20mL	20	52608-U	
10g/60mL	16	52609-U	
SPE 96-WELL PLATES			
100mg/well	1	575603-U	
50mg/well	1	575602-U	
25mg/well	1	575601-U	
BULK PACKING			
Bulk packing	100g	52600-U	

Discovery DSC-18Lt SPE Products



Retention Mechanism:Reversed-phase

Sample Matrix Compatibility: Aqueous solutions (biological fluids, water)

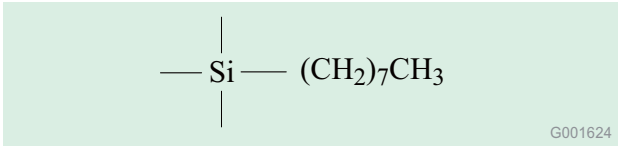
- Monomerically bonded, octadecyl (11%C), endcapped
- Increased retention for moderately polar hydrophobic molecules
- Used to elute very large hydrophobic molecules that are too strongly retained on DSC-18.
- Offers opportunity to differentiate between drug metabolites in bioanalysis applications
- Use this less retentive phase for the rapid release of hydrophobic compounds using weaker organic solvents at lower volumes

DESCRIPTION	QTY.	CAT. NO.	PRICE
SPE TUBES			
50mg/1mL	108	52610-U	
100mg/1mL	108	52611-U	
500mg/3mL	54	52613-U	
500mg/6mL	30	52615-U	
1g/6mL	30	52616-U	
2g/12mL	20	52618-U	
5g/20mL	20	52621-U	
10g/60mL	16	52622-U	
SPE 96-WELL PLATES			
100mg/well	1	575606-U	
50mg/well	1	575605-U	
25mg/well	1	575604-U	
BULK PACKING			
Bulk packing	100g	52623-U	

Note: Unless stated otherwise, tubes are polypropylene. Frits are polyethylene with 20µm pores.

Solid Phase Extraction (SPE)
Discovery SPE Tubes

Discovery DSC-8 SPE Products



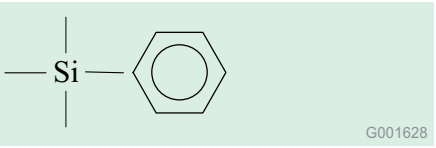
Retention Mechanism:Reversed-phase

Sample Matrix Compatibility: Aqueous solutions (biological fluids, water)

- Monomerically bonded, octyl (9%C), endcapped; lower carbon content than DSC-18Lt
- Used to elute very large hydrophobic molecules too strongly retained on DSC-18 or DSC-18Lt
- Use this less retentive phase for the rapid release of hydrophobic molecules using weaker organic solvents at lower volumes
- Inorganic buffers of sufficient ionic strength may be used for elution

DESCRIPTION	QTY.	CAT. NO.	PRICE
SPE TUBES			
50mg/1mL	108	52703-U	
100mg/1mL	108	52707-U	
500mg/3mL	54	52713-U	
500mg/6mL	30	52714-U	
1g/6mL	30	52716-U	
2g/12mL	20	52717-U	
5g/20mL	20	52718-U	
10g/60mL	16	52722-U	
SPE 96-WELL PLATES			
100mg/well	1	575627-U	
50mg/well	1	575628-U	
25mg/well	1	575629-U	
BULK PACKING			
Bulk packing	100g	57223-U	

Discovery DSC-Ph SPE Products



Retention Mechanism:Reversed-phase

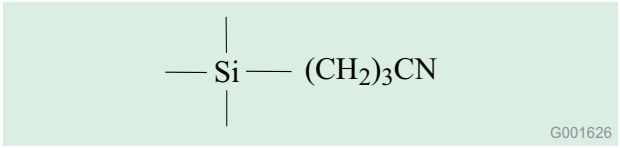
Sample Matrix Compatibility: Aqueous solutions (biological fluids, water)

- Monomerically bonded, phenyl (7%C), endcapped
- Similar in polarity to DSC-8; however, electron dense aromatic ring offers unique selectivity and retention
- Offers improved retention of conjugated ring structures over aliphatic functional groups.

DESCRIPTION	QTY.	CAT. NO.	PRICE
SPE TUBES			
50mg/1mL	108	52723-U	
100mg/1mL	108	52725-U	
500mg/3mL	54	52727-U	
500mg/6mL	30	52728-U	
1g/6mL	30	52731-U	
SPE 96-WELL PLATES			
100mg/well	1	575630-U	
50mg/well	1	575631-U	
25mg/well	1	575632-U	
BULK PACKING			
Bulk packing	100g	57227-U	

Note: Unless stated otherwise, tubes are polypropylene. Frits are polyethylene with 20µm pores.

Discovery DSC-CN SPE Products



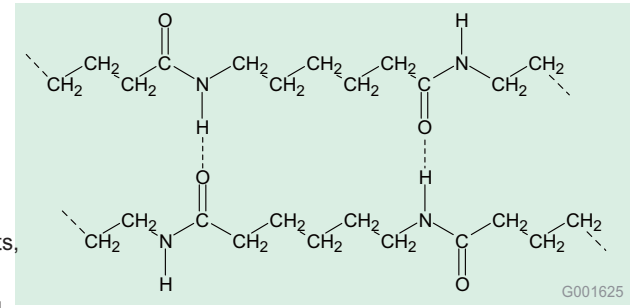
Retention Mechanism:Reversed-phase or Normal phase

Sample Matrix Compatibility: Aqueous solutions (biological fluids, water) when used in reversed-phase; or organic solvents, oils, and lipids when used in normal phase

- Monomerically bonded, cyanopropyl (7%C), endcapped
- Can be used in either reversed-phase or normal phase
- Ideal for very hydrophobic analytes that may be irreversibly retained on more hydrophobic sorbents such as DSC-18
- Less retentive than DSC-Si or DSC-Diol when used in normal phase (organic matrices such as hexane or oils)
- Allows for the rapid release of very polar molecules irreversibly retained on very polar sorbents

DESCRIPTION	QTY.	CAT. NO.	PRICE
SPE TUBES			
50mg/1mL	108	52693-U	
100mg/1mL	108	52694-U	
500mg/3mL	54	52695-U	
500mg/6mL	30	52696-U	
1g/6mL	30	52697-U	
2g/12mL	20	52698-U	
5g/20mL	20	52699-U	
10g/60mL	16	52700-U	
SPE 96-WELL PLATES			
100mg/well	1	575624-U	
50mg/well	1	575625-U	
25mg/well	1	575626-U	
BULK PACKING			
Bulk packing	100g	57222-U	

Discovery DPA-6S SPE Products



Retention Mechanism:Reversed-phase

Sample Matrix Compatibility: Aqueous or methanolic solutions

- Polyamide Resin: Particle Size: 50-160µm, Surf pH: 4.5-7.5, Density: 0.2-0.3cm³/g, Water Content: < 5%
- Used to adsorb polar compounds (-OH groups, esp. phenolic compounds) from aqueous or methanolic solutions under the reversed-phase mechanism through strong hydrogen bonding between compound hydroxyl groups and amide groups of the resin
- Useful for extracting tannins, chlorophyll, humic acid, pharmacologically active terpenoids, flavanoids, gallic acid, catechol A, protocatechuic acid, and phloroglucinol
- Also useful for extracting aromatic carboxylic acids and nitroaromatic compounds
- Irreversibly retains quinones

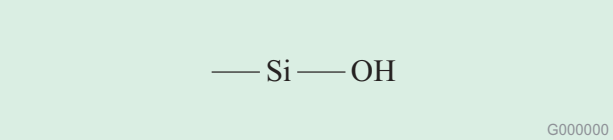
DESCRIPTION	QTY.	CAT. NO.	PRICE
SPE TUBES			
50mg/1mL	108	52624-U	
250mg/3mL	54	52625-U	
250mg/6mL	30	52626-U	
500mg/6mL	30	52627-U	
1g/12mL	20	52629-U	
2g/20mL	20	52631-U	
5g/60mL	16	52632-U	
BULK PACKING			
Bulk packing	50g	52633-U	
BUCHNER FUNNELS			
110mm ID x 66mm H; 50g/800mL	1	52634-U	

Note: Unless stated otherwise, tubes are polypropylene. Frits are polyethylene with 20µm pores.

Solid Phase Extraction (SPE)

Discovery SPE Tubes

Discovery DSC-Si SPE Products



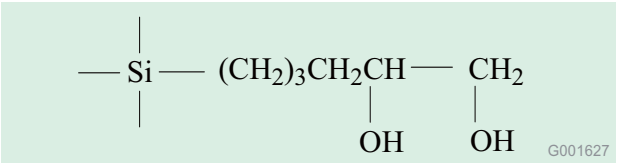
Retention Mechanism:Normal phase

Sample Matrix Compatibility: Organic solvents, oils, and lipids

- Unbonded acid washed silica sorbent ideal for normal phase SPE and other modified flash techniques
- Often used to separate or remove structurally similar molecules through successive elutions with increasingly polar solutions
- The most polar normal phase sorbent available
- Excellent capacity for purifying solution phase combinatorial chemistry reactions when removing target molecules from reaction by-products and excess reagents
- Available in Büchner Funnel configurations for easy scala

DESCRIPTION	QTY.	CAT. NO.	PRICE
SPE TUBES			
50mg/1mL	108	52652-U	
100mg/1mL	108	52653-U	
500mg/3mL	54	52654-U	
500mg/6mL	30	52655-U	
1g/6mL	30	52656-U	
2g/12mL	20	52657-U	
5g/20mL	20	52658-U	
10g/60mL	16	52659-U	
SPE 96-WELL PLATES			
100mg/well	1	575609-U	
50mg/well	1	575608-U	
25mg/well	1	575607-U	
BULK PACKING			
Bulk Packing	100g	52651-U	
BUCHNER FUNNELS			
50mmID x 30mmH; 12.5g	6	52591-U	
70mmID x 40mmH; 25g	6	52592-U	
90mmH x 48mmH; 50g	6	52593-U	
110mmID x 66mmH; 100g	6	52594-U	

Discovery DSC-Diol SPE Products



Retention Mechanism:Normal phase

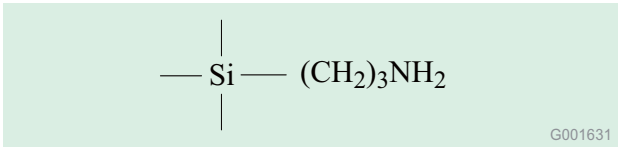
Sample Matrix Compatibility: Organic solvents, oils, and lipids

- Polymerically bonded, 2,3-Dihydroxypropoxypropyl (7%C)
- Polar sorbent most commonly used for normal phase applications (polar extractions from non-polar matrices)
- The sorbent's dihydroxy groups facilitates strong hydrogen bonding
- Excellent selectivity when extracting structurally similar molecules

DESCRIPTION	QTY.	CAT. NO.	PRICE
SPE TUBES			
50mg/1mL	108	52747-U	
100mg/1mL	108	52748-U	
500mg/3mL	54	52751-U	
500mg/6mL	30	52752-U	
1g/6mL	30	52753-U	
SPE 96-WELL PLATES			
100mg/well	1	575636-U	
50mg/well	1	575637-U	
25mg/well	1	575638-U	
BULK PACKING			
Bulk packing	100g	57229-U	

Note: Unless stated otherwise, tubes are polypropylene. Frits are polyethylene with 20µm pores.

Discovery DSC-NH_2 SPE Products



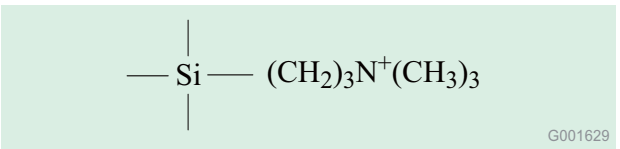
Retention Mechanism:Normal phase or Anion-exchange

Sample Matrix Compatibility: Organic or aqueous solutions

- Polymerically bonded, aminopropyl phase that is very polar in nature (hydrogen bonding) allowing for both normal phase and ion exchange applications
- A weak anion exchanger with a pKa of 9.8. At pH 7.8 or below, the functional groups are positively charged
- Ion exchange capacity is ~ 0.43 meq/g.
- Allows the rapid release of very strong anions such as sulfonic acids that may be retained irreversibly by strong anion exchangers
- Can be used in some reversed-phase applications (due to ethyl spacer); however, it is predominately used as an ion-exch or normal phase sorbent due to its polar nature

DESCRIPTION	QTY.	CAT. NO.	PRICE
SPE TUBES			
50mg/1mL	108	52635-U	
100mg/1mL	108	52636-U	
500mg/3mL	54	52637-U	
500mg/6mL	30	52638-U	
1g/6mL	30	52640-U	
2g/12mL	20	52641-U	
5g/20mL	20	52642-U	
10g/60mL	16	52644-U	
SPE 96-WELL PLATES			
100mg/well	1	575615-U	
50mg/well	1	575616-U	
25mg/well	1	575617-U	
BULK PACKING			
Bulk packing	100g	57212-U	

Discovery DSC-SAX SPE Products



Retention Mechanism:Anion-exchange

Sample Matrix Compatibility: Organic or aqueous solutions

- A polymerically bonded quarternary amine that remains positively charged at all pH levels
- Counter ion is Cl^-
- Ion exchange capacity is ~ 0.14 meq/g
- Commonly used when extracting weaker cations (e.g., carboxylic acids) that may not bind strongly enough to weaker anion-exchangers
- Selectivity can be modified by changing the counter ion with the appropriate buffer during conditioning

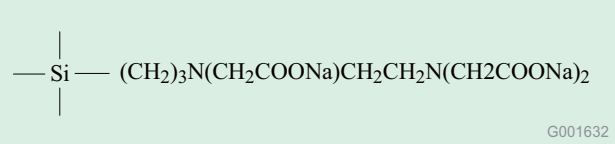
DESCRIPTION	QTY.	CAT. NO.	PRICE
SPE TUBES			
50mg/1mL	108	52661-U	
100mg/1mL	108	52662-U	
500mg/3mL	54	52664-U	
500mg/6mL	30	52665-U	
1g/6mL	30	52666-U	
2g/12mL	20	52667-U	
5g/20mL	20	52668-U	
10g/60mL	16	52669-U	
SPE 96-WELL PLATES			
100mg/well	1	575618-U	
50mg/well	1	575619-U	
25mg/well	1	575620-U	
BULK PACKING			
Bulk packing	100g	57214-U	

Note: Unless stated otherwise, tubes are polypropylene. Frits are polyethylene with 20µm pores.

Solid Phase Extraction (SPE)

Discovery SPE Tubes

Discovery DSC-WCX SPE Products



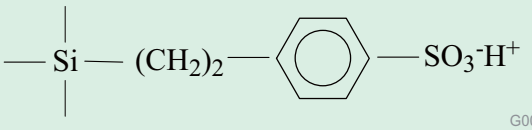
Retention Mechanism:Cation exchange

Sample Matrix Compatibility: Organic or aqueous solutions

- A polymerically bonded, carboxy propyl phase with a pKa of 4.8
- Counter ion is Na
- Ion exchange capacity is ~ 0.15 meq/g
- Carries a negative charge at pH 6.8 or above
- A pH of 2.8 or below neutralizes this phase for easier elution of strong cationic analytes that are neutralized only at extreme basic conditions
- Typically used when dealing with very strong cationic (high pKa) compounds that may be irreversibly retained on strong cation exchangers

DESCRIPTION	QTY.	CAT. NO.	PRICE
SPE TUBES			
50mg/1mL	108	52737-U	
100mg/1mL	108	52739-U	
500mg/3mL	54	52741-U	
500mg/6mL	30	52742-U	
1g/6mL	30	52743-U	
2g/12mL	20	52744-U	
5g/20mL	20	52745-U	
10g/60mL	16	52746-U	
SPE 96-WELL PLATES			
100mg/well	1	575633-U	
50mg/well	1	575634-U	
25mg/well	1	575635-U	
BULK PACKING			
Bulk packing	100g	57228-U	

Discovery DSC-SCX SPE Products



Retention Mechanism:Cation exchange

Sample Matrix Compatibility: Organic or aqueous solutions

- A polymerically bonded, benzene sulfonic acid functional group, pKa (<1.0)
- Counter ion is H
- Silica support allows for use with very organic solvents (no shrinking/swelling)
- Excellent capacity (0.8meq/g) for cleaning up solution phase combinatorial chemistry reactions (removing target molecules from reaction by-products and excess reagents)
- The presence of the benzene ring offers some mixed-mode capabilities (hydrophobic interactions) that should be considered when extracting cations from aqueous matrices

DESCRIPTION	QTY.	CAT. NO.	PRICE
SPE TUBES			
50mg/1mL	108	52684-U	
100mg/1mL	108	52685-U	
500mg/3mL	54	52686-U	
500mg/6mL	30	52688-U	
1g/6mL	30	52689-U	
2g/12mL	20	52690-U	
5g/20mL	20	52691-U	
10g/60mL	16	52692-U	
SPE 96-WELL PLATES			
100mg/well	1	575621-U	
50mg/well	1	575622-U	
25mg/well	1	575623-U	
BULK PACKING			
Bulk packing	100g	57221-U	

Note: Unless stated otherwise, tubes are polypropylene. Frits are polyethylene with 20µm pores.

Solid Phase Extraction (SPE)
Supelclean ENVI SPE Tubes and Disks

Supelclean ENVI SPE Products:

- Developed, highly tested, and quality controlled for environmental applications
- Seven different phase chemistries ranging from our unique ENVI-Carb carbon adsorbents to ENVI-18 DSKs – reversed phase SPE membranes for large volume water samples
- Available in glass tubes, Teflon and stainless steel frit configurations for EPA compliance
- Ultra clean phases for highly sensitive analyses
- Documented applications in compliance to standardized EPA methodology
- Consistent particle size and specific surface area to ensure reproducible recoveries

PROPERTIES	
Base Silica:	Irregular shape, acid washed
Mean Particle Size:	45µm
Mean Pore Diameter:	60Å
Total Pore Volume:	0.8cm³/g
Specific Surface Area:	475m²/g
Endcapped:	Yes

Supelclean ENVI-18 SPE Products

Retention Mechanism:Reversed-phase

Sample Matrix Compatibility:Aqueous solutions (drinking, ground, waste water)

- Polymerically bonded, octadecyl (17%C), endcapped
- Excellent for cleaning, extracting and concentrating pollutants from aqueous environmental samples
- Higher 17%C loading for increased binding capacities and higher recoveries
- Higher carbon loading also offers greater resistance to extreme pH conditions
- Used for extracting herbicides, fungicides, and pesticides from waste material

DESCRIPTION	QTY.	CAT. NO.	PRICE
SPE TUBES			
100mg/1mL	108	57062	
500mg/3mL	54	57063	
500mg/6mL	30	57064	
1g/6mL	30	505706	
2g/12mL	20	57114	
5g/20mL	20	57137	
10g/60mL	16	57138	
BULK PACKING			
Bulk packing	100g	57219	

Supelclean ENVI-8 SPE Products

Retention Mechanism:Reversed-phase

Sample Matrix Compatibility:Aqueous solutions (drinking, ground, waste water)

- High 14%C loading for increased binding capacities and higher recoveries
- Higher carbon loading also offers greater resistance to extreme pH conditions
- Excellent for cleaning, extracting and concentrating pollutants from aqueous environmental samples
- Used for extracting herbicides, fungicides, and pesticides from waste material

DESCRIPTION	QTY.	CAT. NO.	PRICE
SPE TUBES			
100mg/1mL	108	57230-U	
500mg/3mL	54	57231	
500mg/6mL	30	57232	
1g/6mL	30	57233	
5g/20mL	20	57139	
10g/60mL	16	57140-U	
SPE TUBES (GLASS TUBES; TEFLON FRITS)			
500mg/3mL	27	57106	
500mg/6mL	20	57107	

Supelclean ENVI-18 & ENVI-8 DSK SPE Discs

The SPE membrane equivalents of ENVI-18 and ENVI-8 packed bed SPE sorbents

Retention Mechanism:Reversed-phase

Sample Matrix Compatibility:Aqueous solutions (drinking water)

- Porous glass fiber membranes embedded with C18 or C8 modified silica particles.
- Provides faster flow rates and exhibits less clogging than Teflon discs for the extraction of organic contaminants from drinking water samples
- Typical applications include polynuclear aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), phthalates, semivolatile organics, paraquat and diquat, pesticides and herbicides

DESCRIPTION	QTY.	CAT. NO.	PRICE
ENVI-18DSK SPE DISKS			
47mm Diam.	24	57171	
90mm Diam.	12	57170-U	
ENVI-8DSK SPE DISKS			
47mm Diam.	24	57172	

Note: Unless stated otherwise, tubes are polypropylene. Frits are polyethylene with 20µm pores.

Solid Phase Extraction (SPE)

Supelclean ENVI SPE Tubes

Supelclean ENVI-Carb SPE Products

Graphitized Non-Porous Carbon

Retention Mechanism:Reversed-phase

Sample Matrix Compatibility: Aqueous solutions (drinking, ground, waste water)

- Extreme affinity for organic polar and non-polar compounds from both non-polar and polar matrices when used under reversed-phase conditions
- Carbon surface comprised of hexagonal ring structures, interconnected and layered into graphitic sheets
- Non-porous nature of the carbon phase allows for rapid processing, adsorption does not require analyte dispersion into solid phase pores
- Independent investigators have found ENVI-Carb extremely useful for the rapid sample preparation of over 200 pesticides from various matrices including ground water, fruits and vegetable

DESCRIPTION	QTY.	CAT. NO.	PRICE
ENVI-CARB (SURF. AREA 100MG; 120/400 MESH)			
250mg/3mL	54	57088	
250mg/6mL	30	57092	
500mg/6mL	30	57094	
1g/12mL	20	57127-U	
2g/12mL	20	57128	
5g/20mL	20	57129	
10g/60mL	16	57130	
Bulk Packing	50g	57210-U	
ENVI-CARB C (SURF. AREA 10MG; 80/100 MESH)			
1g/12mL	20	57149	
ENVI-CARB X (SURF. AREA 250MG; 120/400 MESH)			
Bulk Packing	50g	10439-U	
ENVI-CARB Y (SURF. AREA 25MG; 120/400 MESH)			
Bulk Packing	50g	10464-U	

Supelclean ENVI-Chrom P SPE Products

Styrene/divinyl benzene co-polymer

Retention Mechanism:Reversed-phase or Adsorption

Sample Matrix Compatibility: Aqueous solutions

- Particle Size: 80-160µm; Spherical Shape; Pore Size: 110-175Å; Surface Area: 900m²/g
- Highly crosslinked, neutral, specially cleaned styrene-divinylbenzene resin used to retain hydrophobic compounds with some hydrophilic functionality under reversed phase conditions
- Highly resistant to extreme pH conditions
- Typical applications include aromatics and phenolic compounds from aqueous sample matrices
- Used for priority pollutant phenols from aqueous samples

DESCRIPTION	QTY.	CAT. NO.	PRICE
ENVI-CHROM P SPE TUBES (GLASS TUBES; TEFLON FRITS)			
100mg/1mL	108	57143	
250mg/3mL	54	57224	
250mg/6mL	30	57225-U	
500mg/6mL	30	57226	
ENVI-CHROM P BULK PACKING			
Bulk packing	50g	57217	

Supelclean ENVI-Florisil

Magnesium Silicate

Retention Mechanism:Normal phase or Adsorption

Sample Matrix Compatibility: Organic solutions

- Mesh: 100/120; Available with Teflon or stainless steel frits
- Tested for US Environmental Protection Agency (EPA) Contract Laboratory Program (CLP) statement of work for pesticides
- Highly polar material that strongly adsorbs to polar compounds from nonpolar matrices under normal phase conditions
- Typical applications include alcohols, aldehydes, amines, herbicides, pesticides, PCBs, ketones, nitro compounds, organic acids, and phenols

DESCRIPTION	QTY.	CAT. NO.	PRICE
ENVI-FLORISIL			
500mg/3mL, Teflon	54	57058	
500mg/6mL, SS	30	57046	
1g/6mL, SS	30	57053	

Note: Unless stated otherwise, tubes are polypropylene. Frits are polyethylene with 20µm pores.

Reversed Phase Supelclean SPE Tubes

Extract nonpolar to moderately polar analytes from aqueous samples.

DESCRIPTION	QTY.	CAT. NO.	PRICE
LC-18 (OCTADECYL, ~10% C, ENDCAPPED)			
100mg/1mL	108	504270	
500mg/3mL	54	57012	
500mg/6mL	30	57054	
1g/6mL	30	505471	
2g/12mL	20	57117	
5g/20mL	20	57135-U	
10g/60mL	16	57136	
Bulk Packing	100g	57202	
LC-8 (OCTYL, ~7% C, ENDCAPPED)			
100mg/1mL	108	504157	
500mg/3mL	54	505145	
500mg/6mL	30	57052	
Bulk Packing	100g	57201	
LC-4 (BUTYLDIMETHYL, 500Å PORES, ENDCAPPED)			
500mg/3mL	54	57089	
LC-PH (PHENYL, ~5.5% C, ENDCAPPED)			
100mg/1mL	108	504599	
500mg/3mL	54	505269	
HISEP (HYDROPHOBIC SITES SHIELDED BY A HYDROPHILIC SURFACE; FOR PROTEIN EXCLUSION)			
500mg/3mL	54	57076-U	

Normal Phase Supelclean SPE Tubes

Extract moderately polar to polar analytes from nonaqueous samples.

DESCRIPTION	QTY.	CAT. NO.	PRICE
LC-CN (CYANOPROPYL, ~7% C, ENDCAPPED)			
100mg/1mL	108	504386	
500mg/3mL	54	57013	
500mg/6mL	30	57056	
5g/20mL	20	57141	
10g/60mL	16	57142	
LC-NH_2 (AMINOPROPYL, ~5% C)			
100mg/1mL	108	504483	
500mg/3mL	54	57014	
Bulk Packing	100g	57205	
LC-DIOL (DIOL, ~7% C)			
100mg/1mL	108	504718	
500mg/3mL	54	57016	

Adsorption Supelclean SPE Tubes

No bonded phase; extract polar analytes from nonpolar samples (LCP-Si, LC-Florisil, LC-Alumina).

DESCRIPTION	QTY.	CAT. NO.	PRICE
LC-SI (SILICA GEL)			
100mg/1mL	108	504041	
500mg/3mL	54	505048	
500mg/6mL	30	505374	
1g/6mL	30	57051	
2g/12mL	20	57116	
5g/20mL	20	57133	
10g/60mL	16	57134	
Bulk Packing	100g	57200	
LC-FLORISIL (MAGNESIUM SILICATE, 100/120 MESH)			
1g/6mL	30	57057	
2g/12mL	20	57115	
5g/20mL	20	57131	
10g/60mL	16	57132	
Bulk Packing	100g	57209	
LC-ALUMINA-N (ALUMINA FOR NEUTRAL pH (~6.5) BROCKMANN ACT. I, 60/325 MESH)			
1g/3mL	54	57086	
2g/6mL	30	57087	
Bulk Packing	100g	57208	
LC-ALUMINA-A (ALUMINA FOR ACIDIC pH (~5) BROCKMANN ACT. I, 60/325 MESH)			
1g/3mL	54	57082-U	
2g/6mL	30	57083-U	
Bulk Packing	100g	57206	
LC-ALUMINA-B (ALUMINA FOR BASIC pH (~8.5) BROCKMANN ACT. I, 60/325 MESH)			
1g/3mL	54	57084	
2g/6mL	30	57085	

Ion Exchange Supelclean SPE Tubes

Interaction based on ionic attraction.

DESCRIPTION	QTY.	CAT. NO.	PRICE
LC-SAX (QUATERNARY AMINE, Cl^- COUNTERION)			
100mg/1mL	108	504815	
500mg/3mL	54	57017	
Bulk Packing	100g	57203	
LC-SCX (ALIPHATIC SULFONIC ACID, Na^+ COUNTERION)			
100mg/1mL	108	504920	
500mg/3mL	54	57018	
Bulk Packing	100g	57204	
LC-WCX (CARBOXYLIC ACID, Na^+ COUNTERION)			
100mg/1mL	108	505595	
500mg/3mL	54	57061	

Note: Unless stated otherwise, tubes are polypropylene. Frits are polyethylene with 20µm pores.

Solid Phase Extraction (SPE)

Method Development Kits, Discovery 96-Well Plates

Supelclean SPE Method Development Kits

KIT:	KIT A	KIT B	KIT C	KIT RP-3	KIT NP-3	KIT IX-1	KIT IX-3
Packing	Sorbent Qty./Tube Size						
LC-Si	500mg/3mL	100mg/1mL	500mg/6mL 1g/6mL		500mg/3mL		
LC-8	500mg/3mL	100mg/1mL	500mg/6mL	500mg/3mL			
LC-18	500mg/3mL	100mg/1mL 1g/6mL	500mg/6mL	500mg/3mL			
LC-CN	500mg/3mL	100mg/1mL	500mg/6mL	500mg/3mL		100mg/1mL	500mg/3mL
LC-Diol	500mg/3mL	100mg/1mL			500mg/3mL		
LC-NH_2	500mg/3mL	100mg/1mL			500mg/3mL	100mg/1mL	500mg/3mL
LC-Ph	500mg/3mL	100mg/1mL		500mg/3mL			
LC-SAX	500mg/3mL	100mg/1mL				100mg/1mL	500mg/3mL
LC-SCX	500mg/3mL	100mg/1mL				100mg/1mL	500mg/3mL
LC-WCX	500mg/3mL	100mg/1mL				100mg/1mL	500mg/3mL
LC-Alumina-A			2g/6mL		1g/3mL		
LC-Alumina-B			2g/6mL		1g/3mL		
LC-Alumina-N			2g/6mL		1g/3mL		
LC-Florisil			1g/6mL				
QTY. EA. TUBE:	6	12	3	12	6	24	12
CAT. NO.:	57019	57009-U	57075-U	57071	57074-U	57072	57073
PRICE:							

Discovery 96-Well Plates

Discovery 96-Well Plates answer the challenge of high throughput pharmaceutical screening and analysis. The uniform flow dynamics inherent with well plate technology offers a higher level of reproducibility and throughput while maintaining excellent recoveries and increased sensitivity. These plates are packed with the same high-quality phases used in our Discovery SPE line.

DESCRIPTION	QTY.	CAT. NO.	PRICE
DSC-18 SPE 96-WELL PLATES			
100mg/well	1	575603-U	
50mg/well	1	575602-U	
25mg/well	1	575601-U	
DSC-18LT SPE 96-WELL PLATES			
100mg/well	1	575606-U	
50mg/well	1	575605-U	
25mg/well	1	575604-U	
DSC-8 SPE 96-WELL PLATES			
100mg/well	1	575627-U	
50mg/well	1	575628-U	
25mg/well	1	575629-U	
DSC PH SPE 96-WELL PLATES			
100mg/well	1	575630-U	
50mg/well	1	575631-U	
25mg/well	1	575632-U	
DSC-CN SPE 96-WELL PLATES			
100mg/well	1	575624-U	
50mg/well	1	575625-U	
25mg/well	1	575626-U	
DSC-SI SPE 96-WELL PLATES			
100mg/well	1	575609-U	
50mg/well	1	575608-U	
25mg/well	1	575607-U	

DESCRIPTION	QTY.	CAT. NO.	PRICE
DSC-DIOL SPE 96-WELL PLATES			
100mg/well	1	575636-U	
50mg/well	1	575637-U	
25mg/well	1	575638-U	
DSC-NH_2 SPE 96-WELL PLATES			
100mg/well	1	575615-U	
50mg/well	1	575616-U	
25mg/well	1	575617-U	
DSC-SAX SPE 96-WELL PLATES			
100mg/well	1	575618-U	
50mg/well	1	575619-U	
25mg/well	1	575620-U	
DSC-WCX SPE 96-WELL PLATES			
100mg/well	1	575633-U	
50mg/well	1	575634-U	
25mg/well	1	575635-U	
DSC-SCX SPE 96-WELL PLATES			
100mg/well	1	575621-U	
50mg/well	1	575622-U	
25mg/well	1	575623-U	
DSC-PS/DVB SPE 96-WELL PLATES			
50mg/well	1	575611-U	
25mg/well	1	575610-U	

Solid Phase Combinatorial Chemistry

In recent years, advances in combinatorial chemistry (CombiChem) have made a tremendous impact on the pharmaceutical industry by dramatically accelerating the drug discovery process. However, for each synthesis a purification step is required to remove the target molecule from reaction by-products and excess reagents. Because many reactions contain polar to moderately polar reagents, by-products, and products that can be selectively extracted with normal phase SPE, modified flash techniques utilizing silica packed SPE hardware have become a routine procedure for purifying solution-phase combinatorial reactions.

Discovery SPE products offer combinatorial chemists an excellent opportunity for developing a simple and standardized high throughput purification method for their combinatorial libraries.

In normal phase SPE, polar compounds are retained or adsorbed onto the sorbent via polar-polar interactions when loaded in the presence of an organic sample matrix. Provided that the products, by-products, and reagents display varying polarities, choosing solvents with increasing polarity will allow for sequential elution of key compounds. In most combinatorial flash purification techniques, compounds not of interest are retained on the stationary phase. The products are then collected for analysis in the load flow through, or if weakly adsorbed, they can be selectively removed with a subsequent wash step.

Many combinatorial chemistry labs are synthesizing and characterizing extensive drug libraries. Chemists are therefore employing modified flash chromatography techniques in a 96-well SPE format for the purpose of sample clean-up and baseline impurity removal. In many combinatorial chemistry labs, capacity is a primary concern for such applications. In our studies, we have determined the binding capacity of 4-Fluoro-3-nitrobenzoic acid when loaded into a DSC-Si SPE 96-well plate (100mg/well). Our results show that ~12.5mg of the Fluoro compound can be loaded onto 100mg DSC-Si before beakthrough occurs. Breakthrough determination was analyzed via HPLC analysis (see Table A).

Table A. Binding Capacity of 4-Fluoro-3-Nitrobenzoic acid on DSC-Si (100mg/well)

LOAD AMOUNT*	BREAKTHROUGH AMOUNT
2.5mg	No Breakthrough
5.0mg	No Breakthrough
10.0mg	No Breakthrough
12.5mg	No Breakthrough
15.0mg	0.10 % Breakthrough Occured

* Sample Matrix in 200µL Methylene Chloride
n = 3 for each load amount.

RELATED INFORMATION

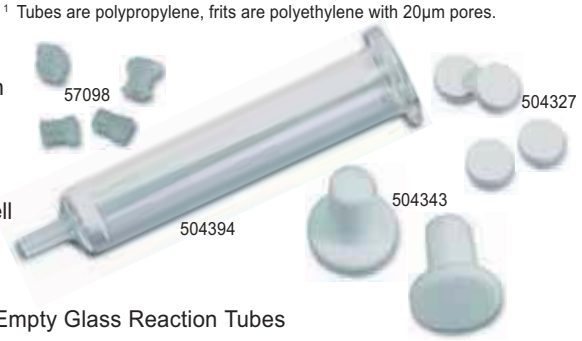
For more information on Combinatorial Chemistry request the following free technical literature.

No.	Title
EDZ	Sigma-Aldrich Combinatorial Chemistry Handbook
DGQ	Aldrich Polymer Products CD - Catalog and Reference Guide

Discovery DCS-Si SPE Products

DESCRIPTION	QTY.	CAT. NO.	PRICE
SPE TUBES			
50mg/1mL	108	52652-U	
100mg/1mL	108	52653-U	
500mg/3mL	54	52654-U	
500mg/6mL	30	52655-U	
1g/6mL	30	52656-U	
2g/12mL	20	52657-U	
5g/20mL	20	52658-U	
10g/60mL	16	52659-U	
SPE-96 WELL PLATES			
100mg/well	1	575609-U	
50mg/well	1	575608-U	
25mg/well	1	575607-U	
BULK PACKING			
Bulk Packing	100g	52651-U	
BÜCHNER FUNNELS			
50mmID x 30mmH; 12.5g	6	52591-U	
70mmID x 40mmH; 25g	6	52592-U	
90mmH x 48mmH; 50g	6	52593-U	
110mmID x 66mmH; 100g	6	52594-U	

[1] Tubes are polypropylene, frits are polyethylene with 20µm pores.



Empty Glass Reaction Tubes

Inert glass tubes, Teflon frits and Teflon closures

- Reduce interferences and contamination of your reaction mixtures
- Resistant to aggressive solvents and chemical solutions
- High flow frit porosity allows for gravity or rapid vacuum rinsing

DESCRIPTION	QTY.	CAT. NO.	PRICE
6mL glass tubes, Teflon frits	24	504394	
Teflon Tube adapters with port	24	504335	
6mL solid Teflon caps	24	504343	
Male luer plugs, PP	12	504351	
Female luer plugs, PP	12	57098	
Replacement Teflon frits for 6mL glass tubes	60	504327	

Combigel XE-305 Support

Our version of Amberlite XE-305. A proprietary, underivatized, polystyrene resin with unique swelling properties that make it ideal for solid phase combinatorial chemistry reactions.

DESCRIPTION	QTY.	CAT. NO.	PRICE
Bulk Packing	50g	502537B	

Solid Phase Extraction (SPE)

Custom Products, Hardware Configuration

Custom SPE products

Supelco's line of SPE products comprised of an array of sorbents, resins and hardware configurations including polypropylene tu glass tubes, 96-well plates, Büchner funnels, and various positive pressure cartridges. Scattered throughout our standard SPE line you'll see the availability of these various SPE devices at varying degrees. Supelco offers custom manufacturing services you can optimize your sample processing procedure to the parameters dictated by your sample prep objectives. If there's a cert permutation of phase chemistry, bed weight and hardware configuration you require that's not listed within our standard product line, please inquire. To request a price quote or inquire on the feasibility of Supelco manufacturing a custom SPE product, pl contact our Order Processing representatives:

Telephone: 800-247-6628, 814-359-3441

Fax: 800-447-3044, 814-359-3044

Email: supelco@sial.com

Polypropylene SPE Tubes

Standard Design Supelco's standard Discovery and Supelclean SPE tubes are comprised primarily of straight-walled serelogical grade polypropylene syringe barrels. Each of the 20+ available bonded phases and resins are available in an array of bed weights and volumes ranging from 1, 3, 6, 12, 20, and 60mL.

Flangeless Design Flangeless (tabless/wingless) 1 and 3mL SPE tubes that can be eluted directly into 96-well collection plates, using the Gilson Nebula Series SPE 215 System.

Reversible Design Our reversible SPE tubes allows for both forward and reverse flow capabilities offering great utility in trace enrichment applications. The tubes consist of a female luer inlet and a male luer outlet. Reversible tubes are available in 0.5, 1, and 2mL configurations.

Glass Tubes

Inert glass tubes (3 & 6mL) are available for preparations that demand high purity extracts and increased solvent compatibility.

Teflon and Stainless Steel Frits

Use Teflon or stainless steel frits when solvent compatibility and tube cleanliness are of concern. Stainless steel frits are not available with glass SPE tubes.

Discovery SPE 96-Well Plates

Process up to 96 samples at once using Discovery SPE 96-Well Plates. The well plates are a one-piece 2mL polypropylene square well design which will fit most standard well plate manifolds. Available bed weights include 25, 50, & 100mg/well. The well plates are compatible with most robotic and automated liquid handling systems:

- TomTec Quadra 96
- Packard Multi-Probe
- Gilson SPE 215
- Beckman Biomek

Büchner Funnels

Our Büchner funnels are sturdy two piece polypropylene units offering excellent chemical resistance, making them invaluable tools for large scale pharmaceutical preparations. The upper half of the Büchner funnels come pre-packed with the Supelco resin or bonded phase of your choice. Holding the packed bed in place are two polyethylene frits layered tight with a thermally welded retaining ring. Available Büchner funnel dimensions and bed weights include:

- 55mmID x 30mmH, 12.5g
- 90mmID x 48mmH, 50g
- 70mmID x 40mmH, 25g
- 110mmID x 66mmH, 100g

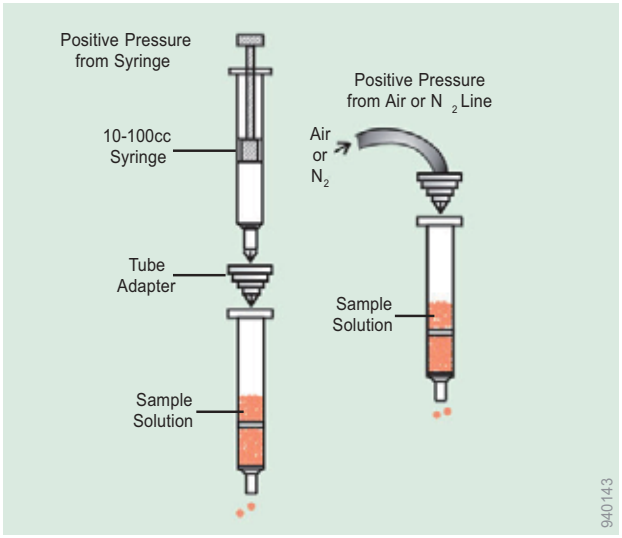
Rezorian Cartridges

Our disposable Rezorian Luer-Lock syringe-tip cartridges are fast and convenient for isolating, purifying, and concentrating molecules from a variety of sample matrices. Use where positive pressure is preferred. Rezorian cartridges, pre-packed with the Supelco bonded-phase or resin of your choice, are available in 1 & 5mL configurations.

Polypropylene SPE Tube Components

These components can be used for packing your own SPE material.

DESCRIPTION	QTY.	CAT. NO.	PRICE
EMPTY POLYPROPYLENE SPE TUBES WITH POLYETHYLENE FRITS (20µm PORE SIZE)			
1mL	108	57023	
3mL	54	57024	
6mL	30	57026	
12mL	20	57176	
20mL	20	57177	
60mL	16	57178	
EMPTY POLYPROPYLENE SPE TUBES (NO FRITS)			
1mL	108	57240-U	
3mL	54	57241	
6mL	30	57242	
12mL	20	57179	
20mL	12	57021	
60mL	12	57022	
POLYETHYLENE FRITS (20µm PORE SIZE)			
For 1mL Tubes	216	57244	
For 3mL Tubes	108	57180-U	
For 6mL Tubes	60	57181	
For 12mL Tubes	40	57182-U	
For 20mL Tubes	40	57183	
For 60mL Tubes	32	57184	
STAINLESS STEEL FRITS (20µm PORE SIZE)			
For 6mL Tubes	60	57246-U	
TEFLON FRITS (20µm PORE SIZE)			
For 1mL Tubes	216	57185	
For 3mL Tubes	108	57186	
For 6mL Tubes	60	57187	
For 12mL Tubes	40	57188	
For 20mL Tubes	40	57189	
For 60mL Tubes	32	57190-U	
CAPS FOR POLYPROPYLENE SPE TUBES (ENCLOSES TOP OF SPE TUBES)			
For 1mL Tubes	108	52171-U	
For 3mL Tubes	54	52172-U	
For 6mL Tubes	30	52173-U	
For 12mL Tubes	20	52174-U	
For 20mL Tubes	20	52175-U	
For 60mL Tubes	20	52176-U	
MALE & FEMALE LUER PLUGS (SEALS LUER OUTLETS ON SPE TUBES)			
Male Luer Plugs	12	504351	
Female Luer Plugs	12	57098	

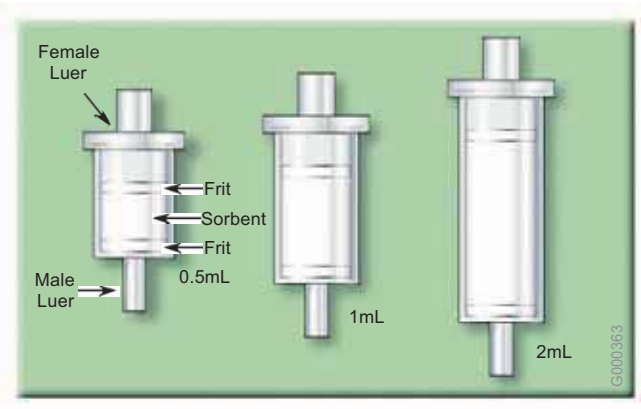


Tube Adapters

Tube adapters serve many purposes. They can be used to stack one SPE tube on top of another to provide different selectivities. A larger empty syringe barrel can be stacked on top of a smaller SPE tube to act as a larger load reservoir. Or, they can serve as an adapter for positive pressure methods (e.g. from a syringe or air/N_2 line).

DESCRIPTION	QTY.	CAT. NO.	PRICE
SPE TUBE ADAPTERS FOR POLYPROPYLENE TUBES			
For 1, 3, 6mL tubes	12	57020-U	
For 12, 20, 60mL tubes	6	57267	
AUTOTRACE SPE TUBE ADAPTERS*			
For 3mL Tubes	6	57123	
For 6mL Tubes	6	57126	

* Allows SPE tubes to be used with AutoTrace Automated Systems



Empty Reversible SPE Tubes

Our reversible SPE tubes provide good utility in trace enrichment applications by permitting forward and reverse flows. These tubes consist of a female luer inlet and a male luer outlet, and are constructed of polypropylene. Reversible tubes are available in 0.5, 1, and 2mL configurations with maximum bed wieghts of 175, 350, and 700mg respectively. Tubes are available pre-packed with the Supelco bonded-phase or resin of your choice through our custom service (see previous page).