



*Sepax Technologies*

## **CHROMATOGRAPHY RESINS**

SMALL MOLECULE  
SEPARATIONS



# Our Specialty

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Sepax Technologies, a Delaware US-based company, provides cutting edge products and services for liquid chromatography (LC). Sepax specializes in the development and manufacture of LC analytical, preparative and process separation & purification columns, bulk resins and systems in a wide range of modalities, such as SEC, IEX, HIC, Affinity, and RP.

Sepax also provides LC services, including analytical testing, method optimization, purification, custom resin development, and ligand immobilization. Certified to the ISO 9001-2015 standards, Sepax focuses on customer & market needs, and is continuing to expand its presence and supply chain around the globe in three business platforms: Analytical Chromatography, Industrial Purification and Medical Diagnostics.

## Our Commitment

At Sepax, we create value through serving customers' needs and solving their chromatographic separation and purification challenges. Through innovative technologies and solution-based approaches, Sepax delivers products and services that build lasting relationships with customers, achieving a strong leadership role in the industry. At Sepax, we firmly believe that there is nothing too complicated or challenging for us to consider.

## Our Strategy

Whether you are conducting analytical research, in need of customized resins, or scale-up purification, Sepax Services offers unmatched technical capabilities and expertise. Working in tandem with our technical team and our customers, Sepax offers highly individualized services to meet your specific requirements, achieving project goals in an efficient and cost-effective manner.



# Sepax Resins for Small Molecules Overview

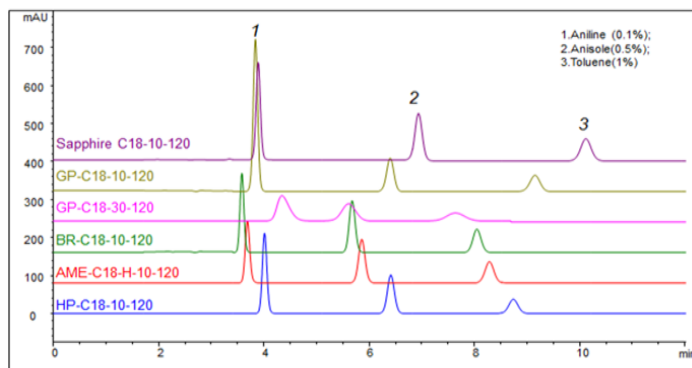
Product	Main Feature	Specification	Surface Modification	Application
Reversed Phase GP-C18	Wide range of applications	Particle size: 5, 10, 15, 20, 20-40, 40-60 $\mu\text{m}$ Pore size: 60, 120 $\text{\AA}$ Surface area: 450, 300 $\text{m}^2/\text{g}$ % Carbon: 19, 18% pH Stability: 2-8.5	Monomeric and fully end-capped	Most versatile reversed phase resin, widely used in separation of drug molecules, synthetic peptides, natural products, and acidic, neutral and basic compounds
Reversed Phase BR-C18	High basic resistance (pH 1.5-11)	Particle size: 5, 10 $\mu\text{m}$ Pore size: 120 $\text{\AA}$ Surface area: 300 $\text{m}^2/\text{g}$ % Carbon: 19% pH: 1.5-11	Tri-functional group fully end-capped	For separation of acidic, neutral, and basic compounds, peptides, and proteins in high pH conditions
Reversed Phase HP-C18	Compatible with 100 % aqueous mobile phase	Particle size: 5, 10, 15, 20, 20-40, 40-60 $\mu\text{m}$ Pore size: 120 $\text{\AA}$ Surface area: 300 $\text{m}^2/\text{g}$ % Carbon: 15% pH stability: 2-8.5	Monomeric and fully end-capped	Widely used in mobile phases with high water content. It can separate drug molecules, vitamins, natural products, peptides and other polar molecules
Reversed Phase Bio-C18	Large pore sizes for bio-samples	Particle size: 5, 10, 15 $\mu\text{m}$ Pore size: 200, 300 $\text{\AA}$ Surface area: 200, 105 $\text{m}^2/\text{g}$ % Carbon: 10, 7% pH stability: 2-8.5	Monomeric and fully end-capped	Suitable for separation of peptides, proteins, and pharmaceuticals where the resin pore size needs to be large, or a mobile phase with a high-water content is required
Reversed Phase GP-C8	Moderate hydrophobicity and wide application range	Particle size: 5, 10, 20-40, 40-60 $\mu\text{m}$ Pore size: 60, 120 $\text{\AA}$ Surface area: 450, 300 $\text{m}^2/\text{g}$ % Carbon: 15, 11% pH stability: 2-8.5	Monomeric and fully end-capped	Suitable for separation of acidic, neutral, and basic compounds, as well as pharmaceuticals, estrogens, peptides, and others
Reversed Phase Bio-C8	Large pore size for bio-samples	Particle size: 5, 10, 15 $\mu\text{m}$ Pore size: 300 $\text{\AA}$ Surface area: 105 $\text{m}^2/\text{g}$ % Carbon: 5.2% pH stability: 2-8.5	Monomeric and fully end-capped	Suitable for the separation of pharmaceuticals, vitamins, proteins, peptides and other polar molecules
Reversed Phase Bio-C8(2)	Specialty resin for insulin purification	Particle size: 10 $\mu\text{m}$ Pore size: 200 $\text{\AA}$ Surface area: 200 $\text{m}^2/\text{g}$ % Carbon: 8% pH stability: 2-8.5	Monomeric and fully end-capped	Optimized pore structure enables high stability and high loading capacity; high resolution and high reproducibility make it the ideal choice for separation of hydrophobic and hydrophilic compounds
	High stability and high loading capacity			
Reversed Phase GP-C4	Moderate hydrophobicity	Particle size: 5, 10, 20-40, 40-60 $\mu\text{m}$ Pore size: 120 $\text{\AA}$ Surface area: 300 $\text{m}^2/\text{g}$ % Carbon: 8% pH stability: 2-8.5	Monomeric and fully end-capped	Suitable for separation of peptides, proteins, and pharmaceuticals
Reversed Phase Bio-C4	Large pore size for bio-samples	Particle size: 5, 10, 20-40, 40-60 $\mu\text{m}$ Pore size: 300 $\text{\AA}$ Surface area: 105 $\text{m}^2/\text{g}$ % Carbon: 3.1% pH stability: 2-8.5	Monomeric and fully end-capped	Suitable for separation of peptides, proteins/interferon, and drug molecules
Reversed Phase GP-Phenyl	Selective for ring structured compounds	Particle size: 5, 10, 20-40, 40-60 $\mu\text{m}$ Pore size: 120 $\text{\AA}$ Surface area: 300 $\text{m}^2/\text{g}$ % Carbon: 11% pH stability: 2-8.5	Monomeric and fully end-capped	Suitable for separation of aromatic compounds, antibiotics, lipids and compounds containing ring structures
Reversed Phase PolyRP	Wide extreme pH application (1-14), high strength, also with hydrophobic interaction	Particle size: 10, 15, 30, 60, 75, 125 $\mu\text{m}$ Pore size: 100, 300, 500, 1000 $\text{\AA}$ Surface area: 200-1000 $\text{m}^2/\text{g}$ pH stability: 1-14	PS/DVB spherical particles with phenyl functional group	Suitable for separations of pharmaceuticals, acidic, neutral and basic organic compounds, as well as peptides, amino acids and proteins
Normal Phase HP-Cyano	Selective for polar compounds	Particle size: 5, 10, 20-40, 40-60 $\mu\text{m}$ Pore size: 120 $\text{\AA}$ Surface area: 300 $\text{m}^2/\text{g}$ % Carbon: 7% pH stability: 2-8.5	Monomeric and fully end-capped	Suitable for separation of acidic, neutral and basic organic compounds, as well as peptides and proteins
Normal Phase HP-Amino	Compatible with versatile mobile phases	Particle size: 5, 10, 20-40, 40-60 $\mu\text{m}$ Pore size: 120 $\text{\AA}$ Surface area: 300 $\text{m}^2/\text{g}$ % Carbon: 4.2% pH stability: 2-8.5	Polymeric and uncapped	Recommended for separation of saccharides, nucleotides, alcohols, vitamins, oligonucleotides, anionic compounds
Normal Phase HP-Silica	Wide selection of particle and pore sizes, active silanol	Particle size: 5, 10, 15, 20-40, 40-60, 70, 200 $\mu\text{m}$ Pore size: 60, 120 $\text{\AA}$ Surface area: 450, 300 $\text{m}^2/\text{g}$ pH stability: 2-8.5	Activated surface	Suitable for separation in normal phase or HILIC mode of polar and basic compounds, such as vitamins and steroids, drug molecules, nutrition supplements and metabolites. Large-particle resins are widely used in flash chromatography and SPE
HILIC Polar	Weak acidic, neutral, basic and polar selection	Particle size: 5, 10, 20-40, 40-60 $\mu\text{m}$ Pore size: 120 $\text{\AA}$ Surface area: 300 $\text{m}^2/\text{g}$ pH stability: 1.5-8	Monomeric and fully end-capped	Ideal for separation of acidic, neutral and basic compounds in LC/MS applications that do not exhibit sufficient retention in reversed phases
Ion Exchange HP-SCX	Mixed mode strong cation exchange and hydrophobicity	Particle size: 10, 20-40, 40-60 $\mu\text{m}$ Pore size: 120 $\text{\AA}$ Surface area: 300 $\text{m}^2/\text{g}$ % Carbon: 11% pH stability: 2-8.5	Monomeric and fully end-capped with SO <sub>3</sub> H functional group	Suitable for separation of cationic, nitrogen containing and neutral compounds, amines or polyamine group-containing compounds, nucleotides and polypeptides
Ion Exchange HP-SAX	Mixed mode strong anion exchange and hydrophobicity	Particle size: 10, 20-40, 40-60 $\mu\text{m}$ Pore size: 120 $\text{\AA}$ Surface area: 300 $\text{m}^2/\text{g}$ % Carbon: 16% pH stability: 2-8.5	Monomeric and fully end-capped with -N(CH <sub>3</sub> ) <sub>3</sub> functional group	Suitable for separation of aromatic or aliphatic carboxylic acids and sulfonic acids



## Sepax Specialty Resins for Small Molecules

Product	Phase	Specialty Application
Polar-Propylamide	Silica based, 10, 30 $\mu\text{m}$ , proprietary	Stachydrine hydrochloride (Leonurus artemisia)
Polysulfonix-SCX	Silica based, 10, 30 $\mu\text{m}$ , cation exchange	Arecoline hydrobromide (Arecoline arecane)
Polar Phenyl	Silica based 10, 30 $\mu\text{m}$ , phenyl functional group	Ephedrine hydrochloride
Sepax AAA	Silica based, 10, 30 $\mu\text{m}$ , proprietary	18 amino acids
Lac-Amino	Silica based, 10, 30 $\mu\text{m}$ , proprietary	Lactose
CS-SAX	Silica based, 10, 30 $\mu\text{m}$ , proprietary	Chondroitin sulfate sodium
HP-SAX	Silica based, 10, 30, 60 $\mu\text{m}$ , proprietary	Fondaparinux sodium
Ins-SEC	Silica based, 10, 30 $\mu\text{m}$ , proprietary	Insulin and insulin-like
Hon Sugar	Proprietary	Honey (fructose, sucrose, maltose, glucose)
Cef SEC	Silica based, 10, 30 $\mu\text{m}$ , proprietary	Cephalosporins
Glycomix	Polymer based, 10, 30 60 $\mu\text{m}$ , proprietary	Heparin and high MW carbohydrates

## Sepax SiO<sub>2</sub>-based RP Resin Selection



**Column:** Various Sepax SiO<sub>2</sub>-based RP resins (4.6 x 250 mm)

**Mobile Phase:** 65% ACN + 35% H<sub>2</sub>O

**Flow Rate:** 1.0 mL/min

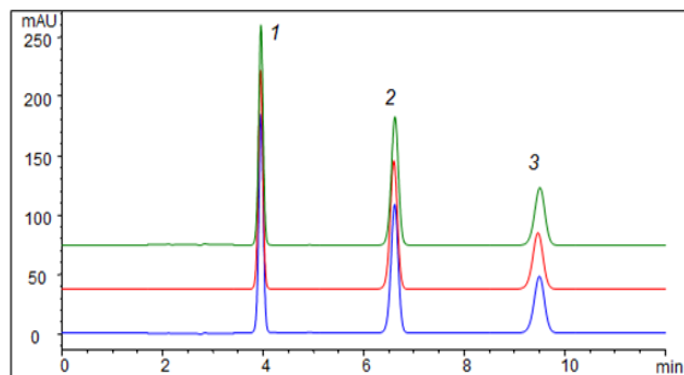
**Samples:** 1. Aniline (0.1%); 2. Anisole (0.5%); 3. Toluene (1%)

**Injection Volume:** 1  $\mu\text{L}$

**Detection:** UV 254 nm

**Column Temperature:** 25  $^{\circ}\text{C}$

## Sepax SiO<sub>2</sub>-based RP Resin Lot-to-Lot Reproducibility



**Column:** Sepax GP-C18 10-120 (10  $\mu\text{m}$ , 120  $\text{\AA}$ , 4.6 x 250 mm)

**Mobile Phase:** 65% ACN + 35% H<sub>2</sub>O

**Flow Rate:** 1.0 mL/min

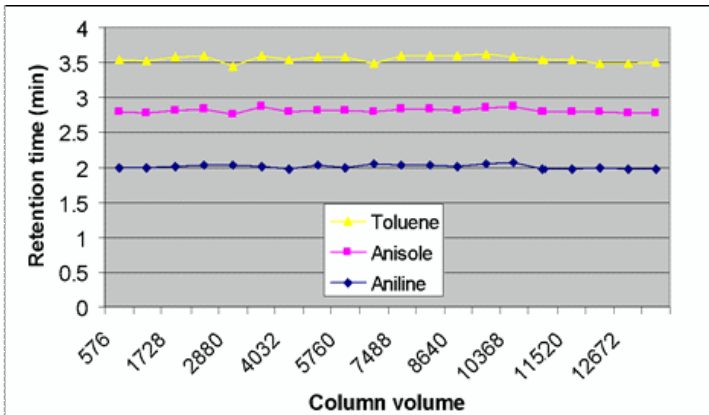
**Samples:** 1. Aniline (0.1%); 2. Anisole (0.5%); 3. Toluene (1%)

**Injection Volume:** 5  $\mu\text{L}$

**Detection:** UV 254 nm

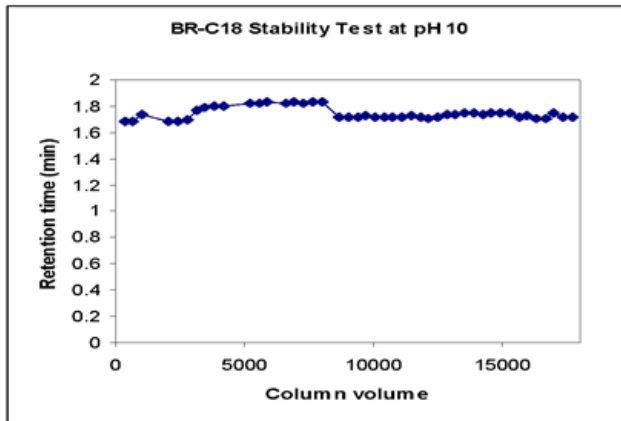
**Column Temperature:** 25  $^{\circ}\text{C}$

## Sepax SiO<sub>2</sub>-based RP Resin Life-time Test



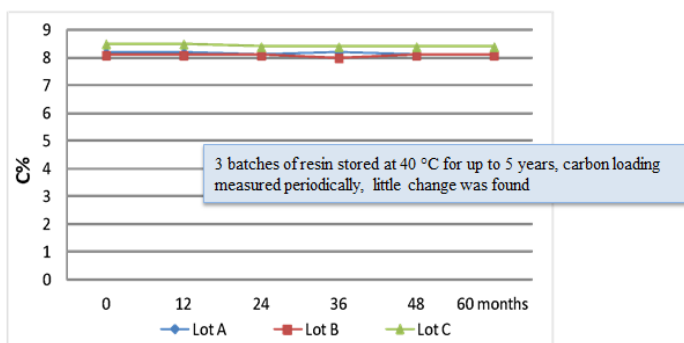
**Column:** Sepax GP-C18 10-120  
(10  $\mu$ m, 120 Å, 4.6 x 150 mm)  
**Mobile Phase:** 85% MeOH + 15% H<sub>2</sub>O  
**Flow Rate:** 1.0 mL/min  
**Samples:** 1. Aniline (0.1%); 2. Anisole (0.5%);  
3. Toluene (1%)  
**Detection:** UV 254 nm  
**Column Temperature:** 25°C

## Sepax SiO<sub>2</sub>-based RP Resin Alkali Resistance



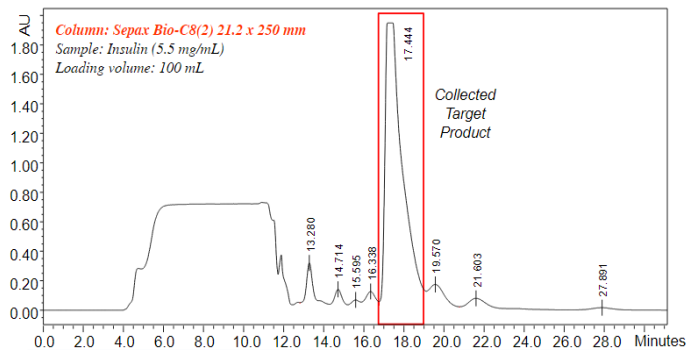
**Column:** Sepax BR-C18 10-120  
(10  $\mu$ m, 120 Å, 2.1 x 50 mm)  
**Mobile Phase:** 10 mM (NH<sub>4</sub>)<sub>2</sub>CO<sub>3</sub>, pH 10.0  
**Flow Rate:** 0.5 mL/min, test after every 300 CV  
**Samples:** Toluene(1%) in 55% CAN + 45% H<sub>2</sub>O  
**Detection:** UV 254 nm  
**Column Temperature:** 25°C

## Sepax SiO<sub>2</sub>-based RP Resin Shelf Life Test

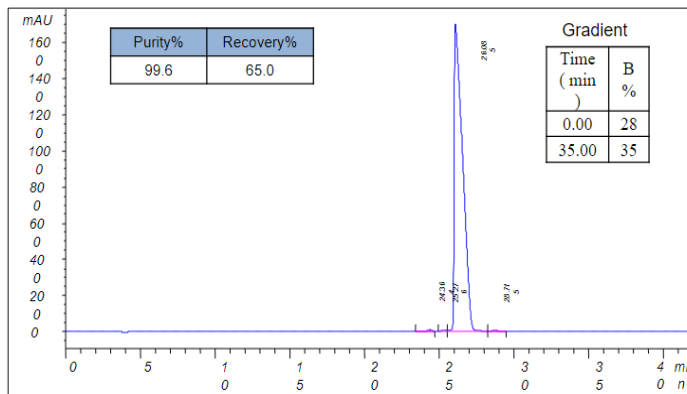


**Resin warranty period:** 5 years  
**Recommended storage conditions:** dry, sealed container,  
at 4~20°C

## Sepax SiO<sub>2</sub>-based RP Resin Application Example

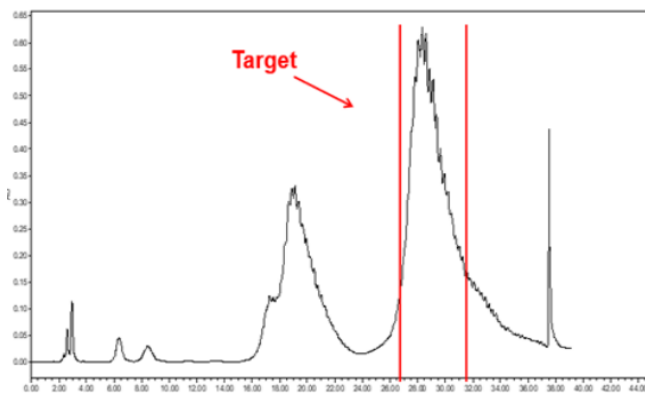


**Column:** Sepax Bio-C8(2) (10  $\mu$ m, 200 $\text{\AA}$ , 21.2 x 250 mm)  
**Mobile Phase:** A: 0.1% TFA-H<sub>2</sub>O; B: 0.1% TFA-CAN, A:B = 72:28 (v/v)  
**Flow Rate:** 15 mL/min  
**Samples:** Crude insulin (77.2%)  
**Injection Volume:** 2 mL  
**Detection:** UV 214 nm  
**Column Temperature:** 25  $^{\circ}$ C

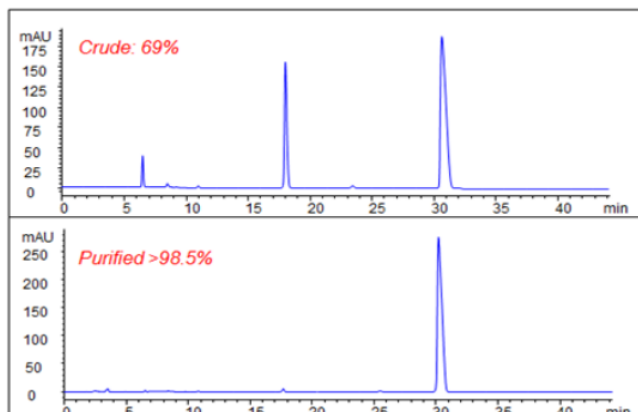


**Column:** Sepax GP-C8 (5  $\mu$ m, 120 $\text{\AA}$ , 4.6 x 250 mm)  
**Mobile Phase:** A: 0.1% TFA-H<sub>2</sub>O; B: 0.1% TFA-ACN  
**Flow Rate:** 1.0 mL/min  
**Samples:** Collected separation target product  
**Injection Volume:** 20  $\mu$ L  
**Detection:** UV 214 nm  
**Column Temperature:** 25  $^{\circ}$ C

## Sepax SiO<sub>2</sub>-based NP Resin Application Example



**Column:** Sepax HP-Silica (15  $\mu$ m, 120  $\text{\AA}$ , 30 x 250 mm)  
**Mobile Phase:** A: dichloromethane; B: methanol (containing 0.2% benzenesulfonic acid)  
**Flow Rate:** 45 mL/min  
**Samples:** A pharmaceutical crude  
**Detection:** UV 280 nm  
**Column Temperature:** 25  $^{\circ}$ C



**Column:** Sepax GP-C18 (5  $\mu$ m, 120  $\text{\AA}$ , 4.6 x 250 mm)  
**Mobile Phase:** A: 1% potassium dihydrogen phosphate; B: methanol; C: acetonitrile  
**Flow Rate:** 1.0 mL/min  
**Samples:** Collected separation target product  
**Injection Volume:** 5  $\mu$ L  
**Detection:** UV 280 nm  
**Column Temperature:** 25  $^{\circ}$ C

# Sepax Resins for Small Molecules

## Ordering Information

Product Name	Particle Size (µm)	Pore Size (Å)	P/N
GP-C18	5	60	101180-0506
		120	101180-0512
	10	60	101180-1006
		120	101180-1012
	15	120	101180-1512
	20	60	101180-2006
		120	101180-2012
	20-40	120	101180-2412
40-60	60	101180-4606	
	120	101180-4612	
BR-C18	5	120	102180-0512
	10	120	102180-1012
HP-C18	5	120	103180-0512
	10	120	103180-1012
	15	120	103180-1512
	20	120	103180-2012
	20-40	120	103180-2412
	40-60	120	103180-4612
Bio-C18	5	300	106180-0530
	10	300	106180-1030
	15	300	106180-1530
GP-C8	5	120	107080-0512
	10	120	107080-1012
	20-40	120	107080-3012
	40-60	120	107080-5012
Bio-C8	5	300	108080-0530
	10	300	108080-1030
	15	300	108080-1530
Bio-C8(2)	8	100	108058-0810
	10	200	108059-1020
GP-C4	5	120	109040-0512
	10	120	109040-1012
	20-40	120	109040-2412
	40-60	120	109040-4612
Bio-C4	5	300	110040-0530
	10	300	110040-1030
	20-40	300	110040-2430
	40-60	300	110040-4630

Additional particle and pore sizes are available. Pre-packed stainless-steel columns for sample preparation and separation process development/scale-up are available.

Please contact your regional sales agent for more information.

Product Name	Particle Size (µm)	Pore Size (Å)	P/N
GP-Phenyl	5	120	111360-0512
	10	120	111360-1012
	20-40	120	111360-2412
	40-60	120	111360-4612
HP-Cyano	5	120	113310-0512
	10	120	113310-1012
	20-40	120	113310-2412
	40-60	120	113310-4612
HP-Amino	5	120	115300-0512
	10	120	115300-1012
	20-40	120	115300-2412
	40-60	120	115300-4612
HP-Silica	5	60	117000-0506
		120	117000-0512
	10	60	117000-1006
		120	117000-1012
	15	120	117000-1512
	20-40	120	117000-2412
	40-60	60	117000-4606
		120	117000-4612
70	60	117000-7006	
200	60	117000-20006	
HP-SCX	10	120	120360-1012
	20-40	120	120360-3012
	40-60	120	120360-5012
HP-SAX	10	120	122660-1012
	20-40	120	122660-3012
	40-60	120	122660-5012
PolyRP	10	100	261100-0000
		300	261300-0000
		500	261500-0000
		1000	261950-0000
	15	100	262100-0000
		300	262300-0000
		500	262500-0000
		1000	262950-0000
	30	100	263100-0000
		300	263300-0000
		500	263500-0000
		1000	263950-0000
	60	300	266300-0000
	75	300	267300-0000
		500	267500-0000
	125	300	269300-0000
500		269500-0000	

*Better Surface Chemistry For Better Separation*



*Sepax Technologies, Inc.*

*5 Innovation Way  
Newark, Delaware 19711 USA  
Tel: 302-366-1101  
Fax: 302-366-1151  
Toll Free: 1-877-SEPAX-US  
www.sepax-tech.com*



**MZ**  
ANALYSENTECHNIK

AUTHORIZED DISTRIBUTOR

MZ-Analysentechnik GmbH  
Barcelona-Allee 17 • D-55129 Mainz  
Tel +49 6131 880 96-0  
Fax +49 6131 880 96-20  
e-mail: [info@mz-at.de](mailto:info@mz-at.de)  
[www.mz-at.de](http://www.mz-at.de)