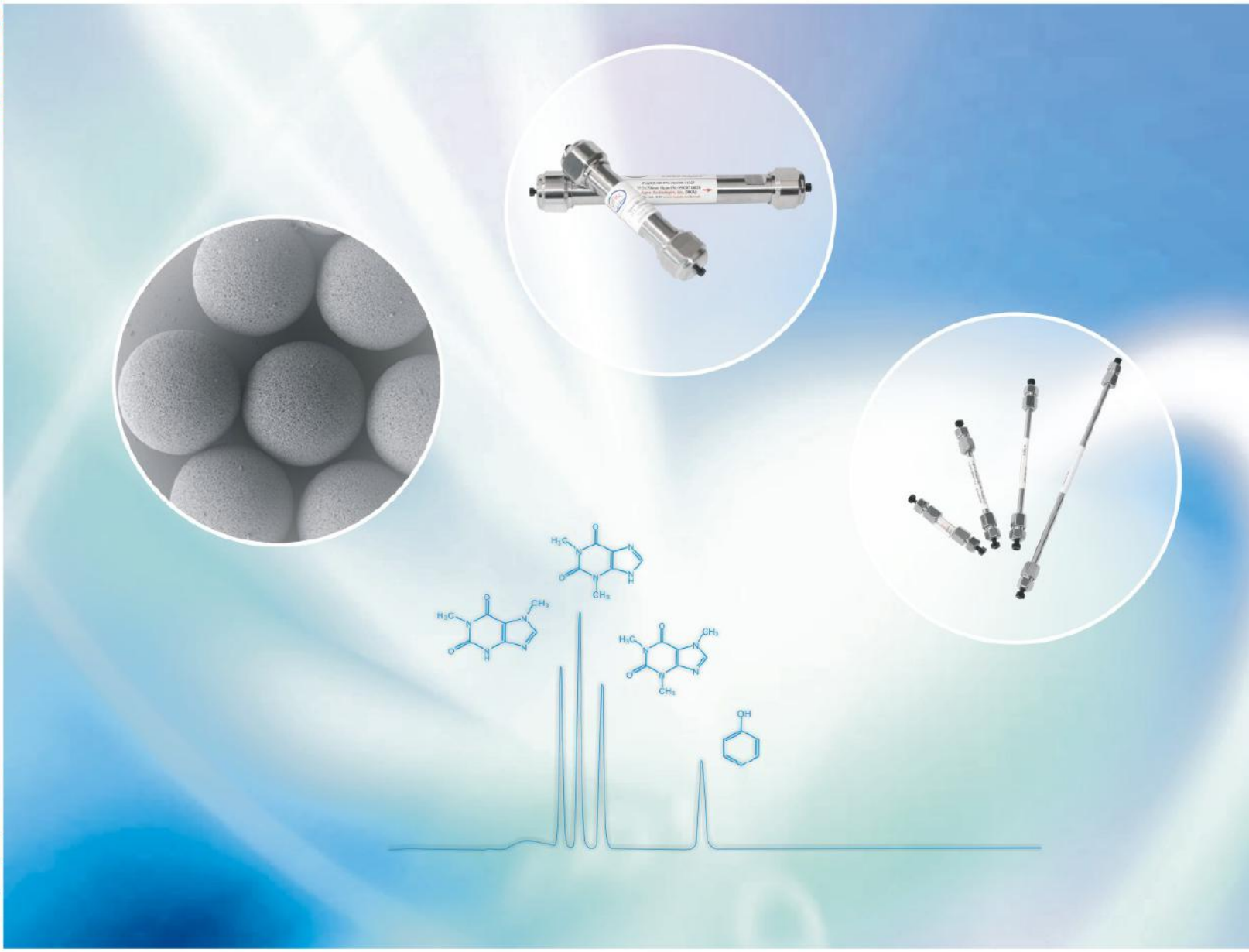
Sepax Technologies

Chromatography Products for Small Molecule Separations



Sepax Technologies, Inc.

Chromatography Products for Small Molecule Separations

Sepax Technologies

COMPANY INTRODUCTION

Sepax Technologies, Inc., a privately held company, was founded in Delaware, USA in November 2002. It develops and manufactures HPLC consumables, bulk media, and equipment in liquid chromatography for chemical and biological separations. It is a fast growing technology company and owns patents, proprietary technologies and know-how. Sepax has emerged as a leader in the biological separation industry in the global market.

Better Surface Chemistry

For Better Separation

Contents

Sepax Product Characteristics and Applications 01

C18 Reversed Phase HPLC Columns

GP-C18 05
HP-C18 09
HP-C18(2) 13
Bio-C18 14
BR-C18 16

Other Reversed Phase HPLC Columns

GP-C8 20
Bio-C8 21
GP-C4 22
Bio-C4 22
GP-Phenyl 23
PolyRP(Polymer based) 25

Normal Phase, HILIC & Mix-mode HPLC Columns

HP-Cyano 30
HP-Amino 31
HP-Diol 32
HP-Silica 33
Polar HILIC 36
HP-SCX (Silica) 38
HP-SAX (Silica) 38

Special HPLC Columns

UHPLC

Silica based 41
C18, C8, C4, CN, NH_2, Phenyl
PS/DVB based 43
PolyRP Phases

Capillary LC Columns

Silica based 45
C18, C8, C4, CN, NH_2, Phenyl
PS/DVB based 45
PolyRP Phases

Nanofilm Capillary Electrophoresis (CE)

Polyacrylamide Coating (PAAm) 48
Poly ethylene glycol Coating (PEG) 49
PAAm/PEG Coating 49
Special Capillary Coatings and Custom Synthesis 50

Prep/Semi-Prep Columns

GP-C18, C8, C4, Phenyl 53,54
HP-C18 53
BR-C18 53
Bio-C18, C8, C4 53,54
PolyRP 54
HP-Cyano 54
HP-Amino 55
HP-SCX 55
HP-Silica 55
HILIC Polar-100 55

Bulk Materials for Preparative and Process Chromatography

Silica based

Spherical Packings 63
Irregular Packings 67

Polymer based

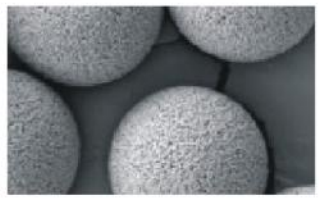
PolyRP Reversed Phase Packings 68
Generik Ion Exchange Packings 71

Solid Phase Extraction

Generik H2P 74
Generik DVB 75
Generik DBX 76
Generik BCX 77

USP Packings Listing 78

Sepax Product Characteristics and Applications

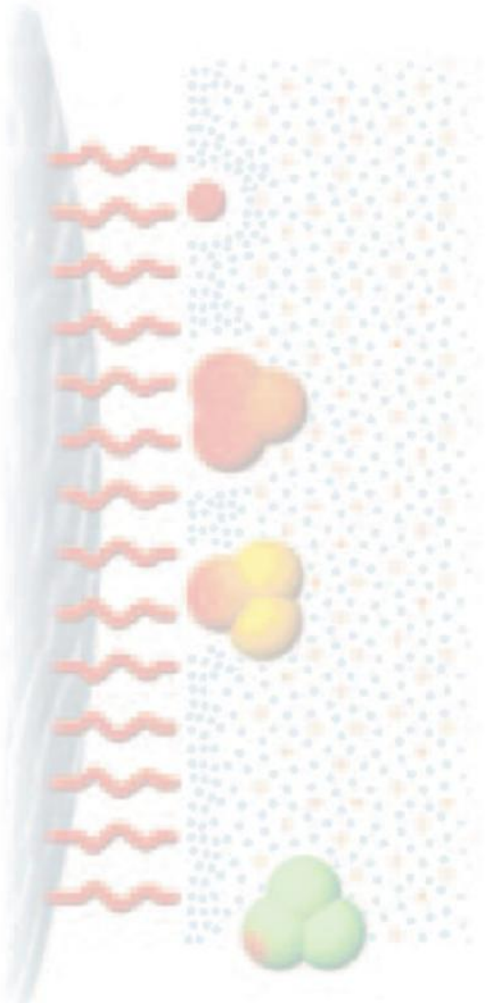


Product Name	Main Features	Specifications	Applications
GP-C18	Wide application range	Pore size: 120 Å Particle size: 1.8, 3, 5, 7, 10 μm Surface area: 300 m^2/g % Carbon: 17% pH stability: 2.0-8.0	Suitable for separations of acidic, neutral, and basic organic compounds, as well as pharmaceuticals, peptides, and others. Recommended for separations in organic or mixed organic/aqueous mobile phases.
HP-C18	Compatible with 100 % aqueous mobile phase	Pore size: 120, & 200 Å Particel size: 3, 5, 7, 10 μm Surface area: 300 m^2/g % Carbon: 17% & 10% pH stability: 2.0-8.0	Suitable for separations of acidic, neutral, and basic organic compounds, as well as pharmaceuticals, peptides, and others.
HP-C18(2)		Pore size: 100 Å Particel size: 3, 5, 10 μm Surface area: 450 m^2/g % Carbon: 17% pH stability: 2.0-8.0	Suitable for separations of acidic, neutral and basic organic compounds, as well as pharmaceuticals, peptides, peptide mapping, and others. Recommended for separations in organic or mixed organic/aqueous mobile phases.
BR-C18	Basic resistant (pH 10.5)	Pore size: 120 Å Particel size: 3, 5, 10 μm Surface area: 350 m^2/g % Carbon: 19.0% pH: 1.5-10.5	Suitable for separations of acidic, neutral, and basic compounds, peptides, and proteins.
Bio-C18	Large pore sizes 200 and 300 Å	Pore size: 200 & 300 Å Particle size: 3, 4, 5, 10 μm Surface area: 200 & 105 m^2/g % Carbon: 10% & 7% pH stability: 2.0-8.0	Suitable for separations of peptides, proteins, and pharmaceuticals.
GP-C8	Moderate hydrophobicity and wide application range	Pore size: 120 Å Particle size: 1.8, 2.2, 3, 4, 5, 7, 10 μm Surface area: 300 m^2/g % Carbon: 11% pH stability: 2.0-7.0	Suitable for separations of acidic, neutral, and basic organic compounds, as well as pharmaceuticals, peptides, and others.
Bio-C8	Large pore size (300 Å)	Pore size: 300 Å Particle size: 3 and 5 μm Surface area: 105 m^2/g % Carbon: 4.0% pH stability: 2.0-7.0	Suitable for separations of acidic, neutral, and basic organic compounds, as well as pharmaceuticals, peptides, and others.
GP-C4	Moderate hydrophobicity	Pore size: 120 Å Particle size: 1.8, 2.2, 3, 5, 7, 10 μm Surface area: 300 m^2/g % Carbon: 8.0% pH stability: 2.0-7.0	Suitable for separations of peptides, proteins, and pharmaceuticals.
Bio-C4	Large pore size (300 Å)	Pore size: 300 Å Particle size: 3 & 5 μm Surface area: 105 m^2/g % Carbon: 3.0% pH stability: 2.0-7.0	Suitable for separations of peptides, proteins, and pharmaceuticals.

Product Name	Main Features	Specifications	Applications
GP-Phenyl	Selective for ring structured compounds	Pore size: 120 Å Particle size: 3 & 5 μm Surface area: 300 m^2/g % carbon: 11.0% pH stability: 2.0-7.0	Suitable for separations of acidic, neutral, and basic organic coupounds, as well as pharmaceuticals. Recommended for separations in organic or mixed organic/aqueous mobile phases.
HP-Cyano	Selective for polar compounds	Pore size: 120 Å Particle size: 1.8, 2.2, 3, 4, 5, 10 μm Surface area: 300 m^2/g % carbon: 7.0% pH stability: 2.0-7.0	Suitable for separations of acidic, neutral, and basic organic coupounds, as well as pharmaceuticals, peptides, and proteins.
HP-Amino	Polymeric no end-capping, normal and reverse-phase	Pore size: 120 Å Particle size: 3 & 5 μm Surface area: 300 m^2/g % Carbon: 4.0% pH stability: 2.0-7.0	Recommended for separations of saccharides, nucleotides, basic organic compounds, as well as pharmaceuticals.
HP-Diol	Polar and size exclusion	Pore size: 80 & 120 Å Particle size: 3, 5, 10 μm Surface area: 300 m^2/g % Carbon: 8.8% pH stability: 2.0-7.0	Polar phase for separations of acidic, neutral and basic organic compounds, as well as the pharmaceuticals
HP-Silica	Wide selection of pore sizes, active silanol	Pore size: 120, 200, 300, 500, 1000, 2000 Å Particle size: 1.8, 2.2, 3, 5, 10 μm Surface area: 300 m^2/g % Carbon: 0% pH stability: 2.0-7.0	Suitable for separation of polar and basic organic compounds, such as vitamins, steroids, and pharmaceuticals.
HILIC Polar	Weak acidic, neutral, basic, and polar selection	Phase structure: Monomeric and fully end-capped Pore size: 120 Å Particle size: 1.8, 2.2, 3, 5, 10 μm Surface area: 300 m^2/g pH stability: 1.5-8.0	Ideal for separations of LC/MS applications of acidic, neutral, and basic compounds that do not have enough retention at reversed phases.
HP-SCX	Mixed mode SCX and hydrophobicity	Pore size: 120 Å Particle size: 5 & 10 μm Surface area: 300 m^2/g % Carbon: 11.0% pH stability: 1.5-8.0	Suitable for separations of cationic, nitrogen containing, and neutral compounds.
HP-SAX	Mixed mode SAX and hydrophobicity	Pore size: 120 Å Particle size: 5 &10 μm Surface area: 300 m^2/g % Carbon: 16.0% pH stability: 1.5-8.0	Suitable for anionic compounds.
PolyRP	Wide extreme pH application (1-14), phenyl functional group, hydrophobic interaction	Pore size: 0, 100, 300, 500, 1000 Å Particle size: 1.7, 3, 5, 10 μm PS/DVB particles: Spherical, 80% cross-linking pH stability: 1.0-14.0	Suitable for separations of pharmaceuticals, acidic, neutral, and basic organic compounds, as well as peptides, amino acids, and proteins.

C18 Reversed Phase HPLC Columns

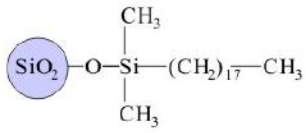
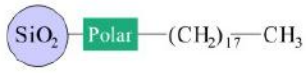
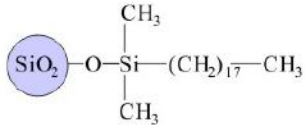
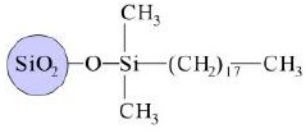
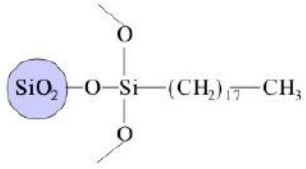
- GP-C18
- HP-C18
- HP-C18 (2)
- BR-C18
- Bio-C18



C18 Reversed Phase LC Columns

Characteristics

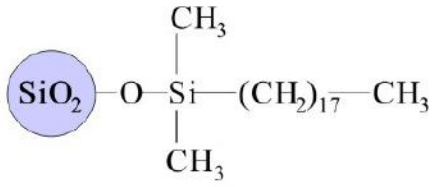
- Highly controlled chemistry of monolayer formation and end-capping
- Extremely high column-to-column reproducibility
- High selectivity and efficiency

GP-C18		GP-C18 uses full coverage bonded silica packing, which provides exceptionally high stability. The unique mono-functional bonding chemistry of GP-C18 avoids the formation of multiple C18 layers. Such uniform stationary phase allows the separation to achieve high selectivity and high efficiency.
HP-C18		HP-C18 uses full coverage bonded silica packing, which provides exceptionally high stability. Compatible with 100% aqueous mobile phase suitable for separations of acidic, neutral and basic organic compounds, as well as pharmaceuticals, peptides, and others.
HP-C18(2)		HP-C18(2) uses a proprietary ODS bonding chemistry to a high surface area silica gel to achieve long retention time and high loading capability. The ODS density is specially designed to achieve optimal selectivity for both hydrophobic and hydrophilic compounds. The proprietary end-capping chemistry maximizes consumption of silanol groups on the silica surface, and minimizes the free silanol groups to an undetectable level. Such unique bonding chemistry allows the phase to achieve high peak symmetry even for basic compounds. HP-C18(2) phase is compatible with 100% aqueous mobile phases.
Bio-C18		The uniform stationary phase allows the separation to achieve high selectivity and high efficiency. Pore size selection of 200 and 300 Å and high compatibility with 100% aqueous phases makes Bio-C18 columns ideal for high resolution mapping of peptides and separation of natural and synthetic peptides and small proteins. The specially designed surface bonding chemistry and the pore sizes allow for extended retention and selectivity for polar and hydrophilic compounds, such as peptides and amino acids.
BR-C18		Utilizing highest purity and enhanced mechanical stability silica and pure bonding reagents, BR-C18 bonded phases have been innovatively and specially designed to ensure maximum surface coverage and full end-capping, which leads to carbon content as high as 19.0%. The bonding chemistry is completely controlled that results in very reliable column-to-column reproducibility. The maximum surface coverage allows BR-C18 to have exceptional stability, resulting in high pH stability in the range of 1.5 to 10.5.

Specifications

	GP-C18	HP-C18		HP-C18(2)	Bio-C18		BR-C18
Silica	Spherical, high purity (<10 ppm metals)						
Pore size:	120 Å	120 Å	200 Å	100 Å	200 Å	300 Å	120 Å
Particle size:	1.8, 2.2, 3, 4, 5, 7, and 10 µm	3, 4, 5, 7, and 10 µm	3 and 5 µm	3, 5, and 10 µm	3, 4, 5, and 10 µm	3 and 5 µm	3, 5, and 10 µm
Pore volume:	1.0 mL/g	1.0 mL/g	1.0 mL/g	1.1 mL/g	1.0 mL/g	0.95 mL/g	1.0 mL/g
Surface area:	300 m^2/g	300 m^2/g	200 m^2/g	450 m^2/g	200 m^2/g	105 m^2/g	350 m^2/g
Phase structure:	Monomeric and fully end-capped			Special bonding density and proprietary end-capping	Monomeric and fully end-capped		Fully end-capped
% Carbon:	17%	17%	10%	17%	10%	7%	19.0%

GP-C18



Characteristics

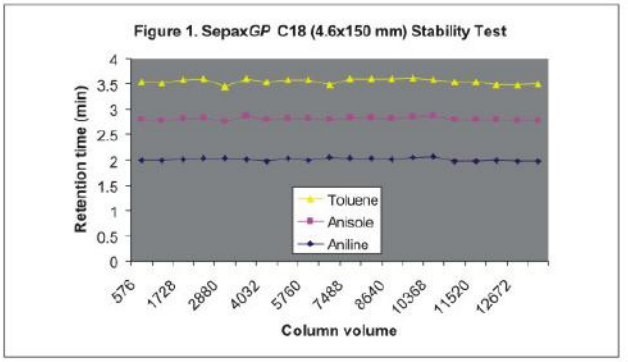
- Highly controlled chemistry of monolayer formation and end-capping
- Extremely high column-to-column reproducibility
- High selectivity and efficiency for separations
- Suitable for separations of acidic, neutral and basic organic compounds, as well as pharmaceuticals, peptides, and others
- Recommended for separations in organic or mixed organic/aqueous mobile phases.

Specifications

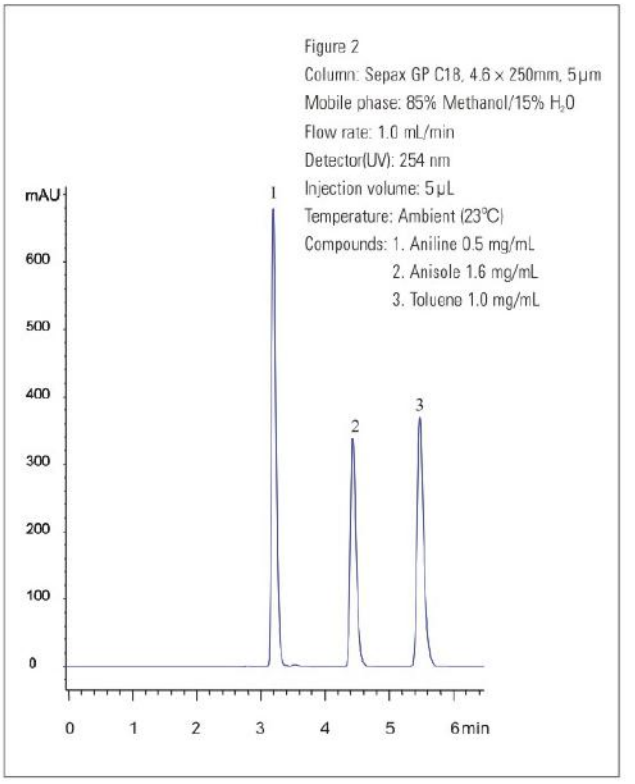
Silica:	Spherical, high purity (<10 ppm metals)
Pore size:	120 Å
Particle size:	1.8, 2.2, 3, 4, 5, 7 and 10 µm
Pore volume:	1.0 mL/g
Surface area:	300 m^2/g
Phase structure:	Monomeric and fully endcapped
% Carbon:	17%

Description

GP-C18 uses full coverage bonded silica packing, which provides exceptionally high stability. Figure 1 shows the highly reproducible retention time for three standard compounds: aniline, anisole and toluene after 13,000 column volume runs in a mobile phase of 85% methanol and 15% water. Such high stability makes GP-C18 extremely suitable for validation of various analytes.

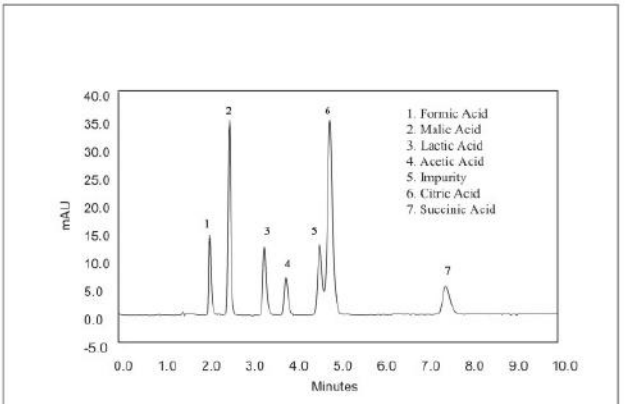


The unique mono-functional bonding chemistry of GP-C18 avoids the formation of multiple C18 layers. Such uniform stationary phase allows the separation to achieve high selectivity and high efficiency. A typical test chromatogram for quality control is shown in Figure 2 using a 4.6x250mm GP-C18 column.



Applications

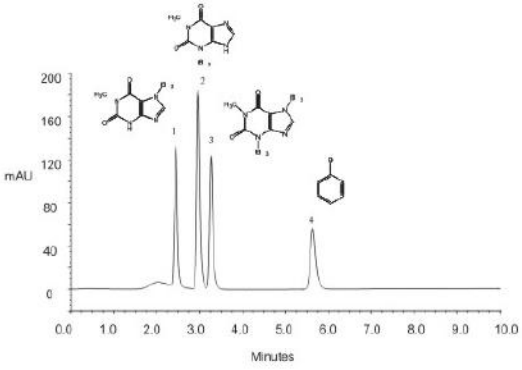
Organic Acids



Column:	GP-C18, 4.6x150mm, 5 µm
Eluent:	0.10 M Phosphate buffer, pH 3.1
Flow rate:	1.0 mL/min
Detection:	UV 210 nm
Injection:	5 µL
Temperature:	Ambient (23°C)
Compounds:	Organic Acids (10 mM)

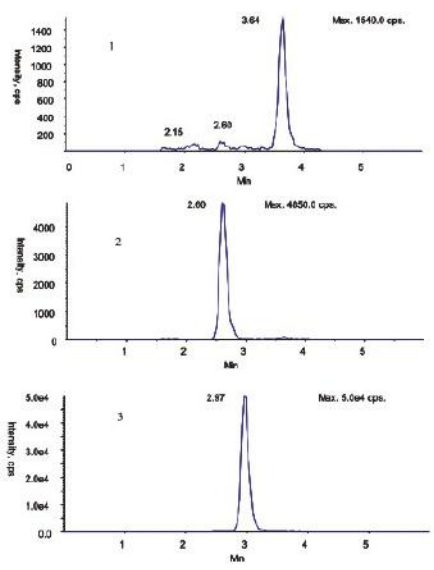
Purine Alkaloids

Alkaloids are naturally occurring basic compounds with heterocyclic ring structures. Due to ion-exchange and electrostatic interaction with the residual silanols (Si-OH), the separations with silica based reverse phases, such as C18 packing, usually result in poor peak shape. The unique bonding chemistry of GP-C18 columns enables separation of alkaloids with high selectivity and high resolution.



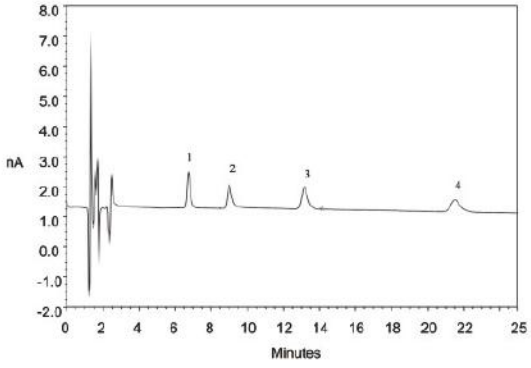
Column:	GP-C18, 4.6x150mm, 5 µm
Eluent:	0.10 M Phosphate buffer, pH 3.1
Flow rate:	0.75 mL/min
Detection:	UV 254 nm
Injection:	5 µL
Temperature:	Ambient (23°C)
Compounds:	1. Theobromine (1 mM)
	2. Theophyline (1 mM)
	3. Caffeine (1 mM)
	4. Phenol (7 mM)

LC/MS/MS Analysis of Pharmaceuticals



Column:	Sepax GP-C18, 3 µm, 50x2.1 mm
Mobile phase:	75:25/ACN:1.0 mM
	ammonium acetate in water, pH 4.5
Flow rate:	0.2 mL/min
Injection volume:	10 µL
Temperature:	25 °C
Instrument:	API 4000 Q Trap LC-MS/MS system
Compounds:	1. Simvastatin
	2. Simvastatin hydroxyl acid
	3. Lavastatin (internal standard)

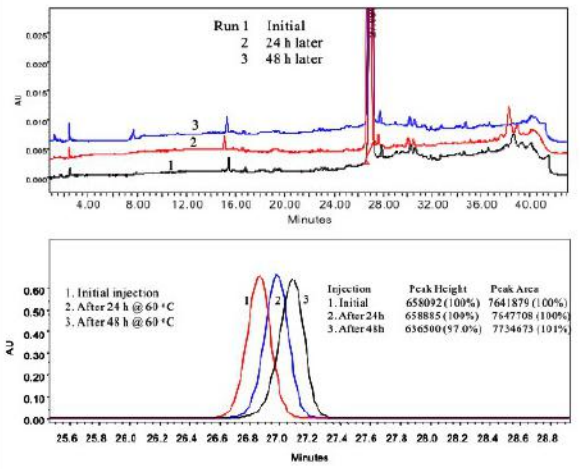
Catecholamines



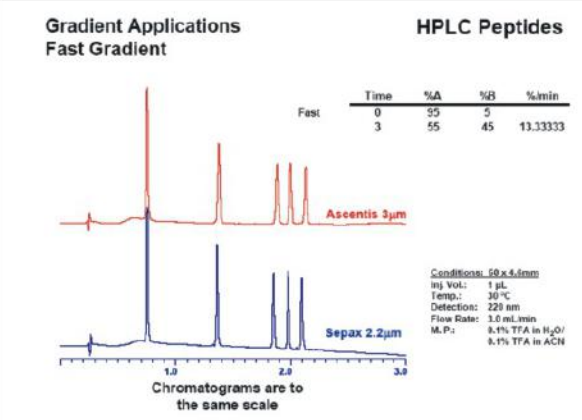
Column:	GP-C18, 4.6x150mm, 5 µm
Eluent:	57 mM Citric Acid/43 mM NaAc/0.10 mM EDTA (disodium form) / 1 mM Octanesulfonic Acid / 10% MeOH (pH 3.4)
Flow rate:	1.0 mL/min
Detection:	Electrochemical Detection with GC (+0.70 V vs. Ag/AgCl, 3 M KCl)
Injection:	25 µL
Temperature:	Ambient (23°C)
Compounds:	1. Norepinephrine (100 nM)
	2. Ephinephrine (100 nM)
	3. Dihydroxybenzylamine (100 nM)
	4. Dopamine (100 nM)

Separation of pharmaceuticals at elevated temperature

GP-C18 has excellent stability in aqueous mobile phases at elevated temperature. When a GP-C18 column was tested with a real sample from a big US pharmaceutical company on 0.1 mL/min at 60℃ for 24 and 48 hours the retention time variation was less than 1.0%, and the resolution change was less than 3.0%.

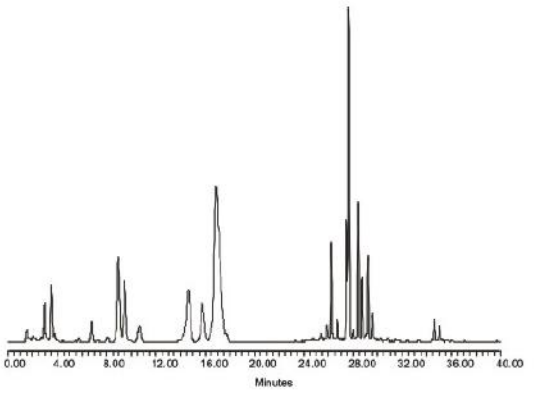


Column:	GP-C18, 5 µm, 4.6x150 mm
Mobile phase A:	99% Phosphate buffer (5.0 mM, pH 7.2)/ 1% ACN
B:	40% Phosphate buffer (5.0 mM, pH 7.2)/ 60% ACN
Gradient:	Time (min) A% B% 0 100 0 3 100 0 38 0 100
Temperature:	60 ℃
Flow rate:	1.0 mL/min
Detection:	UV 210 nm
Sample:	A real sample from one of big US pharmaceuticals (undisclosed)



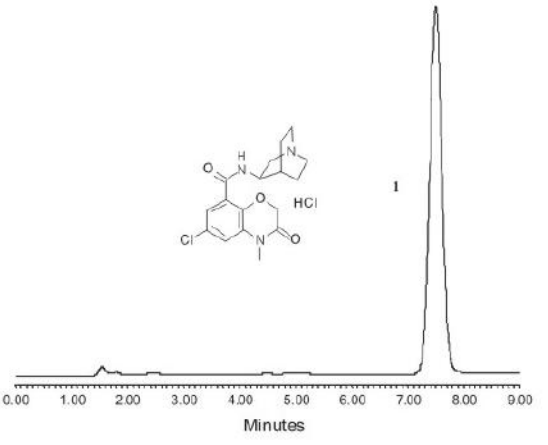
Cerebroprotein hydrolysate injection

Column:	GP-C18, 4.6 mm×150 mm, 5 µm
Mobile phase:	A: ACN: 0.1 M NaAc (pH 6.5) = 7: 93 (v/v) B: ACN: H_2O = 4:1 (v/v)
Gradient:	0min 15min 25min 30min 30.1min 40min 40.1min 0%B 0%B 40%B 40%B 100%B 100%B 0%B
Flow rate:	1.0 mL/min
Detector (UV):	220 nm
Injection volume:	20 µL
Temperature:	36℃
Sample:	Cerebroprotein hydrolysate injection



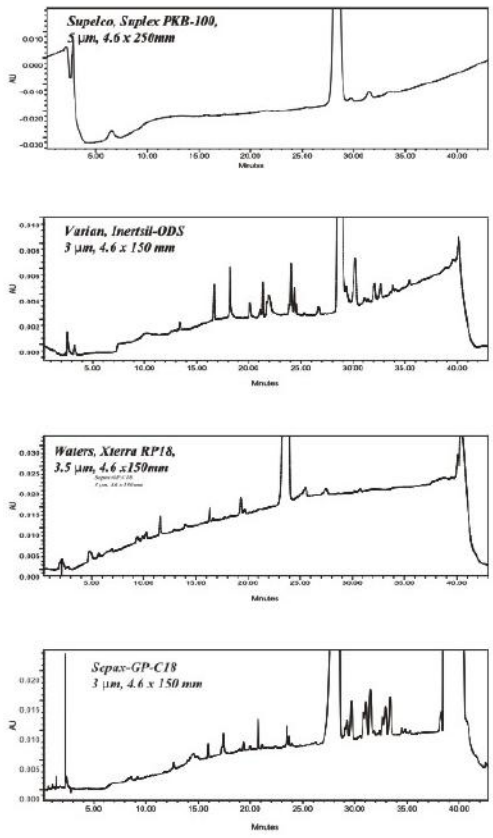
Azasetron hydrochloride injection

Column:	GP-C18, 4.6 mm150 mm, 5 µm
Mobile phase:	50 mM phosphate buffer: ACN=70:30 (v/v), pH 2.5
Flow rate:	1.0 mL/min
Detector (UV):	220 nm
Injection volume:	20 µL
Temperature:	Ambient (23℃)
Sample:	Azasetron hydrochloride injection (0.05 mg/mL)



Selectivity for GP-C18 and the Competitors' C18 Phase

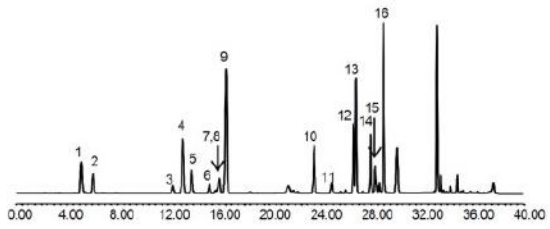
Selectivity is very important for detection of the components of low abundance and impurities from the analysis of pharmaceuticals in the real applications. The comparative tests shown below from the method development of a drug molecule clearly demonstrated that GP-C18 is among the best products for high selectivity and sensitivity in detecting low abundant components and the impurities.



Column:	Inertsil ODS-3, 3 µm (Varian), Xterra RP18, 3.5 µm (Waters), Suplex PKB-100, 5 µm (Supelco), and Sepax GP-C18, 3 µm
Mobile phase:	A: 99% Boric buffer (5.0 mM, pH 7.0)/1% ACN B: 40% Boric buffer (5.0 mM, pH 7.0)/60% ACN
Gradient:	0-3 min (100% A); 3-38min (0-100%B); 8-43 min (100% B)
Temperature:	50 ℃
Flow rate:	1.0 mL/min
Detection:	UV 210 nm
Sample:	A real pharmaceutical sample (undisclosed)

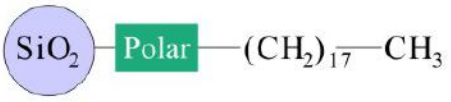
Amino acid

Amino Acids: 1. Asp; 2. Glu; 3. Ser; 4. Gly; 5. His; 6. Arg; 7. Thr; 8. Ala; 9. Pro; 10. Val; 11. Met; 12. Ile; 13. Leu; 14. Phe; 15. Trp; 16. Lys



Column:	GP-C18, 4.6 mm × 150 mm, 5 µm
Mobile phase:	A: ACN: 0.1 M NaAc (pH 6.5, adjusted using HAc) = 7: 93 (v/v) B: ACN: H_2O = 4:1 (v/v)
Gradient:	0min 1min 18min 27min 27.01min 40min 0%B 0%B 22%B 56%B 100%B 100%B
Flow rate:	1.0 mL/min
Detector (UV):	254 nm
Injection volume:	10 µL
Temperature:	36℃
Sample:	16 amino acid and derivatives (PITC)

HP-C18



ODS monolayer formed by special bonding chemistry does not collapse in pure aqueous solution.

Characteristics

- Highly controlled chemistry of monolayer formation and end-capping
- Extremely high column-to-column reproducibility
- High selectivity and efficiency for separations
- Compatible with 100% aqueous mobile phase
- Suitable for separations of acidic, neutral and basic organic compounds, as well as pharmaceuticals, peptides, and others

Specifications

Silica:	Spherical, high purity (<10 ppm metals)
Pore size:	120 Å
Particle size:	3, 4, 5, 7 and 10 µm
Pore volume:	1.0 mL/g
Surface area:	300 m^2/g
Phase structure:	Monomeric and fully endcapped
% Carbon:	17%

Pore size:	200 Å
Particle size:	3 and 5 µm
Pore volume:	1.0 ml/g
Surface area:	200 m^2/g
Phase structure:	Monomeric and fully endcapped
% Carbon:	10%

Description

HP-C18 uses full coverage bonded silica packing, which provides exceptionally high stability. Compatible with 100% aqueous mobile phase suitable for separations of acidic, neutral and basic organic compounds, as well as pharmaceuticals and peptides.

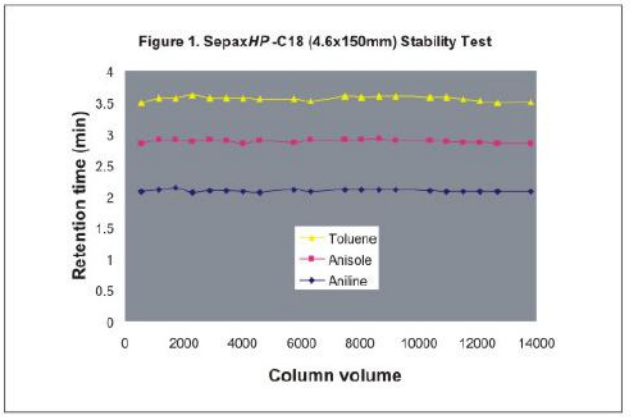
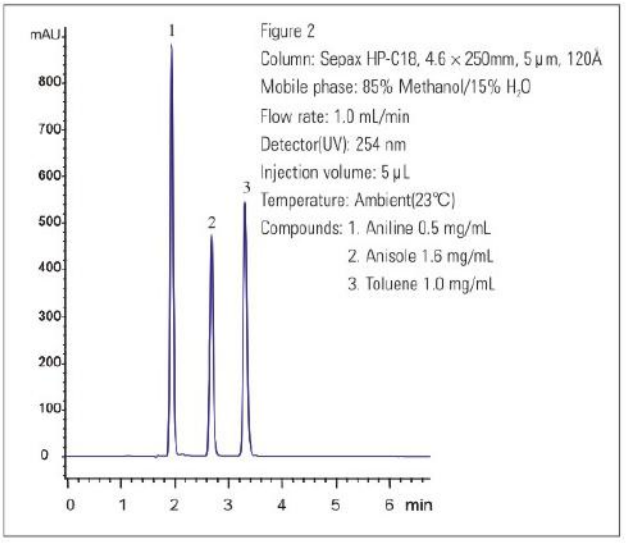


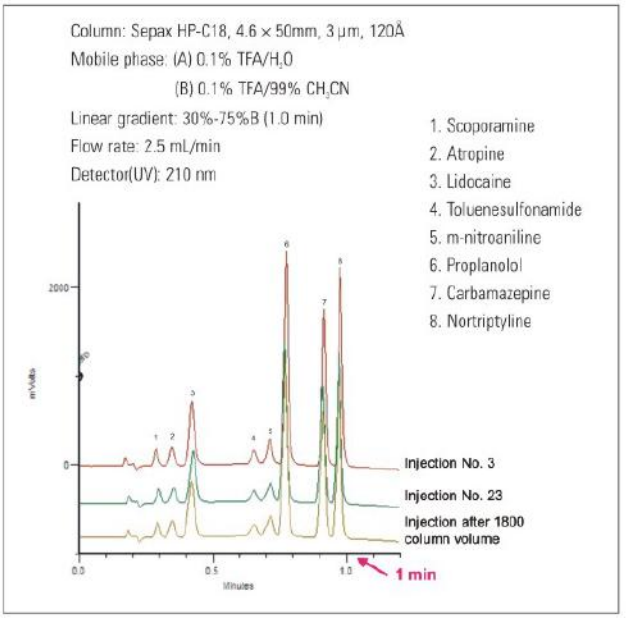
Figure 1 shows highly reproducible retention time for three standard compounds: aniline, anisole and toluene after 13,000 column volume runs in a mobile phase of 85% methanol and 15% water. Such high stability allows HP-C18 to be well suited for validation of various analytes. The unique mono-functional bonding chemistry of HP-C18 avoids the formation of multiple C18 layers. Such uniform stationary phase allows the separation to achieve high selectivity and high efficiency. A typical test chromatogram for quality control is shown in Figure 2 using a 4.6x150mm HP-C18 column.



High Reproducibility

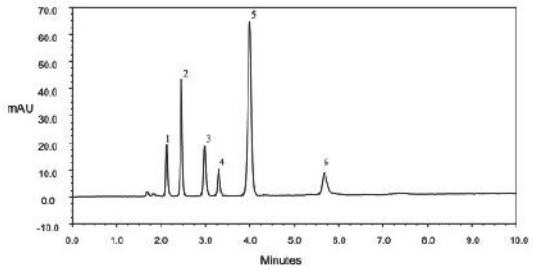
Figure 3 is a real application of HP-C18, showing fast separation of 8 pharmaceutical molecules by a 3 µm , 4.6x50mm short column. After 1800 column volume of 0.1% TFA and CH_3CN mobile phase was pumped, the column still shows almost identical performance.

Figure 3. Reproducibility of fast separation of 8 drug molecules with a HP-C18 column (Courtesy of Miyako Kawakatsu, M&S Instruments Inc.).



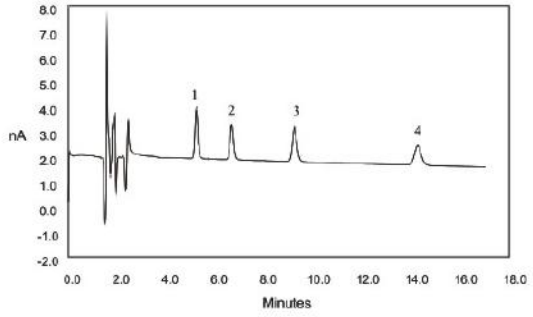
Applications

Organic Acids



Column:	HP-C18, 4.6x150mm, 5 µm, 200 Å
Eluent:	0.10 M Phosphate buffer, pH 3.1
Flow rate:	1.0 mL/min
Detection:	UV 210 nm
Injection:	5 µL
Temperature:	Ambient (23°C)
Compounds:	1. Formic Acid (10 mM) 2. Malic Acid (10 mM) 3. Lactic Acid (10 mM) 4. Acetic Acid (10 mM) 5. Citric Acid (10 mM) 6. Succinic Acid (10 mM)

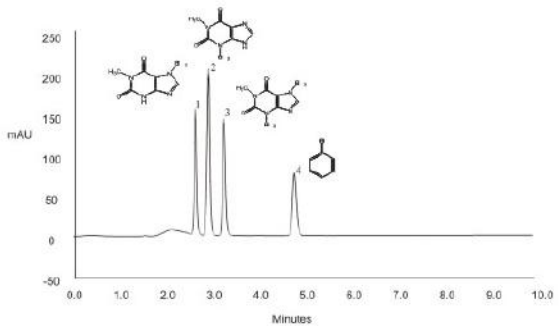
Catecholamines



Column:	HP-C18, 4.6x150mm, 5 µm
Eluent:	57 mM Citric Acid/43 mM NaAc/0.10mM EDTA (disodium form) / 1 mM Octanesulfonic Acid / 10% MeOH (pH 3.4)
Flow rate:	1.0 mL/min
Detection:	Electrochemical Detection with GC (+ 0.70 V vs. Ag/AgCl, 3 M KCl)
Injection:	25 µL
Temperature:	Ambient (23°C)
Compounds:	1. Norepinephrine (NE, 100 nM) 2. Ephinephrine (E, 100 nM) 3. Dihydroxybenzylamine (DHBA, 100 nM) 4. Dopamine (DA, 100 nM)

Purine Alkaloids

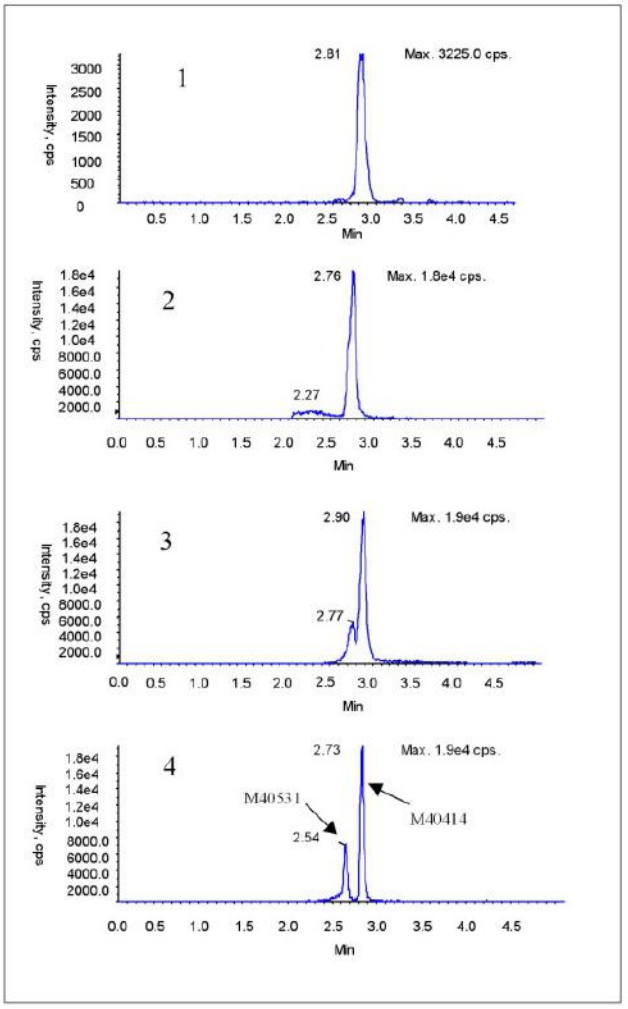
It is a challenge to separate alkaloids by silica based reverse phases, such as C18 packing, due to ion-exchange and electrostatic interactions between naturally occurring basic compounds of alkaloids with the residual silanols (Si-OH). Both GP-C18 and HP-C18 can separate alkaloids with high selectivity and high resolution. HP-C18 performs even better separation than GP-C18 for alkaloids due to its great compatibility with aqueous solution.



Column:	HP-C18, 4.6x150mm, 5 µm
Eluent:	0.10 M Phosphate buffer, pH 3.1
Flow rate:	0.75 mL/min
Detection:	UV 254 nm
Injection:	5 µL
Temperature:	Ambient (23°C)
Compounds:	1. Theobromine (1 mM) 2. Theophyline (1 mM) 3. Caffeine (1 mM) 4. Phenol (7 mM)

LC/MS/MS analysis of organometallic complex isomers

HP-C18 has better selectivity and resolution for organometallic complex isomers compared to other competitors' C18 phases.



Columns: 1. Phenomenex, Synergi, Polar-RP, 4 µm, 50x2.0 mm
2. Keystone, AQ C18, 3 µ m, 50x2.0 mm
3. MetaChem, Polaris-C18, 3 µm, 50x2.1 mm
4. HP C18, 3 µm, 50x2.1 mm

Mobile phase: A: 0.1% TFA in water with 10 mM ammonium formate
B: 0.1% TFA in methanol with 10 mM ammonium formate

Flow rate: 0.5 mL/min

Injection volume: 10 µ L

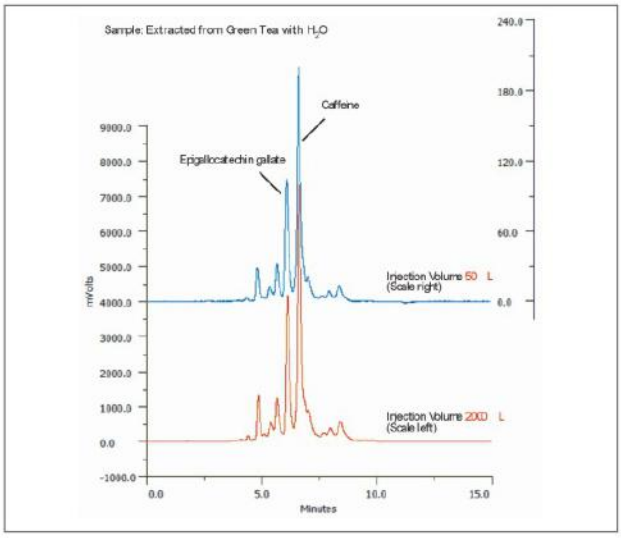
Temperature: 25°C

Instrument: API 4000 LC-MS/MS system

Compounds: Two organometallic complex isomers: M40403 and M40531
(The molecular structures were not disclosed from the customer.)

(Courtesy of Dr. John Lin of Avantix Laboratories)

HP-C18 Prep column separation of green tea extract



Peptide Separation for LC/MS

For LC/MS applications it is important that columns demonstrate low bleed, stable background and good peak shape. For peptide analysis, many modern C18 phases are capable of achieving these standards in the presence of 0.1% TFA. TFA at low concentrations can be compatible with LC/MS analysis; however, at 0.1% MS signal is suppressed 10-15 fold. To maximize MS sensitivity it may be desirable to use formic acid for peptide separations although, with some columns this results in selectivity changes and poor peak shapes.

Sepax HP-C18 columns show remarkable peak shape with formic acid buffer as well as with TFA at low concentration. In Figures 1 and 2 note in particular the insulin peak.

Figure 1. Sepax HP-C18 (5 µm , 2x50 mm) using mobile phase of 0.1% TFA, Water/ Acetonitrile

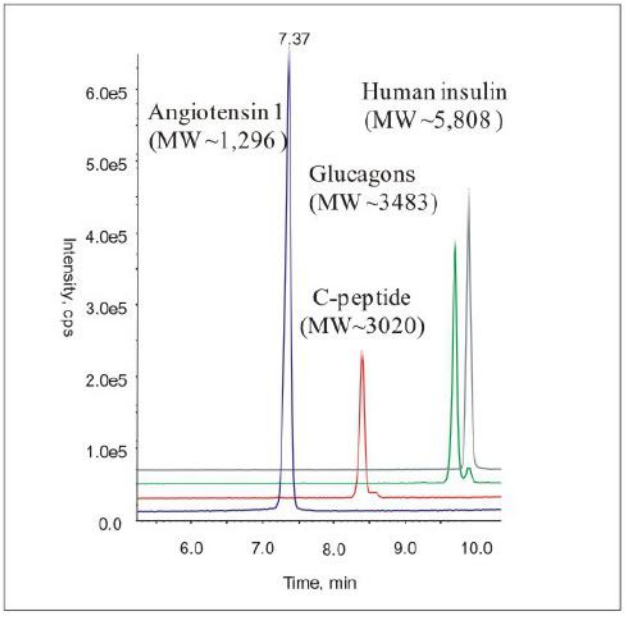
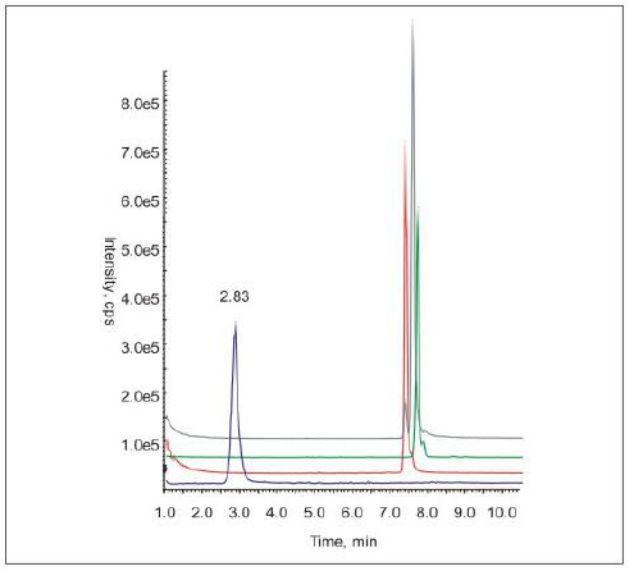


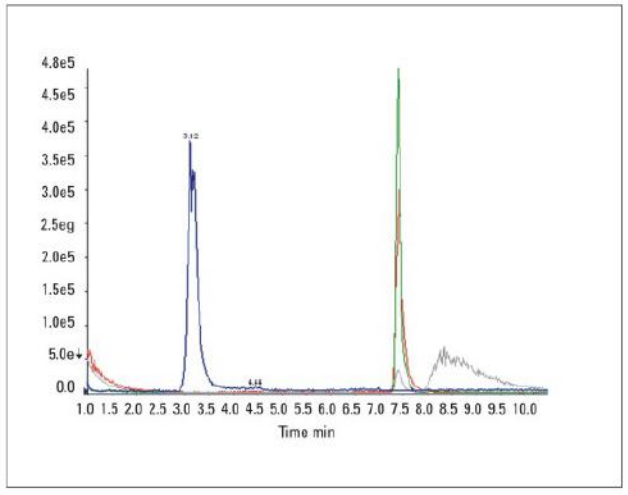
Figure 2. Sepax HP-C18 with 0.4% Formic Acid, water/ Acetonitrile



While elution order changes with Formic acid versus TFA, signal to noise is improved two-fold and peak shape of Insulin and the other peptides is not compromised.

LC/MS analysis was performed on an API 4000 triple quadrupole mass spectrometer (Applied Biosystems, Framingham, MA, USA) equipped with a Turboionspray source, operating in positive mode. Analytes were quantitated using SIM (selected ion monitoring). The separation was performed at 0.3 ml/min using linear gradient 15 -45%B (3%B/min) using Agilent 1100 binary pump (and Valco 8-column selector system C5-2008EMTD.

Figure 3. Competitive 120Å Column at 0.4% Formic Acid, water/Acetonitrile

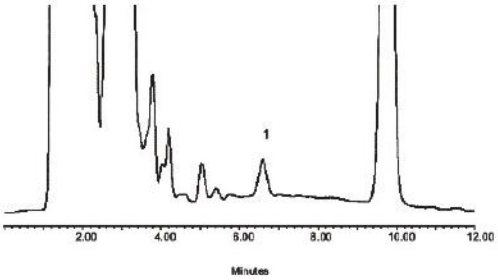


Note that the peak shape of insulin, in particular, is lost without the addition of TFA in the mobile phase. Sensitivity is also reduced.

(Data courtesy of Eduard Rogatsky, Albert Einstein College of Medicine of Yeshiva University,General Clinical Research Center, New York, Bronx.)

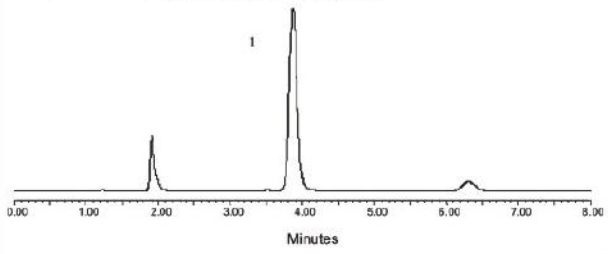
Vitamin B12

Column:	HP-C18, 4.6×150 mm, 5 μm, 120Å
Mobile phase:	A. ACN: H_2O (5 mM K_2HPO_4, 3 mM KH_2PO_4, pH 7.5) = 125: 875
	B. H_2O : ACN : H_3PO_4 = 499: 499: 2
Gradient:	0min 13min 28min 38min
	0%B 0%B 100%B 0%B
Flow rate:	1.2mL/min 1.2mL/min 1.5mL/min 1.2mL/min
Detector (UV):	360 nm
Injection volume:	20 μL
Temperature:	40℃
Sample:	1. Injection of water soluble vitamin B12



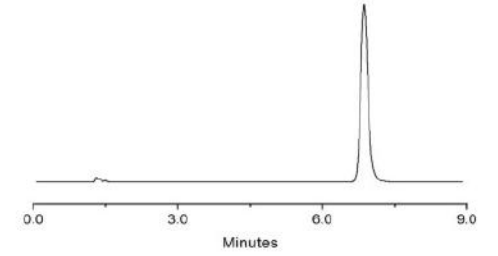
Imdacloprid wettable powder

Column:	HP-C18, 4.6×150 mm, 5 μm, 120Å
Mobile phase:	MeOH: H_2O = 50: 50 (v/v)
Flow rate:	1.0 mL/min
Detector (UV):	260 nm
Injection volume:	10 μL
Temperature:	Ambient (23℃)
Sample:	1. 10% imdacloprid wettable powder

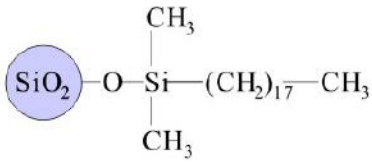


Valsartan

Column:	HP-C18, 4.6×150 mm, 5 μm, 120Å
Mobile phase:	0.10 M phosphate buffer, pH 3.1
Flow rate:	1.0 mL/min
Detector (UV):	273 nm
Injection volume:	10 μL
Temperature:	Ambient (23℃)
Sample:	1. Valsartan (0.5 mg/mL)



HP-C18 (2)



Characteristics

- Specially designed ODS density bonded to highly pure silica
- Free silanol groups on silica surface is minimized to undetectable level
- High loadability
- Compatible with 100% aqueous mobile phases
- High column-to-column reproducibility
- Optimal selectivity for both hydrophobic and hydrophilic compounds
- Available for both analytical and preparative
- Suitable for separations of acidic, neutral and basic organic compounds, as well as pharmaceuticals, peptides, peptide mapping, and others
- Recommended for separations in organic or mixed organic/aqueous mobile phases.

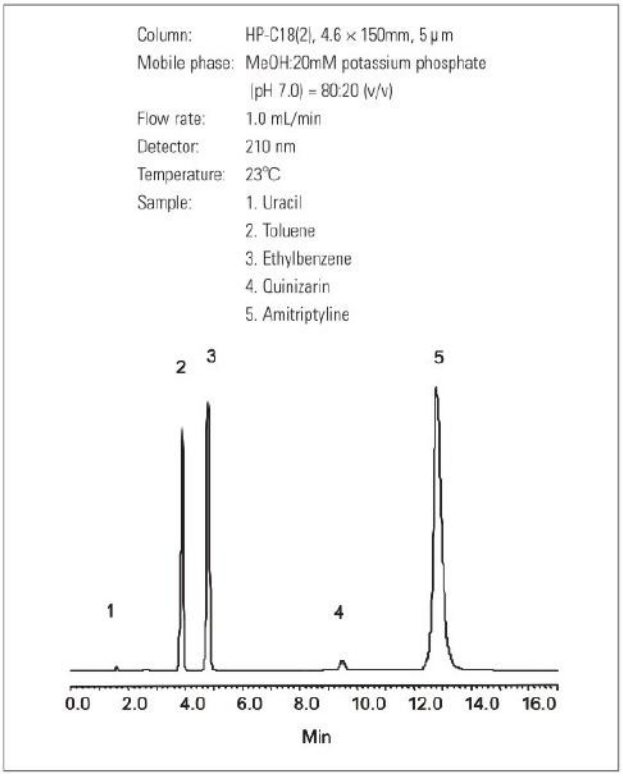
Specifications

Silica:	Spherical, high purity (<10 ppm metals)
Pore size:	100 Å
Particle size:	3, 5 and 10 µm
Pore volume:	1.1 mL/g
Surface area:	450 m^2/g
Phase structure:	Special bonding density and proprietary end-capping
%Carbon:	17%

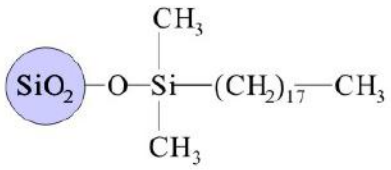
Description

HP-C18(2) uses a proprietary ODS bonding chemistry to a high surface area silica gel to achieve long retention time and high loading capability. The ODS density is specially designed to achieve optimal selectivity for both hydrophobic and hydrophilic compounds. The proprietary endcapping chemistry maximizes consumption of silanol groups on the silica surface, and minimizes the free silanol groups to an undetectable level. Such unique bonding chemistry allows the phase to achieve high peak symmetry, even for basic compounds. HP-C18(2) phase is compatible with 100% aqueous mobile phases. A test chromatogram using Standard Reference Material 870 is shown in Figure 1.

Figure 1. Standard Reference Material 870 compounds are separated by a HP-C18(2) column. Ethylbenzene: USP plate counts, 13,500; symmetry, 0.96.



Bio-C18



C18 monolayer formed by special bonding chemistry does not collapse in pure aqueous solution.

Characteristics

- Highly controlled chemistry of monolayer formation and end-capping
- Extremely high column-to-column reproducibility
- High selectivity and efficiency for separations
- Compatible with 100% aqueous mobile phase
- Suitable for separations of peptides, proteins, and pharmaceuticals

Specifications

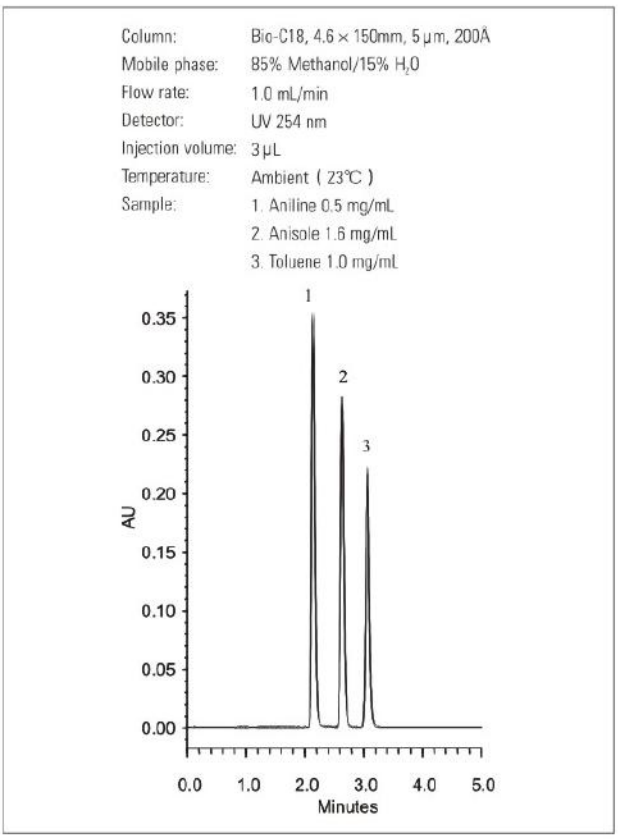
Silica:	Spherical, high purity (<10 ppm metals)
Pore size:	200 Å
Particle size:	3, 4, 5 and 10 µm
Pore volume:	1.0 mL/g
Surface area:	200 m^2/g
Phase structure:	Monomeric and fully endcapped
% Carbon:	10%

Pore size:	300 Å
Particle size:	3 and 5 µm
Pore volume:	0.95 mL/g
Surface area:	105 m^2/g
Phase structure:	Monomeric and fully endcapped
% Carbon:	10%

Description

Wide pore size and high compatibility with 100% aqueous phases makes Bio-C18 columns ideal for high resolution mapping of peptides and separation of natural and synthetic peptides and small proteins. The specially designed surface bonding chemistry and the pore sizes allow for extended retention and selectivity for polar and hydrophilic compounds, such as peptides and amino acids. A test chromatogram of Bio-C18 for quality control shown in Figure 1 exemplifies the high efficiency separation. Figure 2 shows the excellent separation of two 10-mer peptides on a 4.6x250 mm, 5 m, 200Å Bio-C18 column.

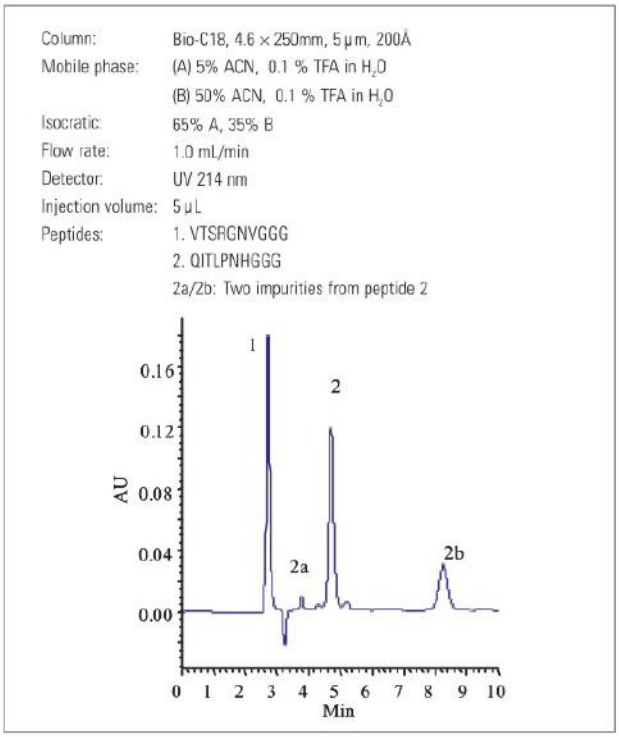
Figure 1. Test chromatogram of a Bio-C18 column.



Applications

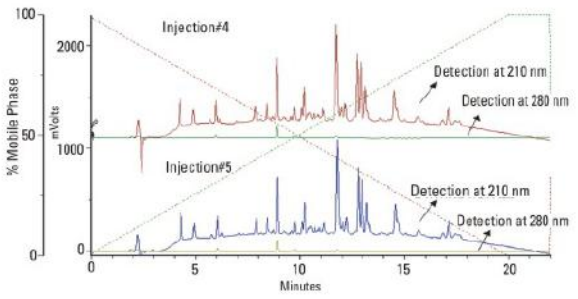
Separation of Peptides

Figure 2. Separation of peptides and impurities.



High Reproducibility for Biological Separations

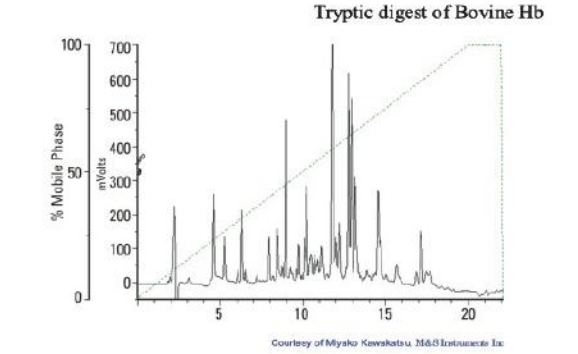
Figure 4. Separation of Tryptic digest of Bovine Hb.(Courtesy of Miyako Kawakatsu, M&S Instruments Inc.)



Column:	Sepax Bio-C18, 4.6x150 mm, 5 µm, 200Å
Mobile phase:	(A) 0.1% TFA in H_2O
	(B) 0.1%TFA in 70% CH_3CN/30% H_2O linear gradient
Flow rate:	1.0 mL/min
Sample:	10 µL (1.0 mg/mL tryptic digest of Bovine Hb-alpha chain)
Detection:	UV at 210 nm and 280 nm

Separation of biological molecules

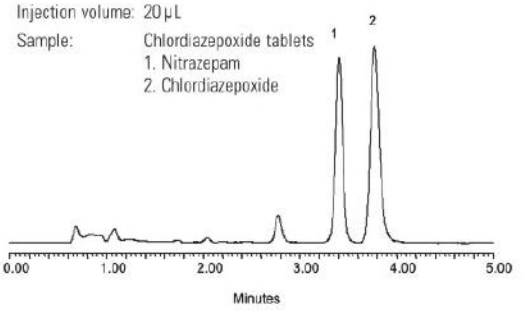
Figure 3. Separation of a protein digest.



Column:	Bio-C18, 4.6x150 mm, 5 µm, 200Å
Mobile phase:	(A) 0.1% TFA in H_2O
	(B) 0.1%TFA /70% CH_3CN
Linear gradient:	0-95% B (20 min)
Flow rate:	1.0 mL/min
Injection volume:	10 µL (1.0 mg/mL)
Sample:	Tryptic digest of bovine Hb-alpha chain
Detection:	UV at 210 nm

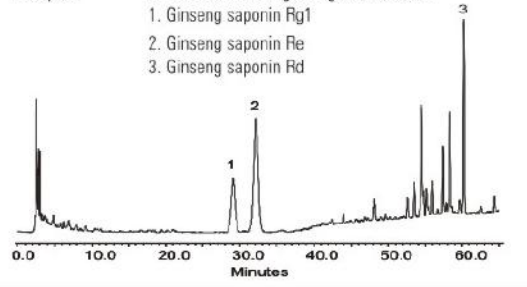
Chlordiazepoxide tablets

Column:	Bio-C18, 5 µm, 200Å, 4.6x250 mm
Mobile phase:	ACN: H_2O=50:50 (v/v)
Flow rate:	1.0 ml/min
Temperature:	23°C
Detector (UV):	254 nm
Injection volume:	20 µL
Sample:	Chlordiazepoxide tablets 1. Nitrazepam 2. Chlordiazepoxide



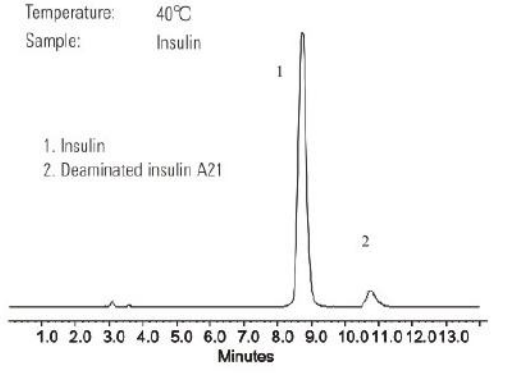
Ginsenosides from ginseng stem and leaf

Column:	Bio-C18, 5 µm, 4.6x250 mm				
Mobile phase:	A: ACN; B: 0.1% phosphoric acid				
Gradient:	Time (min) :	0	30	35	60
	B (%) :	81	81	76	60
Flow rate:	1.3 mL/min				
Temperature:	30°C				
Detector (UV):	203 nm				
Injection volume:	10 µL				
Samples:	Ginsenosides from ginseng stem and leaf 1. Ginseng saponin Rg1 2. Ginseng saponin Re 3. Ginseng saponin Rd				

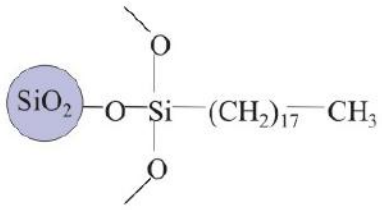


Insulin

Column:	Bio-C18, 5 µm, 300Å, 4.6x250 mm
Mobile phase:	0.2 M Na_2SO_4 (pH 2.3) : ACN = 74: 26 (v/v)
Flow rate:	1.0 ml/min
Detector (UV):	200 nm
Injection volume:	20 µL
Temperature:	40°C
Sample:	Insulin



BR-C18



C18 phase formed by special bonding chemistry for applications in wide range of pH (1.5-10.5).

Characteristics

- Highly controlled chemistry of monolayer formation and end-capping
- Extremely high column-to-column reproducibility
- High selectivity and efficiency for separations
- pH range: 1.5-10.5
- Suitable for separations of acidic, neutral and basic compounds, peptides, and proteins

Specifications

Silica:	Spherical, high purity (<10 ppm metals)
Pore size:	120Å
Particle size:	3, 5 and 10 µm
Pore volume:	1.0 mL/g
Surface area:	350 m^2/g
Phase structure:	Fully end-capped
% Carbon:	19.0%

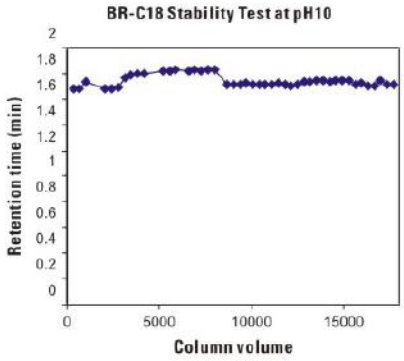
Description

Utilizing highest purity and enhanced mechanical stability silica and pure bonding reagents, BR-C18 bonded phases have been innovatively and specially designed to ensure maximum surface coverage and full end-capping, which leads to carbon content as high as 19.0%. The bonding chemistry is completely controlled which results in very reliable column-to-column reproducibility. The maximum surface coverage allows BR-C18 to have exceptional stability, resulting in high pH stability in the range of 1.5 to 10.5.

Column Stability at Alkali Conditions

BR-C18 uses full coverage bonded silica packing, which allows high stability at high pH. Figure 1 shows reproducible retention time for a test compound: toluene after 18,000 column volume runs in a mobile phase of 55% acetonitrile and 45% water at pH 10. Such high stability allows BR-C18 to be well suited for validation of various analytes at alkali conditions. The proprietary bonding chemistry for BR-C18 allows achieving high selectivity and high efficiency separation. A typical test chromatogram for quality control is shown in Figure 2 for a 4.6x250mm BR-C18 column.

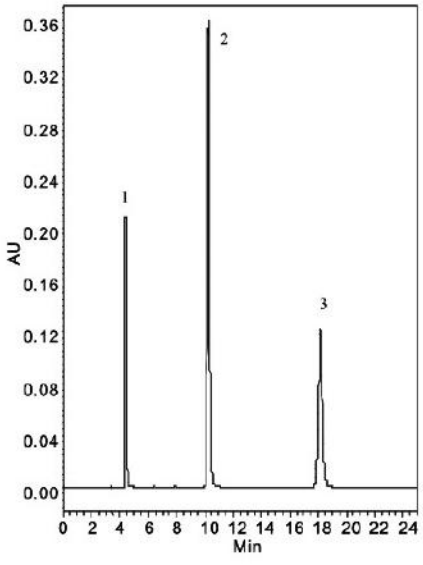
Figure 1. A BR-C18 column (3 µm, 4.6x50 mm) was operated at pH 10.



Mobile phase: 10 mM ammonium bicarbonate buffer in 55%ACN/45%H_2O
Flow rate: 0.5 mL/min
Temperature: Room temperature
Detection: UV 254 nm
Sample: Toluene

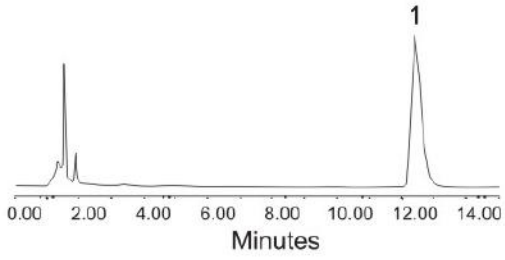
Figure 2. Test chromatogram of a BR-C18 column.

Column: BR-C18 (5 µm, 4.6x250mm)
Mobile phase: 65% Methanol/35% H_2O
Detection: UV 254 nm
Injection volume: 2 µL
Temperature: Ambient
Compounds: 1. Aniline 0.1% (v/v)
2. Anisole 0.2% (v/v)
3. Toluene 0.5% (v/v)



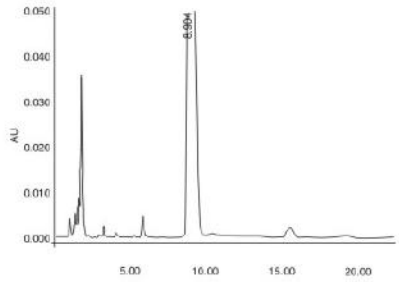
Omeprazole

Column: BR-C18, 5 µm, 120Å, 4.6x250 mm
Mobile phase: MeOH: H_2O: TEA: H_3PO_4 = 67: 33: 0.3: 0.12 (v/v)
Flow rate: 1.0 ml/min
Detector (UV): 302 nm
Injection volume: 20 µL
Temperature: 23°C
Sample: 1. Omeprazole



Roxithromycin tablet

Column: BR-C18, 5 µm, 120Å , 4.6x150 mm
Mobile phase: CH_3CN: 67 mM $NH_4H_2PO_4$ = 35: 65 (v/v) , pH 6.5
Flow rate: 1.0 ml/min
Director (UV): 210 nm
Injection volume: 20 µL
Temperature: 23°C
Sample: 1. Roxithromycin tablet



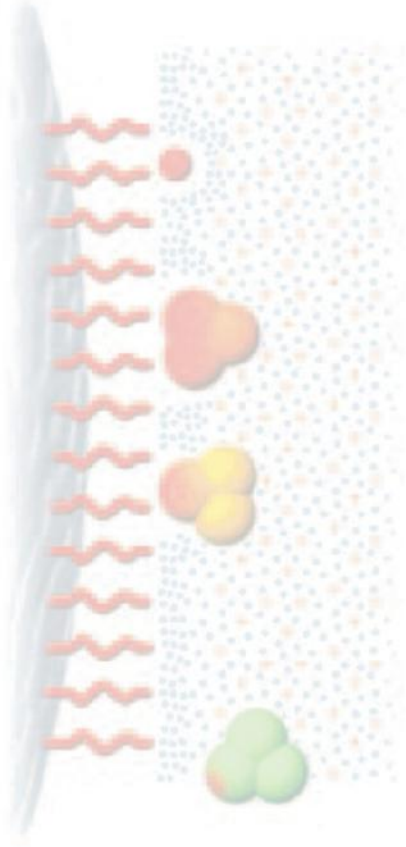
Ordering Information:

ID x Length (mm)	Particle Size (µm)	GP-C18	HP-C18	HP-C18(2)	Bio C18(200Å)	Bio C18(300Å)	BR-C18
2.0 x 10 (guard column)	3	101183-2001	101183-2001		105183-2001	106183-2001	102183-2001
2.1 x 30	3	101183-2103	101183-2103		105183-2103	106183-2103	102183-2103
2.1 x 50	3	101183-2105	101183-2105	143183-2105	105183-2105	106183-2105	102183-2105
4.0 x 10,(guard column)	3	101183-4001	101183-4001		105183-4001	106183-4001	102183-4001
4.6 x 100	3	101183-4610	101183-4610		105183-4610	106183-4610	102183-4610
4.6 x 150	3	101183-4615	101183-4615	143183-4615	105183-4615	106183-4615	102183-4615
4.6 x 250	3	101183-4625	101183-4625	143183-4625	105183-4625	106183-4625	102183-4625
2.1 x 10,(guard column)	5	101185-2001	101185-2001		105185-2001	106185-2001	102185-2001
2.1 x 30	5	101185-2103	101185-2103		105185-2103	106185-2103	102185-2103
2.1 x 50	5	101185-2105	101185-2105	143185-2105	105185-2105	106185-2105	102185-2105
4.0 x 10,(guard column)	5	101185-4001	101185-4001		105185-4001	106185-4001	102185-4001
4.6 x 100	5	101185-4610	101185-4610		105185-4610	106185-4610	102185-4610
4.6 x 150	5	101185-4615	101185-4615	143185-4615	105185-4615	106185-4615	102185-4615
4.6 x 250	5	101185-4625	101185-4625	143185-4625	105185-4625	106185-4625	102185-4625
10.0 x 150	5	101185-10015	101185-10015		105185-10015	106185-10015	102185-10015
10.0 x 250	5	101185-10025	101185-10025		105185-10025	106185-10025	102185-10025
21.2 x 10,(guard column)	5	101185-21201	101185-21201		105185-21201	106185-21201	102185-21201
21.2 x 150	5	101185-21215	101185-21215	143183-21215	105185-21215	106185-21215	102185-21215
21.2 x 250	5	101185-21225	101185-21225	143183-21225	105185-21225	106185-21225	102185-21225
30.0 x 150	5	101185-30015	101185-30015	143185-30015	105185-30015	106185-30015	102185-30015
30.0 x 250	5	101185-30025	101185-30025	143183-30025	105185-30025	106185-30025	102185-30025
10.0 x 150	10	101189-10015	101189-10015		105189-10015	106189-10015	102189-10015
10.0 x 250	10	101189-10025	101189-10025		105189-10025	106189-10025	102189-10025
21.2 x 150	10	101189-21215	101189-21215		105189-21215	106189-21215	102189-21215
21.2 x 250	10	101189-21225	101189-21225		105189-21225	106189-21225	102189-21225
30.0 x 150	10	101189-30015	101189-30015		105189-30015	106189-30015	102189-30015
30.0 x 250	10	101189-30025	101189-30025		105189-30025	106189-30025	102189-30025

*For more information about available column dimensions, please visit our website, www.sepax-tech.com, or contact sales.

Other Reversed Phase HPLC Columns

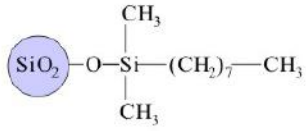
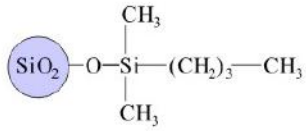
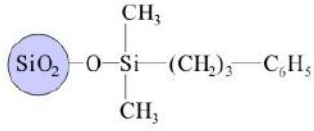
- GP-C8
- GP-C4
- Bio-C8
- Bio-C4
- GP-Phenyl
- PolyRP (Polymer based)



Other Reversed Phase HPLC Columns

Characteristics

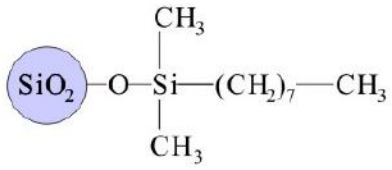
- Highly controlled chemistry of monolayer formation and end-capping
- Extremely high column-to-column reproducibility
- High selectivity and efficiency for separations
- Full coverage bonded silica packing to achieve the exceptionally high stability

GP-C8		GP-C8 phase is synthesized with monomeric and fully endcapped chemistry. The uniform octyl stationary phase allows high efficiency with lower hydrophobicity compared to ODS phase. GP-C8 phase is suitable for separating compounds with a wide range of hydrophobicity. It is highly recommended for separating the compounds which are too strongly retained on C18 phases.
Bio-C8		Bio-C8 phase is made of monomeric and fully endcapped chemistry. The uniform stationary phase allows the separation to achieve high selectivity and high efficiency. Bio-C8 packings of 300 Å pore size are ideal for high resolution mapping of peptides and separation of natural and synthetic peptides and small proteins.
GP-C4		Monomeric and fully endcapped GP-C4 packing is bonded with butyl group that leads to moderate hydrophobicity. GP-C4 columns have the great selectivity and peak symmetry with moderate retention for separations of acidic, neutral and basic organic compounds, such as pharmaceuticals, peptides, and organic acids.
Bio-C4		Monomeric and fully endcapped GP-C4 packing is bonded with butyl group that leads to moderate hydrophobicity. Bio-C4 packings of 300 Å pore size are ideal for high resolution mapping of peptides and separation of natural and synthetic peptides and small proteins.
GP-Phenyl		GP-Phenyl packing materials are bonded with propyl phenyl groups that enable special interaction with ring structured compounds. The monomeric bonding chemistry gives very high efficiency and high resolution separations. GP-Phenyl phase is suitable for separations of acidic, neutral and basic organic compounds, as well as the pharmaceuticals.

Specifications

	GP-C8	GP-C4	GP-Phenyl	Bio-C8	Bio-C4
Silica	Spherical, high purity(<10 ppm metals)				
Pore size:	120 Å			300 Å	300 Å
Particle size:	1.8, 2.2, 3, 4, 5, 7 and 10 µm			3, 5, and 10 µm	
Pore volume:	1.0 mL/g			0.9 mL/g	1.0 mL/g
Surface area:	300 m^2/g			105 m^2/g	
Phase structure:	Monomeric and fully end-capped				
% Carbon:	11%	8.0%	11%	4.0%	3.0%
Coverage:			3.0 µmol/m^2		

GP-C8



Characteristics

- Highly controlled chemistry of monolayer formation and end-capping
- Extremely high column-to-column reproducibility
- High selectivity and efficiency for separations
- Full coverage bonded silica packing to achieve the exceptionally high stability
- Suitable for separations of acidic, neutral and basic organic compounds, such as pharmaceuticals, peptides, and organic acids

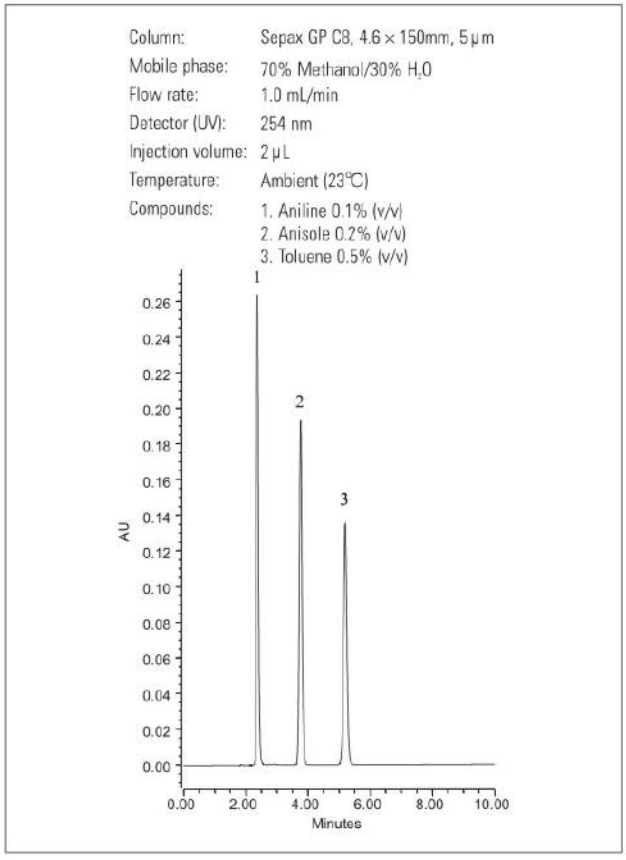
Specifications

Silica:	Spherical, high purity (<10 ppm metals)
Pore size:	120 Å
Particle size:	1.8, 2.2, 3, 4, 5, 7 and 10 µm
Pore volume:	1.0 mL/g
Surface area:	300 m^2/g
Phase structure:	Monomeric and fully endcapped
% Carbon:	11.0%

Description

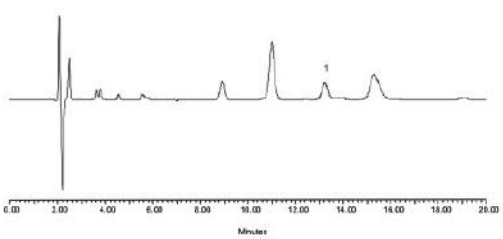
GP-C8 phase is synthesized with monomeric and fully endcapped chemistry. The uniform octyl stationary phase allows high efficiency with lower hydrophobicity compared to ODS phase. GP-C8 phase is suitable for separating compounds with a wide range of hydrophobicity. It is highly recommended for separating compounds which are too strongly retained on C18 phases.

A typical test chromatogram for quality control is shown below for a 4.6x150mm GP-C8 column.

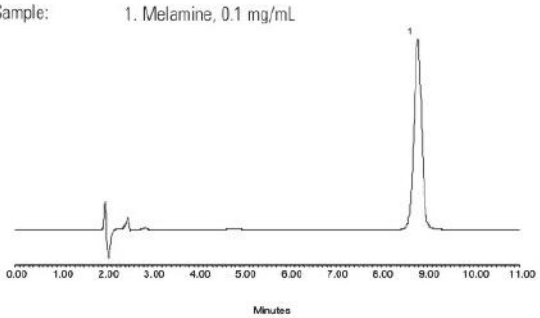


Melamine

Column: GP-C8, 5 µm, 120 Å , 4.6x250 mm
Mobile phase: ACN: Buffer (10 mM citric acid, 10 mM sodium sulfonate) = 7: 93 (v/v)
Flow rate: 1.0 mL/min
Detector (UV): 240 nm
Injection volume: 10 µL
Temperature: 23°C
Sample: Added 10 ppm melamine-tainted chiken feed sample
1. Melamine

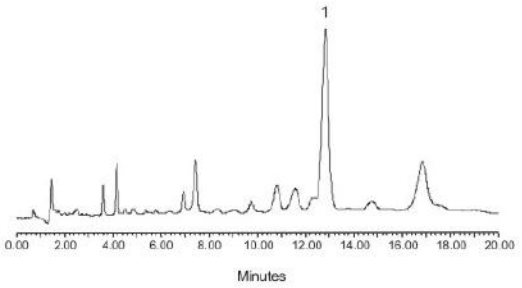


Column: GP-C8, 5 µm, 120 Å, 4.6x250 mm
Mobile phase: ACN: Buffer (10 mM citric acid, 10 mM sodium sulfonate) = 10: 90 (v/v)
Flow rate: 1.0 mL/min
Detector (UV): 240 nm
Injection volume: 10 µL
Temperature: 23°C
Sample: 1. Melamine, 0.1 mg/mL



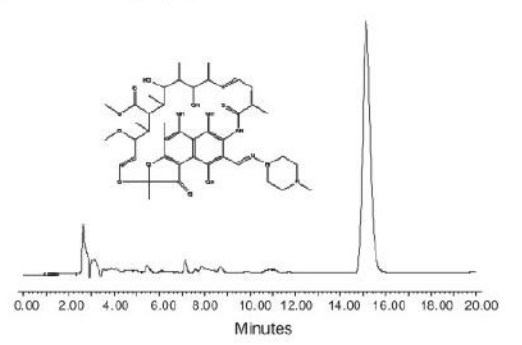
Taxol extract

Column:	GP-C8, 5 µm, 120 Å , 4.6x150 mm
Mobile phase:	ACN: H_2O = 45: 55 (v/v)
Flow rate:	1.0 mL/min
Detector (UV):	224 nm
Injection volume:	10 µL
Temperature:	23℃
Sample:	Taxol extract, 100 µg/mL
	1.Paclitaxel

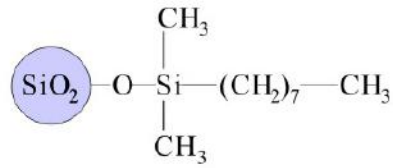


Rifampicin

Column:	GP-C8, 5 µm, 120 Å , 4.6x250 mm
Mobile phase:	ACN: CH_3OH: 0.075 M KH_2PO_4: 1.0 M Citric acid = 30: 30: 36: 4
Flow rate:	1.0 mL/min
Detector (UV):	240 nm
Injection volume:	10 µL
Temperature:	23℃
Sample:	1. Rifampicin



Bio-C8



Characteristics

- Highly controlled chemistry of monolayer formation and end-capping
- Extremely high column-to-column reproducibility
- High selectivity and efficiency for separations
- Full coverage bonded silica packing to achieve the exceptionally high stability
- Suitable for fingerprint identification of peptide fragment, separations of natural and artificially synthesized peptide, low molecular protein, and so on.

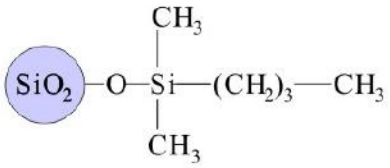
Specifications

Silica:	Spherical, high purity (<10 ppm metals)
Pore size:	300 Å
Particle size:	3, 5, and 10 µm
Pore volume:	0.9 mL/g
Surface area:	105 m^2/g
Phase structure:	Monomeric and fully endcapped
% Carbon:	4.0%

Description

Bio-C8 phase is made of monomeric and fully endcapped chemistry. The uniform stationary phase allows the separation to achieve high selectivity and high efficiency. Bio-C8 packings of 200 and 300 Å pore size selection are ideal for high resolution mapping of peptides and separation of natural and synthetic peptides and small proteins.

GP-C4

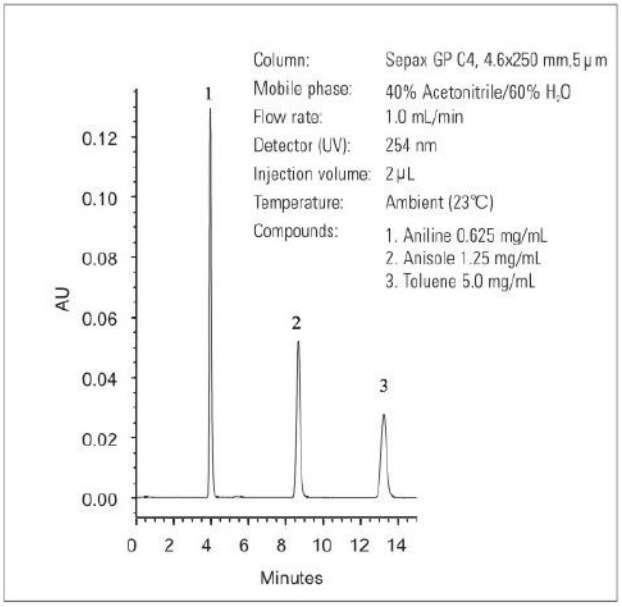


Specifications

Silica:	Spherical, high purity (<10 ppm metals)
Pore size:	120 Å
Particle size:	1.8, 2.2, 3, 5, 7 and 10 µm
Pore volume:	1.0 mL/g
Surface area:	300 m^2/g
Phase structure:	Monomeric and fully endcapped
% Carbon:	8.0%

Description

Monomeric and fully endcapped GP-C4 packing is bonded with a butyl group that leads to moderate hydrophobicity. GP-C4 columns have great selectivity and peak symmetry with moderate retention for separations of acidic, neutral and basic organic compounds, such as pharmaceuticals, peptides, and organic acids. A typical test chromatogram for quality control is shown below for a 4.6x150mm GP-C4 column.



Bio-C4

Characteristics

- Very well controlled chemistry of monolayer formation and end-capping
- Extremely high column-to-column reproducibility
- High selectivity and efficiency for separations
- Full coverage bonded silica packing for exceptional high stability
- Suitable for separations of acidic, neutral and basic organic compounds.

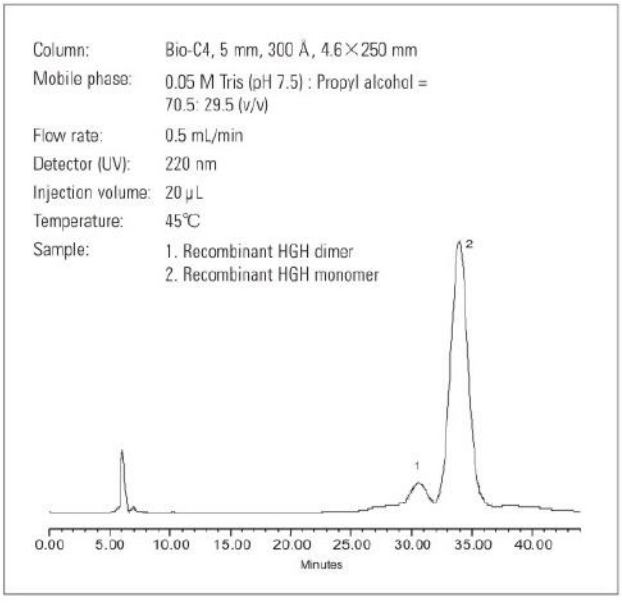
Specifications

Silica:	Spherical, high purity (<10 ppm metals)
Pore size:	300 Å
Particle size:	3, 5 and 10 µm
Pore volume:	1.0 mL/g
Surface area:	105 m^2/g
Phase structure:	Monomeric and fully endcapped
% Carbon:	3.0%

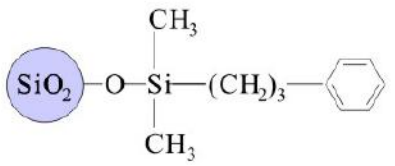
Description

Monomeric and fully endcapped Bio-C4 packing is bonded with a butyl group that leads to moderate hydrophobicity. Bio-C4 packings of 300 Å pore size are ideal for high resolution mapping of peptides and separation of natural and synthetic peptides and small proteins.

Recombinant HGH



GP-Phenyl



Characteristics

- Highly controlled chemistry of monolayer formation and end-capping
- Extremely high column-to-column reproducibility
- High selectivity and efficiency for separations
- Suitable for separations of acidic, neutral and basic organic compounds, as well as the pharmaceuticals
- Recommended for separations in organic or mixed organic and aqueous mobile phases.

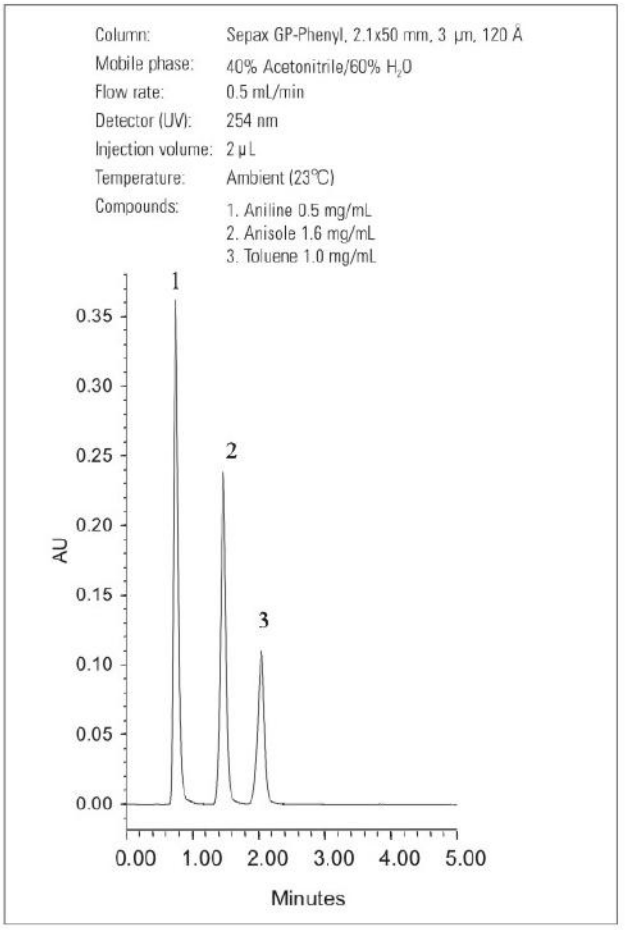
Specifications

Silica:	Spherical, high purity (<10 ppm metals)
Pore size:	120 Å
Particle size:	3, 4, 5, 7, and 10 µm
Pore volume:	1.0 mL/g
Surface area:	300 m^2/g
Phase structure:	Monomeric and fully endcapped
% Carbon:	11%
Coverage:	3.0 µmol/m^2

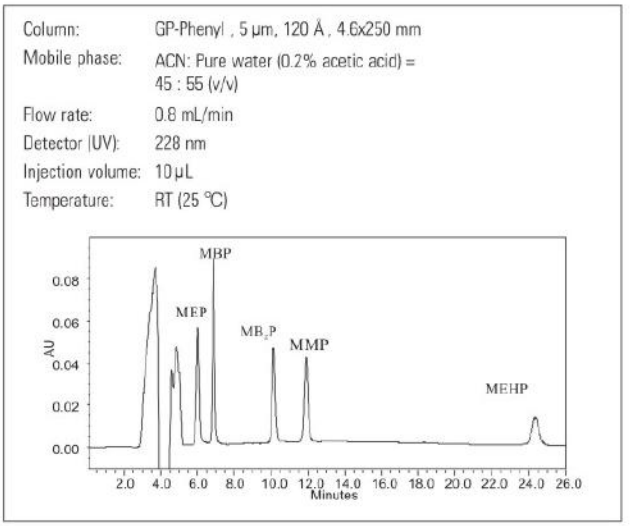
Description

GP-Phenyl packing materials are bonded with propyl phenyl groups that enable special interaction with ring structured compounds. The monomeric bonding chemistry gives very high efficiency and high resolution separations. GP-Phenyl phase is suitable for separations of acidic, neutral and basic organic compounds, as well as the pharmaceuticals.

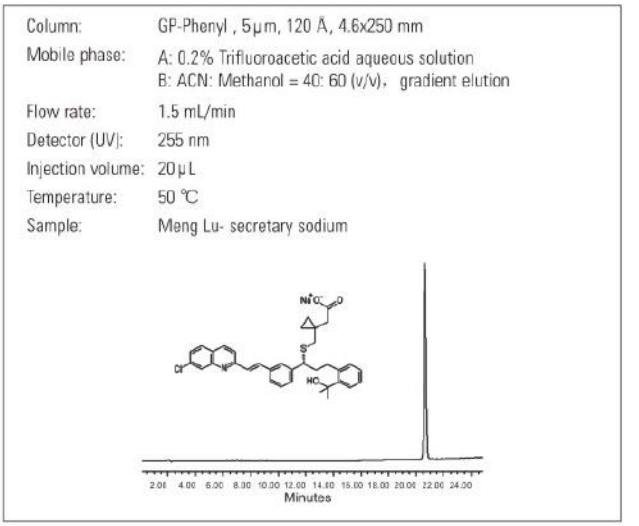
The chromatogram shown below is a typical one for quality control for a 2.1x50mm GP-Phenyl column. Such short columns produce very fast yet highly efficient separations.



Phthalate



Meng Lu- secretary sodium



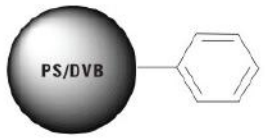
Ordering Information:

ID x Length (mm)	Particle Size (μ m)	GP-C8	Bio-C8	GP-C4	Bio-C4	GP-Phenyl
2.0 x 10(guard column)	3	107083-2001	108083-2001	109043-2001	110043-2001	111363-2001
2.1 x 30	3	107083-2103	108083-2103	109043-2103	110043-2103	111363-2103
2.1 x 50	3	107083-2105	108083-2105	109043-2105	110043-2105	111363-2105
4.0 x 10(guard column)	3	107083-4001	108083-4001	109043-4001	110043-4001	111363-4001
4.6 x 100	3	107083-4610	108083-4610	109043-4610	110043-4610	111363-4610
4.6 x 150	3	107083-4615	108083-4615	109043-4615	110043-4615	111363-4615
4.6 x 250	3	107083-4625	108083-4625	109043-4625	110043-4625	111363-4625
2.0 x 10(guard column)	5	107085-2001	108085-2001	109045-2001	110045-2001	111365-2001
2.1 x 30	5	107085-2103	108085-2103	109045-2103	110045-2103	111365-2103
2.1 x 50	5	107085-2105	108085-2105	109045-2105	110045-2105	111365-2105
4.0 x 10(guard column)	5	107085-4001	108085-4001	109045-4001	110045-4001	111365-4001
4.6 x 100	5	107085-4610	108085-4610	109045-4610	110045-4610	111365-4610
4.6 x 150	5	107085-4615	108085-4615	109045-4615	110045-4615	111365-4615
4.6 x 250	5	107085-4625	108085-4625	109045-4625	110045-4625	111365-4625
10.0 x 150	5	107085-10015	108085-10015	109045-10015	110045-10015	111365-10015
10.0 x 250	5	107085-10025	108085-10025	109045-10025	110045-10025	111365-10025
21.2 x 10(guard column)	5	107085-21201	108085-21201	109045-21201	110045-21201	111365-21201
21.2 x 150	5	107085-21215	108085-21215	109045-21215	110045-21215	111365-21215
21.2 x 250	5	107085-21225	108085-21225	109045-21225	110045-21225	111365-21225
30.0 x 150	5	107085-30015	108085-30015	109045-30015	110045-30015	111365-30015
30.0 x 250	5	107085-30025	108085-30025	109045-30025	110045-30025	111365-30025
10.0 x150	10	107089-10015	108089-10015	109049-10015	110049-10015	111369-10015
10.0 x250	10	107089-10025	108089-10025	109049-10025	110049-10025	111369-10025
21.2 x 150	10	107089-21215	108089-21215	109049-21215	110049-21215	111369-21215
21.2 x 250	10	107089-21225	108089-21225	109049-21225	110049-21225	111369-21225
30.0 x 150	10	107089-30015	108089-30015	109049-30015	110049-30015	111369-30015
30.0 x 250	10	107089-30025	108089-30025	109049-30025	110049-30025	111369-30025

*For more information about available column dimensions, please visit our website, www.sepax-tech.com, or contact sales.

Polymer Based Reversed-phase HPLC Columns

PolyRP



Characteristics

- Uniform particles and narrow pore size distribution
- Extremely high chemical stability
- Unsurpassed pH stability (1-14)
- High retentativity
- Better selectivity
- High mechanical stability

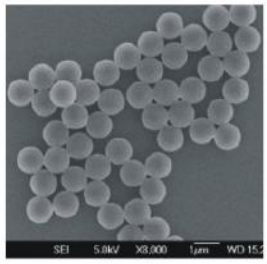
Specifications

Porous Packings

PS/DVB Particles:	Spherical, 80% cross-linking
Pore size:	100, 300, 500 and 1000 Å
Particle size:	5 and 10 µm
Pore volume:	1.0 mL/g
Surface area:	280 m^2/g for 100 Å pore size
Phase structure:	Phenyl group
Separation mechanism:	Hydrophobic interaction

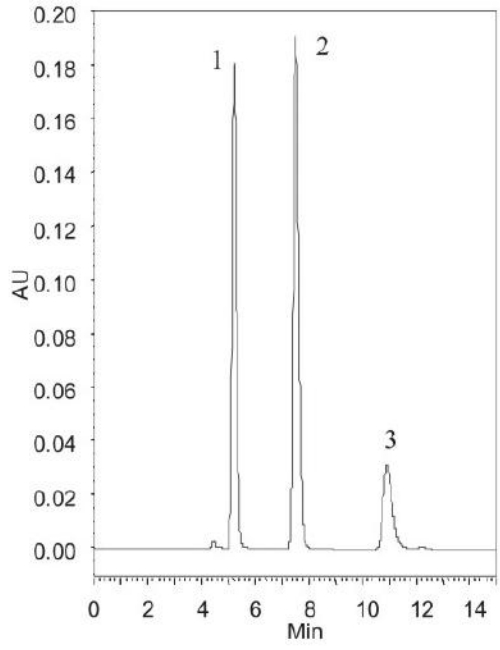
Non-Porous Resins

PS/DVB Particles:	Spherical, 80% cross-linking
Pore size:	non-porous
Particle size:	1, 1.7, 3, 5 and 10 µm
Surface area:	<10 m^2/g
Phase structure:	Phenyl group
Separation mechanism:	Hydrophobic interaction



Description

PolyRP phases are made of 80% cross-linking PS/DVB spherical particles. Those highly rigid particles have both non-porous and porous structures with the particle size selection of 1, 1.7, 3, 5, and 10 µm. The phase structure is phenyl functional group which enables hydrophobic interaction. Compared with silica based reversed phases, PolyRP phases have advantages over applications at extreme pH (1-14) with special selectivity and slightly lower separation efficiency. A typical test chromatogram for quality control is shown below for a 7.8x300mm PolyRP-300 (10 µm) column.

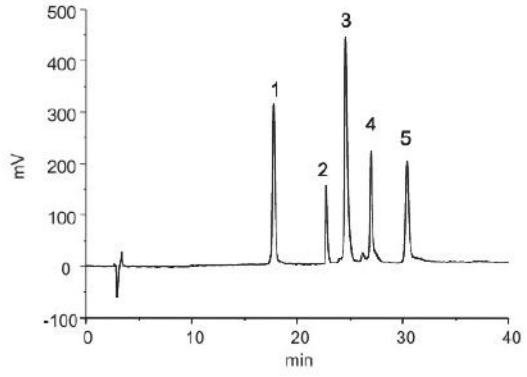


Column:	PolyRP-300 (10 µ m, 300Å , 7.8x300mm)
Mobile phase:	55% ACN/45%H_2O/0.1%TFA
Flow rate:	2.0 mL/min
Detector (UV):	254 nm
Injection volume:	10 µL
Temperature:	Ambient
Sample:	1. p-Amino benzoic acid
	2. p-Cyanophenol
	3. p-Nitroaniline

Applications

- Suitable for separations of pharmaceuticals, acidic, neutral and basic organic compounds, and organic acids
- Separation of peptides, amino acids, and proteins
- Analytical and preparative scale separation
- Bulk resins for process chromatography

Protein separation

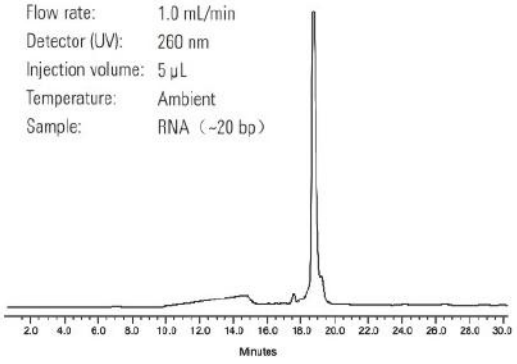


Protein mixtures

Column:	PolyRP-300 (5 µm ,300Å , 4.6x150mm)
Mobile phase:	A: H_2O+0.1%TFA B: ACN+0.1%TFA
Gradient:	0-5-45 min 20%B-20%B-60%B
Flow rate:	1.0 mL/min
Detector (UV):	214 nm
Injection volume:	20 µL
Temperature:	Ambient
Sample:	1. Ribonuclease B (1 mg/mL) 2. Insulin (1 mg/mL) 3. Cytochrome C (1 mg/mL) 4. Lysozyme (1 mg/mL) 5. BSA (1 mg/mL)

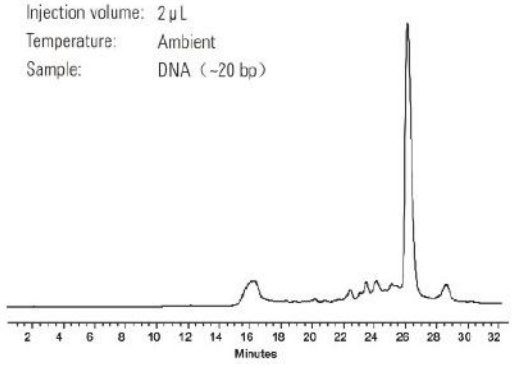
RNA

Column:	PolyRP, 10 µm , 300 Å , 4.6 × 150 mm
Mobile phase:	A: 0.1%TEAA (pH 7.0) B: ACN
Gradient:	Time: 0 min 50 min B: 0% 30%
Flow rate:	1.0 mL/min
Detector (UV):	260 nm
Injection volume:	5 µL
Temperature:	Ambient
Sample:	RNA (~20 bp)



DNA

Column:	PolyRP, 10 µm , 300 Å , 4.6 × 150 mm
Mobile phase:	A: 0.1%TEAA (pH 7.0) B: ACN
Gradient:	Time: 0 min 30 min 50 min B: 0% 30% 50%
Flow rate:	1.0 mL/min
Detector (UV):	260 nm
Injection volume:	2 µL
Temperature:	Ambient
Sample:	DNA (~20 bp)



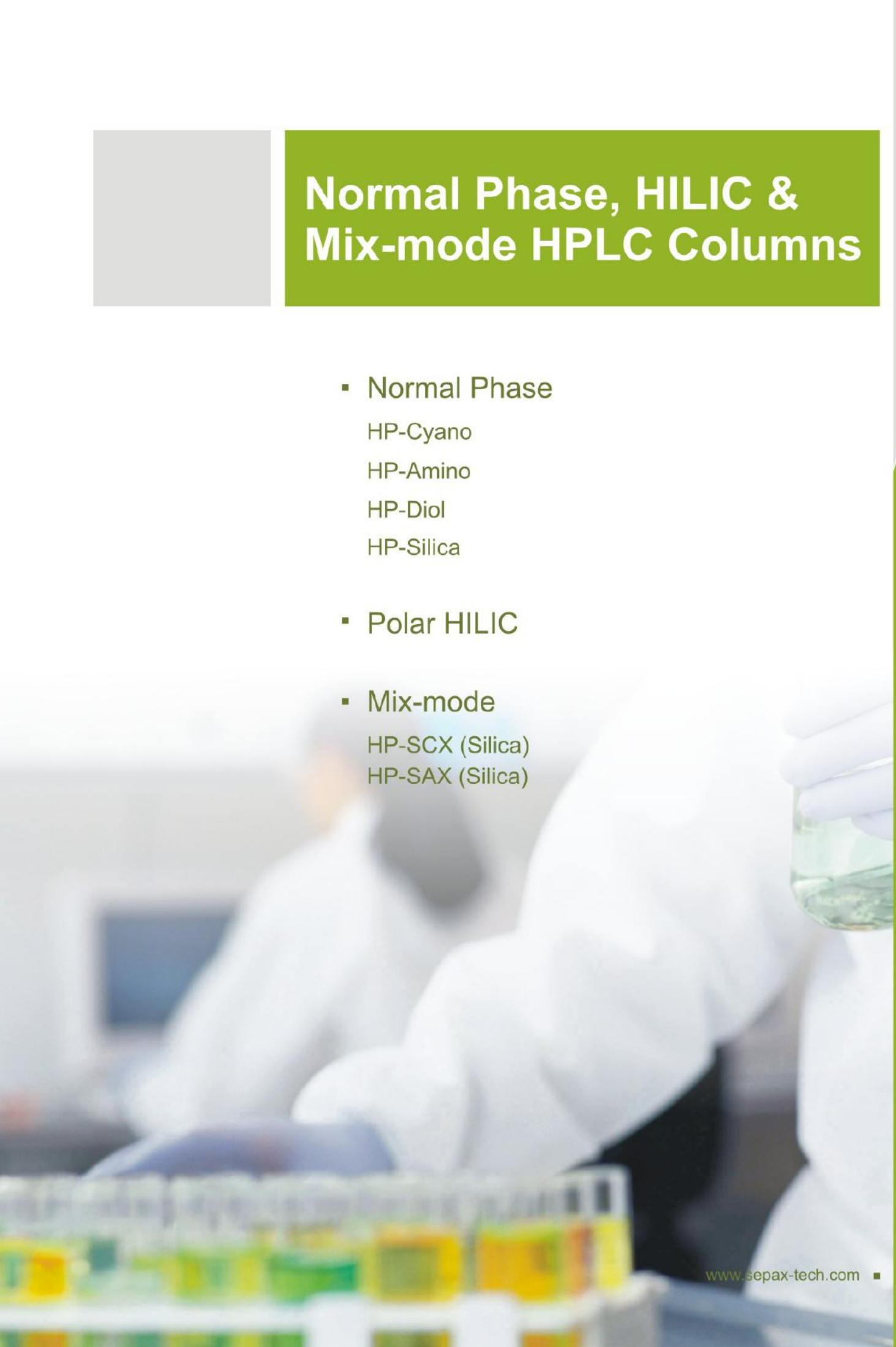
Ordering Information:

	PolyRP-100, 100 Å		PolyRP-300, 300 Å		PolyRP-NP, Non-porous		
Particle Size / ID x Length (mm)	5µm	10µm	5µm	10µm	3µm	5µm	10µm
2.0 x 10 (guard column)	260100-2001	261100-2001	260300-2001	261300-2001	262003-2001	262005-2001	262010-2001
2.1 x 30	260100-2103	261100-2103	260300-2103	261300-2103			
2.1 x 50	260100-2105	261100-2105	260300-2105	261300-2105	262003-2105	262005-2105	262010-2105
4.0 x 10 (guard column)	260100-4001	261100-4001	260300-4001	261300-4001	262003-4001	262005-4001	262010-4001
4.6 x 100	260100-4610	261100-4610	260300-4610	261300-4610	262003-4610		
4.6 x 150	260100-4615	261100-4615	260300-4615	261300-4615	262003-4615	262005-4615	262010-4615
4.6 x 250	260100-4625	261100-4625	260300-4625	261300-4625	262003-4625	262005-4625	262010-4625
10.0 x 150	260100-10015	261100-10015	260300-10015	261300-10015			
10.0 x 250	260100-10025	261100-10025	260300-10025	261300-10025		262005-10025	262010-10025
21.2 x 10 (guard column)	260100-21201	261100-21201	260300-21201	261300-21201		262005-21201	262010-21201
21.2 x 150	260100-21215	261100-21215	260300-21215	261300-21215		262005-21215	262010-21215
21.2 x 250	260100-21225	261100-21225	260300-21225	261300-21225		262005-21225	262010-21225
30.0 x 150	260100-30015	261100-30015	260300-30015	261300-30015			
30.0 x 250	260100-30025	261100-30025	260300-30025	261300-30025			

*For more information about available column dimensions, please visit our website, www.sepax-tech.com, or contact sales.

Normal Phase, HILIC & Mix-mode HPLC Columns

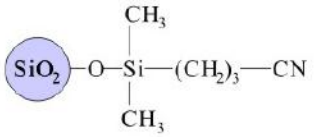
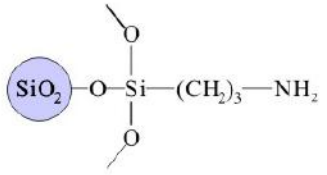
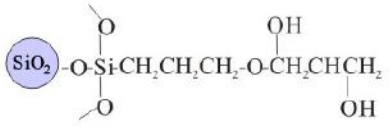
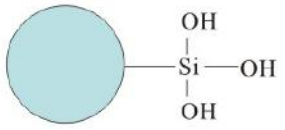
- Normal Phase
  - HP-Cyano
  - HP-Amino
  - HP-Diol
  - HP-Silica
- Polar HILIC
- Mix-mode
  - HP-SCX (Silica)
  - HP-SAX (Silica)



Normal Phase LC Columns

Characteristics

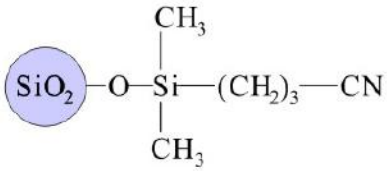
- Highly controlled chemistry of monolayer formation and end-capping
- Extremely high column-to-column reproducibility
- High selectivity and efficiency for separations

HP-Cyano Cyanide-acrylate based		Synthesized with monomeric and fully endcapped chemistry, HP-Cyano phase is bonded with propylcyano functional group that allows special interaction with polar compounds. The monomeric bonding chemistry enables high efficiency and high resolution separation of peptide, proteins, acidic, neutral and basic organic compound, and pharmaceuticals.
HP-Amino Ammonia based		Synthesized with polymeric chemistry, HP-Amino phase is bonded with aminopropyl functional group. HP-Amino phase is compatible with versatile mobile phases from non-aqueous solvents, such as hexane/ethyl acetate and chloroform/methanol, to aqueous solutions. It is recommended for separations of sugars, nucleotides, basic organic compounds, as well as the pharmaceuticals.
HP-Diol 1,2-dihydroxy propyl ether based		Synthesized with polymeric chemistry, HP-Diol phase is bonded with 1,2-dihydroxypropyl propyl ether functional group that allows special interaction with polar compounds. The polymeric bonding chemistry enables high efficiency and high stability separation of polar pharmaceuticals, peptide, and proteins. HP-Diol phase can also be used as size exclusion separation of biological molecules.
HP-Silica Silica based		HP-Silica phase is made of activated hydroxyl (-OH) functional group with the pore size selection of 60, 120, 200, 300, 500, 1000 and 2000 Å and particle size selection of 1.8, 2.2, 3, 5, and 10 µm. Carbon loading is 0.0%. HP-Silica is used as the normal phase as well as HILIC phase. HP-Silica phases are suitable for separations of polar and basic organic compounds, such as vitamins, steroids, as well as pharmaceuticals.

Specifications

	HP-Cyano	HP-Amino	HP-Diol	HP-Silica
Silica	Spherical, high purity (<10 ppm metals)			
Pore size:	120 Å		80 and 120 Å	120, 200, 300, 500, 1000, and 2000 Å
Particle size:	1.8, 2.2, 3, 4, 5, 7 and 10 µm		3, 5 and 10 µm	1.8, 2.2, 3, 4, 5, 7, and 10 µm
Pore volume:	1.0 mL/g			1.0 mL/g (120 Å pore size)
Surface area:	300 m^2/g	300 m^2/g	300 m^2/g	300 m^2/g (120 Å pore size)
Phase structure:	Monomeric and fully end-capped			Activated hydroxyl (-OH)
% Carbon:	7.0%	4.0%	8.8%	-
Coverage:	-	-	~3.5 µmol/m^2	-

HP-Cyano



Characteristics

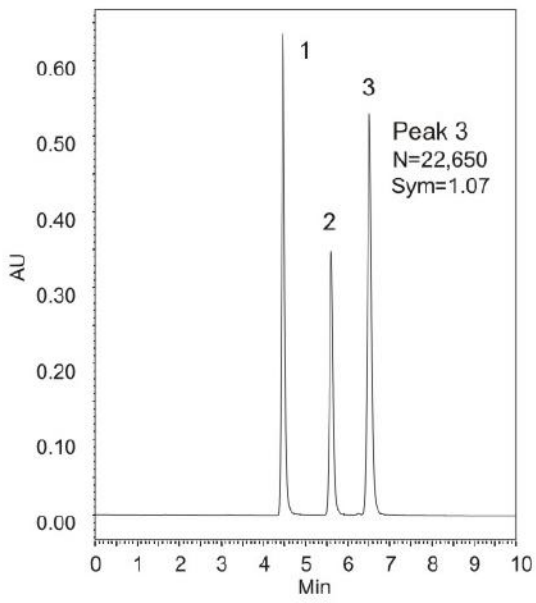
- Highly controlled chemistry of monolayer formation and end-capping
- Extremely high column-to-column reproducibility
- High selectivity and efficiency for separations
- Suitable for separations of peptides, proteins, acidic, neutral and basic organic compounds, and pharmaceuticals

Specifications

Silica:	Spherical, high purity (<10 ppm metals)
Pore size:	120 Å
Particle size:	1.8, 2.2, 3, 4, 5 and 10 µm
Pore volume:	1.0 mL/g
Surface area:	300 m^2/g
Phase structure:	Monomeric and fully endcapped
% Carbon:	7.0%

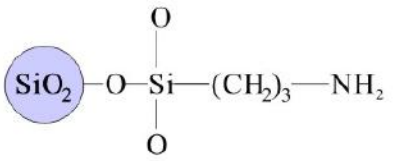
Description

Synthesized with monomeric and fully endcapped chemistry, HP-Cyano phase is bonded with propylcyano functional groups that allow special interaction with polar compounds. The monomeric bonding chemistry enables high efficiency and high resolution separation of peptide, proteins, acidic, neutral and basic organic compound, and pharmaceuticals. The chromatogram shown here is a typical one for quality control for HP-Cyano 4.6x250mm column.



Column:	HP-Cyano, 5 µm, 120 Å, 4.6x250 mm
Mobile phase:	55% Acetonitrile/45%H_2O
Flow rate:	1.0 mL/min
Detector (UV):	254 nm
Injection volume:	3.0 µL
Temperature:	Ambient (23°C)
Sample:	1. 4-Cyanophenol 2. Anisole 3. Benzophenone

HP-Amino



Characteristics

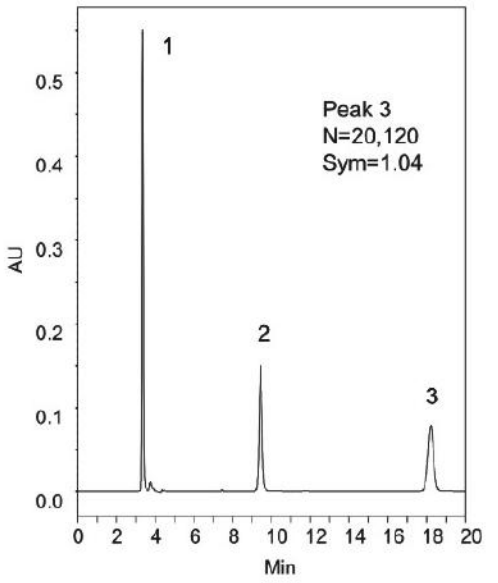
- Well controlled chemistry of polymeric monolayer
  High column-to-column reproducibility
- Utilized as both normal and reverse phase
- Versatile mobile phases: non-aqueous solvents, such as hexane/ethyl acetate and chloroform/methanol, and aqueous solutions
- Recommended for separations of saccharides, nucleotides, basic organic compounds, as well as the pharmaceuticals
- Super critical fluid separation applications
- LC/MS analysis for pharmaceuticals

Specifications

Silica:	Spherical, high purity (<10 ppm metals)
Pore size:	120 Å
Particle size:	3, 4, 5, 7, and 10 µm
Pore volume:	1.0 mL/g
Surface area:	300 m^2/g
Phase structure:	Polymeric and no endcapping
% Carbon:	4.0%

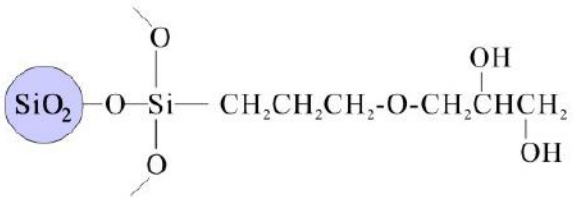
Description

Synthesized with polymeric chemistry, HP-Amino phase is bonded with aminopropyl functional group. HP-Amino phase is compatible with versatile mobile phases from non-aqueous solvents, such as hexane/ethyl acetate and chloroform/methanol, to aqueous solutions. It is recommended for separations of sugars, nucleotides, basic organic compounds, as well as the pharmaceuticals. The chromatogram shown here is typical quality control for a HP-Amino 4.6x250mm column.



Column:	HP-Amino, 5µm, 120 Å, 4.6x250 mm
Mobile phase:	14.7% EtOH/0.3%H_2O/85%Isooctane
Flow rate:	1.0 mL/min
Injection volume:	3.0 µL
Temperature:	Ambient (23°C)
Sample:	1.Toluene 2.Benzanilide 3.p-Nitroaniline

HP-Diol



Characteristics

- Well controlled chemistry of polymeric monolayer
- High column-to-column reproducibility
- Polar phase for separations of acidic, neutral and basic organic compounds, and pharmaceuticals
- High selectivity and efficiency for separations
- Analytical, semi-preparative, and preparative separation

Specifications

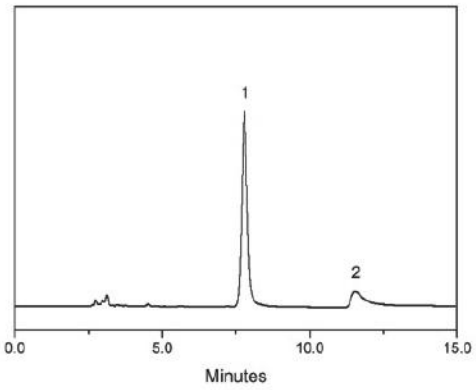
Silica:	Sperical, high purity (<10 ppm metals)
Pore size:	80, 120 Å
Particle size:	3, 5, and 10 µm
Pore volume:	1.0 mL/g
Surface area:	300 m^2/g
Phase structure:	Monomeric and fully endcapped
% Carbon:	8.8%
Coverage:	~ 4.0 µmol/m^2

Description

Synthesized with polymeric chemistry, HP-Diol phase is bonded with 1,2-dihydroxypropyl propyl ether functional groups that allow special interaction with polar compounds. The polymeric bonding chemistry enables high efficiency and high stability separation of polar pharmaceuticals, peptide, and proteins. HP-Diol phase can also be used as size exclusion separation of biological molecules.

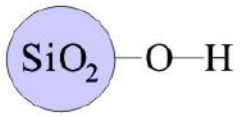
Application

Ceftazidime for injection



Column:	HP-Diol, 5 mm, 120 Å , 4.6 x 250 mm
Mobile phase:	ACN : 1.15g/L $NH_4H_2PO_4$ (pH 2.0) = 80 : 20 (v/v)
Flow rate:	1.0 mL/min
Temp.:	35 °C
Detection:	206 nm
Inj. Volume:	20 µL
Sample:	1. Ceftazidime 2. Arginine

HP-Silica



Characteristics

- Activated silica surface
- Ultra high purity
- Narrow pore size distribution Enhanced mechanical stability
- Suitable for separations in aqueous and non-aqueous mobile phases

Specifications

Silica:	Spherical, high purity (<10 ppm metals)
Pore size:	120, 200, 300, 500, 1000 and 2000 Å
Particle size:	1.8, 2.2, 3, 5, 7 and 10 µm
Pore volume:	1.0 mL/g for 120 Å pore size
Surface area:	300 m^2/g for 120 Å pore size
Phase structure:	Activated hydroxyl (-OH)

Description

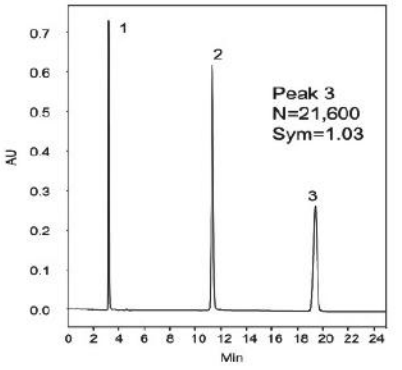
HP-Silica phase is made of activated hydroxyl (-OH) functional groups with the pore size selection of 60, 120, 200, 300, 500, 1000 and 2000 Å and particle size selection of 1.8, 2.2, 3, 5, 7 and 10 µm. Carbon loading is 0.0%. HP-Silica is used as normal phase as well as HILIC phase. HP-Silica phases are suitable for separations of polar and basic organic compounds, such as vitamins, steroids, as well as pharmaceuticals. A typical test chromatogram for quality control is shown in Figure 1 for a 4.6x150mm column.

Applications

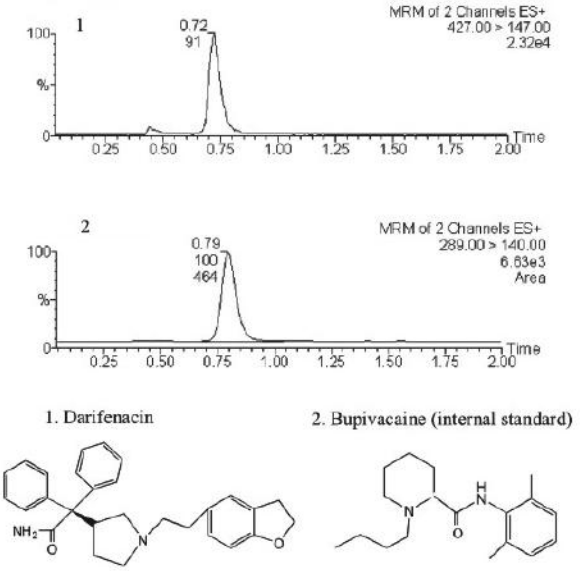
- Suitable for separations of polar and basic organic compounds, such as vitamins, steroids, as well as pharmaceuticals LC/MS method development for analysis of pharmaceuticals, especially nitrogen contained compounds
- Utilized as HILIC phase for separation of polar compounds

Figure 1. Typical test chromatogram for a HP-Silica column.

Column:	HP-Silica, 5 µm, 120 Å , 4.6x250 mm
Mobile phase:	14.7% EtOH/0.3%H_2O/85%Isooctane
Flow rate:	1.0 mL/min
Detection:	UV 254 nm
Injection volume:	3.0 µL
Temperature:	Ambient (23°C)
Sample:	1.Toluene 2.Benzanilide 3.p-Nitroaniline



LC/MS/MS Analysis of Pharmaceuticals



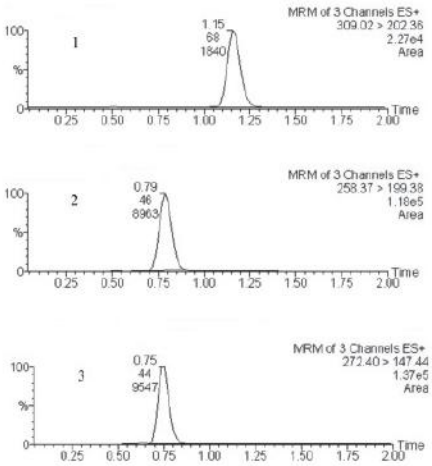
1. Darifenacin

2. Bupivacaine (internal standard)

(Courtesy of Dr. John Lin of Avantix Laboratories)

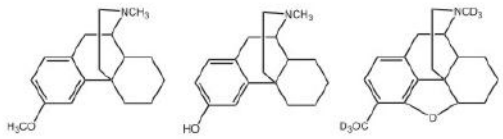
Column:	HP-Silica (3 µm, 50x2.1 mm)
Mobile phase:	ACN/water with 5.0 mM ammonium acetate and 0.1% formic acid (85/15, v/v)
Flow rate:	0.5 mL/min
Injection volume:	5 µL
Temperature:	25°C
Instrument:	Micromass Quattro LC LC-MS/MS system

LC/MS Analysis of Metabolite

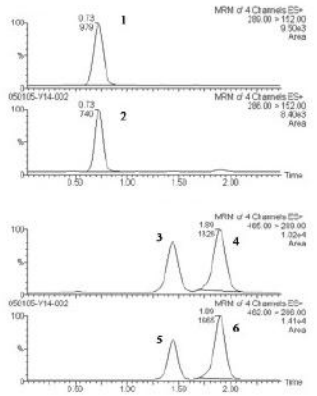


(Courtesy of Dr. John Lin of Avantix Laboratories)

Column:	HP-Silica (3 µm, 50x2.1 mm) (25°C)
Mobile phase:	CH_3CN/water with 0.1% TFA and 5.0 mM CH_3COONH_4 (85/15, v/v)
Flow rate:	0.5 mL/min
Injection volume:	5 µL
Instrument:	Micromass Quattro LC LC-MS/MS system
Compounds:	1. Dextromethorphan; 2. Dextrophan (metabolite); 3. Dihydrocodeine-D6 (internal standard)



Dextromethorphan Dextrorphan Dihydrocodeine-D_6 (IS)

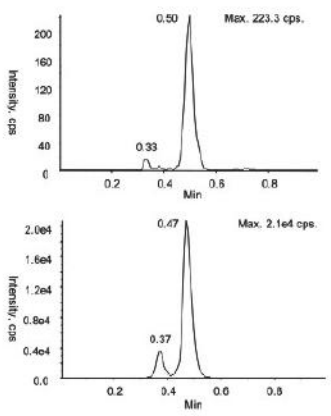


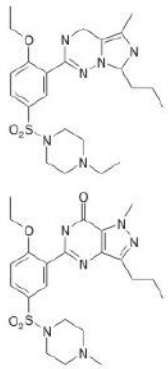
(Courtesy of Dr. John Lin of Avantix Laboratories)

Column:	HP-Silica (3 µm, 50x2.1 mm) (25°C)
Mobile phase:	ACN/water (80/20) with 0.1% TFA and 5.0 mM CH_3COONH_4
Flow rate:	0.5 mL/min
Injection volume:	20 µL
Instrument:	Micromass Quattro LC LC-MS/MS system
Samples:	1. Morphine-D6 (internal standard) 2. Morphine 3. Morphine-6 β -glucuronide-D6 (internal standard) 4. Morphine-3 β -glucuronide-D6 internal standard) 5. Morphine-6 β -glucuronide 6. Morphine-3 β -glucuronide

An LC-MS/MS Method for Determination of Vardenafil in Human

Chromatogram of Extracted Vardenasil at Low Limit of Quantitation (LLOQ) of 0.1 ng/mL: (A) Vardenasil and (B) Sildenafil (IS)





Vardenafil Sildenafil (IS)

Column:	Sepax HP Silica, 3 µm, 50x2.1 mm
Column Temperature:	Ambient
Mobile phase:	CH_3CN/H_2O with 0.1% formic acid and 5.0 mM ammonium acetate (80/20, v/v)
Flow rate:	0.5 mL/min
Injection volume:	10 µL
Autosampler Temperature:	Ambient

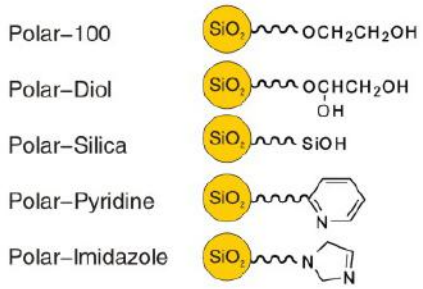
(Courtesy of Dr. John Lin, et al of Avantix Laboratories, ASMS Conference 2005, San Antonio, TX)

Ordering Information:

ID x Length (mm)	Particle Size (μm)	HP-Cyano	HP-Amino	HP-Diol	HP-Silica
2.0 x 10 (guard column)	3	113313-2001	115303-2001	116423-2001	117003-2001
2.1 x 30	3	113313-2103	115303-2103	116423-2103	117003-2103
2.1 x 50	3	113313-2105	115303-2105	116423-2105	117003-2105
4.0 x 10 (guard column)	3	113313-4001	115303-4001	116423-4001	117003-4001
4.6 x 100	3	113313-4610	115303-4610	116423-4610	117003-4610
4.6 x 150	3	113313-4615	115303-4615	116423-4615	117003-4615
4.6 x 250	3	113313-4625	115303-4625	116423-4625	117003-4625
2.0 x 10 (guard column)	5	113315-2001	115305-2001	116425-2001	117005-2001
2.1 x 30	5	113315-2103	115305-2103	116425-2103	117005-2103
2.1 x 50	5	113315-2105	115305-2105	116425-2105	117005-2105
4.0 x 10 (guard column)	5	113315-4001	115305-4001	116425-4001	117005-4001
4.6 x 100	5	113315-4610	115305-4610	116425-4610	117005-4610
4.6 x 150	5	113315-4615	115305-4615	116425-4615	117005-4615
4.6 x 250	5	113315-4625	115305-4625	116425-4625	117005-4625
10.0 x 150	5	113315-10015	115305-10015		117005-10015
10.0 x 250	5	113315-10025	115305-10025		117005-10025
21.2 x 10 (guard column)	5	113315-21201	115305-21201		117005-21201
21.2 x 150	5	113315-21215	115305-21215		117005-21215
21.2 x 250	5	113315-21225	115305-21225		117005-21225
30.0 x 150	5	113315-30015	115309-30015		117005-30015
30.0 x 250	5	113315-30025	115309-30025		117005-30025
10.0 x 150	10	113319-10015	115309-10015		117009-10015
10.0 x 250	10	113319-10025	115309-10025		117009-10025
21.2 x 150	10	113319-21215	115309-21215		117009-30015
21.2 x 250	10	113319-21225	115309-21225		117009-30025
30.0 x 150	10	113319-30015			
30.0 x 250	10	113319-30025			

*For more information about available column dimensions, please visit our website, www.sepax-tech.com, or contact sales.

Polar HILIC



Characteristics

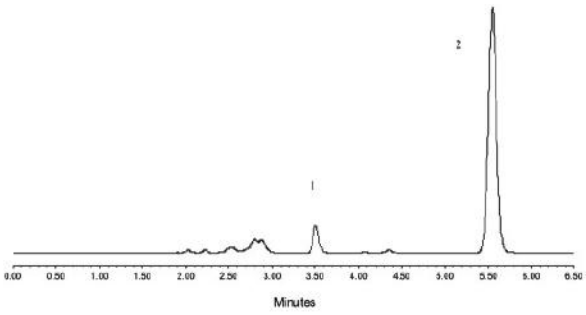
- HILIC phases with unique chemistries of acidic, neutral, and basic surfaces
- Ultra-pure silica particles with controlled pore sizes
- High chemical stability for low reaching
- Available columns with ID in the range of 75 μm to 30 mm, and length from 1 cm to 30 cm
- Available packings from grams to multi-kilogram
- pH stability 1.5-8.0
- Suitable for separations of polar pharmaceuticals, peptides, amino acids, and other compounds

Description

To solve the challenges of more and more highly polar pharmaceuticals and small biological molecules, Sepax developed a series of chemistries of weak acidic, neutral, and basic stationary phases for separating basic, neutral and acidic compounds of high polarity. Utilizing highest purity and enhanced mechanical stability silica and pure bonding reagents, Sepax HILIC bonded phases have been innovatively and specially designed to ensure maximum surface coverage, resulting in high stability of the stationary phases. The chemistry of monolayer formation is completely controlled which results in very reliable lot-to-lot and column-to-column reproducibility. The uniform, spherical Sepax HILIC particles have a nominal surface area of 300 m^2/g with a controlled pore size of 120 Å. Sepax HILIC columns are packed with a proprietary slurry technique to achieve uniform and stable packing bed density for maximum column efficiency.

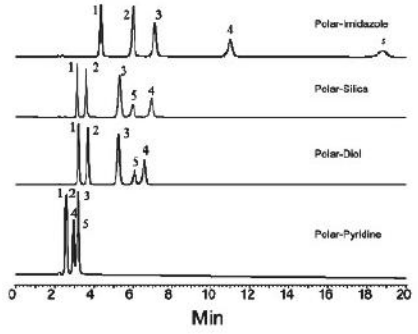
Applications

Cyanuric acid and Melamine



Column: Polar-Silica (4.6 × 250 mm, 5 μm)
Detector (UV): 214 nm
Mobile phase: ACN : 10 mM NH_4Ac (pH 3.0) =75: 25 (v/v)
Flow rate: 1.0 mL/min
Temperature: Ambient
Injection volume: 20 μL
Sample: 1.Cyanuric acid 2.Melamine

Nucleoside



Column: HILIC, 4.6 mm I.D. × 150 mm, 5 μm
Detector (UV): 254 nm
Mobile phase: CH_3CN : 10 mM ammonium acetate buffer = 90:10 (v/v)
Flow rate: 1.0 mL/min
Injection volume: 1 μL
Sample: 1. Uracil 2. Adenosine 3. Uridine 4. Cytidine 5. Guanosine

Specifications

	Polar-Silica	Polar-100	Polar-Diol	Polar-Pyridine	Polar-Imidazole
Silica:	Spherical, high purity (<10 ppm metals)				
Pore size:	120 Å				
Particle size:	1.8, 2.2, 3, 4, 5, and 10 μm				
Pore volume:	1.0 mL/g				
Surface area:	300 m^2/g				
Phase structure:	Monomeric and fully end-capped				
% Carbon:	0.0%	16.0%	8.8%	8.0%	8.6%
Coverage:	3.0 μmol/m^2				

Ordering Information:

ID x Length (mm)	Particle Size (μm)	Polar-Silica	Polar-100	Polar-Diol	Polar-Pyridine	Polar-Imidazole
2.0 x 10(guard column)	3	130003-2001	131583-2001	133333-2001	134253-2001	135333-2001
2.1 x 30	3	130003-2103	131583-2103	133333-2103	134253-2103	135333-2103
2.1 x 50	3	130003-2105	131583-2105	133333-2105	134253-2105	135333-2105
4.0 x 10(guard column)	3	130003-4001	131583-4001	133333-4001	134253-4001	135333-4001
4.6 x 100	3	130003-4610	131583-4610	133333-4610	134253-4610	135333-4610
4.6 x 150	3	130003-4615	131583-4615	133333-4615	134253-4615	135333-4615
4.6 x 250	3	130003-4625	131583-4625	133333-4625	134253-4625	135333-4625
2.0 x 10(guard column)	5	130005-2001	131585-2001	133335-2001	134255-2001	135335-2001
2.1 x 30	5	130005-2103	131585-2103	133335-2103	134255-2103	135335-2103
2.1 x 50	5	130005-2105	131585-2105	133335-2105	134255-2105	135335-2105
4.0 x 10(guard column)	5	130005-4001	131585-4001	133335-4001	134255-4001	135335-4001
4.6 x 100	5	130005-4610	131585-4610	133335-4610	134255-4610	135335-4610
4.6 x 150	5	130005-4615	131585-4615	133335-4615	134255-4615	135335-4615
4.6 x 250	5	130005-4625	131585-4625	133335-4625	134255-4625	135335-4625
4.0 x 10(guard column)	10	130009-4001	131589-4001	133339-4001	134259-4001	135339-4001
10.0 x 150	5	130005-10015	131585-10015	133335-10015	134255-10015	135335-10015
10.0 x 250	5	130005-10025	131585-10025	133335-10025	134255-10025	135335-10025
21.2 x 10(guard column)	5	130005-21201	131585-21201	133335-21201	134255-21201	135335-21201
21.2 x 150	5	130005-21215	131585-21215	133335-21215	134255-21215	135335-21215
21.2 x 250	5	130005-21225	131585-21225	133335-21225	134255-21225	135335-21225
21.2 x 300		130005-21230				
30.0 x 150	5	130005-30015	131585-30015	133335-30015	134255-30015	135335-30015
30.0 x 250	5	130005-30025	131585-30025	133335-30025	134255-30025	135335-30025
10.0 x 150	10	130009-10015	131589-10015	133339-10015	134259-10015	135339-10015
10.0 x 250	10	130009-10025	131589-10025	133339-10025	134259-10025	135339-10025
21.2 x 10(guard column)	10	130009-21201	131589-21201	133339-21201	134259-21201	135339-21201
21.2 x 150	10	130009-21215	131589-21215	133339-21215	134259-21215	135339-21215
21.2 x 250	10	130009-21225	131589-21225	133339-21225	134259-21225	135339-21225
30.0 x 150	10	130009-30005	131589-30015	133339-30015	134259-30015	135339-30015
30.0 x 250	10	130009-30010	131589-30025	133339-30025	134259-30025	135339-30025

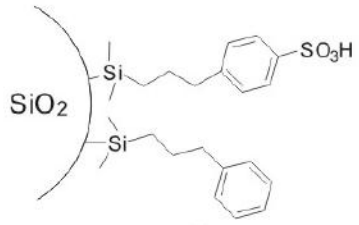
*For more information about available column dimensions, please visit our website, www.sepax-tech.com, or contact sales.

Mixed-mode HPLC Columns

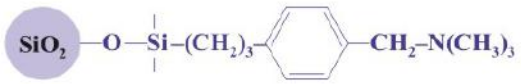
HP-SCX, HP-SAX

Characteristics

- Highly controlled chemistry of polymeric monolayer formation and end-capping Mixed chemical structure of sulfonic acid and phenyl group (HP-SCX)
- Mixed chemical structure of quaternary ammonium bases and phenyl group (HP-SAX)
- Mixed-mode of ion-exchange and hydrophobic interaction enabling high selectivity and appropriate retention for a variety of compounds Polymeric bonding and end-capping to achieve the exceptionally high stability
- pH stability：1.5-8.0
- Suitable for separations of a complex of cationic, nitrogen containing, and neutral compounds (HP-SCX)
- Suitable for separation of various organic compounds such as aromatic or aliphatic carboxylic acids, and sulfonic acid (HP-SAX)



HP-SCX



HP-SAX

Specifications

	HP-SCX	HP-SAX
Silica:	Spherical, high purity (<10 ppm metals)	
Pore size:	120 Å	120 Å
Particle size:	1.8, 2.2, 3, 4, 5, 7, and 10 μm	3, 4, 5, 7, and 10 μm
Pore volume:	1.0mL/g	
Surface area:	300m²/g	
Phase structure:	Polymeric and mixed mode	
% Carbon	11.0%	16.0%

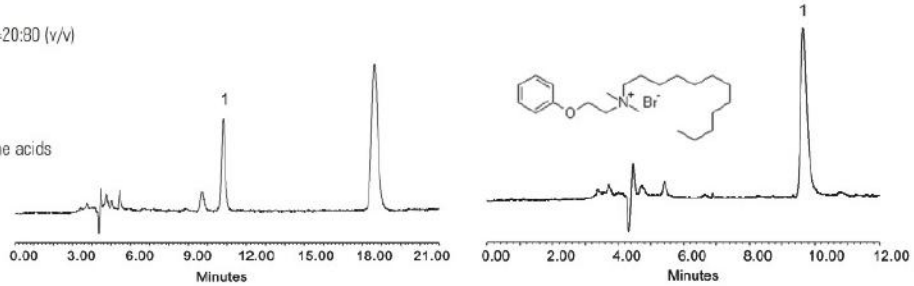
Applications

HP-SCX has expanded its applications from the traditional SCX separation of cationic and nitrogen containing compounds to weak cationic and neutral organic molecules. Examples include separation of analytes of amines and polyamines, such as alkaloids, peptides, codeine, cough and cold ingredients.

HP-SAX chromatographic columns typical application areas include pesticides, herbicides, pharmaceuticals, inorganic anions and biological samples (such as nucleotides, sugars) such as separation. The chromatographic columns can use a variety of mobile phase, organic solvents, including water and organic solvents (such as methanol and acetonitrile) mixture, buffer liquid (such as phosphate).

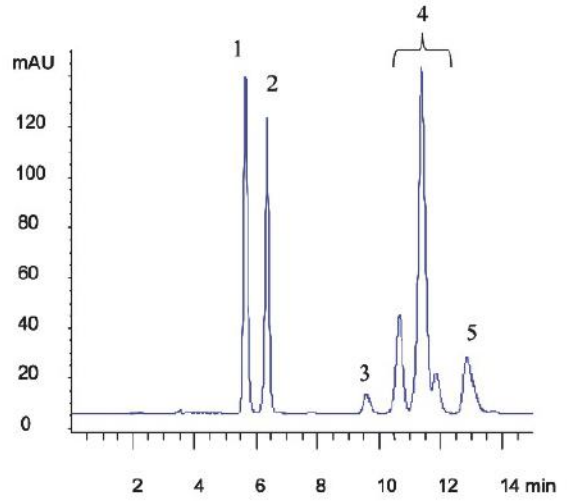
Amino-phenol and benzene acids

Column: HP-SCX, 5 μm,120 Å , 4.6 × 150 mm
Detector (UV): 274 nm
Mobile phase: 0.05 mol/L NH_4Ac:MeOH=20:80 (v/v)
Flow rate: 0.75 mL/min
Temperature: 25℃
Injection volume: 10 μL
Sample: Amino-phenol and benzene acids



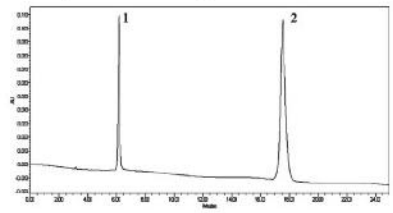
Nucleoside

Column: HP-SCX (4.6X150 mm, 5 μm)
Detector (UV): 280 nm
Mobile phase: 50 mM phosphate buffer, pH 2.5
Flow rate: 0.5 mL/min (48 bar)
Temperature: Ambient (23℃)
Injection volume: 5 μL
Compounds: 1. Uridine (0.1 mg/mL) 2. Cytidine (0.1 mg/mL) 3. Guanosine (0.1 mg/mL) 4. Inosine and impurities (0.1 mg/mL) 5. Adenosine (0.1 mg/mL)



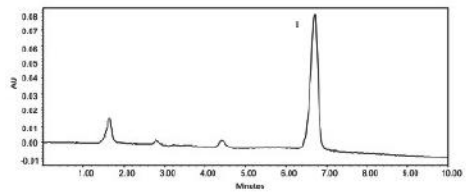
Amino phenol and amino benzoic acid

Column: HP-SAX (4.6 × 150 mm, 5 μm)
Detector (UV): 254 nm
Mobile phase: 150 mM Phosphate buffer, pH 3.0
Flow rate: 1.0 mL/min
Temperature: Ambient
Injection volume: 3 μL
Sample: 1. p-Amino Phenol, 2. p-Amino Benzoic Acid



Glyphosate powder

Column: HP-SAX, 5 μm, 120 Å, 4.6 × 250 mm
Detector (UV): 195 nm
Mobile phase: 0.1 mol/LKH_2PO_4(pH2.0):MeOH=85:15 (v/v)
Flow rate: 1.0 mL/min
Temperature: 25℃
Injection volume: 20 mL
Sample: 1. Glyphosate powder



Ordering Information:

ID x Length (mm)	HP-SCX			HP-SAX		
Particle Size / ID x Length (mm)	3μm	5μm	10μm	3μm	5μm	10μm
2.0 x 10(guard column)	120363-2001	120365-2001		122663-2001	122665-2001	
2.1 x 30	120363-2103	120365-2103		122663-2103	122665-2103	
2.1 x 50	120363-2105	120365-2105		122663-2105	122665-2105	
4.0 x 10(guard column)	120363-4001	120365-4001		122663-4001	122665-4001	
4.6 x 100	120363-4610	120365-4610		122663-4610	122665-4610	
4.6 x 150	120363-4615	120365-4615		122663-4615	122665-4615	
4.6 x 250	120363-4625	120365-4625		122663-4625	122665-4625	
10.0 x 150		120365-10015	120369-10015		130365-10015	130369-10015
10.0 x 250		120365-10025	120369-10025		130365-10025	130369-10025
21.2 x 10(guard column)		120365-21201			130365-21201	262010-21201
21.2 x 150		120365-21215	120369-21215		130365-21215	130369-21215
21.2 x 250		120365-21225	120369-21225		130365-21225	130369-21225
30.0 x 150		120365-30015	120369-30015		130365-30015	130369-30015
30.0 x 250			120369-30025			130369-30025

*For more information about available column dimensions, please visit our website, www.sepax-tech.com, or contact sales.

Special HPLC Columns

UHPLC

- **Silica based**
  C18, C8, C4, CN, NH_2, Phenyl
- **PS/DVB based**
  PolyRP Phases

Capillary LC Columns

- **Silica based**
  C18, C8, C4, CN, NH_2, Phenyl
- **PS/DVB based**
  PolyRP Phases

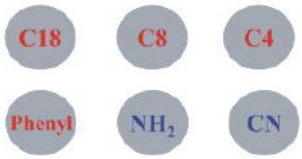
Nanofilm Capillary Electrophoresis (CE)

- **Polyacrylamide Coating (PAAm)**
- **Poly(ethylene glycol) Coating (PEG)**
- **PAAm/PEG Coating**
- **Special Capillary Coatings and Custom Synthesis**

UHPLC

Silica Based Packings

Stationary Phases



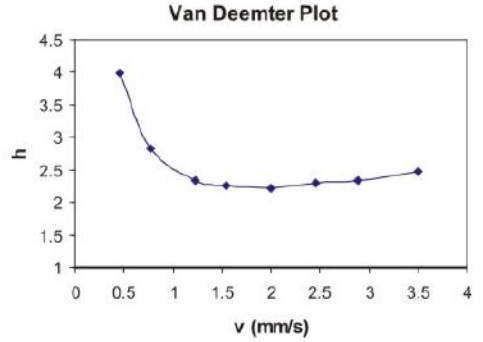
Characteristics

- Most comprehensive selection of the stationary phases
- Highly controlled chemistry of monolayer formation and end-capping
- High column-to-column reproducibility
- High mechanical stability to resist the pressure as high as up to 10,000 psi
- High resolution, efficiency and selectivity for separations
- Suitable for separations of acidic, neutral and basic compounds, peptides, and proteins

Description

Sepax UHPLC silica packings use high purity (<10 ppm metals), spherical silica with the particle selection of 1.8 and 2.2 μ m and the pore size of 120Å . Their bonded phases include C18, C8, C4, Phenyl, Amino, Cyano, strong anion, strong cation, and HILIC. Their unique mono-functional bonding chemistry allows high efficiency, high selectivity and high speed separation. All sub-2 micron particles and bonded phases have excellent resistance to high pressure (>10,000 psi). As an example in Figure 1, 2.2 μm GP-C18 shows a reduced plate height of 2.22 μm, which is equivalent to plate number of 200,448 per meter.

Figure 1. Reduced plate height (h) vs. linear flow rate (v).



Column:	GP-C18 (2.2 μm, 4.6x50 mm)
Mobile phase:	70% MeOH/30% H_2O
Temperature:	30 ℃
Detection:	UV 254 nm
Test compound:	Naphthalene
Injection:	5 μL

Specifications

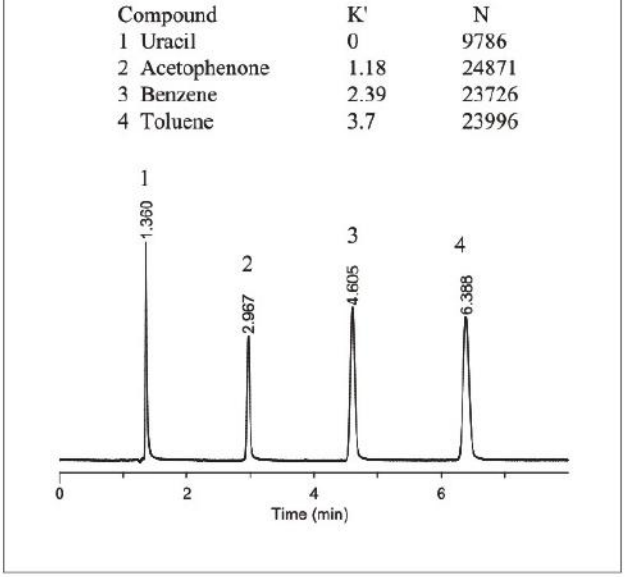
Phases	Particle Size (μm)	Pore size (Å)	Surface area (m^2/g)	Carbon loading	pH Range
GP-C18	1.8, 2.2	120	300	17.0%	2-8.5
BR-C18	1.8, 2.2	120	300	19.0%	1.5-10.5
GP-C8	1.8, 2.2	120	300	11.0%	2-8.5
GP-C4	1.8, 2.2	120	300	8.0%	2-8.5
GP-Phenyl	1.8, 2.2	120	300	11.0%	2-8.5
HP-Amino	1.8, 2.2	120	300	7.0%	2-8.5
HP-Cyano	1.8, 2.2	120	300	4.0%	2-8.5
HP-SCX	1.8, 2.2	120	300	11.0%	2-8.5
HP-SAX	1.8, 2.2	120	300	16.0%	2-8.5
HP-Silica	1.8, 2.2	120	300	0.0%	2-8.5
Polar-100	1.8, 2.2	120	300	11.0%	2-8.5

Applications

- UHPLC separations
- Pharmaceuticals
- Peptides
- Proteins

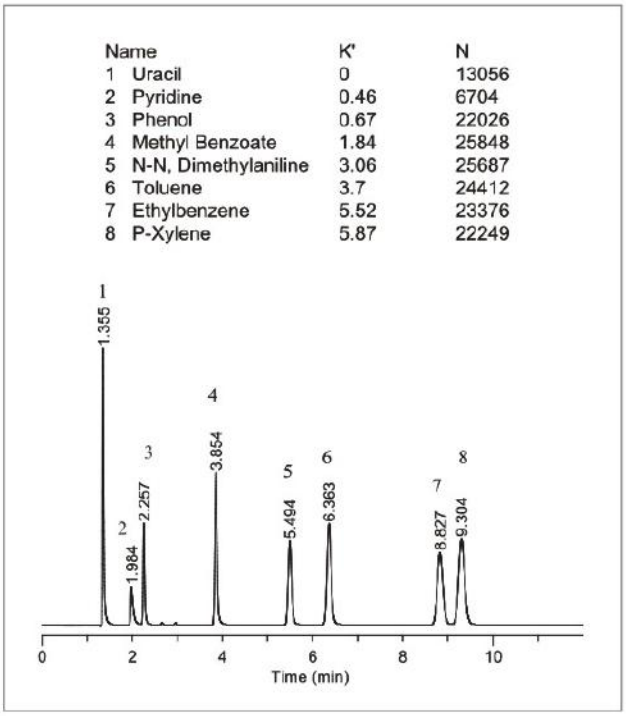
Sepax sub-2 μ m particles and columns can work well with both regular HPLC and UHPLC systems. Figure 2 shows an example of separation of a mixture of test compounds. The flow rate is 0.43 mL/min, generating 3060 psi for a 2.2 μm GP-C18 (3.0x150 mm) column. The flow rate was not optimized to reach minimum reduced plate height. However, it showed high separation efficiency and selectivity.

Figure 2. Separation of a mixture by regular HPLC system. Column: GP-C18 (2.2 μm , 3.0x150mm). Mobile phase: 60% Acetonitrile/40% H_2O, 0.43 mL/min. Temperature: ambient. Detection: UV 254 nm. Injection: 2 μL.



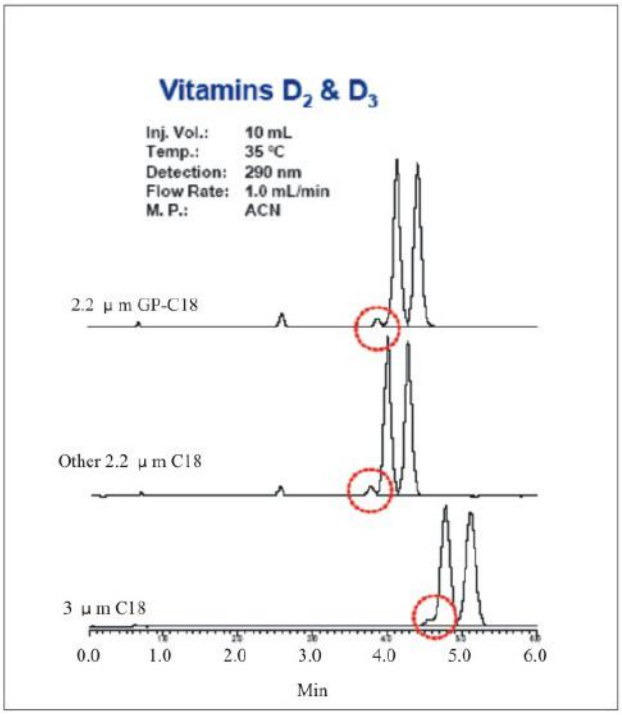
Separation of a mixture of neutral and basic compounds

Figure 3. Separation of a mixture by regular HPLC system. Column: GP-C18 (2.2 µm, 3.0x150mm). Mobile phase: 60% Acetonitrile/40% H_2O, 0.43 mL/min. Temperature: ambient. Detection: UV 254 nm. Injection: 2 µL.



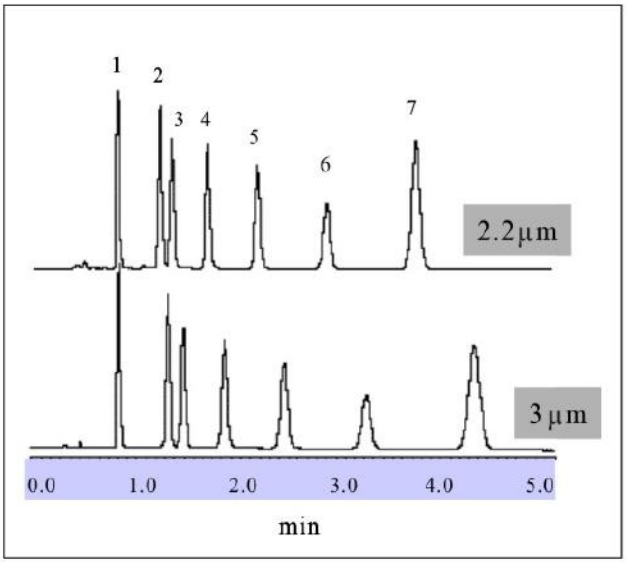
Separation of Vitamin D Isomers

Figure 5. Vitamin D2 and D3 separated by a Sepax 2.2 µm GP-C18 column, a 2.2 µm and a 3µm C18 columns from other vendors. Columns: 4.6x50 mm. Injection: 3 µL.



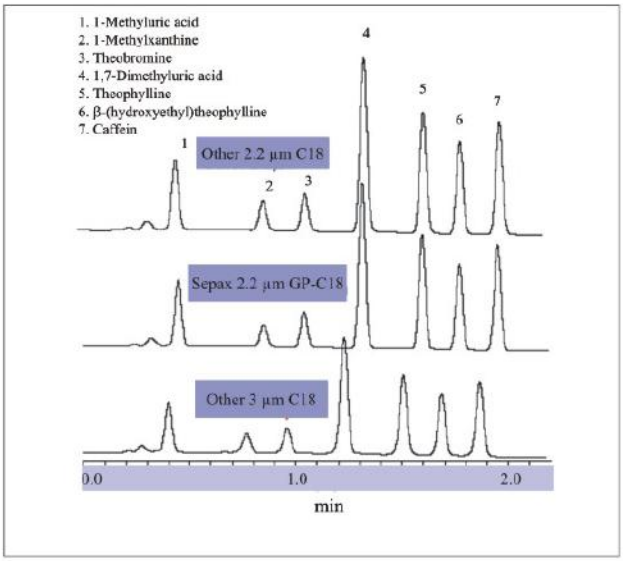
Separation of Barbitals

Figure 4. Barbitals separated by a 2.2 µm GP-C18 column and a 3 µm commercial C18 column with regular HPLC system. Columns: 4.6x50 mm. Mobile phase: 50% MeOH/50% H_2O. Flow rate: 1.0 mL/min. Temperature: 30°C. Detection: UV 214 nm. Injection: 3 µL. Sample: 1.barbital, 2. phenobarbital, 3. aprobarbital, 4. butabarbital, 5. mephobarbital, 6. pentobarbital, and 7. Secobarbital.



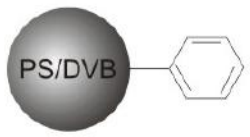
Separation of Caffein & Metabolites

Figure 6. Caffein and metabolites separated by a Sepax 2.2 µm GP-C18 column, a 2.2 µm and a 3 µm C18 columns from other vendors. Columns: 4.6x50mm. Mobile phase A: 0.1% NH_4OAc, pH 4.5; B: ACN. Gradient: 98%-93%-85%-85%A (0-0.75-1.50-2.25min). Flow rate: 3.0 mL/min. Temperature: 30°C. Detection: UV 275nm. Injection: 5µL.



PS/DVB Based Packings

PolyRP



Characteristics

- High resolution and efficiency
- Different selectivity than the silica based reversed phases
- High column-to-column reproducibiltiy
- Unique PolyRP reversed phases for pH 1-14
- High mechanical stability to resist the pressure up to 10,000 psi
- Suitable for separations of scidic, neutral, and basic compounds, peptides, and proteins

Specifications

PS/DVB Particle:	Spherical, 80% Cross-linking
Pore size:	Non-porous
Particle size:	1.0 and 1.8 µm
Surface area:	<10 m^2/g
Phase structure:	Phenyl group
Separation mechanism:	Hydrophobic interacton

Description

PolyRP phases are made of 80% cross-linking PS/DVB spherical particles. Those high rigid particles have both non-porous and porous structures with the particle selection of 1 and 1.8 µm. The phase structure is phenyl functional groups that enable hydrophobic interaction. Compared with silica based reversed phases, PolyRP phases have advantages over applications at extreme pH (1-14) with special selectivity and slightly lower separation efficiency.

Ordering Information:

PolyRP- NP

Phase	Particle size	Pore size	ID x Length	P/N
PolyRP	1.7 µm	Non-porous	2.1x 50 mm	262002-2105
PolyRP	1.7 µm	Non-porous	2.1x150 mm	262002-2115
PolyRP	1.7 µm	Non-porous	4.0 x 10 mm (guard column)	262002-4001
PolyRP	1.7 µm	Non-porous	4.6 x 30mm	262002-4603
PolyRP	1.7 µm	Non-porous	4.6 x 50 mm	262002-4605
PolyRP	1.7 µm	Non-porous	4.6 x 100 mm	262002-4610
PolyRP	1.7 µm	Non-porous	4.6 x 150 mm	262002-4615
PolyRP	1.7 µm	Non-porous	4.6 x 250 mm	262002-4625

BR-C18

Phase	Particle size	Pore size	ID x Length	P/N
BR-C18	1.8 µm	120Å	2.1x30 mm	102181-2103
BR-C18	1.8 µm	120Å	2.1x50 mm	102181-2105
BR-C18	1.8 µm	120Å	2.1x100 mm	102181-2110
BR-C18	1.8 µm	120Å	2.1x150 mm	102181-2115
BR-C18	2.2 µm	120Å	2.1x30 mm	102182-2103
BR-C18	2.2 µm	120Å	2.1x50 mm	102182-2105
BR-C18	2.2 µm	120Å	2.1x100 mm	102182-2110
BR-C18	2.2 µm	120Å	2.1x150 mm	102182-2115

GP-C18

Phase	Particle size	Pore size	ID x Length	P/N
GP-C18	1.8 µm	120Å	2.1 x 30 mm	101181-2103
GP-C18	1.8 µm	120Å	2.1 x 50 mm	101181-2105
GP-C18	1.8 µm	120Å	2.1 x 100 mm	101181-2110
GP-C18	1.8 µm	120Å	2.1 x 150 mm	101181-2115
GP-C18	2.2 µm	120Å	2.1 x 30 mm	101182-2103
GP-C18	2.2 µm	120Å	2.1 x 50 mm	101182-2105
GP-C18	2.2 µm	120Å	2.1 x 100 mm	101182-2110
GP-C18	2.2 µm	120Å	2.1 x 150 mm	101182-2115

GP-C8

Phase	Particle size	Pore size	ID x Length	P/N
GP-C8	1.8 µm	120Å	2.1 x 30 mm	107081-2103
GP-C8	1.8 µm	120Å	2.1 x 50 mm	107081-2105
GP-C8	1.8 µm	120Å	2.1 x 100 mm	107081-2110
GP-C8	1.8 µm	120Å	2.1 x 150 mm	107081-2115
GP-C8	2.2 µm	120Å	2.1 x 30 mm	107082-2103
GP-C8	2.2 µm	120Å	2.1 x 50 mm	107082-2105
GP-C8	2.2 µm	120Å	2.1 x 100 mm	107082-2110
GP-C8	2.2 µm	120Å	2.1 x 150 mm	107082-2115

GP-C4

Phase	Particle size	Pore size	ID x Length	P/N
GP-C4	1.8 µm	120Å	2.1 x 30 mm	109041-2103
GP-C4	1.8 µm	120Å	2.1 x 50 mm	109041-2105
GP-C4	1.8 µm	120Å	2.1 x 100 mm	109041-2110
GP-C4	1.8 µm	120Å	2.1 x 150 mm	109041-2115
GP-C4	2.2 µm	120Å	2.1 x 30 mm	109041-2103
GP-C4	2.2 µm	120Å	2.1 x 50 mm	109041-2105
GP-C4	2.2 µm	120Å	2.1 x 100 mm	109041-2110
GP-C4	2.2 µm	120Å	2.1 x 150 mm	109041-2115

HP-Amino

Phase	Particle size	Pore size	ID x Length	P/N
HP-Amino	1.8 µm	120Å	2.1 x 30 mm	115301-2103
HP-Amino	1.8 µm	120Å	2.1 x 50 mm	115301-2105
HP-Amino	1.8 µm	120Å	2.1 x 100 mm	115301-2110
HP-Amino	1.8 µm	120Å	2.1 x 150 mm	115301-2115
HP-Amino	2.2 µm	120Å	2.1 x 30 mm	115301-2103
HP-Amino	2.2 µm	120Å	2.1 x 50 mm	115301-2105
HP-Amino	2.2 µm	120Å	2.1 x 100 mm	115301-2110
HP-Amino	2.2 µm	120Å	2.1 x 150 mm	115301-2115

GP-Phenyl

Phase	Particle size	Pore size	ID x Length	P/N
GP-Phenyl	1.8 µm	120Å	2.1 x 30 mm	111361-2103
GP-Phenyl	1.8 µm	120Å	2.1 x 50 mm	111361-2105
GP-Phenyl	1.8 µm	120Å	2.1 x 100 mm	111361-2110
GP-Phenyl	1.8 µm	120Å	2.1 x 150 mm	111361-2115
GP-Phenyl	2.2 µm	120Å	2.1 x 30 mm	111361-2103
GP-Phenyl	2.2 µm	120Å	2.1 x 50 mm	111361-2105
GP-Phenyl	2.2 µm	120Å	2.1 x 100 mm	111361-2110
GP-Phenyl	2.2 µm	120Å	2.1 x 150 mm	111361-2115

HP-Silica

Phase	Particle size	Pore size	ID x Length	P/N
HP-Silica	1.8 µm	120Å	2.1 x 30 mm	117001-2103
HP-Silica	1.8 µm	120Å	2.1 x 50 mm	117001-2105
HP-Silica	1.8 µm	120Å	2.1 x 100 mm	117001-2110
HP-Silica	1.8 µm	120Å	2.1 x 150 mm	117001-2115
HP-Silica	2.2 µm	120Å	2.1 x 30 mm	117001-2103
HP-Silica	2.2 µm	120Å	2.1 x 50 mm	117001-2105
HP-Silica	2.2 µm	120Å	2.1 x 100 mm	117001-2110
HP-Silica	2.2 µm	120Å	2.1 x 150 mm	117001-2115

HP-Cyano

Phase	Particle size	Pore size	ID x Length	P/N
HP-Cyano	1.8 µm	120Å	2.1 x 30 mm	113311-2103
HP-Cyano	1.8 µm	120Å	2.1 x 50 mm	113311-2105
HP-Cyano	1.8 µm	120Å	2.1 x 100 mm	113311-2110
HP-Cyano	1.8 µm	120Å	2.1 x 150 mm	113311-2115
HP-Cyano	2.2 µm	120Å	2.1 x 30 mm	113311-2103
HP-Cyano	2.2 µm	120Å	2.1 x 50 mm	113311-2105
HP-Cyano	2.2 µm	120Å	2.1 x 100 mm	113311-2110
HP-Cyano	2.2 µm	120Å	2.1 x 150 mm	113311-2115

HP-SCX

Phase	Particle size	Pore size	ID x Length	P/N
HP-SCX	1.8 µm	120Å	2.1 x 30 mm	120361-2103
HP-SCX	1.8 µm	120Å	2.1 x 50 mm	120361-2105
HP-SCX	1.8 µm	120Å	2.1 x 100 mm	120361-2110
HP-SCX	1.8 µm	120Å	2.1 x 150 mm	120361-2115
HP-SCX	2.2 µm	120Å	2.1 x 30 mm	120361-2103
HP-SCX	2.2 µm	120Å	2.1 x 50 mm	120361-2105
HP-SCX	2.2 µm	120Å	2.1 x 100 mm	120361-2110
HP-SCX	2.2 µm	120Å	2.1 x 150 mm	120361-2115

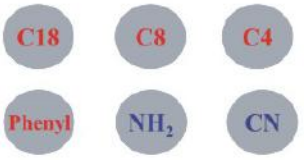
*For more information about column dimensions, please visit our website, www.sepax-tech.com, or contact sales.

Capillary LC Columns

Characteristics

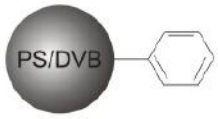
- Most comprehensive selection of stationary phases
- Pioneered sub-2 μm PS/DVB based ion-exchange phases
- Combined high efficiency and high capacity for non-porous Proteomix ion-exchange phases
- High speed, high recovery, and high stability
- Column ID selection of 75, 150, and 300 μm , and length selection of 5, 10, and 15 cm.

Specifications



Silica Based Packings

Silica:	Spherical, high purity (<10 ppm metals)
Pore size:	120, 200, and 300Å
Particle size:	1.7, 2.2, 3, and 5 μm
Pore volume:	1.0 mL/g
Surface area:	300, 200, and 105 m^2/g
Phase structure:	Chemically bonded
pH range:	2-8.5

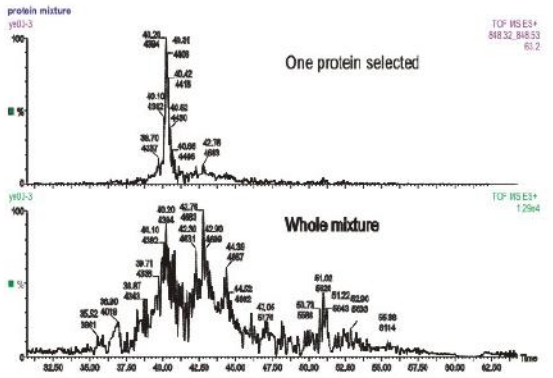


	Porous PS/DVB	Non-porous PS/DVB
PS/DVB Particles:	Spherical, 80% cross-linking	
Pore size:	100, and 300 Å	Non-porous
Particle size:	3, and 5μm	1.7, 3, and 5μm
Pore volume:	1.0 mL/g	
Surface area:	280 m^2/g (100 Å pore size)	<10 m^2/g
Phase structure:	Phenyl group	
pH range:	1-14	

Applications

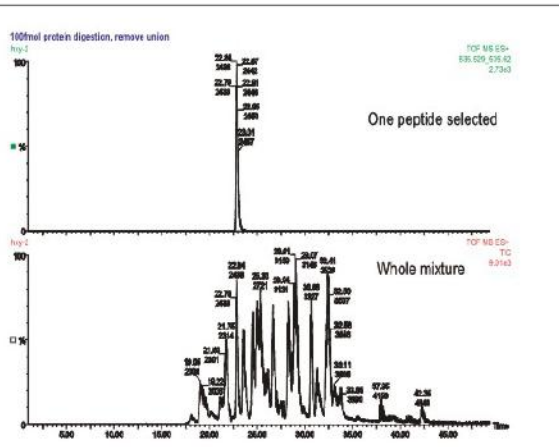
- Separation and analysis of proteins and peptides
- 2D capillary LC/MS/MS analysis of complex biological samples

Figure 3. Separation of proteins from cell lysate



Column:	Sepax Bio-C4, (5μm, 300Å, 75μm×100 mm)
Sample:	Home grown C. tepidumlysate, 2μg
Detector:	Waters Q-TOF Ultima nanoflow electrospray source, 3.5 KV, 0.5 s per spectrum
Mobile phase:	A: 94.9% H_2O/ 5% ACN/ 0.1% HCOOH B: 94.9% ACN/ 5% H_2O/ 0.1% HCOOH
Flow rate:	200 nL/min measure at 70% A/ 30% B
Gradient:	30% -70% B (45 min)
Injection volume:	2μL, with Microncapillary protein trap column

Figure 4. Separation and analysis of digested proteins



Column:	Sepax GP-C18, (5μm, 120Å , 75 μm ×100 mm)
Sample:	Standard protein mixture digestion(CytochromeC, Lysozyme, Alcohol dehydrogenase, Bovine serum albumin, Apo-transferrin, Beta- Galactosidase), 200 pg
Detector:	Waters Q-TOF Ultima nanoflow electrospray source, 3.5 KV, 0.5 s per spectrum
Mobile phase:	A: 94.9% H_2O/ 5% ACN/ 0.1% HCOOH; B: 94.9% ACN/ 5% H_2O / 0.1% HCOOH
Flow rate:	200 nL/min measure at 70% A/ 30% B
Gradient:	5% -40%B (45 min)
Injection:	2 μL, with a LC packings trap column (300μm×5 mm, C18)

Ordering Information:

GP-C18

Phase	Particle size	Pore size	ID x Length	P/N
GP-C18	3µm	120Å	0.1 x 100 mm	101183-0110
GP-C18	3µm	120Å	0.1 x 150 mm	101183-0115
GP-C18	3µm	120Å	0.3 x 100 mm	101183-0310
GP-C18	3µm	120Å	0.3 x 150 mm	101183-0315
GP-C18	5µm	120Å	0.1 x 100 mm	101185-0110
GP-C18	5µm	120Å	0.1 x 150 mm	101185-0115
GP-C18	5µm	120Å	0.3 x 100 mm	101185-0310
GP-C18	5µm	120Å	0.3 x 150 mm	101185-0315

GP-C8

Phase	Particle size	Pore size	ID x Length	P/N
GP-C8	3µm	120Å	0.1 x 100 mm	107083-0110
GP-C8	3µm	120Å	0.1 x 150 mm	107083-0115
GP-C8	3µm	120Å	0.3 x 100 mm	107083-0310
GP-C8	3µm	120Å	0.3 x 150 mm	107083-0315
GP-C8	5µm	120Å	0.1 x 100 mm	107085-0110
GP-C8	5µm	120Å	0.1 x 150 mm	107085-0115
GP-C8	5µm	120Å	0.3 x 100 mm	107085-0310
GP-C8	5µm	120Å	0.3 x 150 mm	107085-0315

HP-C18

Phase	Particle size	Pore size	ID x Length	P/N
HP-C18	3µm	120Å	0.1 x 100 mm	103183-0110
HP-C18	3µm	120Å	0.1 x 150 mm	103183-0115
HP-C18	3µm	120Å	0.3 x 100 mm	103183-0310
HP-C18	3µm	120Å	0.3 x 150 mm	103183-0315
HP-C18	5µm	120Å	0.1 x 100 mm	103185-0110
HP-C18	5µm	120Å	0.1 x 150 mm	103185-0115
HP-C18	5µm	120Å	0.3 x 100 mm	103185-0310
HP-C18	5µm	120Å	0.3 x 150 mm	103185-0315

Bio-C8

Phase	Particle size	Pore size	ID x Length	P/N
Bio-C8	3µm	120Å	0.1 x 100 mm	108083-0110
Bio-C8	3µm	120Å	0.1 x 150 mm	108083-0115
Bio-C8	3µm	120Å	0.3 x 100 mm	108083-0310
Bio-C8	3µm	120Å	0.3 x 150 mm	108083-0315
Bio-C8	5µm	120Å	0.1 x 100 mm	108085-0110
Bio-C8	5µm	120Å	0.1 x 150 mm	108085-0115
Bio-C8	5µm	120Å	0.3 x 100 mm	108085-0310
Bio-C8	5µm	120Å	0.3 x 150 mm	108085-0315

BR-C18

Phase	Particle size	Pore size	ID x Length	P/N
BR-C18	3µm	120Å	0.1 x 100 mm	103183-0110
BR-C18	3µm	120Å	0.1 x 150 mm	103183-0115
BR-C18	3µm	120Å	0.3 x 100 mm	103183-0310
BR-C18	3µm	120Å	0.3 x 150 mm	103183-0315
BR-C18	5µm	120Å	0.1 x 100 mm	103185-0110
BR-C18	5µm	120Å	0.1 x 150 mm	103185-0115
BR-C18	5µm	120Å	0.3 x 100 mm	103185-0310
BR-C18	5µm	120Å	0.3 x 150 mm	103185-0315

GP-C4

Phase	Particle size	Pore size	ID x Length	P/N
GP-C4	3µm	120Å	0.1 x 100 mm	109043-0110
GP-C4	3µm	120Å	0.1 x 150 mm	109043-0115
GP-C4	3µm	120Å	0.3 x 100 mm	109043-0310
GP-C4	3µm	120Å	0.3 x 150 mm	109043-0315
GP-C4	5µm	120Å	0.1 x 100 mm	109045-0110
GP-C4	5µm	120Å	0.1 x 150 mm	109045-0115
GP-C4	5µm	120Å	0.3 x 100 mm	109045-0310
GP-C4	5µm	120Å	0.3 x 150 mm	109045-0315

BR-C18

Phase	Particle size	Pore size	ID x Length	P/N
Bio-C18	3µm	200Å	0.1 x 100 mm	105183-0110
Bio-C18	3µm	200Å	0.1 x 150 mm	105183-0115
Bio-C18	3µm	200Å	0.3 x 100 mm	105183-0310
Bio-C18	3µm	200Å	0.3 x 150 mm	105183-0315
Bio-C18	5µm	200Å	0.1 x 100 mm	105185-0110
Bio-C18	5µm	200Å	0.1 x 150 mm	105185-0115
Bio-C18	5µm	200Å	0.3 x 100 mm	105185-0310
Bio-C18	5µm	200Å	0.3 x 150 mm	105185-0315
Bio-C18	3µm	300Å	0.1 x 100 mm	106183-0110
Bio-C18	3µm	300Å	0.1 x 150 mm	106183-0115
Bio-C18	3µm	300Å	0.3 x 100 mm	106183-0310
Bio-C18	3µm	300Å	0.3 x 150 mm	106183-0315
Bio-C18	5µm	300Å	0.1 x 100 mm	106185-0110
Bio-C18	5µm	300Å	0.1 x 150 mm	106185-0115
Bio-C18	5µm	300Å	0.3 x 100 mm	106185-0310
Bio-C18	5µm	300Å	0.3 x 150 mm	106185-0315

Bio-C4

Phase	Particle size	Pore size	ID x Length	P/N
Bio-C4	3µm	120Å	0.1 x 100 mm	110043-0110
Bio-C4	3µm	120Å	0.1 x 150 mm	110043-0115
Bio-C4	3µm	120Å	0.3 x 100 mm	110043-0310
Bio-C4	3µm	120Å	0.3 x 150 mm	110043-0315
Bio-C4	5µm	120Å	0.1 x 100 mm	110045-0110
Bio-C4	5µm	120Å	0.1 x 150 mm	110045-0115
Bio-C4	5µm	120Å	0.3 x 100 mm	110045-0310
Bio-C4	5µm	120Å	0.3 x 150 mm	110045-0315

GP-Phenyl

Phase	Particle size	Pore size	ID x Length	P/N
GP-Phenyl	3µm	120Å	0.1 x 100 mm	109043-0110
GP-Phenyl	3µm	120Å	0.1 x 150 mm	109043-0115
GP-Phenyl	3µm	120Å	0.3 x 100 mm	109043-0310
GP-Phenyl	3µm	120Å	0.3 x 150 mm	109043-0315
GP-Phenyl	5µm	120Å	0.1 x 100 mm	109045-0110
GP-Phenyl	5µm	120Å	0.1 x 150 mm	109045-0115
GP-Phenyl	5µm	120Å	0.3 x 100 mm	109045-0310
GP-Phenyl	5µm	120Å	0.3 x 150 mm	109045-0315

HP-Silica

Phase	Particle size	Pore size	ID x Length	P/N
HP-Cyano	3 µm	120Å	0.1 x 100 mm	113313-0110
HP-Cyano	3 µm	120Å	0.1 x 150 mm	113313-0115
HP-Cyano	3 µm	120Å	0.3 x 100 mm	113313-0310
HP-Cyano	3 µm	120Å	0.3 x 150 mm	113313-0315
HP-Cyano	5 µm	120Å	0.1 x 100 mm	113315-0110
HP-Cyano	5 µm	120Å	0.1 x 150 mm	113315-0115
HP-Cyano	5 µm	120Å	0.3 x 100 mm	113315-0310
HP-Cyano	5 µm	120Å	0.3 x 150 mm	113315-0315

HP-SCX

Phase	Particle size	Pore size	ID x Length	P/N
HP-SCX	3 µm	120Å	0.1 x 100 mm	120363-0110
HP-SCX	3 µm	120Å	0.1 x 150 mm	120363-0115
HP-SCX	3 µm	120Å	0.3 x 100 mm	120363-0310
HP-SCX	3 µm	120Å	0.3 x 150 mm	120363-0315
HP-SCX	5 µm	120Å	0.1 x 100 mm	120365-0110
HP-SCX	5 µm	120Å	0.1 x 150 mm	120365-0115
HP-SCX	5 µm	120Å	0.3 x 100 mm	120365-0310
HP-SCX	5 µm	120Å	0.3 x 150 mm	120365-0315

HP-Amino

Phase	Particle size	Pore size	ID x Length	P/N
HP-Amino	3 µm	120Å	0.1 x 100 mm	115303-0110
HP-Amino	3 µm	120Å	0.1 x 150 mm	115303-0115
HP-Amino	3 µm	120Å	0.3 x 100 mm	115303-0310
HP-Amino	3 µm	120Å	0.3 x 150 mm	115303-0315
HP-Amino	5 µm	120Å	0.1 x 100 mm	115305-0110
HP-Amino	5 µm	120Å	0.1 x 150 mm	115305-0115
HP-Amino	5 µm	120Å	0.3 x 100 mm	115305-0310
HP-Amino	5 µm	120Å	0.3 x 150 mm	115305-0315

Bio-C4

Phase	Particle size	Pore size	ID x Length	P/N
Bio-C4	3 µm	120Å	0.1 x 100 mm	110043-0110
Bio-C4	3 µm	120Å	0.1 x 150 mm	110043-0115
Bio-C4	3 µm	120Å	0.3 x 100 mm	110043-0310
Bio-C4	3 µm	120Å	0.3 x 150 mm	110043-0315
Bio-C4	5 µm	120Å	0.1 x 100 mm	110045-0110
Bio-C4	5 µm	120Å	0.1 x 150 mm	110045-0115
Bio-C4	5 µm	120Å	0.3 x 100 mm	110045-0310
Bio-C4	5 µm	120Å	0.3 x 150 mm	110045-0315

*For more information about available column dimensions, please visit our website, www.sepax-tech.com, or contact sales

Nanofilm Capillary Electrophoresis

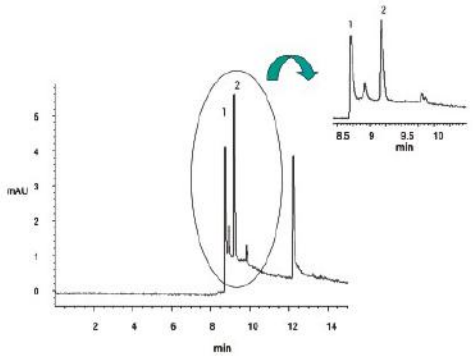
Nanofilm capillary coatings are Sepax's patented surface coating technologies that have been developed to coat the capillary tubes with uniform polymer thin films. The polymer film thickness can be well controlled in the range from a few nanometers to a few hundreds of nanometers. The standard Nanofilm coated capillaries have inner diameter (ID) selections of 75, 50 and 25 μm. Our innovative coating process can be readily applied to capillary tubes with even thinner inner diameter down to 10 μm for special applications. Nanofilm coatings include polyacrylamide (PAAm), polyethylene glycol (PEG), PAAm-PEG copolymer, ionic polymers and customer-specific coatings. Elimination of non-specific interactions with biological molecules enables Nanofilm coated capillaries to be ideal for DNA separation and sequencing, protein separation, protein-protein interaction studies.

Characteristics

- The novel coating technology readily applies to very narrow capillary tubes, e.g., 10 μm ID
- The PAAm coating is neutral and hydrophilic
- High column-to-column reproducibility
- Negligible electro-osmotic flow
- Eliminated non-specific interactions with biological molecules
- Ideal for separations of proteins and other biological molecules
- Suitable for DNA separation and sequencing

Applications

Separation of proteins



Capillary column:	40 × 48.5 cm, 20 μm i.d
Coating:	PAAm thin film, ~ 25 nm
Buffer:	50 mM sodium acetate, pH 4.5
Applied voltage:	20 kV
Current:	5.5 μA
Injection:	50 mbar, 5 s
Sample:	(0.5 mg/mL) 1. Lysozyme, N=1.5 × 10^5/m 2. Chytochrome C, N=1.2 × 10^5/m 3. Ribonuclease A, N=8.0 × 10^5/m

Nanofilm Polyacrylamide (PAAm)

Description

The unique coating technology makes uniform polyacrylamide thin film on the surface of the capillary inner wall. The very hydrophilic PAAm coating with the thickness of ~ 25 nm makes the capillary column ideal for protein separations. Such uniform stationary phases allow the separation to achieve high selectivity and high efficiency. A typical test electropherogram for a 75 μm diameter PAAm coated capillary column is shown in the above. Sepax's novel surface technology can even coat very narrow capillary tubes, down to a few microns. One example shown here is coating a 20 μm inner diameter capillary column. With the decrease of the diameter of the capillary column, the separation resolution and efficiency are greatly improved.

Specifications

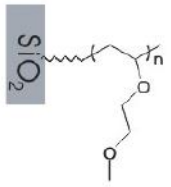
Capillary Column:	PAAm coated fused silica
Inner Diameter:	15, 25, 50, and 75 μm
Coating:	PAAm thin film
Coating thickness:	~25 nm
pH range:	2-8.5

Nanofilm Poly(ethylene glycol) PEG

Description

The unique coating technology makes uniform poly(ethylene glycol) thin film on the surface of the capillary inner wall. The very hydrophilic PEG coating with the thickness controlled in the range of 1-50 nm makes the capillary column ideal for protein separation. Such uniform stationary phases allow separations with high selectivity and high efficiency. Compared with the PAAm coating, the PEG coating is more stable in both acidic and basic conditions. The novel coating technology readily applies to very narrow capillary tube, such as 20 µm diameter. With the decrease of the diameter of the capillary column, the separation resolution and efficiency are greatly improved.

Specifications



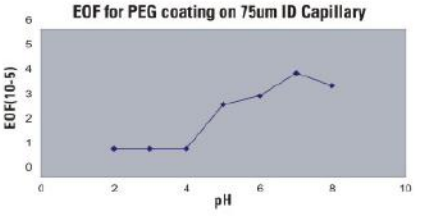
Capillary column:	PEG coated fused silica
Inner diameter:	25, 50, and 75 µm
Coating:	PEG thin film ~5, 15, 25, 50 nm
pH range:	2-9.5

Characteristics

- The PEG coating is neutral and hydrophilic
- Extremely high column-to-column reproducibility
- Negligible electro-osmotic flow
- Eliminated non-specific interactions with biological molecules
- Ideal for separations of proteins and other biological molecules
- Suitable for DNA separation and sequencing

EOF of PEG Coated Capillary

- PEG coating ~ 20 nm thick
- ~10% of uncoated capillary EOF
- EOF < 1.1×10^{-8} cm^2/vs for pH 2, 3, and 4



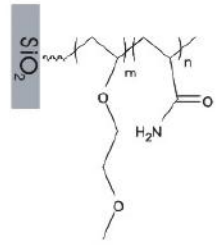
Capillary column:	40x31.5 cm, 75 µm i.d.
Coating:	PEG, ~20 nm thickness
Sample:	Acetone (100 ppm)
Buffer:	25 mM phosphate buffer at various pH
Voltage:	15 kV
Injection:	50 mbar, 2 s

Nanofilm PEG/PAAm

Description

The novel PEG/PAAm block structure is a patented technology. Both PEG and PAAm coatings have very good resistance to nonspecific bindings with biological molecules. This novel structured coating will allow extremely reproducible separations, even though some degradation of PAAm coatings occurs during the process of the separation. The great advantage of the PEG/PAAm block coating is that it achieved unprecedented separations for biological molecules, a combination of high efficiency separation with great stability and reproducibility for capillary electrophoresis.

Specifications



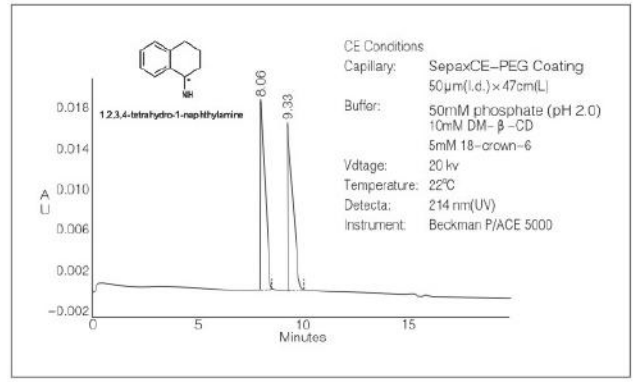
Capillary column:	PEG/PAAm coated fused silica
Inner diameter:	15, 25, 50, and 75 µm
Coating:	PEG thin film, ~25 nm; PAAm thin film, ~20 nm
pH range:	2-10

Characteristics

- The PEG/PAAm coating is neutral and hydrophilic
- Extremely high column-to-column reproducibility
- Coating stability is extremely high
- Negligible electro-osmotic flow
- Eliminated non-specific interactions with biological molecules
- Ideal for separations of proteins and other biological molecules
- Suitable for DNA separation and sequencing

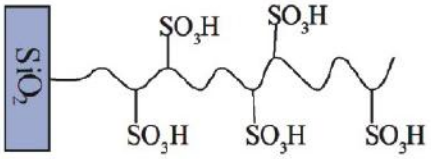
Application

Separation of Chiral compounds

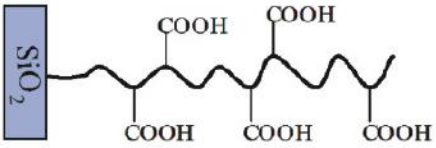


Special Capillary Coatings and Custom Synthesis

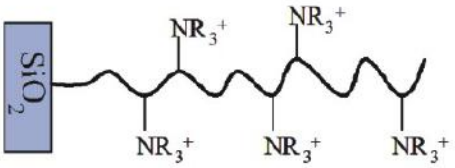
Strong Cation (-SO_3H) Coating



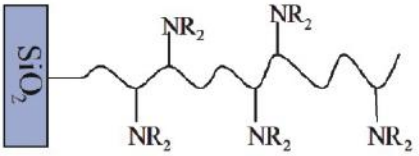
Weak Cation (-COOH) Coating



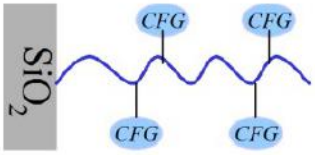
Strong Anion (-NR_3+) Coating



Weak Anion (-NR_2) Coating



Customer-Functional Group (CFG)



Applications

- Protein and peptide separations
- DNA and RNA separations
- Small molecular separations
- Reversed or controlled EOF for special separations
- An ideal separation technology for proteomics

Ordering Information:

Sepax PAAM Coating

ID (μm)	LTotal xLeffective (cm)	P/N
75	75x65	301175-7510
75	50x40	301175-5010
75	60x35	301175-5015
75	30x20	301175-3010
50	75x65	301150-7510
50	50x40	301150-5010
50	60x35	301150-5015
50	30x20	301150-3010
25	75x65	301125-7510
25	50x40	301125-5010
25	60x35	301125-5015
25	30x20	301125-3010
15	75x65	301115-7510
15	50x40	301115-5010
15	60x35	301115-5015
15	30x20	301115-3010

Sepax PEG/PAAm Coating

ID (μm)	LTotal xLeffective (cm)	P/N
75	75x65	301375-7510
75	50x40	301375-5010
75	60x35	301375-5015
75	30x20	301375-3010
50	75x65	301350-7510
50	50x40	301350-5010
50	60x35	301350-5015
50	30x20	301350-3010
25	75x65	301325-7510
25	50x40	301325-5010
25	60x35	301325-5015
25	30x20	301325-3010
15	75x65	301315-7510
15	50x40	301315-5010
15	60x35	301315-5015
15	30x20	301315-3010

Sepax PEG Coating

ID (μm)	LTotal xLeffective (cm)	P/N
75	75x65	301275-7510
75	50x40	301275-5010
75	60x35	301275-5015
75	30x20	301275-3010
50	75x65	301250-7510
50	50x40	301250-5010
50	60x35	301250-5015
50	30x20	301250-3010
25	75x65	301225-7510
25	50x40	301225-5010
25	60x35	301225-5015
25	30x20	301225-3010
15	75x65	301215-7510
15	50x40	301215-5010
15	60x35	301215-5015
15	30x20	301215-3010

Sepax Strong Anion (-NH_3+) Coating

ID (μm)	LTotal xLeffective (cm)	P/N
75	75x65	301675-7510
75	50x40	301675-5010
75	60x35	301675-5015
75	30x20	301675-3010
50	75x65	301650-7510
50	50x40	301650-5010
50	60x35	301650-5015
50	30x20	301650-3010
25	75x65	301625-7510
25	50x40	301625-5010
25	60x35	301625-5015
25	30x20	301625-3010
15	75x65	301615-7510
15	50x40	301615-5010
15	60x35	301615-5015
15	30x20	301615-3010

Sepax Strong Cation (-SO_3H) Coating

ID (μm)	LTotal xLeffective (cm)	P/N
75	75x65	301275-7510
75	50x40	301275-5010
75	60x35	301275-5015
75	30x20	301275-3010
50	75x65	301250-7510
50	50x40	301250-5010
50	60x35	301250-5015
50	30x20	301250-3010
25	75x65	301225-7510
25	50x40	301225-5010
25	60x35	301225-5015
25	30x20	301225-3010
15	75x65	301215-7510
15	50x40	301215-5010
15	60x35	301215-5015
15	30x20	301215-3010

Sepax Weak Anion (-NR_2) Coating

ID (μm)	LTotal xLeffective (cm)	P/N
75	75x65	301775-7510
75	50x40	301775-5010
75	60x35	301775-5015
75	30x20	301775-3010
50	75x65	301750-7510
50	50x40	301750-5010
50	60x35	301750-5015
50	30x20	301750-3010
25	75x65	301725-7510
25	50x40	301725-5010
25	60x35	301725-5015
25	30x20	301725-3010
15	75x65	301715-7510
15	50x40	301715-5010
15	60x35	301715-5015
15	30x20	301715-3010

Sepax Weak Cation (-COOH) Coating

ID (μm)	LTotal xLeffective (cm)	P/N
75	75x65	301575-7510
75	50x40	301575-5010
75	60x35	301575-5015
75	30x20	301575-3010
50	75x65	301550-7510
50	50x40	301550-5010
50	60x35	301550-5015
50	30x20	301550-3010
25	75x65	301525-7510
25	50x40	301525-5010
25	60x35	301525-5015
25	30x20	301525-3010
15	75x65	301515-7510
15	50x40	301515-5010
15	60x35	301515-5015
15	30x20	301515-3010

Sepax Bare Silica Tubes

ID (μm)	LTotal xLeffective (cm)	P/N
75	75x65	301075-7510
75	50x40	301075-5010
75	60x35	301075-5015
75	30x20	301075-3010
50	75x65	301050-7510
50	50x40	301050-5010
50	60x35	301050-5015
50	30x20	301050-3010
25	75x65	301025-7510
25	50x40	301025-5010
25	60x35	301025-5015
25	30x20	301025-3010
15	75x65	301015-7510
15	50x40	301015-5010
15	60x35	301015-5015
15	30x20	301015-3010

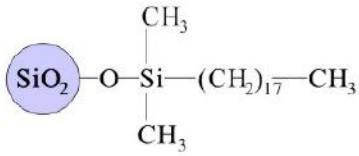
*For more information about column dimensions, please visit our website, www.sepax-tech.com, or contact sales.

Prep/Semi-Prep Columns

- GP-C18, C8, C4, Phenyl
- HP-C18
- BR-C18
- Bio-C18, C8, C4
- PolyRP
- HP-Cyano
- HP-Amino
- HP-SCX
- HP-Silica
- HILIC Polar-100

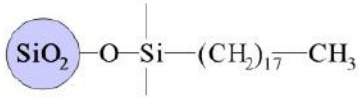
Preparative and Process Chromatography

GP-C18



Silica:	Spherical, high purity (<10 ppm metals)
Pore size:	120 Å
Particle size:	5, 7, 10, 15 and 10 µm
Pore volume:	1.0 mL/g
Surface area:	300 m^2/g
Phase structure:	Monomeric and fully endcapped
% Carbon:	17.0%

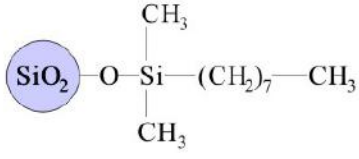
BR-C18



C18 phase formed by special bonding chemistry for applications in wide range of pH (1.5-10.5)

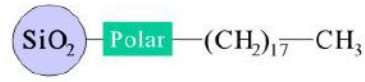
Silica:	Spherical, high purity (<10 ppm metals)
Pore size:	120 Å
Particle size:	5 and 10 µm
Pore volume:	1.0 mL/g
Surface area:	300 m^2/g
Phase structure:	Fully endcapped
% Carbon:	19.0%

GP-C8



Silica:	Spherical, high purity (<10 ppm metals)
Pore size:	120 Å
Particle size:	5, 7, 10, 15 and 20 µm
Pore volume:	1.0 mL/g
Surface area:	300 m^2/g
Phase structure:	Monomeric and fully endcapped
% Carbon:	11.0%

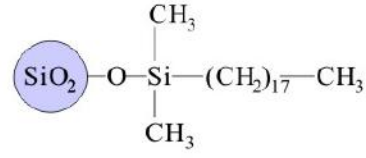
HP-C18



ODS monolayer formed by special bonding chemistry does not collapse in pure aqueous solution.

Silica:	Spherical, high purity (<10 ppm metals)
Pore size:	120 Å
Particle size:	5, 7, 10, 15 and 20 µm
Pore volume:	1.0 mL/g
Surface area:	300 m^2/g
Phase structure:	Monomeric and fully endcapped
% Carbon:	17.0%

Bio-C18

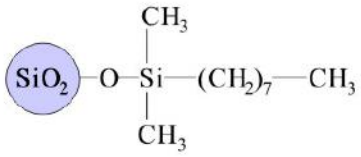


C18 monolayer formed by special bonding chemistry does not collapse in pure aqueous solution.

Silica:	Spherical, high purity (<10 ppm metals)
Pore size:	200 Å
Particle size:	5 and 10 µm
Pore volume:	1.0 mL/g
Surface area:	200 m^2/g
Phase structure:	Monomeric and fully endcapped
% Carbon:	10%

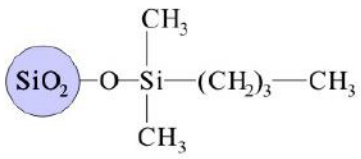
Pore size:	300 Å
Particle size:	5 and 10 µm
Pore volume:	0.95 mL/g
Surface area:	105 m^2/g
Phase structure:	Monomeric and fully endcapped
% Carbon:	7.0%

Bio-C8



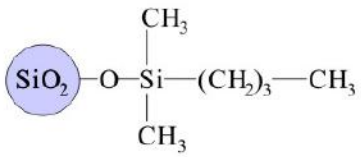
Silica:	Spherical, high purity (<10 ppm metals)
Pore size:	300 Å
Particle size:	5 and 10 µm
Pore volume:	1.0 mL/g
Surface area:	105 m^2/g
Phase structure:	Monomeric and fully endcapped
% Carbon:	4.0%

GP-C4



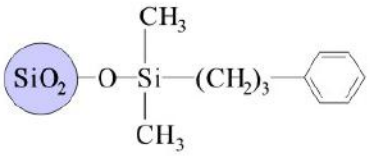
Silica:	Spherical, high purity (<10 ppm metals)
Pore size:	120 Å
Particle size:	5, 7, 10, 15 and 10 µm
Pore volume:	1.0 mL/g
Surface area:	300 m^2/g
Phase structure:	Monomeric and fully endcapped
% Carbon:	8.0%

Bio-C4



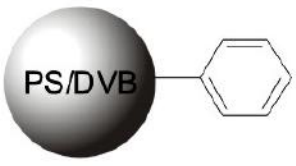
Silica:	Spherical, high purity (<10 ppm metals)
Pore size:	300 Å
Particle size:	5 and 10 µm
Pore volume:	1.0 mL/g
Surface area:	105 m^2/g
Phase structure:	Monomeric and fully endcapped
% Carbon:	3.0%

GP-Phenyl



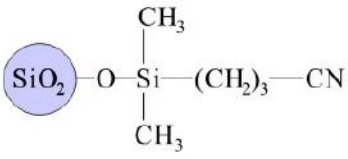
Silica:	Spherical, high purity (<10 ppm metals)
Pore size:	120 Å
Particle size:	5, 7, 10, 15 and 20 µm
Pore volume:	1.0 mL/g
Surface area:	300 m^2/g
Phase structure:	Monomeric and fully endcapped
% Carbon:	11%

PolyRP



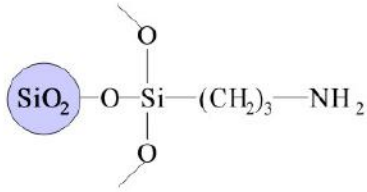
Silica:	Spherical, high purity (<10 ppm metals)
Pore size:	120 Å
Particle size:	5, 7, 10, 15 and 10 µm
Pore volume:	1.0 mL/g
Surface area:	300 m^2/g
Phase structure:	Monomeric and fully endcapped
% Carbon:	8.0%

HP-Cyano



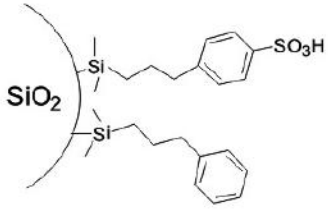
Silica:	Spherical, high purity (<10 ppm metals)
Pore size:	120 Å
Particle size:	5, 7, 10, 15 and 10 µm
Pore volume:	1.0 mL/g
Surface area:	300 m^2/g
Phase structure:	Monomeric and fully endcapped
% Carbon:	7.0%
Coverage:	~3.5 µmol/m^2

HP-Amino



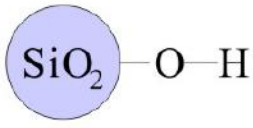
Silica:	Spherical, high purity (<10 ppm metals)
Pore size:	120 Å
Particle size:	5, 7, 10, 15 and 20 µm
Pore volume:	1.0 mL/g
Surface area:	300 m^2/g
Phase structure:	Polymeric and no endcapping
% Carbon:	4.0%

HP-SCX



Silica:	Spherical, high purity (<10 ppm metals)
Pore size:	120 Å
Particle size:	5, 7, 10 and 20 µm
Pore volume:	1.0 mL/g
Surface area:	300 m^2/g
Phase structure:	Polymeric and mixed mode
% Carbon:	11.0%

HP-Silica



Silica:	Spherical, high purity (<10 ppm metals)
Pore size:	120 Å
Particle size:	5, 7, 10, 20 and 20 µm
Pore volume:	1.0 mL/g
Surface area:	300 m^2/g
Phase structure:	Hydroxyl (-OH)
% Carbon:	0%

HILIC Polar-100

Silica:	Spherical, high purity (<10 ppm metals)
Pore size:	120 Å
Particle size:	5, 10 and 15 µm
Pore volume:	1.0 mL/g
Surface area:	300 m^2/g
Phase structure:	Chemically bonded highly hydrophilic monolayer

Characteristics

- Highly controlled chemistry of monolayer formation and end-capping
- Excellent column-to-column reproducibility
- Easy scale-up from analytical to preparative columns
- High mechanical stability
- Wide range of selection of particle size, pore size, and bonding chemistry

Guidelines Recommended for Preparative Separation

Development of a preparative separation method usually starts from an analytical separation with an appropriate stationary phase. C18 is the most widely used packing media for preparative separation. The capacity factor, k, of a sample component is recommended in the range of 2.5 and 20. The preparative separation usually overloads the column to achieve highest yield with some sacrifices to resolution. The selectivity and resolution could be optimized by tuning the slope of the operating mobile phase gradient and the mobile phase composition. To maximize the yield and achieve highest purity, the following guidelines are commended:

- Sample solubility in the starting mobile phase is critical (>0.1M or >50mg/mL).
- Selectivity (α): α <1.25 should be avoided; allows for minimal overloading (<1 mg/g packing sorbent).
- Selectivity (α): α >1.5 allows overloading up to 15 mg/g packing sorbent.

Applications

Phases	Chemistry	Applications
C18	GP-C18	Reversed phase separations for pharmaceuticals, nutraceuticals, natural products, acidic, neutral and basic compounds
	BR-C18	Basic compounds or separations required high pH durability
	HP-C18	Separations at high aqueous mobile phase, pharmaceuticals, vitamins, natural products, peptides, and polar compounds
	Bio-C18	Separations required large pore size or at high aqueous mobile phase, pharmaceuticals, vitamins, natural products, peptides, and polar compounds
C8	GP-C8	Reversed phase separations for pharmaceuticals, estrogens, acidic, neutral and basic compounds
	Bio-C8	Separations required large pore size for pharmaceuticals, vitamins, proteins, peptides, and polar compounds
C4	GP-C4	Proteins and peptides
	Bio-C4	Separations required large pore size for proteins and peptides
Phenyl	GP-Phenyl	Aromatic compounds, antibiotics, lipids, ring-structured compounds
PS/DVB	PolyRP	Reversed phase separations required extreme pH (1-14) or different selectivity for pharmaceuticals, nutraceuticals, peptides, acidic, neutral and basic compounds
CN	HP-Cyano	Normal phase separations for pharmaceuticals and polar organic compounds
NH2	HP-Amino	Sugars, alcohols, vitamins, nucleosides, oligonucleotides, and anionic compounds
SCX (Strong Cation Exchange)	HP-SCX	Sugars, alcohols, vitamins, nucleosides, oligonucleotides, and anionic compounds
Silica	HP-Silica	Normal phase or HILIC mode separation for basic compounds, pharmaceuticals, nutraceuticals, and metabolites
HILIC	Polar-100	Polar compounds which are not well retained by other phases

Test Chromatograms

Figure 1 is the typical test chromatogram for a 21.2x250 mm GP-C18 (5 µm) column.

Column: GP-C18 (21.2x250 mm, 10 µm)
Mobile phase: 70% ACN and 30% H_2O
Flow rate: 20 mL/min
Detector UV: 254 nm
Injection volume: 100 µL
Temperature: Ambient (23°C)
Sample: 1.0 mg/mL

Results

Compounds	Efficiency	Symmetry	Resolution
(1) Anisole	20540	1.132	9.695
(2) Toluene	23902	1.109	12.433
(3) Naphthalene	24900	1.055	7.398

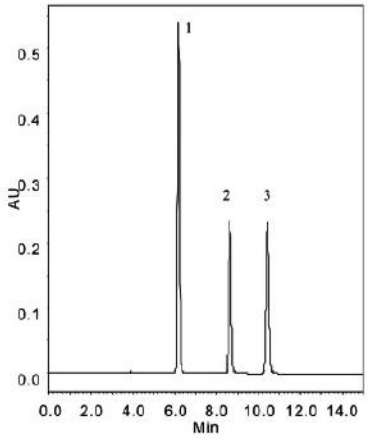
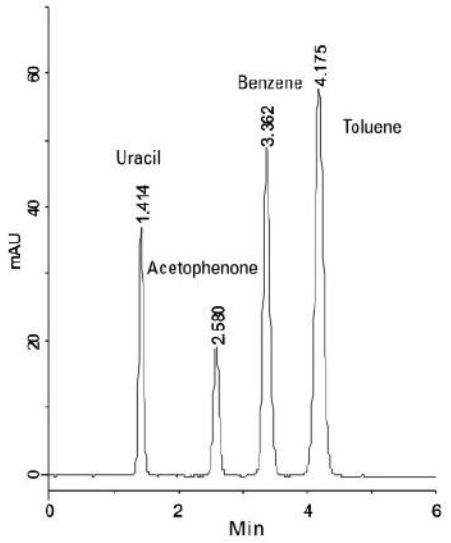


Figure 2 is the typical test chromatogram for a 21.2x100 mm HP-C18 (10 µm) column. The results using toluene as the test compound are the following:

Efficiency: 5,000
Asymmetry: 1.08
Selectivity (K '): 1.95



Column:	HP-C18 (21.2x100 mm, 10 µm)
Mobile phase:	70% ACN and 30% H_2O
Flow rate:	15 mL/min
Detector UV:	254 nm
Injection volume:	100 µL
Temperature:	Ambient (23°C)
Sample:	1.0 mg/mL for each compound

Natural Product Purification

Natural products are very important for medicine and other utilities. High efficiency and high resolution separation is crucial for isolation and purification of new compounds from natural resources, such as plants. Figure 3 and 4 are examples of preparative separation of natural products from plant roots. For each of the plant root extracts, more than 100 compounds are isolated and purified.

Figure 3. Separation of 333 mg (in 800 µL ACN) extract from a plant root by a GP-C18 column (10 µm, 21.2x250 mm). Mobile phase: (A) 20% ACN in water; (B) 100% ACN. Gradient: 45%-100% B (35 min); 100% B (20 min). Flow rate: 20 mL/min. Temperature: Ambient (23°C).

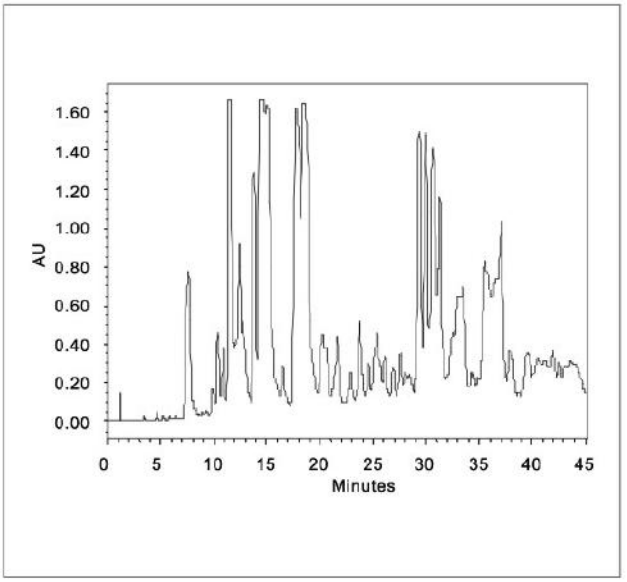
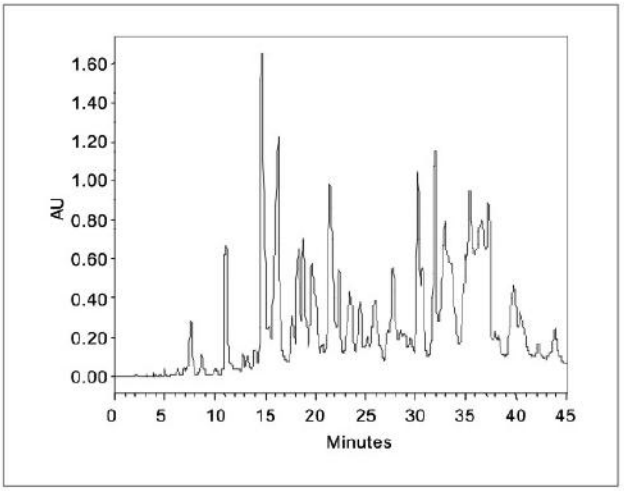


Figure 4. Separation of 400 mg (in 800 µL ACN) extract from a plant root by a GP-C18 column (10 µm, 21.2x250 mm). Mobile phase: (A) 20% ACN in water; (B) 100% ACN. Gradient: 45%-100% B (35 min); 100% B (20 min). Flow rate: 20 mL/min. Temperature: Ambient (23°C).



Ordering Information:

	5 µm preparative and semi-preparative Columns (length x ID mm)					Guard column
Phases	**150x7.8**	**250x7.8**	**100x10**	**150x10**	**250x10**	**50x10**
GP-C18 (120 Å)	101185-7815	101185-7825	101185-10010	101185-10015	101185-10025	101185-10005
BR-C18 (120 Å)	102185-7815	102185-7825	102185-10010	102185-10015	102185-10025	102185-10005
HP-C18 (120 Å)	103185-7815	103185-7825	103185-10010	103185-10015	103185-10025	103185-10005
HP-C18 (200 Å)	104185-7815	104185-7825	104185-10010	104185-10015	104185-10025	104185-10005
Bio-C18 (200 Å)	105185-7815	105185-7825	105185-10010	105185-10015	105185-10025	105185-10005
Bio-C18 (300 Å)	106185-7815	106185-7825	106185-10010	106185-10015	106185-10025	106185-10005
GP-C8 (120 Å)	107085-7815	107085-7825	107085-10010	107085-10015	107085-10025	107085-10005
Bio-C8 (300 Å)	108085-7815	108085-7825	108085-10010	108085-10015	108085-10025	108085-10005
GP-C4 (120 Å)	109045-7815	109045-7825	109045-10010	109045-10015	109045-10025	109045-10005
Bio-C4 (300 Å)	110045-7815	110045-7825	110045-10010	110045-10015	110045-10025	110045-10005
GP-Ph^1 (120 Å)	111365-7815	111365-7825	111365-10010	111365-10015	111365-10025	111365-10005
HP-CN^2 (120 Å)	113315-7815	113315-7825	113315-10010	113315-10015	113315-10025	113315-10005
HP-NH^2(120 Å)	115305-7815	115305-7825	115305-10010	115305-10015	115305-10025	115305-10005
HP-SCX (120 Å)	120365-7815	120365-7825	120365-10010	120365-10015	120365-10025	120365-10005
HP-Silica (120 Å)	117005-7815	117005-7825	117005-10010	117005-10015	117005-10025	117005-10005
HILIC Polar-100	131585-7815	131585-7825	131585-10010	131585-10015	131585-10025	131585-10005

	5 µm preparative and semi-preparative Columns (length x ID mm)					Guard column
Phases	**50x21.2**	**100x21.2**	**150x21.2**	**250x21.2**	**50x30**	**10x21.2***
GP-C18 (120 Å)	101185-21205	101185-21210	101185-21215	101185-21225	101185-30025	101185-21201
BR-C18 (120 Å)	102185-21205	102185-21210	102185-21215	102185-21225	102185-30025	102185-21201
HP-C18 (120 Å)	103185-21205	103185-21210	103185-21215	103185-21225	103185-30025	103185-21201
HP-C18 (200 Å)	104185-21205	104185-21210	104185-21215	104185-21225	104185-30025	104185-21201
Bio-C18 (200 Å)	105185-21205	105185-21210	105185-21215	105185-21225	105185-30025	105185-21201
Bio-C18 (300 Å)	106185-21205	106185-21210	106185-21215	106185-21225	106185-30025	106185-21201
GP-C8 (120 Å)	107085-21205	107085-21210	107085-21215	107085-21225	107085-30025	107085-21201
Bio-C8 (300 Å)	108085-21205	108085-21210	108085-21215	108085-21225	108085-30025	108085-21201
GP-C4 (120 Å)	109045-21205	109045-21210	109045-21215	109045-21225	109045-30025	109045-21201
Bio-C4 (300 Å)	110045-21205	110045-21210	110045-21215	110045-21225	110045-30025	110045-21201
GP-Ph^1 (120 Å)	111365-21205	111365-21210	111365-21215	111365-21225	111365-30025	111365-21201
HP-CN^2 (120 Å)	113315-21205	113315-21210	113315-21215	113315-21225	113315-30025	113315-21201
HP-NH2 (120 Å)	115305-21205	115305-21210	115305-21215	115305-21225	115305-30025	115305-21201
HP-SCX (120 Å)	120365-21205	120365-21210	120365-21215	120365-21225	120365-30025	120365-21201
HP-Silica (120 Å)	117005-21205	117005-21210	117005-21215	117005-21225	117005-30025	117005-21201
HILIC Polar-100	131585-21205	131585-21210	131585-21215	131585-21225	131585-30025	131585-21201

	5 µ m preparative and semi-preparative Columns (length x ID mm)					Guard column
Phases	**100x30**	**150x30**	**250x30**	**50x50**	**250x50**	**10x21.2***
GP-C18 (120 Å)	101185-30010	101185-30015	101185-30025	101185-50005	101185-50025	101185-21201
BR-C18 (120 Å)	102185-30010	102185-30015	102185-30025	102185-50005	102185-50025	102185-21201
HP-C18 (120 Å)	103185-30010	103185-30015	103185-30025	103185-50005	103185-50025	103185-21201
HP-C18 (200 Å)	104185-30010	104185-30015	104185-30025	104185-50005	104185-50025	104185-21201
Bio-C18 (200 Å)	105185-30010	105185-30015	105185-30025	105185-50005	105185-50025	105185-21201
Bio-C18 (300 Å)	106185-30010	106185-30015	106185-30025	106185-50005	106185-50025	106185-21201
GP-C8 (120 Å)	107085-30010	107085-30015	107085-30025	107085-50005	107085-50025	107085-21201
Bio-C8 (300 Å)	108085-30010	108085-30015	108085-30025	108085-50005	108085-50025	108085-21201
GP-C4 (120 Å)	109045-30010	109045-30015	109045-30025	109045-50005	109045-50025	109045-21201
Bio-C4 (300 Å)	110045-30010	110045-30015	110045-30025	110045-50005	110045-50025	110045-21201
GP-Ph[1] (120 Å)	111365-30010	111365-30015	111365-30025	111365-50005	111365-50025	111365-21201
HP-CN[2] (120 Å)	113315-30010	113315-30015	113315-30025	113315-50005	113315-50025	113315-21201
HP-NH2 (120 Å)	115305-30010	115305-30015	115305-30025	115305-50005	115305-50025	115305-21201
HP-SCX (120 Å)	120365-30010	120365-30015	120365-30025	120365-50005	120365-50025	120365-21201
HP-Silica (120 Å)	117005-30010	117005-30015	117005-30025	117005-50005	117005-50025	117005-21201
HILIC Polar-100	131585-30010	131585-30015	131585-30025	131585-50005	131585-50025	131585-21201

	7 µ m preparative and semi-preparative Columns (length x ID mm)					Guard column
Phases	**150x7.8**	**250x7.8**	**100x10**	**150x10**	**250x10**	**50x10**
GP-C18 (120 Å)	101187-7815	101187-7825	101187-10010	101187-10015	101187-10025	101187-10005
HP-C18 (120 Å)	103187-7815	103187-7825	103187-10010	103187-10015	103187-10025	103187-10005
GP-C8 (120 Å)	107087-7815	107087-7825	107087-10010	107087-10015	107087-10025	107087-10005
GP-C4 (120 Å)	109047-7815	109047-7825	109047-10010	109047-10015	109047-10025	109047-10005
GP-Ph[1] (120 Å)	111367-7815	111367-7825	111367-10010	111367-10015	111367-10025	111367-10005
HP-CN[2] (120 Å)	113317-7815	113317-7825	113317-10010	113317-10015	113317-10025	113317-10005
HP-NH2 (120 Å)	115307-7815	115307-7825	115307-10010	115307-10015	115307-10025	115307-10005
HP-SCX (120 Å)	120367-7815	120367-7825	120367-10010	120367-10015	120367-10025	120367-10005
HP-Silica (120 Å)	117007-7815	117007-7825	117007-10010	117007-10015	117007-10025	117007-10005

	7 µ m preparative and semi-preparative Columns (length x ID mm)					Guard column
Phases	**50x21.2**	**100x21.2**	**150x21.2**	**250x21.2**	**250x30**	**10x21.2***
GP-C18 (120 Å)	101187-21205	101187-21210	101187-21215	101187-21225	101187-30025	101187-21201
HP-C18 (120 Å)	103187-21205	103187-21210	103187-21215	103187-21225	103187-30025	103187-21201
GP-C8 (120 Å)	107087-21205	107087-21210	107087-21215	107087-21225	107087-30025	107087-21201
GP-C4 (120 Å)	109047-21205	109047-21210	109047-21215	109047-21225	109047-30025	109047-21201
GP-Ph[1] (120 Å)	111367-21205	111367-21210	111367-21215	111367-21225	111367-30025	111367-21201
HP-CN[2] (120 Å)	113317-21205	113317-21210	113317-21215	113317-21225	113317-30025	113317-21201
HP-NH2 (120 Å)	115307-21205	115307-21210	115307-21215	115307-21225	115307-30025	115307-21201
HP-SCX (120 Å)	120367-21205	120367-21210	120367-21215	120367-21225	120367-30025	120367-21201
HP-Silica (120 Å)	117007-21205	117007-21210	117007-21215	117007-21225	117007-30025	117007-21201

	10 µm preparative and semi-preparative Columns (length x ID mm)					Guard column
Phases	**150x7.8**	**250x7.8**	**100x10**	**150x10**	**250x10**	**50x10**
GP-C18 (120 Å)	101189-7815	101189-7825	101189-10010	101189-10015	101189-10025	101189-10005
BR-C18 (120 Å)	102189-7815	102189-7825	102189-10010	102189-10015	102189-10025	102189-10005
HP-C18 (120 Å)	103189-7815	103189-7825	103189-10010	103189-10015	103189-10025	103189-10005
HP-C18 (200 Å)	104189-7815	104189-7825	104189-10010	104189-10015	104189-10025	104189-10005
Bio-C18 (200 Å)	105189-7815	105189-7825	105189-10010	105189-10015	105189-10025	105189-10005
Bio-C18 (300 Å)	106189-7815	106189-7825	106189-10010	106189-10015	106189-10025	106189-10005
GP-C8 (120 Å)	107089-7815	107089-7825	107089-10010	107089-10015	107089-10025	107089-10005
Bio-C8 (300 Å)	108089-7815	108089-7825	108089-10010	108089-10015	108089-10025	108089-10005
GP-C4 (120 Å)	109049-7815	109049-7825	109049-10010	109049-10015	109049-10025	109049-10005
Bio-C4 (300 Å)	110049-7815	110049-7825	110049-10010	110049-10015	110049-10025	110049-10005
GP-Ph^{I} (120 Å)	111369-7815	111369-7825	111369-10010	111369-10015	111369-10025	111369-10005
HP-CN^{I} (120 Å)	113319-7815	113319-7825	113319-10010	113319-10015	113319-10025	113319-10005
HP-NH2 (120 Å)	115309-7815	115309-7825	115309-10010	115309-10015	115309-10025	115309-10005
HP-SCX (120 Å)	120369-7815	120369-7825	120369-10010	120369-10015	120369-10025	120369-10005
HP-Silica (120 Å)	117009-7815	117009-7825	117009-10010	117009-10015	117009-10025	117009-10005
HILIC Polar-100	131589-7815	131589-7825	131589-10010	131589-10015	131589-10025	131589-10005

	10 µm preparative and semi-preparative Columns (length x ID mm)					Guard column
Phases	**50x21.2**	**100x21.2**	**150x21.2**	**250x21.2**	**50x30**	**10x21.2***
GP-C18 (120 Å)	101189-21205	101189-21210	101189-21215	101189-21225	101189-30025	101189-21201
BR-C18 (120 Å)	102189-21205	102189-21210	102189-21215	102189-21225	102189-30025	102189-21201
HP-C18 (120 Å)	103189-21205	103189-21210	103189-21215	103189-21225	103189-30025	103189-21201
HP-C18 (200 Å)	104189-21205	104189-21210	104189-21215	104189-21225	104189-30025	104189-21201
Bio-C18 (200 Å)	105189-21205	105189-21210	105189-21215	105189-21225	105189-30025	105189-21201
Bio-C18 (300 Å)	106189-21205	106189-21210	106189-21215	106189-21225	106189-30025	106189-21201
GP-C8 (120 Å)	107089-21205	107089-21210	107089-21215	107089-21225	107089-30025	107089-21201
Bio-C8 (300 Å)	108089-21205	108089-21210	108089-21215	108089-21225	108089-30025	108089-21201
GP-C4 (120 Å)	109049-21205	109049-21210	109049-21215	109049-21225	109049-30025	109049-21201
Bio-C4 (300 Å)	110049-21205	110049-21210	110049-21215	110049-21225	110049-30025	110049-21201
GP-Ph^{I} (120 Å)	111369-21205	111369-21210	111369-21215	111369-21225	111369-30025	111369-21201
HP-CN^{I} (120 Å)	113319-21205	113319-21210	113319-21215	113319-21225	113319-30025	113319-21201
HP-NH2 (120 Å)	115309-21205	115309-21210	115309-21215	115309-21225	115309-30025	115309-21201
HP-SCX (120 Å)	120369-21205	120369-21210	120369-21215	120369-21225	120369-30025	120369-21201
HP-Silica (120 Å)	117009-21205	117009-21210	117009-21215	117009-21225	117009-30025	117009-21201
HILIC Polar-100	131589-21205	131589-21210	131589-21215	131589-21225	131589-30025	131589-21201

	10 μ m preparative and semi-preparative Columns (length x ID mm)					Guard column
Phases	**100x30**	**150x30**	**250x30**	**50x50**	**250x50**	**10x21.2***
GP-C18 (120 Å)	101189-30010	101189-30015	101189-30025	101189-50005	101189-50025	101189-21201
BR-C18 (120 Å)	102189-30010	102189-30015	102189-30025	102189-50005	102189-50025	102189-21201
HP-C18 (120 Å)	103189-30010	103189-30015	103189-30025	103189-50005	103189-50025	103189-21201
HP-C18 (200 Å)	104189-30010	104189-30015	104189-30025	104189-50005	104189-50025	104189-21201
Bio-C18 (200 Å)	105189-30010	105189-30015	105189-30025	105189-50005	105189-50025	105189-21201
Bio-C18 (300 Å)	106189-30010	106189-30015	106189-30025	106189-50005	106189-50025	106189-21201
GP-C8 (120 Å)	107089-30010	107089-30015	107089-30025	107089-50005	107089-50025	107089-21201
Bio-C8 (300 Å)	108089-30010	108089-30015	108089-30025	108089-50005	108089-50025	108089-21201
GP-C4 (120 Å)	109049-30010	109049-30015	109049-30025	109049-50005	109049-50025	109049-21201
Bio-C4 (300 Å)	110049-30010	110049-30015	110049-30025	110049-50005	110049-50025	110049-21201
GP-Ph[1] (120 Å)	111369-30010	111369-30015	111369-30025	111369-50005	111369-50025	111369-21201
HP-CN[2] (120 Å)	113319-30010	113319-30015	113319-30025	113319-50005	113319-50025	113319-21201
HP-NH2 (120 Å)	115309-30010	115309-30015	115309-30025	115309-50005	115309-50025	115309-21201
HP-SCX (120 Å)	120369-30010	120369-30015	120369-30025	120369-50005	120369-50025	120369-21201
HP-Silica (120 Å)	117009-30010	117009-30015	117009-30025	117009-50005	117009-50025	117009-21201
HILIC Polar-100	131589-30010	131589-30015	131589-30025	131589-50005	131589-50025	131589-21201

* For more information about column dimension, please visit our website, www.sepax-tech.com, or contact sales.
1. Phenyl phase; 2. Cyano phase

* Guard column holder
P/N# 102000-21201
$175/EA for 10x21.2 mm guard cartridge

Bulk Materials for Preparative and Process Chromatography

Silica based

- Spherical Packings:

  C18, C8, C4, Phenyl, CN, NH_2, SO_3H, Silica,

- Irregular Packings:

  C18, C8, C4, Phenyl, CN, NH_2, Diol, SO_3H, Silica

Polymer based

- Reversed Phase Resins
- Ion-exchange Resins

Silica Based Bulk Media

Spherical Packings

Description

Sepax manufactures a wide range of silica based media with the particle size selection of 5, 10, 15, 20, 30, 50 and 60 µm spherical particles with pore size selection of 60, 120, 200, 300, 500 and 1000 Å. The bonding chemistry is from regular C18, C8, C4, Phenyl, Cyano, Amino, Diol, Pyridine, SCX and SAX to any custom-synthesis. The controlled manufacturing process guarantees high batch-to-batch reproducibility. Their high surface area and high mechanical strength enable those media to be ideal for preparative separation and purification.

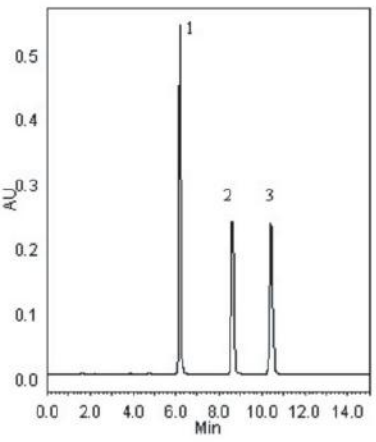
Characteristics

- Available in both reversed and normal phases
- High chemical stability for low leaching
- High loading capacity
- High mechanical strength for multiple packing
- Spherical particles with controlled pore sizes
- Available from grams to multi-kilogram
- More than 20 different chemistries

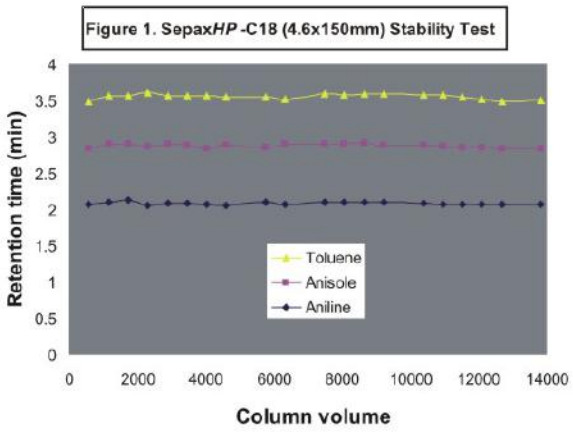
Specifications

Phases	Chemistry	Particle size (µm)	Pore size (Å)	Surface Area (m^2/g)	Carbon loading (%)	pH stability	Bonding	Applications
C18	GP-C18	5,10,15,20,30,50	60 120	450 300	19 17	2-8.5	Monomeric and fully end -capped	Reversed phase separations for pharmaceuticals, nutraceuticals, natural products, and acidic, neutral,and basic compounds
	BR-C18	5,10	120	300	19	1.5-11.0	Fully end-capped	Basic compounds or separations requiring high pH durability.
	HP-C18	5,10,15,50	120	300	15	2-8.5	Monomeric and fully end -capped	Separations at high aqueous mobile phases, pharmaceuticals, vitamins, natural products, peptides, and polar compounds.
	Bio-C18	5,10,15	200 300	200 105	10 8.5	2-8.5	Monomeric and fully end -capped	Separations requiring large pore size or at high aqueous mobile phase, pharmaceuticals, vitamins, natural products, peptides, and polar compounds.
C8	GP-C8	5,10,15,50	60 120	450 300	15 11	2-8.5	Monomeric and fully end -capped	Reversed phase separations for pharmaceuticals, estrogens, and acidic, neutral, and basic compounds.
	Bio-C8	10,15	300	105	5.2	2-8.5	Monomeric and fully end -capped	Separations requiring large pore size for pharmaceuticals, vitamins, proteins, peptides, and polar compounds.
C4	GP-C4	5,10,15,50	120	300	8.0	2-8.5	Monomeric and fully end -capped	Proteins and peptides
	Bio-C4	5,10	300	105	3.1	2-8.5	Monomeric and fully end -capped	Separations requiring large pore size for proteins and peptides.
Phenyl	GP-Phenyl	5,10,15,50	120	300	11	2-8.5	Monomeric and fully end -capped	Aromatic compounds, antibiotics, lipids, and ring-structured compounds.
CN	HP-Cyano	5,10,15,50	120	300	7.0	2-8.5	Monomeric and fully end -capped	Normal phase separations for pharmaceuticals and polar organic compounds.
NH_2	HP-Amino	5,10,15,50	120	300	4.2	2-8.5	Polymeric and no end -capping	Sugars, alcohols, vitamins, nucleosides, oligonucleotides, and anionic compounds.
SO_3H	HP-SCX	5,10,15,50	120	300	11	2-8.5	Monomeric and fully end -capped	Amine and polyamine containing compounds, nucleotides, and peptides.
Silica	HP-Silica	5,10,15,20, 30,50,60	60 120 300	450 300 300	0.0 0.0 0.0	2-8.5	Activated surface	Normal phase or HILIC mode separation for basic compounds, pharmaceuticals, nutraceuticals, and metabolites.

Performance



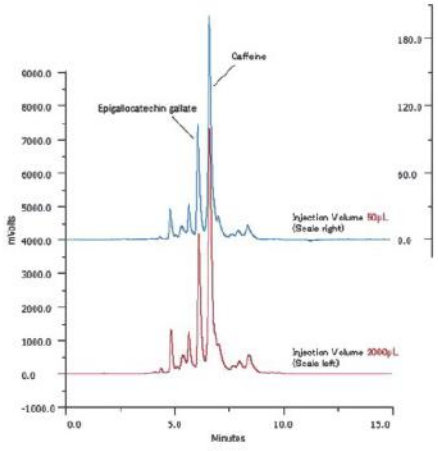
Column:	GP-C18, 21.2 mm× 250 mm, 5 µm,120Å
Mobile phase:	70% ACN & 30% H_2O
Flow rate:	20 mL/min
Detector (UV):	254 nm
Injection volume:	100 µL
Temperature:	23℃
Samples:	1.0 mg/mL 1 Methyl ether 2 Toluene 3 Naphthalene



Column:	GP-C18, 21.2 mm× 250 mm, 5 µm,120Å
Mobile phase:	80% ACN & 15% H_2O
Flow rate:	1 mL/min
Detector (UV):	254 nm
Temperature:	25℃

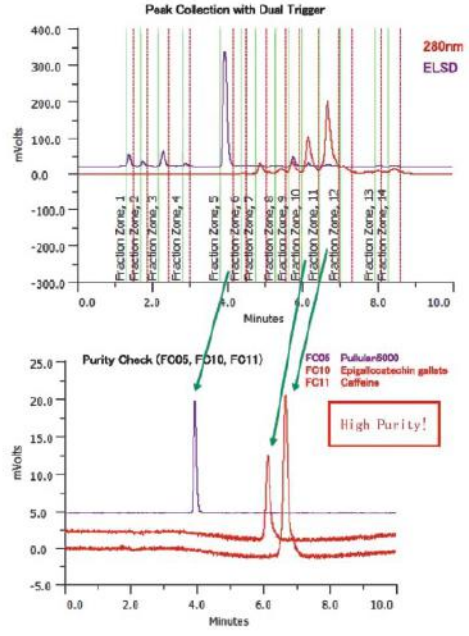
Applications

Effect of load volume of green tea extract on peak shape



Column:	21.2 mm× 100 mm, 10 µm,120Å
Mobile phase:	(A):0.1% HCOOH, (B):0.1% HCOOH / MeOH
Gradient:	2%B (0 min), 35%B (3 min), 75%B (8 min), 75%B (9 min),2% B (9.1 min)
Flow rate:	15 mL/min
Detector (UV):	280 nm

Purity analysis of extracts

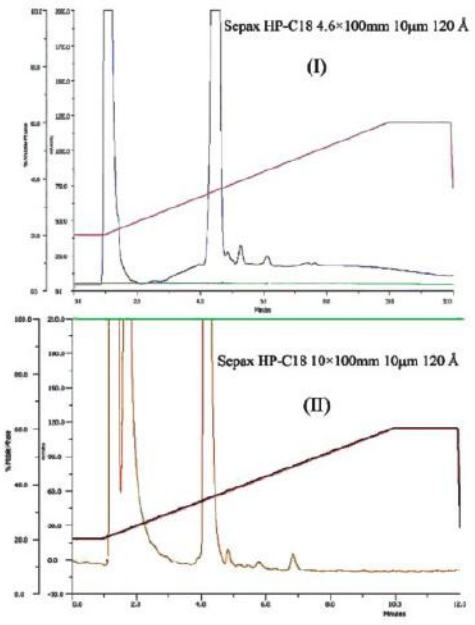


(Courtesy of M&S Instruments Inc.)

Reversed phase silica packings from Sepax have been used in preparative synthetic peptide purification. Figure 5 shows the method development of preparative HP-C18 columns by optimizing the running conditions on the analytical size column. Chromatogram (I) shows the separation profile of 50 g of synthetic peptide RVIVIY on the analytical column HP-C18 4.6x100mm. When the injection amount increase to 12.5 mg on a prep-scale 10x100mm and the flow is increased to 5 mL/min from 1.1 mL/min on the analytical column, the separation efficiency remains consistent with the same gradient.

Purification of synthetic peptides

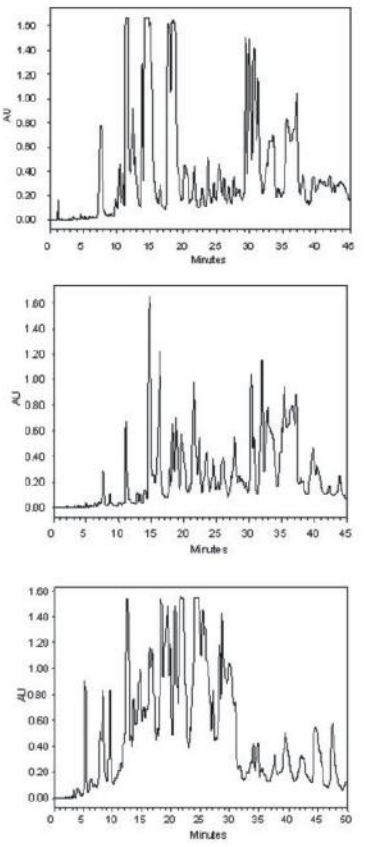
Figure 5. Sepax HP-C18 purification of synthetic peptide RVIVIY (Courtesy of M&S Instruments Inc.)



Column:	Sepax HP-C18
Mobile phase:	(A) 0.1% TFA in water, (B) 0.1% TFA in acetonitrile
Flow rate:	(I) 1.1 mL/min, (II) 5 mL/min
Injection volume:	(I) 1 μL, (II) 25 μL
Sample concentration:	1.0 mg/mL
Sample:	50 mg/mL RVIVIY in DMSO

Separation of plant root extract

One major application of Sepax spherical silica packing is to purify Chinese medicine, active pharmaceutical ingredients from plants. Below chromatograms show a high separation efficiency of plant root extracts on Sepax GP-C18 preparative column.



Column:	Sepax GP-C18, 21.2 mm×250 mm,10 μm
Mobile phase:	(A) 20% ACN/80% H_2O; (B) 100% ACN;
Gradient:	45%-100% B (35 min); 100% B (20 min)
Temperature:	23℃
Flow rate:	20 mL/min
Samples:	(a) 800 μL ACN with 333 mg Extract; (b) 800 μL ACN with 400 mg Extract; (c) 1400 μL ACN with 495 mg Extract

Ordering Information:

Phases	Particle size (μm)	Pore size (Å)	P/N
GP-C18	10 μm	60 Å	101180-1006
		120 Å	101180-1012
	15 μm	120 Å	101180-1512
	20 μm	120 Å	101180-2012
	30 μm	120 Å	101180-3012
	50 μm	60 Å	101180-5006
		120 Å	101180-5012
BR-C18	5 μm	120 Å	102180-0512
	10 μm	120 Å	102180-0512
HP-C18	10 μm	60 Å	103180-1006
		120 Å	103180-1012
	15 μm	120 Å	103180-1512
	20 μm	120 Å	103180-2012
Bio-C18	10 μm	200 Å	105180-1020
		300 Å	106180-1030
	15 μm	300 Å	106180-1530
	50 μm	300 Å	106180-5030
GP-C8	10 μm	60 Å	107080-1006
		120 Å	107080-1012
	15 μm	120 Å	107080-1512
	50 μm	120 Å	107080-5012
Bio-C8	10 μm	300 Å	108080-1030
	15 μm	300 Å	108080-1530
	50 μm	300 Å	108080-5030
GP-C4	10 μm	60 Å	109040-1006
		120 Å	109040-1012
	15 μm	120 Å	109040-1512
	50 μm	120 Å	109040-5012
Bio-C4	10 μm	300 Å	110040-1030
	15 μm	300 Å	110040-1530
	50 μm	300 Å	110040-5030

*For more information about available column dimensions, please visit our website or contact sales.

Phases	Particle size (μm)	Pore size (Å)	P/N
GP-Phenyl	10 μm	60 Å	111360-1006
		120 Å	111360-1012
	15 μm	120 Å	111360-1512
	50 μm	120 Å	111360-5012
HP-Cyano	10 μm	60 Å	113310-1006
		120 Å	113310-1012
	15 μm	120 Å	113310-1512
	50 μm	120 Å	113310-5012
HP-Amino	10 μm	60 Å	115300-1006
		120 Å	115300-1012
	15 μm	120 Å	115300-1512
	50 μm	120 Å	115300-5012
HP-SCX	10 μm	60 Å	120360-1006
		120 Å	120360-1012
	15 μm	120 Å	120360-1512
	50 μm	120 Å	120360-5012
HP-Silica	10 μm	60 Å	117000-1006
		100 Å	117000-1010
		120 Å	117000-1012
		200 Å	117000-1020
		300 Å	117000-1030
		500 Å	117000-1050
		1000 Å	117000-1095
	15 μm	60 Å	117000-1506
		120 Å	117000-1512
		300 Å	117000-1530
	20 μm	60 Å	117000-2006
		120 Å	117000-2012
	30 μm	60 Å	117000-3006
		120 Å	117000-3012
	50 μm	60 Å	117000-5006
		120 Å	117000-5012
	60 μm	60 Å	117000-6006
		120 Å	117000-6012

Irregular Packings

Description

Sepax manufactures irregular silica sorbents with the particle size selection of 20-40 and 40-60 μm, the surface area of 550 m^2/g, and the pore size of 60Å. The bonding chemistries are from regular C18, C8, C4, Phenyl, Cyano, Amino, Diol, and SCX and SAX to any custom-synthesis. The controlled manufacturing process guarantees high batch-to-batch reproducibility. Their high surface area and high mechanical strength enable those media to be ideal for solid phase extraction, flash chromatography, industrial scale separations and purification.

Characteristics

- Irregular silica with high purity
- Available in both reversed and normal phases
- High chemical stability for low leaching
- High surface area and high loading capacity
- High mechanical strength for multiple packing
- Wide range of selection of surface chemistry
- Available from grams to multi-kilogram

Analysis of metal content

Generik Silica metal Traces Analyzed by Inductively Coupled Plasma (ICP) Quantometer (ppm)

Al	Ba	Ca	Fe	Mg	Na	Ti	Zn
48.1	1.96	96.3	12.3	40.3	102	34.5	1.43

Specifications

Phases	Particle size (μm)	Pore size (Å)	Surface Area (m^2/g)	Carbon loading (%)	pH stability	Applications
Generik-C18	20-40 40-60	60 60	550 550	21.5 21.5	2-8.5	Trifunctional and fully end-capped
Generik-C8	20-40 40-60	60 60	550 550	14.0 14.0	2-8.5	Trifunctional and fully end-capped
Generik-C4	20-40 40-60	60 60	550 550	9.0 9.0	2-8.5	Trifunctional and fully end-capped
Generik-Phenyl	20-40 40-60	60 60	550 550	11.5 11.5	2-8.5	Trifunctional and fully end-capped
Generik-Cyano	20-40 40-60	60 60	550 550	7.5 7.5	2-8.5	Trifunctional and fully end-capped
Generik-Amino	20-40 40-60	60 60	550 550	8.0 8.0	2-8.5	Trifunctinoal and fully end-capped
Generik-Diol	20-40 40-60	60 60	550 550	8.0 8.0	2-8.5	Trifunctinoal and fully end-capped
Generik-SCX	20-40 40-60	60 60	550 550	11.0 11.0	2-8.5	Trifunctional
Generik-Silica	20-40 40-60	60 60	550 550	0.0	2-8.5	Unbonded Silica

Ordering Information:

Phases	Pore size (Å)	Particle size (μm)	P/N
Generik-C18	60	20-40 40-60	501180-2406 501180-4606
Generik-C8	60	20-40 40-60	507080-2406 507080-4606
Generik-C4	60	20-40 40-60	509040-2406 509040-4606
Generik-Phenyl	60	20-40 40-60	511360-2406 511360-4606
Generik-Cyano	60	20-40 40-60	513310-2406 513310-4606
Generik-Amino	60	20-40 40-60	515300-2406 515300-4606
Generik-Diol	60	20-40 40-60	516330-2406 516330-4606
Generik-SCX	60	20-40 40-60	520360-2406 520360-4606
Generik-Silica	60	20-40 40-60	517000-2406 517000-4606

Polymer Resins

Reverse Phase Resins

Description

Sepax manufactures poly(styrene/divinyl benzene) (PS/DVB) polymer resins with the particle size selection of 5, 10, 20, 30, 60 and 100 µm and the pore size selection of 100, 300, 500 and 1000 Å. The spherical PS/DVB particles are highly cross-linked for enhanced mechanical stability. The PS/DVB resins with high hydrophobicity are used as the reversed phase separation media. The controlled manufacturing process guarantees high batch-to-batch reproducibility. Their high surface area and high mechanical strength enable those media to be ideal for preparative separation and purification of insulin, peptides, nucleic acids, antibiotics, and pharmaceuticals.

Characteristics

- High chemical stability for low leaching
- Spherical particles with narrow particle size distribution
- High surface area and high loading capacity
- High retentativity and selectivity
- Wide pH applications (pH 1-14)
- Available from grams to multi-kilogram

Applications

- Ideal for insulin purification
- Purification of amino acids, peptides, proteins, nucleic acids, oligonucleotides, antibiotics, and antibodies
- Solid phase extraction
- Flash chromatography
- Industrial scale purification

Properties

Those properties are typical but do not constitute specifications

PolyRP 10/100	
Matrix	Polystyrene/divinylbenzene
Bead form	Rigid, spherical, porous
Average particle size	10 µm
Average pore size	100 Å
pH stability	1-14
Maximum pressure	200 bar
Operating temperature	4-40℃
Chemical resistance	Insoluble in dilute solutions of acids, bases, or common solvents, such as IPA, ACN, MeOH and EtOH

PolyRP 10/300	
Matrix	Polystyrene/divinylbenzene
Bead form	Rigid, spherical, porous
Average particle size	10 µm
Average pore size	300 Å
pH stability	1-14
Maximum pressure	150 bar
Operating temperature	4-40℃
Chemical resistance	Insoluble in dilute solutions of acids, bases, or common solvents, such as IPA, ACN, MeOH and EtOH

PolyRP 10/500	
Matrix	Polystyrene/divinylbenzene
Bead form	Rigid, spherical, porous
Average particle size	10 µm
Average pore size	500 Å
pH stability	1-14
Maximum pressure	100 bar
Operating temperature	4-40℃
Chemical resistance	Insoluble in dilute solutions of acids, bases, or common solvents, such as IPA, ACN, MeOH and EtOH

PolyRP 10/1000	
Matrix	Polystyrene/divinylbenzene
Bead form	Rigid, spherical, porous
Average particle size	10 µm
Average pore size	1000 Å
pH stability	1-14
Maximum pressure	100 bar
Operating temperature	4-40℃
Chemical resistance	Insoluble in dilute solutions of acids, bases, or common solvents, such as IPA, ACN, MeOH and EtOH

PolyRP 20/100	
Matrix	Polystyrene/divinylbenzene
Bead form	Rigid, spherical, porous
Average particle size	20 µm
Average pore size	1000 Å
pH stability	1-14
Maximum pressure	200 bar
Operating temperature	4-40℃
Chemical resistance	Insoluble in dilute solutions of acids, bases, or common solvents, such as IPA, ACN, MeOH and EtOH

PolyRP 20/300	
Matrix	Polystyrene/divinylbenzene
Bead form	Rigid, spherical, porous
Average particle size	20 µm
Average pore size	300 Å
pH stability	1-14
Maximum pressure	150 bar
Operating temperature	4-40°C
Chemical resistance	Insoluble in dilute solutions of acids, bases, or common solvents, such as IPA, ACN, MeOH and EtOH

PolyRP 60/100	
Matrix	Polystyrene/divinylbenzene
Bead form	Rigid, spherical, porous
Average particle size	60 µm
Average pore size	100 Å
pH stability	1-14
Maximum pressure	150 bar
Operating temperature	4-40°C
Chemical resistance	Insoluble in dilute solutions of acids, bases, or common solvents, such as IPA, ACN, MeOH and EtOH

PolyRP 30/100	
Matrix	Polystyrene/divinylbenzene
Bead form	Rigid, spherical, porous
Average particle size	30 µm
Average pore size	100 Å
pH stability	1-14
Maximum pressure	150 bar
Operating temperature	4-40°C
Chemical resistance	Insoluble in dilute solutions of acids, bases, or common solvents, such as IPA, ACN, MeOH and EtOH

PolyRP 60/300	
Matrix	Polystyrene/divinylbenzene
Bead form	Rigid, spherical, porous
Average particle size	60 µm
Average pore size	300 Å
pH stability	1-14
Maximum pressure	100 bar
Operating temperature	4-40°C
Chemical resistance	Insoluble in dilute solutions of acids, bases, or common solvents, such as IPA, ACN, MeOH and EtOH

PolyRP 30/300	
Matrix	Polystyrene/divinylbenzene
Bead form	Rigid, spherical, porous
Average particle size	30 µm
Average pore size	300 Å
pH stability	1-14
Maximum pressure	100 bar
Operating temperature	4-40°C
Chemical resistance	Insoluble in dilute solutions of acids, bases, or common solvents, such as IPA, ACN, MeOH and EtOH

Ordering Information:

Phase	Particle Size	Pore Size	P/N	Package Available*
PolyRP 10/100	10 µm	100 Å	261100-0000	0.5, 1, 5, 10, 25 L
PolyRP 10/300	10 µm	300 Å	261300-0000	0.5, 1, 5, 10, 25 L
PolyRP 10/500	10 µm	500 Å	261500-0000	0.5, 1, 5, 10, 25 L
PolyRP 10/1000	10 µm	1000 Å	261950-0000	0.5, 1, 5, 10, 25 L
PolyRP 20/100	20 µm	100 Å	262100-0000	0.5, 1, 5, 10, 25 L
PolyRP 20/300	20 µm	300 Å	262300-0000	0.5, 1, 5, 10, 25 L
PolyRP 30/100	30 µm	100 Å	263100-0000	0.5, 1, 5, 10, 25 L
PolyRP 30/300	30 µm	300 Å	263300-0000	0.5, 1, 5, 10, 25 L
PolyRP 60/100	60 µm	100 Å	266100-0000	0.5, 1, 5, 10, 25 L
PolyRP 60/300	60 µm	300 Å	266300-0000	0.5, 1, 5, 10, 25 L

*The resins are stored and shipped in 20% ethanol in water. Dry resin is available upon request.

Ion-exchange Resins

Description

Generik MC-SP, CM, QAE and DEAE ion-exchange media are synthesized using porous polyacrylate particle as the support. Generik MC-SP is a strong cation exchanger with sulfonate functional groups. Generik MC-CM is a weak cation exchanger with carboxylate functional groups. Generik MC-QAE is a strong anion exchanger with quaternary ammonium functional groups. Generik MC-DEAE is a weak anion exchanger with tertiary amine functional group. The controlled manufacturing process guarantees high batch-to-batch reproducibility. Their high capacity and high mechanical strength enable those media to be ideal for preparative separation and purification of proteins, peptides, nucleic acids, antibodies, and other biopharmaceuticals.

Characteristics

- High chemical stability for low leaching
- Spherical particles with narrow particle size distribution
- High accessible surface area and high loading capacity
- High retentativity and selectivity
- Wide pH applications (pH=2-13)
- High lot to lot consistency
- Available from grams to multi-Kilogram

Applications

- Purification of proteins, peptides, proteins, nucleic acids, oligonucleotides and antibodies
- Suitable for heparin purification
- Solid phase extraction
- Flash chromatography
- Process purification

Properties

These properties are typical but do not constitute specifications

Product		Generik MC-Q	Generik MC-SP	Generik MC-DEAE	Generik MC-CM
Ion-exchanger type		Strong anion	Strong cation	Weak anion	Weak cation
Functional group		$-N^{+}(CH_3)_3$	$-SO_3^{2-}$	$-HN^{+}(C_2H_5)_2$	$-CH_2COO^{-}$
Ionic capacity (meq/mL)		0.32-0.37	0.18-0.22	0.15-0.21	0.14-0.19
Average particle size (μm)		30, 60	30, 60	30, 60	30, 60
Average pore size (Å)		800	800	800	800
Storage solvent		20% ethanol	20% ethanol	20% ethanol	20% ethanol
DBC*		45 mg/mL	42 mg/mL	32 mg/mL	33 mg/mL
Chemical stability		Commonly used aqueous buffers, such as phosphate, Tris, acetate.			
		Cleaning solutions: 0.5 M HCl, 0.5 M NaOH			
pH stability		2～13	2～13	2～13	2～13
Volume change	**pH 2-13**	<1%	<1%	<1%	<1%
	0.01-1.0M NaCl	<1%	<1%	<1%	<1%
Regeneration salt		1-2 M NaCl	1-2 M NaCl	1-2 M NaCl	1-2 M NaCl

*DBC (Dynamic Binding Capacity) measurement method: for Generik MC-Q and Generik MC-DEAE, 10.0 mg/mL of BSA in 50 mM Tris buffer, pH 8.7, column size 10x150 mm, linear flow rate 212 cm/h, 10% breakthrough. For Generik MC-SP and Generik MC-CM, 10.0 mg/mL of lysozyme in 50 mM phosphate buffer, pH 6.0, column size 10x150 mm, linear flow rate 230 cm/h, 10% breakthrough.

Ordering Information:

Phase	Particle Size	Pore Size	P/N	Package Available*
Generik MC30-SP	30 µm	800 Å	273030-0000	0.5, 1, 5, 10, 25 L
Generik MC30-CM	30 µm	800 Å	274030-0000	0.5, 1, 5, 10, 25 L
Generik MC30-Q	30 µm	800 Å	275030-0000	0.5, 1, 5, 10, 25 L
Generik MC30-DEAE	30 µm	800 Å	276030-0000	0.5, 1, 5, 10, 25 L
Generik MC60-SP	60 µm	800 Å	273060-0000	0.5, 1, 5, 10, 25 L
Generik MC60-CM	60 µm	800 Å	274060-0000	0.5, 1, 5, 10, 25 L
Generik MC60-Q	60 µm	800 Å	275060-0000	0.5, 1, 5, 10, 25 L
Generik MC60-DEAE	60 µm	800 Å	276060-0000	0.5, 1, 5, 10, 25 L

*The resins are stored and shipped in 20% ethanol in water. Dry resin is available upon request.

Solid Phase Extraction

Generik H2P

Generik DVB

Generik DBX

Generik BCX

Generik H2P

Description

Generik H2P-40 is made of polymer of divinyl benzene (DVB) and a proprietary monomer which is hydrophilic. As a polymer of both hydrophobicity and hydrophilicity, Generik H2P is a highly cross-linked spherical particle with the particle size of 40μm. The controlled manufacturing process guarantees high batch-to-batch reproducibility. With high analyte capacity and high mechanical strength, Generik H2P is ideal for extraction of acidic, neutral and basic compounds. In the practical applications, Generik H2P is used as an alternative to Waters Oasis HLB.

Characteristics

- Mixed mode of hydrophilic interaction and reversed phase for separation and extraction
- Highly cross-linked polymer
- High and reproducible recoveries
- Clean extractions
- Reduction in sorbent mass
- Faster flow rates
- pH stable (1 to 14)
- Reduction in solvent use
- High sorbent capacity

Properties

These properties are typical but do not constitute specifications

Generik H2P-40	
Matrix	Polymer of DVB and a polar component
Bead form	Rigid, spherical, porous
Functional group	Polar and non-polar
Average particle size	40μm
pH stability	1-14
Maximum pressure	50 bar
Operating temperature	4-40℃
Chemical resistance	Insoluble in dilute solutions of acids, bases, or common solvents, such as IPA, ACN, MeOH and EtOH

Applications

- Copolymer allows for extraction of acids, neutrals and bases.
- Suitable samples include food, biological, soil, water and others.
- Used as an alternative to Waters Oasis HLB.

Ordering Information:

Product	SPE Type	P/N#	Units/Package
Generik H2P-40	30mg/1mL	502630-0103	100
	100mg/1mL	502630-0110	100
	30mg/3mL	502630-0303	50
	60mg/3mL	502630-0306	50
	100mg/3mL	502630-0310	50
	150mg/3mL	502630-0315	50
	200mg/3mL	502630-0302	50
	50mg/6mL	502630-0605	50
	100mg/6mL	502630-0610	50
	150mg/6mL	502630-0615	50
	200mg/6mL	502630-0620	50
	500mg/6mL	502630-0650	50

Generik DVB

Description

Generik DVB-60 is made of poly(styrene/divinyl benzene) (PS/DVB) beads with the particle size selection of 60 μm and the pore size selection of 300 Å. The spherical PS/DVB particles are highly cross-linked for enhanced mechanical stability. The PS/DVB resins with high hydrophobicity are used as the reversed phase sorbent. The controlled manufacturing process guarantees high batch-to-batch reproducibility. Their high surface area and high mechanical strength enable those media to be ideal for extraction of acids, neutrals, bases and pharmaceuticals.

Characteristics

- Highly cross-linked styrene/divinylbenzene polymer
- High and reproducible recoveries
- Clean extractions
- Reduction in sorbent mass
- Faster flow rates
- pH stable (1 to 14)
- Reduction in solvent use
- High sorbent capacity

Properties

These properties are typical but do not constitute specifications

Generik DVB-60	
Matrix	Polystyrene/divinylbenzene
Bead form	Rigid, spherical, porous
Average particle size	60 μm
Average pore size	300 Å
pH stability	1-14
Maximum pressure	100 bar
Operating temperature	4-40℃
Chemical resistance	Insoluble in dilute solutions of acids, bases, or common solvents, such as IPA, ACN, MeOH and EtOH

Applications

- Copolymer allows for extraction of acids, neutrals and bases.
- Suitable for pesticides and pharmaceuticals.
- Suitable samples include soil, food, water and others.

Ordering Information:

Product	SPE Type	P/N#	Units/Package
Generik DVB-60	30mg/1mL	502130-0103	100
	100mg/1mL	502130-0110	100
	30mg/3mL	502130-0303	50
	60mg/3mL	502130-0306	50
	100mg/3mL	502130-0310	50
	150mg/3mL	502130-0315	50
	200mg/3mL	502130-0302	50
	50mg/6mL	502130-0605	50
	100mg/6mL	502130-0610	50
	150mg/6mL	502130-0615	50
	200mg/6mL	502130-0620	50
	500mg/6mL	502130-0650	50

Generik DBX

Description

Generik DBX-60 is made of poly(styrene/divinyl benzene) (PS/DVB) beads functionalized with both a strong cation exchanger (-SO_3H) and a hydrophobic component, such as octadecyl chain (C18). The spherical PS/DVB particles are highly cross-linked with the particle size selection of 60 µm. The controlled manufacturing process guarantees high batch-to-batch reproducibility. With high analyte capacity and high mechanical strength, Generik DBX is ideal for extraction of acidic, neutral and basic compounds.

Characteristics

- Mixed mode of stong cation and reversed phase for separation and extraction Highly cross-linked styrene/divinylbenzene polymer
- High and reproducible recoveries
- Clean extractions
- Reduction in sorbent mass
- Faster flow rates
- pH stable (1 to 14)
- Reduction in solvent use
- High sorbent capacity

Properties

These properties are typical but do not constitute specifications

Generik DBX-60	
Matrix	Polystyrene/divinylbenzene
Bead form	Rigid, spherical, porous
Functional group	-SO_3H and C18
Average particle size	60 µm
pH stability	1-14
Maximum pressure	100 bar
Operating temperature	4-40℃
Chemical resistance	Insoluble in dilute solutions of acids, bases, or common solvents, such as IPA, ACN, MeOH and EtOH

Applications

- Copolymer allows for extraction of acids, neutrals and bases.
- Suitable samples include food, biological, soil, water and others.

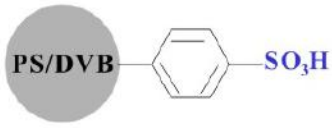
Ordering Information:

Product	SPE Type	P/N#	Units/Package
Generik DBX-60	30mg/1mL	502330-0103	100
	100mg/1mL	502330-0110	100
	30mg/3mL	502330-0303	50
	60mg/3mL	502330-0306	50
	100mg/3mL	502330-0310	50
	150mg/3mL	502330-0315	50
	200mg/3mL	502330-0302	50
	50mg/6mL	502330-0605	50
	100mg/6mL	502330-0610	50
	150mg/6mL	502330-0615	50
	200mg/6mL	502330-0620	50
	500mg/6mL	502330-0650	50

Generik BCX

Description

Generik BCX-60 is made of sufonated poly(styrene/divinyl benzene) (PS/DVB) beads with the particle size selection of 60μ m and the pore size selection of 300 Å . The spherical PS/DVB particles are highly cross-linked for enhanced mechanical stability. The controlled manufacturing process guarantees high batch-to-batch reproducibility. The Generik BCX sorbent is a mixed mode of strong cation and hydrophobicity which is ideal for extraction of neutral and basic compounds.



Characteristics

- Highly cross-linked styrene/divinylbenzene polymer modified with sulfonic acid group
- Mixed mode of stong cation and reversed phase for separation and extraction High and reproducible recoveries
- Clean extractions
- Reduction in sorbent mass
- Faster flow rates
- pH stable (1 to 14)
- Reduction in solvent use
- High sorbent capacity

Properties

These properties are typical but do not constitute specifications

Generik BCX-60	
Matrix	Polystyrene/divinylbenzene
Functional group	Sulfonic acid (-SO_3H)
Bead form	Rigid, spherical, porous
Average particle size	60 μm
Average pore size	300 Å
pH stability	1-14
Maximum pressure	100 bar
Operating temperature	4-40℃
Chemical resistance	Insoluble in dilute solutions of acids, bases, or common solvents, such as IPA, ACN, MeOH and EtOH

Applications

- Copolymer allows for extraction of neutrals and bases.
- Suitable for biologicals and pharmaceuticals.
- Suitable samples include biological, soil, food, water and others.

Ordering Information:

Product	SPE Type	P/N#	Units/Package
Generik BCX-60	30mg/1mL	502230-0103	100
	100mg/1mL	502230-0110	100
	30mg/3mL	502230-0303	50
	60mg/3mL	502230-0306	50
	100mg/3mL	502230-0310	50
	150mg/3mL	502230-0315	50
	200mg/3mL	502230-0302	50
	50mg/6mL	502230-0605	50
	100mg/6mL	502230-0610	50
	150mg/6mL	502230-0615	50
	200mg/6mL	502230-0620	50
	500mg/6mL	502230-0650	50

USP Packings Listing

L	PACKING	BRAND NAME	MANUFACTURER
L1	Octadecyl silane chemically bonded to porous silica or ceramic micro-particles, 1.5 to 10 µm in diameter, or a monolithic rod.	Bio-C18 BR-C18 GP-C18 HP-C18	Sepax Technologies. Inc. Sepax Technologies, Inc. Sepax Technologies, Inc. Sepax Technologies, Inc.
L2	Octadecyl silane chemically bonded to silica gel of a controlled surface porosity that has been bonded to a solid spherical core, 30 to 50 µm in diameter.	Generik C18	Sepax Technologies, Inc.
L3	Porous silica particles, 1.5 to 10 µm in diameter, or a monolithic silica rod.	HP-Silica	Sepax Technologies, Inc.
L4	Silica gel of controlled surface porosity bonded to a solid spherical core, 30 to 50 µm in diameter.	Generik Silica	Sepax Technologies, Inc.
L5	Alumina of controlled surface porosity bonded to a solid spherical core, 30 to 50 µm in diameter.	Generik Amino	Sepax Technologies, Inc.
L6	Strong cation-exchange packing-sulfonated fluorocarbon polymer coated on a solid spherical core, 30 to 50 µm in diameter.	Generik SCX	Sepax Technologies, Inc.
L7	Octylsilane chemically bonded to totally porous silica particles, 1.5 to 10 µm in diameter, or a monolithic silica rod.	Bio-C8 GP-C8	Sepax Technologies, Inc. Sepax Technologies, Inc.
L8	An essentially monomolecular layer of aminopropylsilane chemically bonded to totally porous silica gel support, 3 to 10 µm in diameter.	HP-Amino	Sepax Technologies, Inc.
L9	Irregular or spherical, totally porous silica gel having a chemically bonded, strongly acidic cation-exchange coating, 3 to 10 µm in diameter.	HP-SCX	Sepax Technologies, Inc.
L10	Nitrile groups chemically bonded to porous silica particles, 3 to 10 µm in diameter.	HP-Cyano	Sepax Technologies, Inc.

L	PACKING	BRAND NAME	MANUFACTURER
L11	Phenyl groups chemically bonded to porous silica particles, 1.5 to 10 µm in diameter.	GP-Phenyl	Sepax Technologies, Inc.
L12	A strong anion-exchange packing made by chemically bonding a quartenary amine to a solid silica spherical core, 30 to 50 µm in diameter.	Generik SAX	Sepax Technologies, Inc.
L13	Trimethylsilane chemically bonded to porous silica particles, 3 to 10 µm in diameter.	GP-C1	Sepax Technologies, Inc.
L14	Silica gel having a chemically bonded, strongly basic quaternary ammonium anion-exchange coating, 5 to 10 µm in diameter.	HP-SAX	Sepax Technologies, Inc.
L17	Strong cation-exchange resin consisting of sulfonated cross-linked styrene-divinylbenzene copolymer in the hydrogen form, 7 to 11 µm in diameter.	Carbomix H-NP	Sepax Technologies, Inc.
L19	Strong cation-exchange resin consisting of sulfonated cross-linked styrene-divinylbenzene copolymer in the calcium form, about 9 µm in diameter.	Carbomix Ca-NP	Sepax Technologies, Inc.
L20	Dihydroxypropane groups chemically bonded to porous silica particles, 3 to 10 µm in diameter.	HP-Diol	Sepax Technologies, Inc.
L21	A rigid, spherical styrene-divinylbenzene copolymer, 3 to 10 µm in diameter.	PolyRP-100 PolyRP-300 PolyRP-NP5 PolyRP-NP10	Sepax Technologies, Inc. Sepax Technologies, Inc. Sepax Technologies, Inc. Sepax Technologies, Inc.
L22	A cation-exchange resin made of porous polystyrene gel with sulfonic acid groups, about 10 µm in size.	Generik SCX Proteomix SCX-POR	Sepax Technologies, Inc. Sepax Technologies, Inc.
L26	Butyl silane chemically bonded to totally porous silica particles, 3 to 10 µm in diameter.	Bio-C4 GP-C4	Sepax Technologies, Inc. Sepax Technologies, Inc.

L	PACKING	BRAND NAME	MANUFACTURER
L27	Porous silica particles, 30 to 50 µm in diameter.	Generik Silica	Sepax Technologies, Inc.
L28	A multifuncional support, which consists of a high purity, 100 Å , spherical silica substrate that has been bonded with anionic exchanger, amine funcionatily in addition to a conventional reversed phase C8 funcionality.	Generik C8/Amino	Sepax Technologies, Inc.
L30	Ethyl silane chemically bonded to totally porous silica particles, 3 to 10 µm in diameter.	GP-C2	Sepax Technologies, Inc.
L33	Packing having the capacity to separate dextrans by molecular size over a range of 4,000 to 500,000 Da. It is spherical, silica-based, and processed to provide pH stability.	Nanofilm SEC-150 Nanofilm SEC-250 Nanofilm SEC-500 SRT SEC-100 SRT SEC-150 SRT SEC-300 SRT SEC-500 SRT SEC-1000 SRT SEC-2000 Zenix SEC-150 Zenix SEC-150 Zenix SEC-300	Sepax Technologies, Inc. Sepax Technologies, Inc. Sepax Technologies, Inc. Sepax Technologies, Inc. Sepax Technologies, Inc. Sepax Technologies, Inc. Sepax Technologies, Inc. Sepax Technologies, Inc. Sepax Technologies, Inc. Sepax Technologies, Inc. Sepax Technologies, Inc. Sepax Technologies, Inc.
L34	Strong cation-exchange resin consisting of sulfonated cross-linked styrene-divinylbenzene copolymer in the lead form, about 9 µm in diameter.	Carbomix Pb-NP	Sepax Technologies, Inc.
L44	A multifuncional support, which consists of a high purity, 60 Å , spherical silica substrate that has been bonded with a cationic exchanger, sulfonic acid funcionality in addition to a convention reversed phase C8 funcionality .	Generik C8/SCX	Sepax Technologies, Inc.
L58	Strong cation-exchange resin consisting of sulfonated cross-linked styrene-divinylbenzene copolymer in the sodium form, about 6 to 30 µm diameter.	Carbomix Na-NP	Sepax Technologies, Inc.
L59	Packing having the capacity to separate proteins by molecular weight over the range of 5 to 7000 kDa. It is spherical (5 - 10 µm), silica-based, and processed to provide hydrophilic characteristics and pH stability.	Nanofilm SEC-150 Nanofilm SEC-250 Nanofilm SEC-500 SRT SEC-100 SRT SEC-150 SRT SEC-300 SRT SEC-500 SRT SEC-1000	Sepax Technologies, Inc. Sepax Technologies, Inc. Sepax Technologies, Inc. Sepax Technologies, Inc. Sepax Technologies, Inc. Sepax Technologies, Inc. Sepax Technologies, Inc. Sepax Technologies, Inc.

Better Surface Chemistry For Better Separation

Sepax Technologies, Inc.

Delaware Technology Park
5-100 Innovation Way,
Newark, Delaware 19711
Tel: 302-3661101
Fax: 302-3661151
www.sepax-tech.com

Published in 2011