



synergiTM

**FULL RANGE SELECTIVITY FOR
REVERSED PHASE SEPARATION**

MAX-RP
FUSION-RP
HYDRO-RP
POLAR-RP



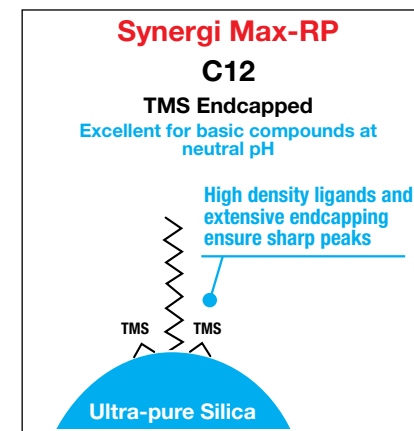
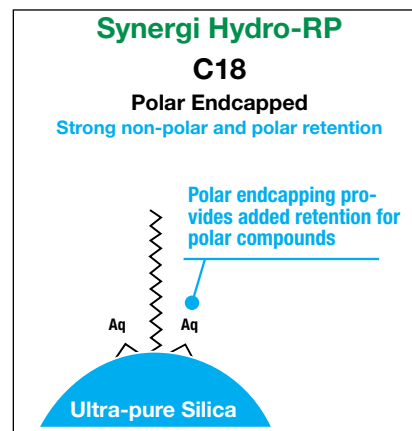
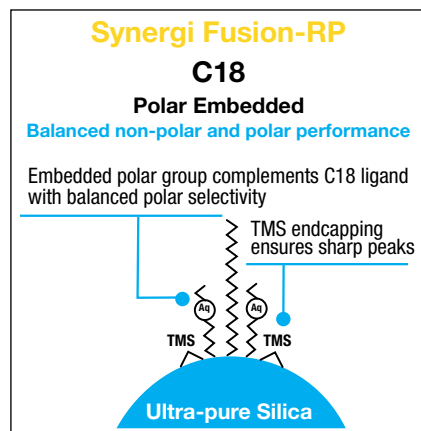
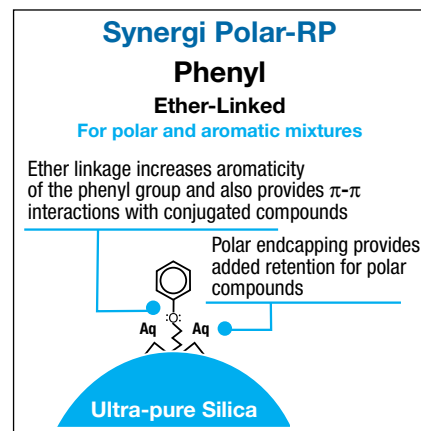
phenomenex[®]
...breaking with traditionSM

Full Range Selectivity for Reversed Phase Separation

Many different mechanisms of retention are utilized within reversed phase chromatography in order to retain and separate target analytes. Whether your compounds are hydrophobic or polar, Synergi columns provide you with a full range of selectivity, ensuring separation of the most challenging and complex mixtures.

LC Method Development

Column	Phase	Mechanism of Retention
Max-RP	C12	Strong Hydrophobic Interactions
Hydro-RP	C18, Polar Endcapped	Strong Hydrophobic Interactions Slight Polar Interactions
Fusion-RP	C18, Polar Embedded	Balanced Hydrophobic Interactions Moderate Polar Interactions
Polar-RP	Phenyl, Ether-linked	Weak Hydrophobic Interactions Strong Polar Interactions Strong Aromatic Interactions



Material Characteristics

Packing Material	Particle Shape/Size (µm)	Pore Size (Å)	Pore Volume (mL/g)	Surface Area (m ² /g)	Carbon Load %	Calculated Bonded Phase Coverage (µmole/m ²)	End Capping
Synergi Max-RP	Spher. 2.5	100	—	400	17	—	TMS
Synergi Hydro-RP	Spher. 2.5	100	—	400	19	—	Hydrophilic
Synergi Polar-RP	Spher. 2.5	100	—	400	11	—	Hydrophilic
Synergi Fusion-RP	Spher. 2.5	100	—	400	12	—	TMS
Synergi Max-RP	Spher. 4, 10	80	1.05	475	17	3.21	TMS
Synergi Hydro-RP	Spher. 4, 10	80	1.05	475	19	2.45	Hydrophilic
Synergi Polar-RP	Spher. 4, 10	80	1.05	475	11	3.15	Hydrophilic
Synergi Fusion-RP	Spher. 4, 10	80	1.05	475	12	N/A	TMS



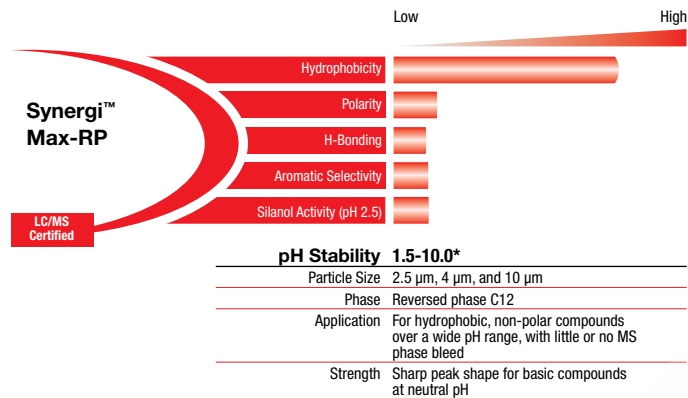
COLUMN SELECTION

COLUMN CHARACTERISTICS FOR SIMPLIFIED SELECTION

SYNERGI™ MAX-RP

C12 with TMS Endcapping

Maximum Reversed Phase Performance for the Synergi Line

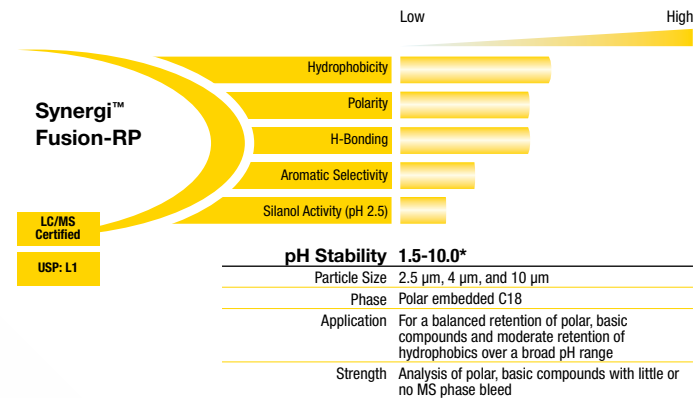


Each Synergi Phase has a unique “fingerprint” composed of multiple characteristics. By understanding the different selectivities of each phase, you can easily identify the best column for your needs.

SYNERGI™ FUSION-RP

Polar Embedded C18

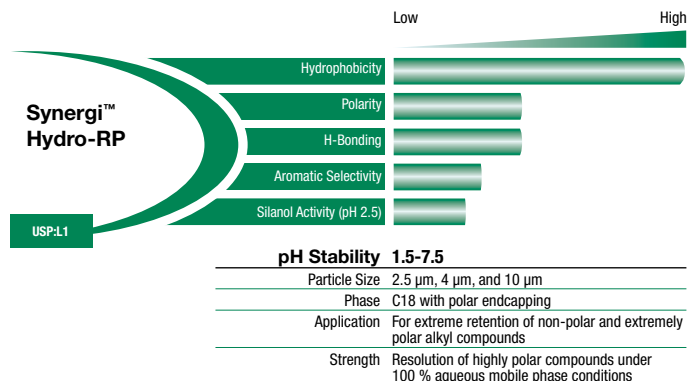
Improved Polar Selectivity with Reduced Run Times



SYNERGI™ HYDRO-RP

Polar Endcapped C18

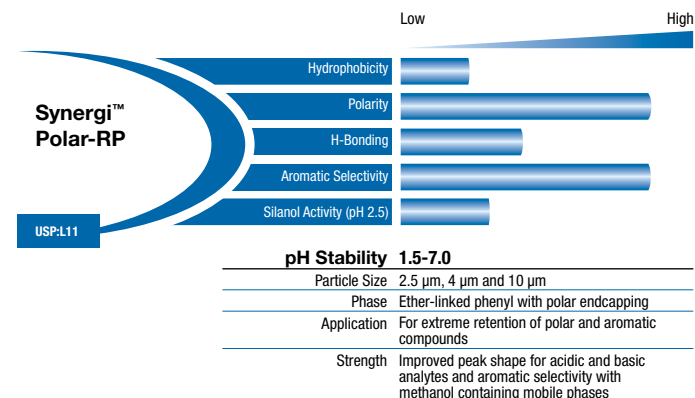
Hydro-phobic/pilic Reversed Phase Retention



SYNERGI™ POLAR-RP

Ether-Linked Phenyl

Polar and Aromatic Reversed Phase Selectivity

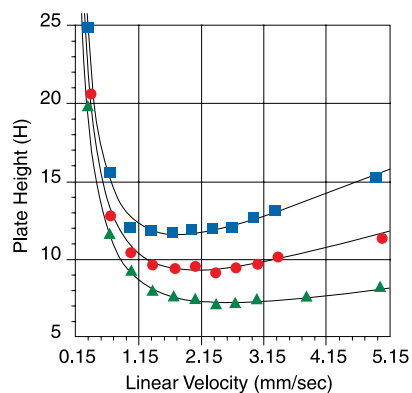


*pH stability for isocratic conditions. pH range is 1.5-9 for gradient conditions.

4 μm SILICA - HIGH EFFICIENCY WITH LOW BACKPRESSURE

Synergi utilizes a 4 μm 80 Å silica to provide efficiencies closer to a 3 μm silica, while providing backpressures closer to a 5 μm silica. Ultra-high purity silica (99.99 % metal free) ensures minimal surface metal sites available for chelation and reduces silanol acidity, even under neutral mobile phase conditions.

HIGH EFFICIENCY



Conditions for all columns:

Columns: Synergi 4 μm Max-RP
Luna® 5 μm C18
Luna® 3 μm C18

Dimensions: 50 x 4.6 mm

Mobile Phase: Water / Acetonitrile (35:65)

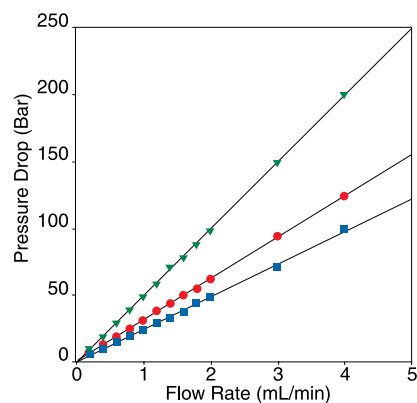
Detection: UV @ 254 nm

Injection: 1 μL

Temperature: 30 °C

Sample: Naphthalene (1 μg)

LOW BACKPRESSURES



Conditions for all columns:

Columns: Synergi 4 μm Max-RP
Luna® 5 μm C18
Luna® 3 μm C18

Dimensions: 50 x 4.6 mm

Mobile Phase: Water / Acetonitrile (35:65)

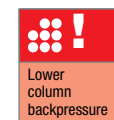
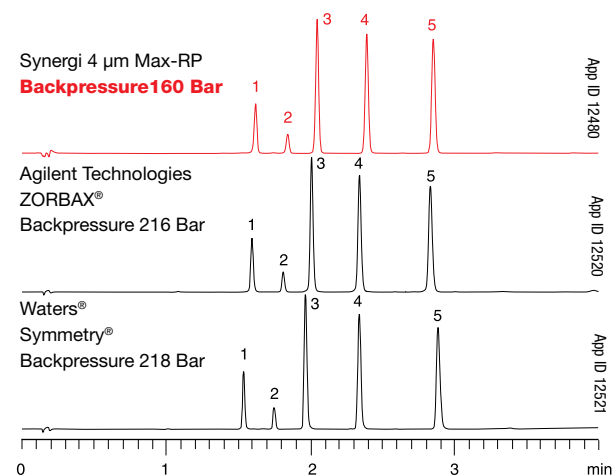
Detection: UV @ 254 nm

Injection: 1 μL

Temperature: 30 °C

Sample: Naphthalene (1 μg)

LOWER COLUMN BACKPRESSURE COMPARED TO 3.5 μm COMPETITORS



Conditions for all columns:

Columns: Synergi 4 μm Max-RP
AGILENT Technologies 3.5 μm ZORBAX SB-C18
Waters Symmetry 3.5 μm C18

Dimensions: 50 x 4.6 mm

Mobile Phase: A: Water with 0.1 % Formic acid

B: Acetonitrile with 0.1 % Formic acid

Gradient: A/B (95:5) to A/B (5:95) in 4 minutes

Flow Rate: 4 mL/min

Detection: UV @ 254 nm

Injection: 2.5 μL

Temperature: 30 °C

Sample: 1. Dexamethasone (2.5 μg)
2. Hydrocortisone (2.5 μg)
3. 11- α -Hydroxyprogesterone (2.5 μg)
4. 17- α -Hydroxyprogesterone (2.5 μg)
5. Progesterone (2.5 μg)

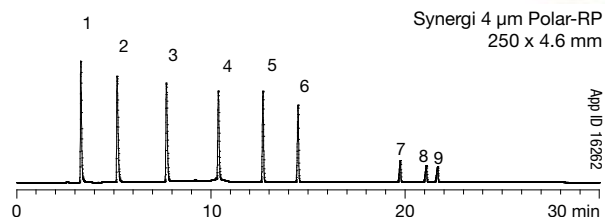
Comparative separations may not be representative of all applications.

µm AND 2.5 µm SILICA

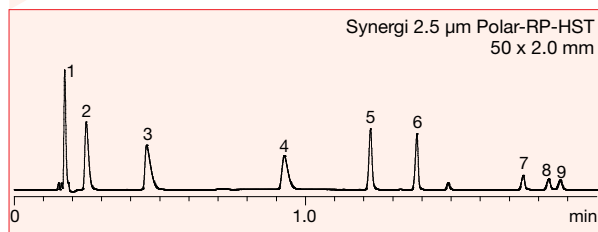
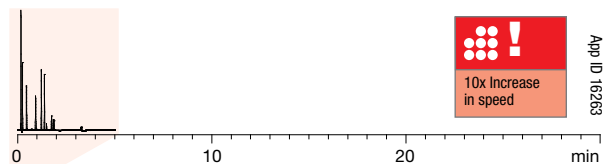
SYNERGI 2.5 µm HST HIGH SPEED TECHNOLOGY

Synergi 2.5 µm HST (High Speed Technology) columns deliver the same, high-performance chromatographic selectivity as the corresponding Synergi 4 µm columns, but with greater advantages when it comes to faster analysis times!

The Synergi 2.5 µm media, combined with optimized shorter dimensions, provides faster separations independent of system pressure capabilities. Synergi 2.5 µm HST columns can be used on your current standard HPLC system and on newer, high-pressure systems to deliver faster chromatographic separations.



Column: Synergi 4 µm Polar-RP
Dimensions: 250 x 4.6 mm
Part No.: OOG-4336-E0
Mobile Phase: A: Water
B: Acetonitrile
Gradient: 10 % B hold for 1 min, to 95 % B in 25 min, hold for 10 min, then to 10 % B in 0.1 min
Flow Rate: 1.5 mL/min
Detection: UV @ 270 nm; 9.9 min equilibration
Injection: 5 µL
Temperature: 60 °C



Column: Synergi 2.5 µm Polar-RP-HST
Dimensions: 50 x 2.0 mm
Part No.: OOB-4371-B0
Mobile Phase: A: Water
B: Acetonitrile
Gradient: 10 % B hold for 0.5 min, to 95 % B in 1.5 min, hold for 1 min, then to 10 % B in 0.1 min (or 1 sec.)
Flow Rate: 1.2 mL/min
Detection: UV @ 270 nm; 1.9 min equilibration
Injection: 1 µL
Temperature: 60 °C
Sample: 20 mg/mL in Acetonitrile
1. Acetone
2. 2-Butanone
3. 2-Pentanone
4. 2-Hexanone
5. 2-Heptanone
6. 2-Octanone
7. 2-Decanone
8. 2-Tridecanone
9. 2-Hexadecanone

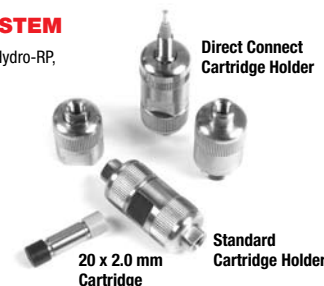
Comparative separations may not be representative of all applications.

MercuryMS™ EXCELLENT EFFICIENCY FOR HIGH-THROUGHPUT

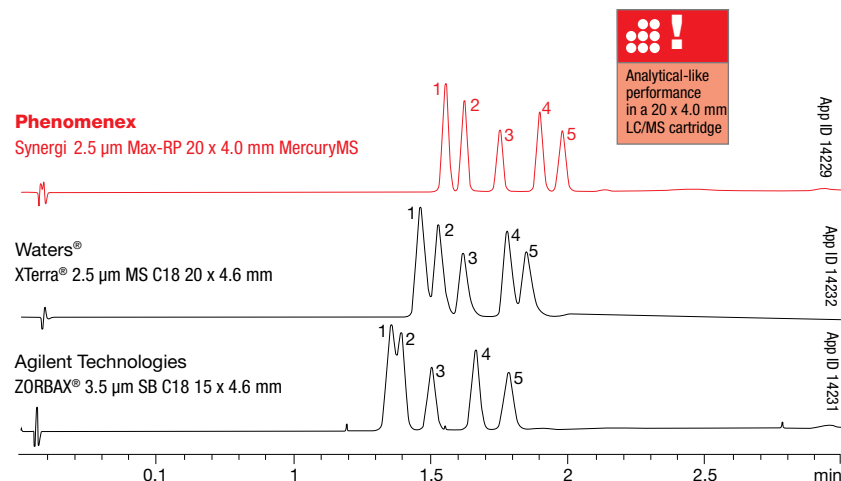
MercuryMS cartridges are engineered to provide superior performance to meet the demands of today's high-throughput environment. Synergi 2.5 µm silica provides efficiencies required when shortening run times. Utilizing the unique phase characteristics of Synergi Fusion-RP, Max-RP, Hydro-RP, and Polar-RP provides ultimate compound selectivity with up to 60 % reduction in analysis time. Synergi 2.5 µm materials are slurry packed into the MercuryMS cartridges, providing resolution & peak shapes equivalent to what was once only found in analytical columns.

MercuryMS CARTRIDGE SYSTEM

Packed with 2.5 µm Synergi Max-RP, Synergi Hydro-RP, Synergi Fusion-RP, and Synergi Polar-RP



PERFORMANCE COMPARISON OF LC/MS CARTRIDGES



Conditions for all columns:

Cartridges: Synergi 2.5 µm Max-RP
Waters XTerra 2.5 µm C18 MS
Agilent Technologies 3.5 µm ZORBAX SB-C18
Dimensions: 20 x 4.0 mm MercuryMS™ Cartridge (Synergi Max-RP)
20 x 4.6 mm (XTerra)
15 x 4.6 mm (ZORBAX)

Mobile Phase: A: Water with 0.1 % Formic acid
B: Acetonitrile with 0.1 % Formic acid

Gradient: A/B (85:15) to A/B (15:85) in 5 minutes

Flow Rate: 3 mL/min
Detection: UV @ 210 nm (XTerra & ZORBAX)
UV @ 254 nm (MercuryMS)

Temperature: 22 °C

Sample: 1. Desmethyldiazepam
2. Oxazepam
3. Lorazepam
4. Temazepam
5. Diazepam (Valium)



MAX-RP
FUSION-RP
HYDRO-RP
POLAR-RP

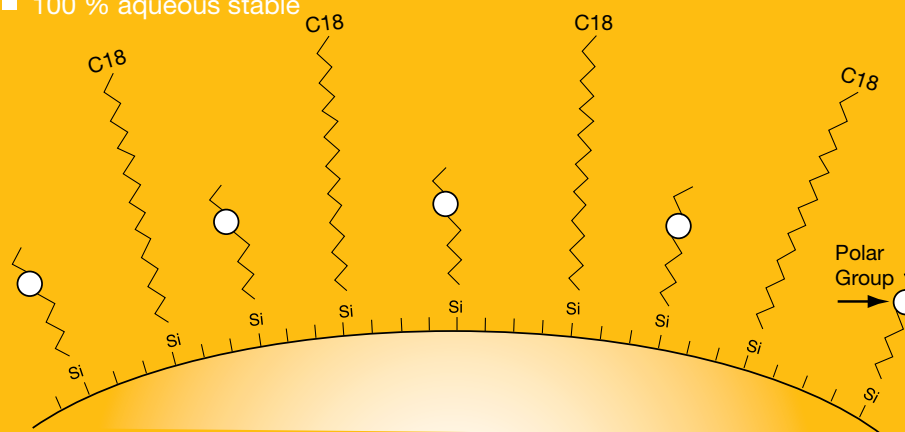
Fusion-RP

Polar Embedded

C18 Column

Improved Polar Selectivity with Reduced Run Times

- Enhanced polar retention under organic conditions
- Low MS bleed
- 100 % aqueous stable

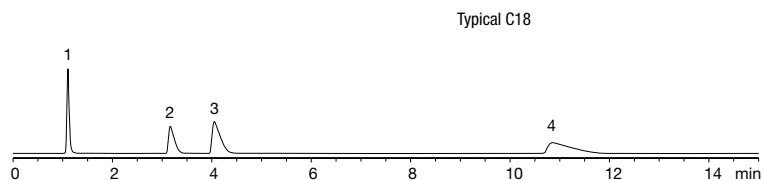
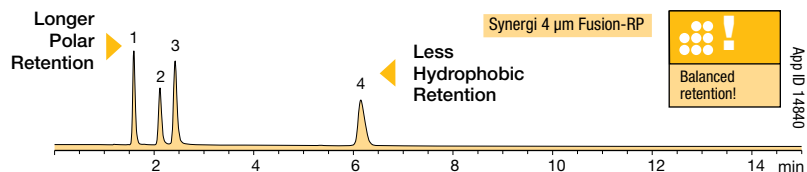


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IMPROVED POLAR SELECTIVITY WITH REDUCED RUN TIMES

Synergi Fusion-RP uses a polar embedded and a hydrophobic ligand to achieve improved selectivity. The C18 ligand gives Synergi Fusion-RP good hydrophobic retention and selectivity, while the polar embedded group provides enhanced polar retention. This dual-phase selectivity allows balanced polar, acidic, basic and hydrophobic compound retention and resolution. If you are working with mixtures of compounds with polar and non-polar characteristics, and having difficulties finding that perfect mix of selectivity, then you should try Synergi Fusion-RP.

INCREASED POLAR RETENTION WITH REDUCED HYDROPHOBIC INTERACTION



Conditions for both columns:

Columns: Synergi 4 µm Fusion-RP
Typical C18

Dimensions: 150 x 4.6 mm

Mobile Phase: 20 mM Potassium Phosphate,
pH 2.5 / Acetonitrile (75:25)

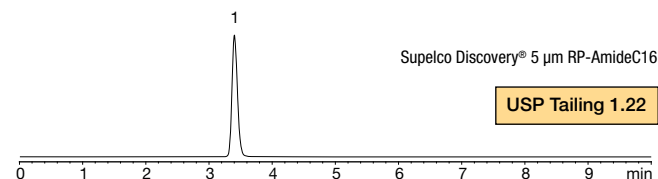
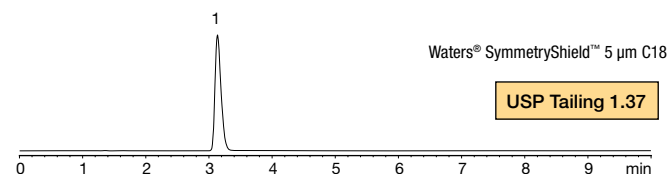
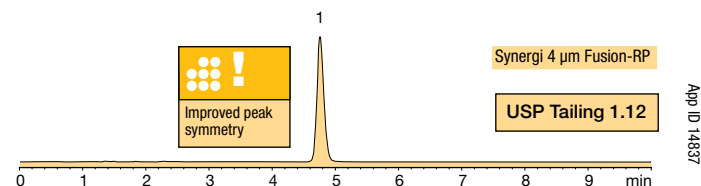
Flow Rate: 1.0 mL/min

Detection: UV @ 210 nm

Sample: 1. Maleic acid
2. Chlorpheniramine
3. Triprolidine
4. Diphenhydramine

Comparative separations may not be representative of all applications.

PEAK SHAPE COMPARISON USING PROPRANOLOL



Conditions for all columns:

Columns: Synergi 4 µm Fusion-RP
Waters SymmetryShield™ 5 µm C18
Supelco Discovery® 5 µm RP AmideC16

Dimensions: 150 x 4.6 mm

Mobile Phase: 20 mM Potassium Phosphate,
pH 2.5 / Acetonitrile (75:25)

Flow Rate: 1.0 mL/min

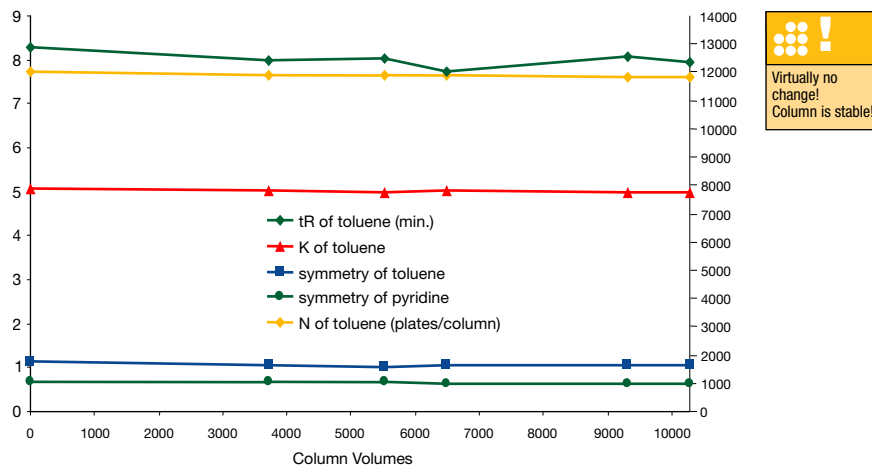
Detection: UV @ 230 nm

Sample: 1. Propranolol

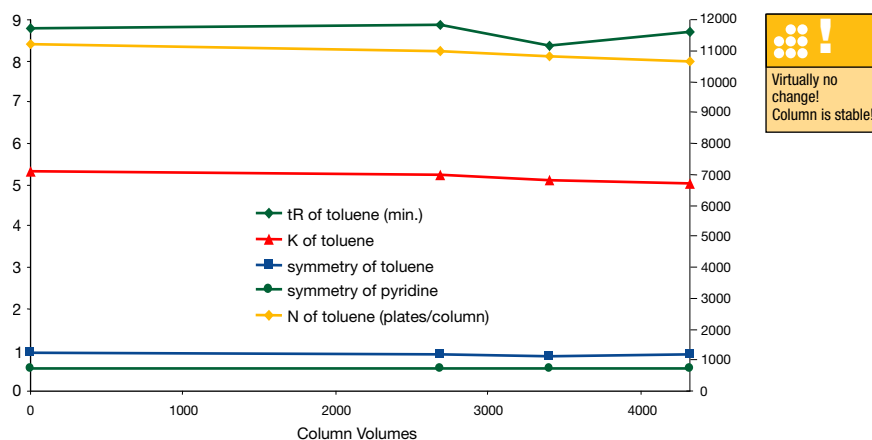
1.5-10 pH STABLE FOR RUGGED METHODS*

The ability of Synergi Fusion-RP to operate in an extended pH range of 1.5-10 (under isocratic elution conditions) is the direct result of an exhaustive endcapping procedure, which is highly protective of the silica surface. pH stability is an indication of column ruggedness. pH tested at the extremes (1.5 and 10), for more than 4000 column volumes, the results below clearly show how rugged Synergi Fusion-RP is. Imagine how well this column will work for your application.

pH 10.0 STABILITY TEST



pH 1.5 STABILITY TEST



*pH testing was done under isocratic conditions with phosphate buffer. Formic acid and ammonium formate were also used as test buffers.

ANTIHISTAMINES

Conditions for all columns:

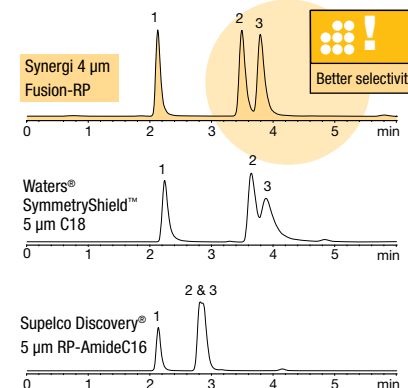
Columns: Synergi 4 µm Fusion-RP
Waters® SymmetryShield™ 5 µm C18
Supelco Discovery® 5 µm RP-AmideC16

Dimensions: 150 x 4.6 mm
Mobile Phase: 20 mM Potassium Phosphate, pH 7 / Methanol (70:30)

Flow Rate: 1.0 mL/min

Detection: UV @ 210 nm

Sample: 1. Phenylephrine
2. Phenylpropanolamine
3. Pseudoephedrine



App ID 14839

SULFA DRUGS

Conditions for both columns:

Columns: Synergi 4 µm Fusion-RP
Waters® SymmetryShield™ 5 µm C18

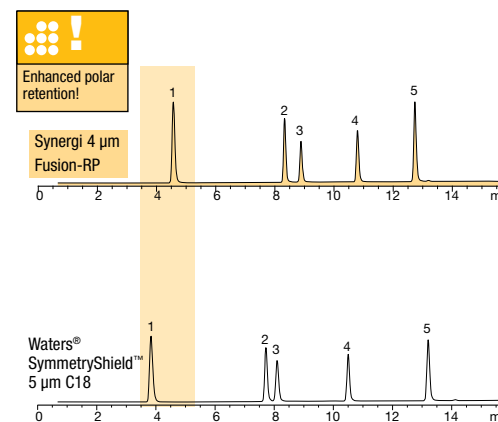
Dimensions: 150 x 4.6 mm
Mobile Phase: A: 20 mM Potassium Phosphate, pH 2.5
B: Methanol

Gradient: A/B (95:5) for 0.5 min
A/B (20:80) in 15 min

Flow Rate: 1.0 mL/min

Detection: UV @ 254 nm

Sample: 1. Sulfanilamide
2. Sulfathiazole
3. Sulfamerazine
4. Sulfamethoxazole
5. Sulfamethoxazole



App ID 14838

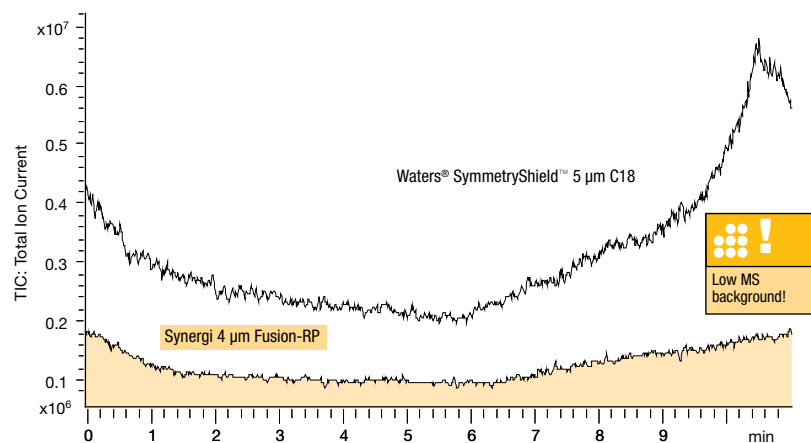
Comparative separations may not be representative of all applications.

EXTREMELY LOW LC/MS COLUMN BLEED

A careful control of the endcapping process combined with the chemical nature of the polar embedded group results in high phase stability with minimal ligand cleavage. The excellent bleed profile compared to a competitor polar-embedded column in the figure below shows Synergi Fusion-RP is well suited for LC/MS work.

Synergi™ Fusion-RP has negligible MS bleed compared to other polar modified C18 columns

LC/MS BLEED PROFILES



Conditions for both columns:

Columns: Synergi 4 µm Fusion-RP
Waters® SymmetryShield™ 5 µm C18

Dimensions: 150 x 4.6 mm

Mobile Phase: A: 0.1 % CH₃COOH in Water
B: 0.1 % CH₃COOH in Methanol

Gradient: 95:5 (A/B) linear to 5:95 over 8 min
hold for 5 min

Flow Rate: 0.5 mL/min

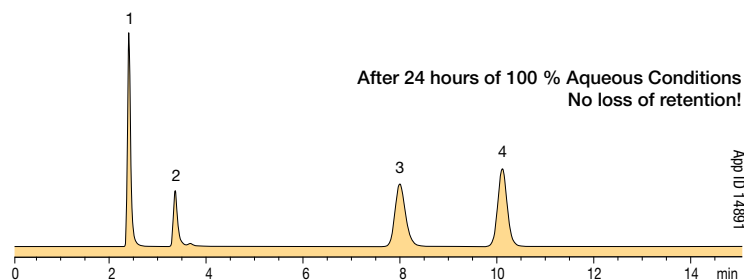
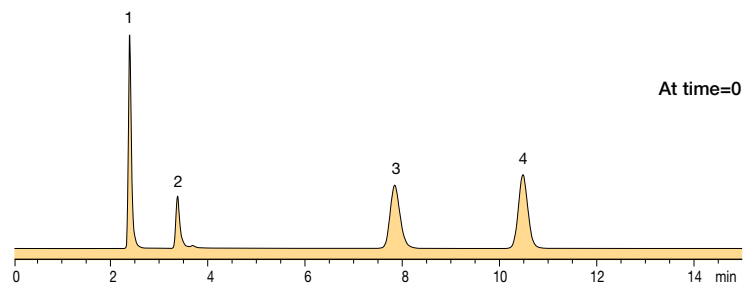
Detection: Bruker-Daltonics Esquire 2000 IT
Ion Source: ESI
Scan Rate: 13000 m/z/s
Scan Range: 50-1000

Comparative separations may not be representative of all applications.

100 % AQUEOUS FOR ADDED METHOD FLEXIBILITY

Use Synergi Fusion-RP for greater polar retention under 100 % aqueous conditions. The polar embedded group allows this phase to be run under 100 % aqueous conditions without loss of retentivity. Unlike typical C18 phases, the pores and the sorbent surface of Synergi Fusion-RP stay wet even after many hours of operation in 100 % aqueous mobile phase. This aqueous stability offers greater flexibility in application development.

AQUEOUS STABILITY



Column: Synergi 4 µm Fusion-RP
Dimensions: 150 x 4.6 mm
Part No.: 00F-4424-E0
Mobile Phase: 20 mM Potassium phosphate buffer pH 2.5
Flow Rate: 1.0 mL/min
Detection: UV @ 254 nm
Injection: 1 µL
Temperature: 30 °C
Sample: 1. Thiourea
2. Adenine
3. Guanosine-5-monophosphate
4. Thymine



MAX-RP
FUSION-RP
HYDRO-RP
POLAR-RP

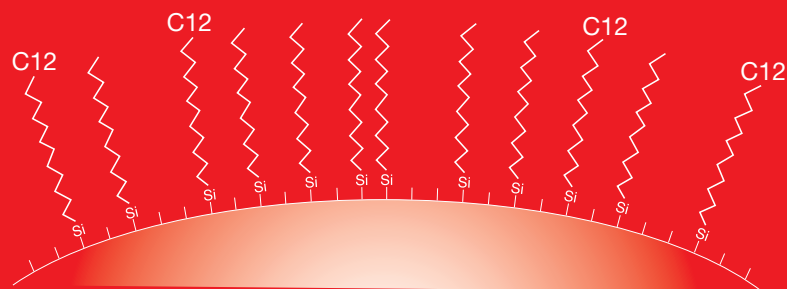
Max-RP

Reversed Phase

C12 Column

Maximum Reversed Phase Performance

- Hydrophobic retention similar to a C18 with improved results
- 25 % more free silanol coverage than most C18 columns
- Sharper peaks for basic and tailing compounds

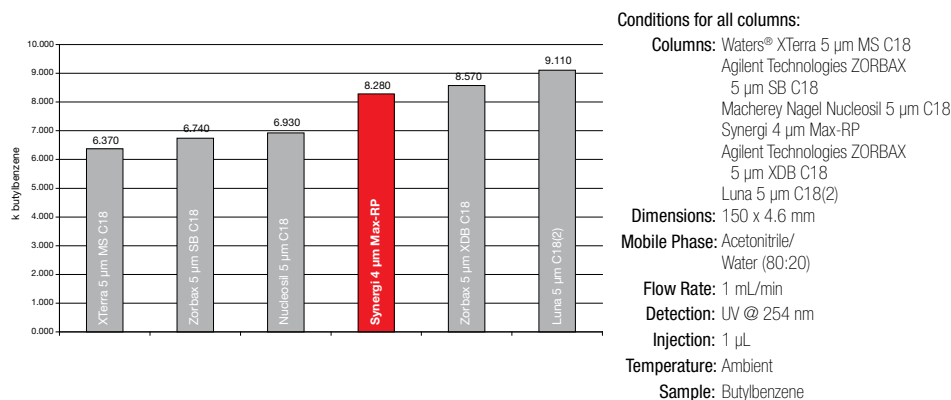


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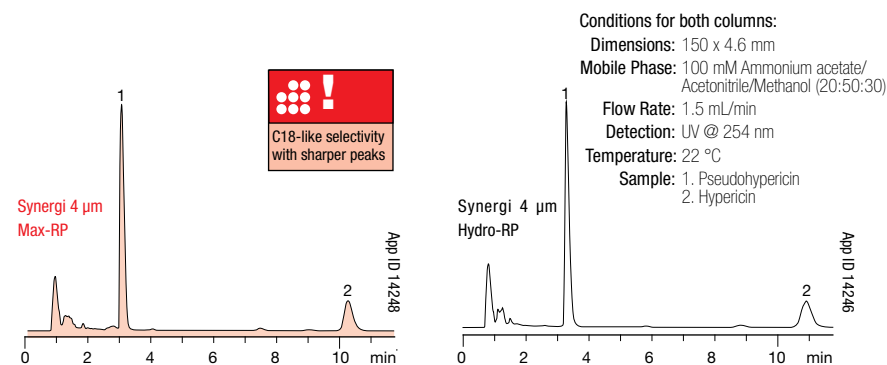
HYDROPHOBIC RETENTION SIMILAR TO A C18 - WITH IMPROVED RESULTS

The bulky nature of C18 ligands results in relatively low coverage of surface silanols which cause peak tailing. Nevertheless, C18 columns have the hydrophobic selectivity chromatographers rely on. To reduce peak tailing and still offer the preferred hydrophobic selectivity, we engineered Synergi Max-RP with a C12 bonded phase. A C12 ligand is sterically less hindered than a C18 and can be bonded to result in 25 % more of the silica surface being covered than a C18, shielding more free silanols from non-specific interaction. When bonded to our high (475 m²/g) surface area silica, Synergi Max-RP gives the hydrophobic retention and methylene selectivity you would expect from a C18 column, but with sharper peaks, less tailing, and improved reproducibility.

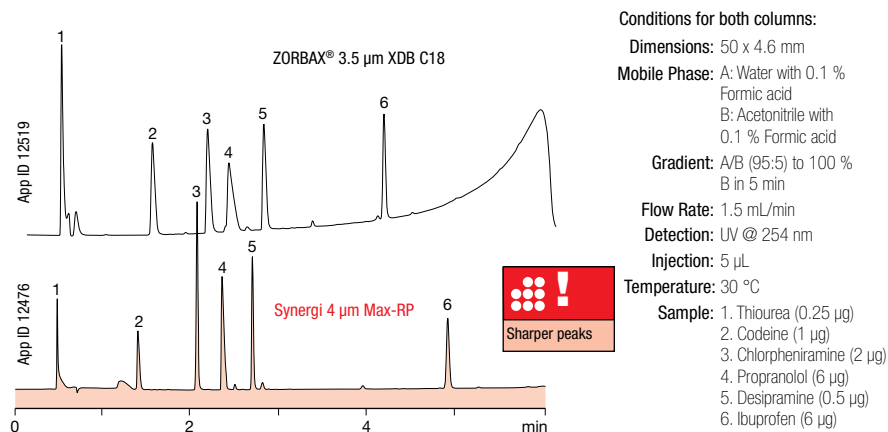
HYDROPHOBIC RETENTION: SYNERGI MAX-RP (C12) PERFORMS LIKE A C18



SYNERGI MAX-RP VS. SYNERGI HYDRO-RP

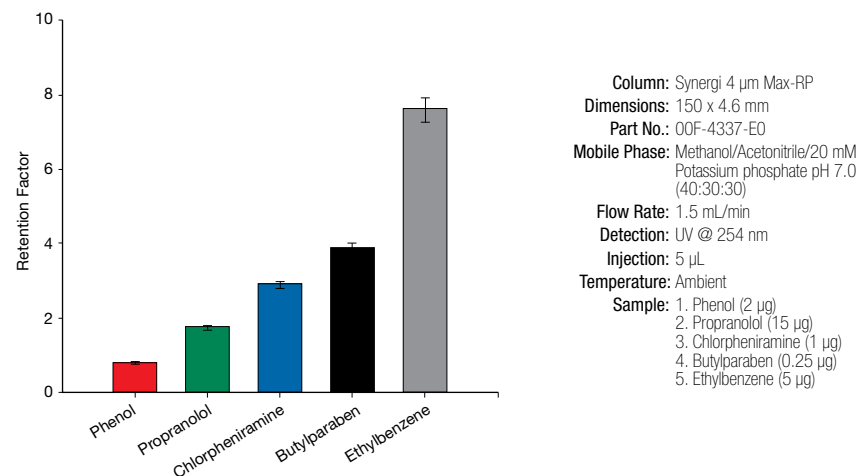


SYNERGI MAX-RP VS. ZORBAX® 3.5 µm XDB C18



Comparative separations may not be representative of all applications.

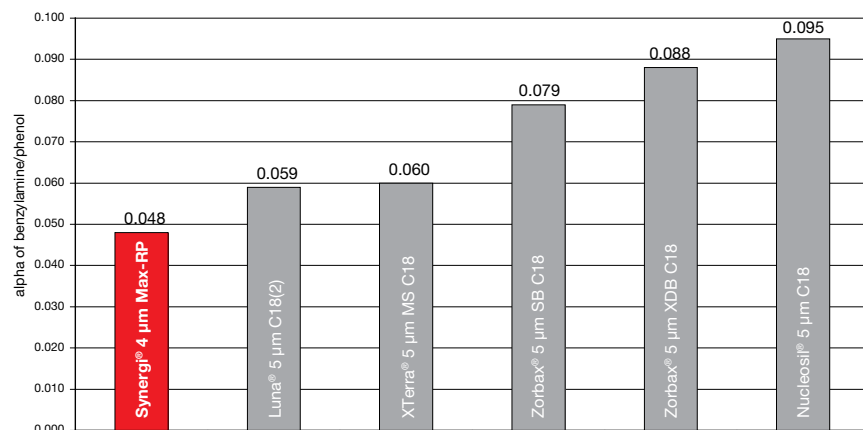
BATCH REPRODUCIBILITY OF SYNERGI MAX-RP



SHARPER PEAKS FOR BASIC COMPOUNDS

Ionic interactions created by free silanols also can contribute to peak tailing. Low pH mobile phases (~2.5) are often employed in order to protonate free silanols. Un-protonated free silanols can lead to poor peak shape for basic drugs. Utilizing a C12 bonded phase, a 25 % greater bonded phase density is achieved compared to typical C18 bonding, covering more free silanols. Benzylamine and phenol are used to probe for active silanol sites at pH 2.5; Synergi Max-RP shows lower silanol activity as compared to other C18 columns.

SILANOL ACTIVITY AT LOW pH: C12 VS. C18 PHASES



Conditions for all columns:

Columns: Synergi 4 µm Max-RP
Luna 5 µm C18(2)
Waters® Xterra 5 µm MS C18
Agilent Technologies ZORBAX® 5 µm SB C18
Agilent Technologies ZORBAX® 5 µm XDB C18
Macherey Nagel Nucleosil® 5 µm C18

Dimensions: 150 x 4.6 mm

Mobile Phase: Methanol/20 mM Potassium phosphate, pH 2.5 (30:70)

Flow Rate: 1 mL/min

Detection: UV @ 254 nm

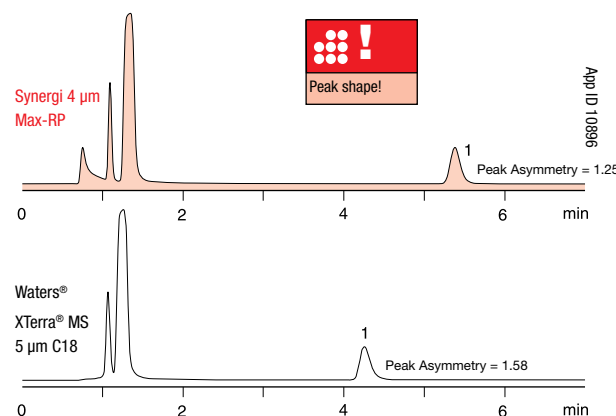
Injection: 5 µL

Temperature: Ambient

Sample: 1. Benzylamine
2. Phenol

Comparative separations may not be representative of all applications.

SYNERGI MAX-RP VS. WATERS® XTERRA® MS



Conditions for both columns:

Columns: Synergi 4 µm Max-RP
Waters® Xterra MS 5 µm C18

Dimensions: 150 x 4.6 mm

Mobile Phase: 20 mM Potassium phosphate pH 7/Acetonitrile / Methanol (50:25:25)

Flow Rate: 1.5 mL/min

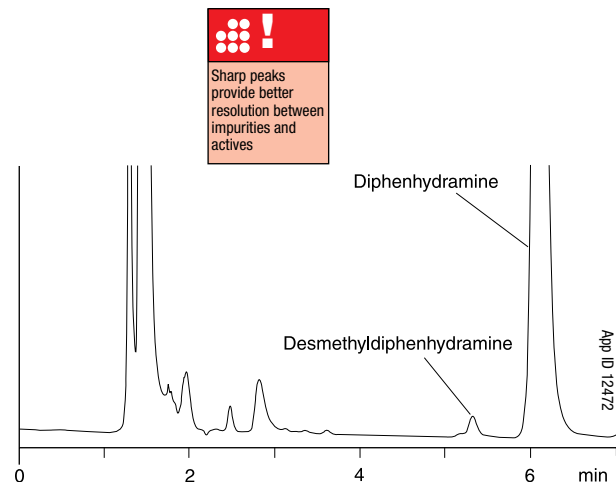
Detection: UV @ 210 nm

Injection: 1 µL

Temperature: 30 °C

Sample: Methanol extract from Chloritrimeton Allergy Pills
1. Chlorpheniramine

BENADRYL®



Column: Synergi 4 µm Max-RP

Dimensions: 150 x 4.6 mm

Part No.: 00F-4337-E0

Mobile Phase: 20 mM Potassium phosphate pH 7/ Acetonitrile /Methanol (30:40:30)

Flow Rate: 1.0 mL/min

Detection: UV @ 210 nm

Injection: 10 µL

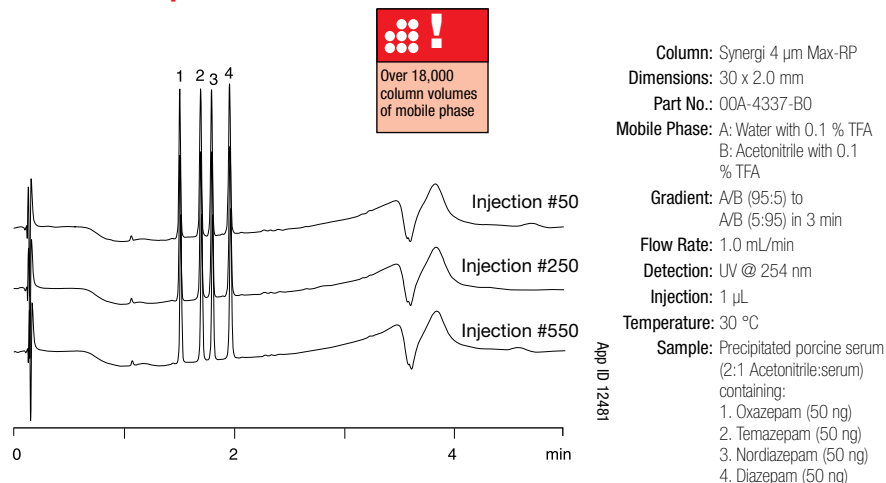
Temperature: Ambient

Sample: Methanol extract of Benadryl Allergy Chewables (Parke-Davis)
1. Desmethyldiphenhydramine
2. Diphenhydramine

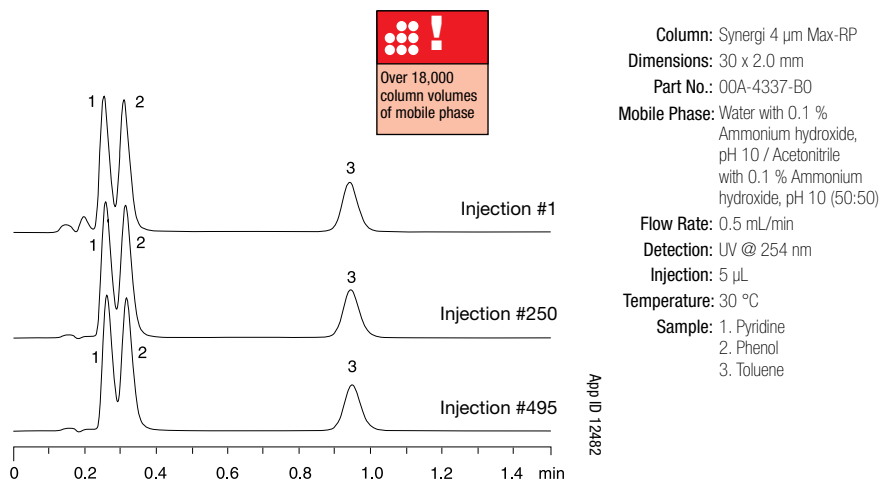
REPRODUCIBLE PERFORMANCE FROM pH 1.5-10

Our bonding and endcapping procedures give Synergi™ 4 µm Max-RP stability from pH 1.5 (0.1 % TFA) to 10. This robust pH range ensures that there will be little bleed at low pH's due to bonded phase hydrolysis and that a broad range of mobile phase modifiers can be used without damaging the column. It also allows analysts to use high pH's to overcome basic ionization and to overcome sample solubility issues.

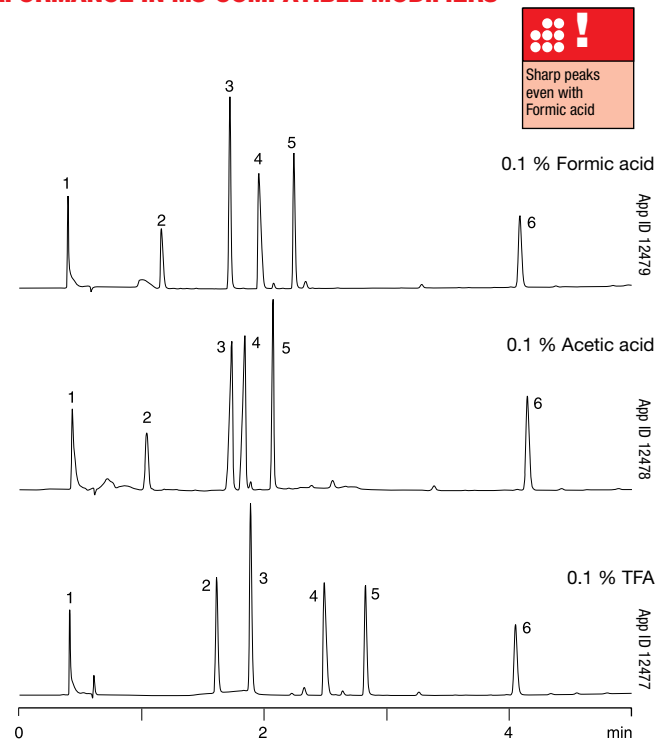
STABILITY AT pH 1.5



STABILITY AT pH 10.0



PERFORMANCE IN MS-COMPATIBLE MODIFIERS



Column: Synergi 4 µm Max-RP
Dimensions: 50 x 4.6 mm
Part No.: 00B-4337-E0
Mobile Phase: A: Water with 0.1 % TFA, Formic acid, or Acetic acid
B: Acetonitrile with 0.1 % TFA, Formic acid, or Acetic acid
Gradient: A/B (95:5) to 100 % B in 5 min
Flow Rate: 1.5 mL/min
Detection: UV @ 254 nm
Injection: 5 µL
Temperature: 30 °C

Sample: 1. Thiourea (0.25 µg)
2. Codeine (1 µg)
3. Chlorpheniramine (2 µg)
4. Propranolol (6 µg)
5. Desipramine (0.5 µg)
6. Ibuprofen (6 µg)



MAX-RP
FUSION-RP
HYDRO-RP
POLAR-RP

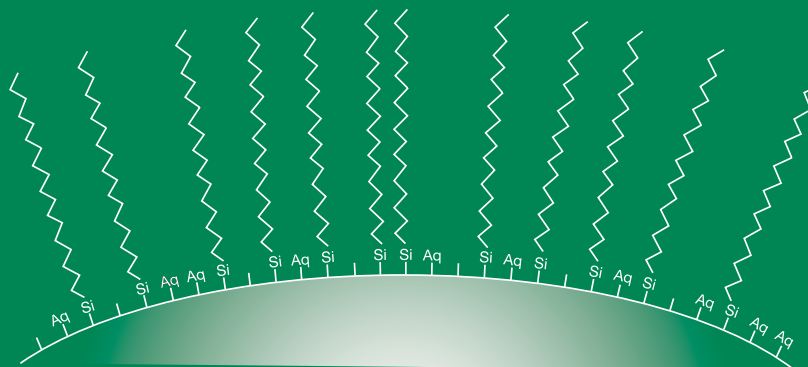
Hydro-RP

Polar Endcapped

C18 Column

Hydro-phobic/philic Reversed Phase Retention

- Extreme retention of hydrophobic compounds
- Stable in 100 % aqueous mobile phase
- Improved polar selectivity

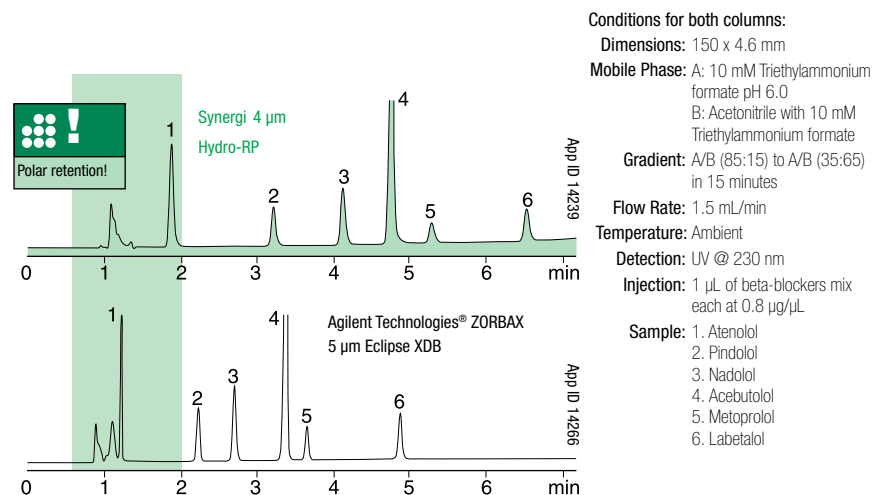


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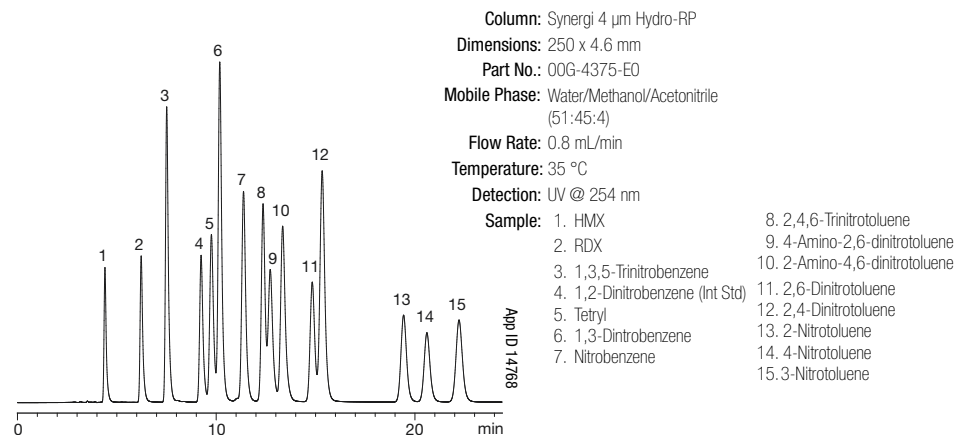
A C18 WITH ENHANCED RETENTION OF POLAR COMPOUNDS UNDER 100 % AQUEOUS CONDITIONS

Extremely polar analytes are not always retained and often do not separate well on conventional C18 columns. Synergi Hydro-RP is a C18 bonded phase endcapped with a unique proprietary polar group to provide extreme retention of both hydrophobic as well as polar compounds under 100 % aqueous conditions. The high (475 m²/g) 4 µm silica surface area combined with a dense bonded phase coverage allows for substantial interaction between the sample analyte and the bonded phase. The net result is a very retentive C18 phase well suited to separating extremely polar analytes.

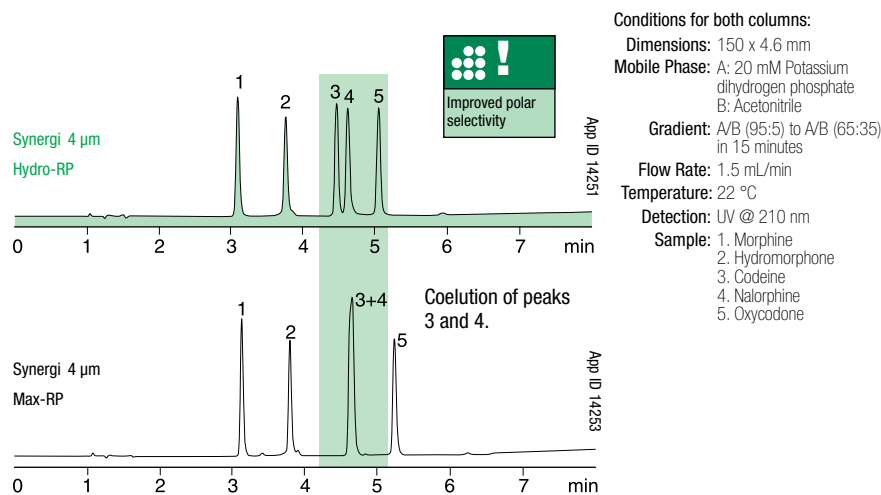
SYNERGI HYDRO-RP VS. ZORBAX® ECLIPSE XDB®



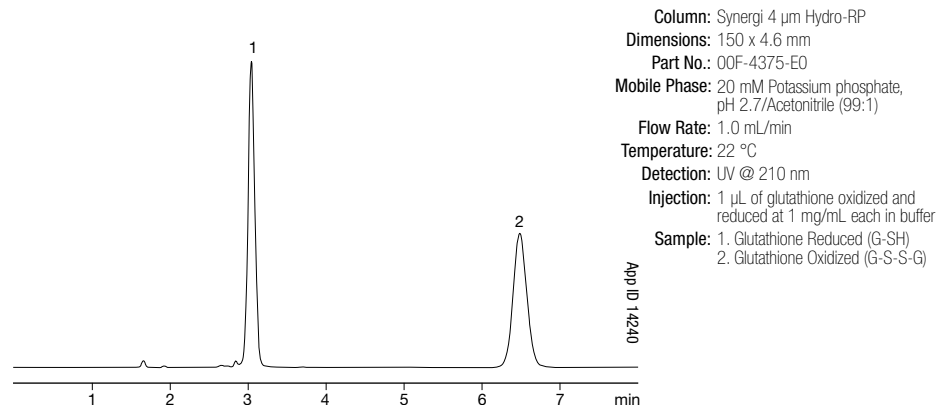
EXPLOSIVES MIX: EPA METHOD 8330



SYNERGI HYDRO-RP VS. SYNERGI MAX-RP



REDUCED AND OXIDIZED GLUTATHIONE

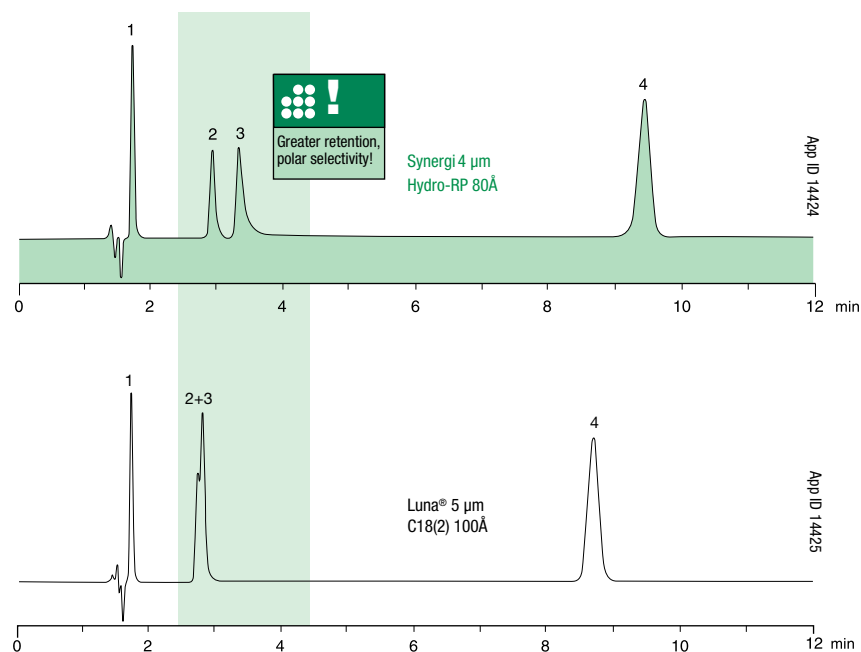


Comparative separations may not be representative of all applications.

EXTREME RETENTION OF HYDROPHOBIC COMPOUNDS

Synergi Hydro-RP shows significantly higher hydrophobic retention when compared to other C18 phases. Greater hydrophobicity is useful for many applications because higher percentage organic mobile phase can be used resulting in shorter run and re-equilibration times. For LC/MS applications this enhanced hydrophobicity results in analytes eluting at higher percentage organic mobile phase, resulting in improved sensitivity. Dense bonding and endcapping make Synergi Hydro-RP compatible with a variety of MS-compatible mobile phase modifiers such as formic acid, TEAA, and acetic acid. Through a combination of greater retention, excellent efficiency, and stability to MS-compatible buffers, Synergi Hydro-RP is ideal for LC/MS applications.

SYNERGI HYDRO-RP VS. LUNA® C18(2)



Conditions for both columns:

Dimensions: 150 x 4.6 mm

Mobile Phase: 20 mM Potassium phosphate, pH 7.0 /Methanol (60:40)

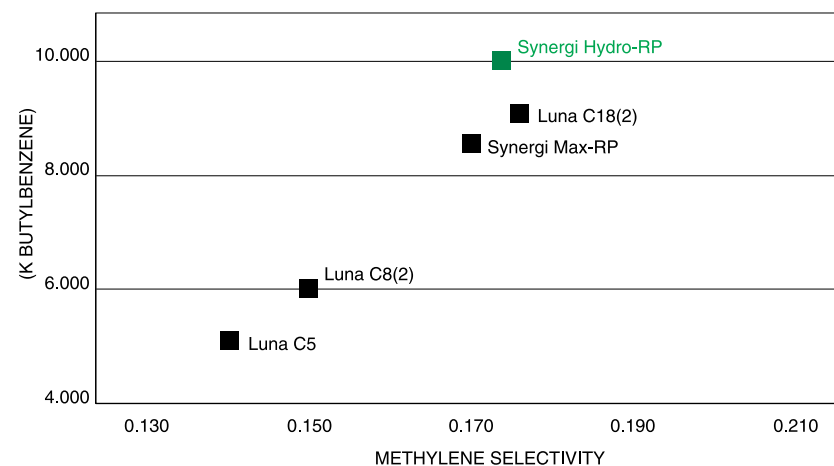
Flow Rate: 1 mL/min

Temperature: 22 °C

Detection: UV @ 210 nm

Sample: 1. Phenylephrine
2. Phenylpropanolamine
3. Pseudoephedrine
4. Methylparaben

HYDROPHOBIC RETENTIVITY COMPARED



Conditions for all columns:

Dimensions: 150 x 4.6 mm

Mobile Phase: Acetonitrile/20 mM Potassium phosphate, pH 7.0 (65:35)

Flow Rate: 1.5 mL/min

Temperature: Ambient

Sample: 1. Butylbenzene
2. Amylbenzene

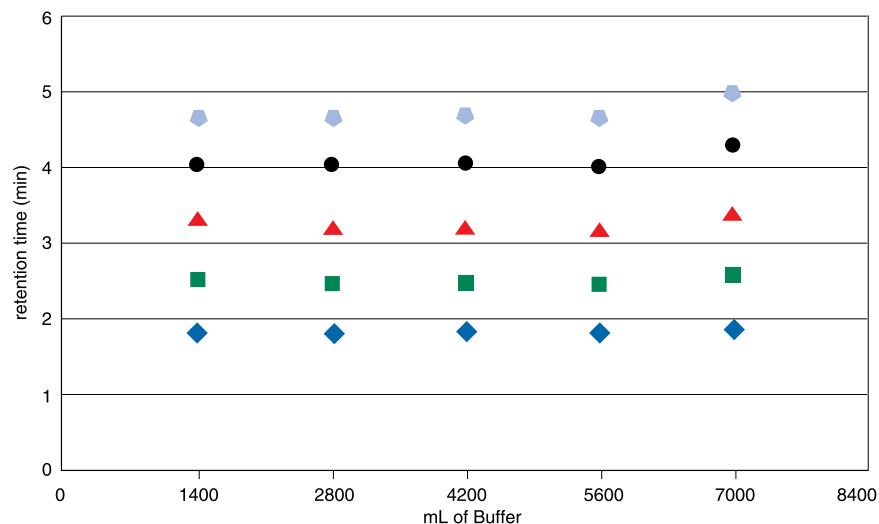
The chart was obtained by plotting hydrophobic retention (K for butylbenzene vs. methylene selectivity (log k for amylbenzene vs the number of methyl groups) under the stated conditions. A column with high hydrophobicity will better resolve two analytes which subtly differ in their overall hydrophobicity than a column with lower hydrophobic selectivity.

Comparative separations may not be representative of all applications.

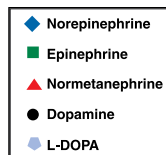
STABLE IN 100 % AQUEOUS MOBILE PHASE

Running a 100 % aqueous mobile phase on a C18 column can provide improved retention of extremely polar compounds. However, conventional C18 phases are poorly wetted by highly aqueous mobile phases causing the C18 ligands to mat down on the surface of the silica and, over time, retention is completely lost. Organic acids and catecholamines are often difficult to separate analyze as their polarity hinders interaction with conventional C18 ligands, but this is easily accomplished using Synergi Hydro-RP under 100 % aqueous conditions. Synergi Hydro-RP utilizes this versatility for method development while providing superior column ruggedness.

AQUEOUS STABILITY FOR OVER 7000 ML OF BUFFER

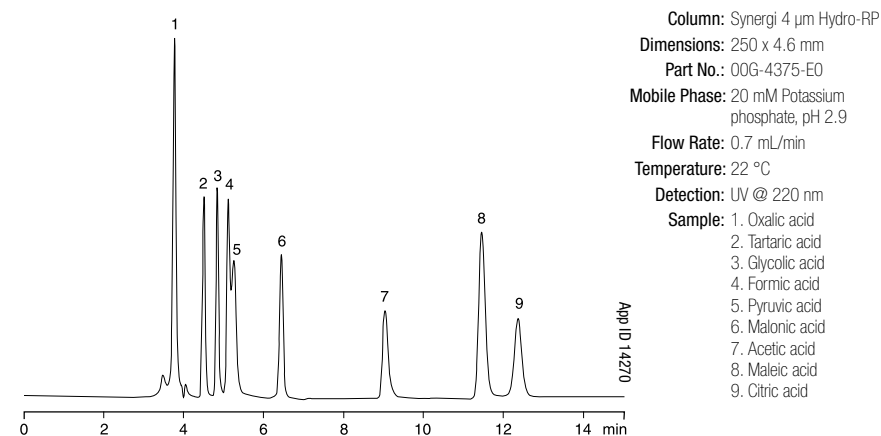


Column: Synergi™ 4 µm Hydro-RP
 Dimensions: 150 x 4.6 mm
 Part No.: 00F-4375-E0
 Mobile Phase: 20 mM Potassium phosphate, pH 2.5
 Flow Rate: 1.0 mL/min
 Temperature: 35 °C
 Detection: UV @ 210 nm
 Injection: 5 µL
 Sample: 1. Norepinephrine (0.8 mg/mL)
 2. Epinephrine (0.5 mg/mL)
 3. Normetanephrine (0.6 mg/mL)
 4. Dopamine (0.4 mg/mL)
 5. L-DOPA (0.3 mg/mL)

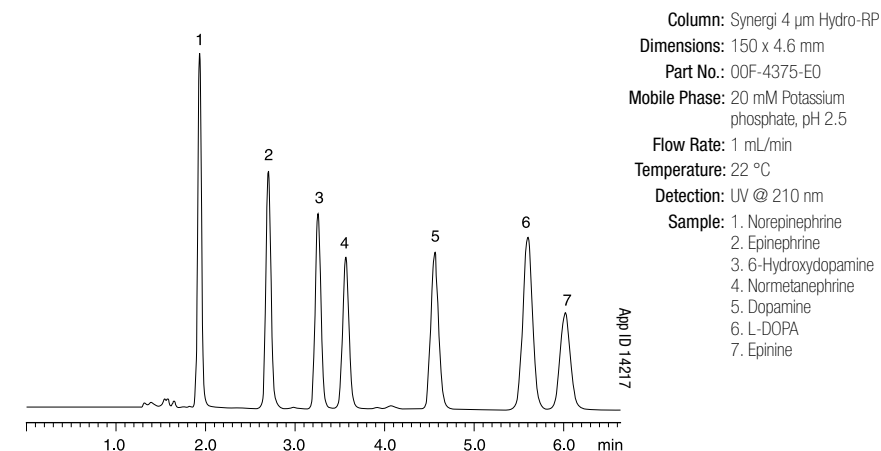


POLAR RETENTION UNDER 100 % AQUEOUS CONDITIONS

ORGANIC ACIDS



CATECHOLAMINES





MAX-RP
FUSION-RP
HYDRO-RP
POLAR-RP

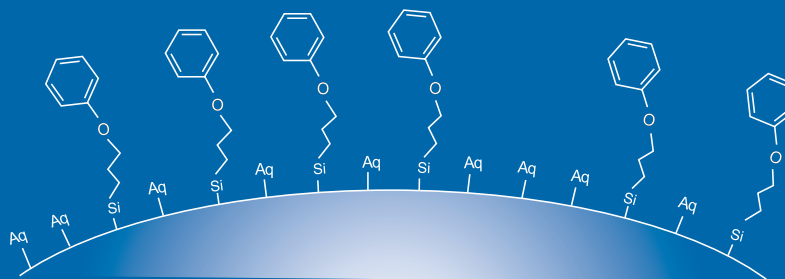
Polar-RP

Reversed Phase

Ether-Linked Phenyl Column

Polar and Aromatic Reversed Phase Selectivity

- Increased retention of highly polar and aromatic compounds
- Stable in 100 % buffer mobile phases
- Highly reproducible

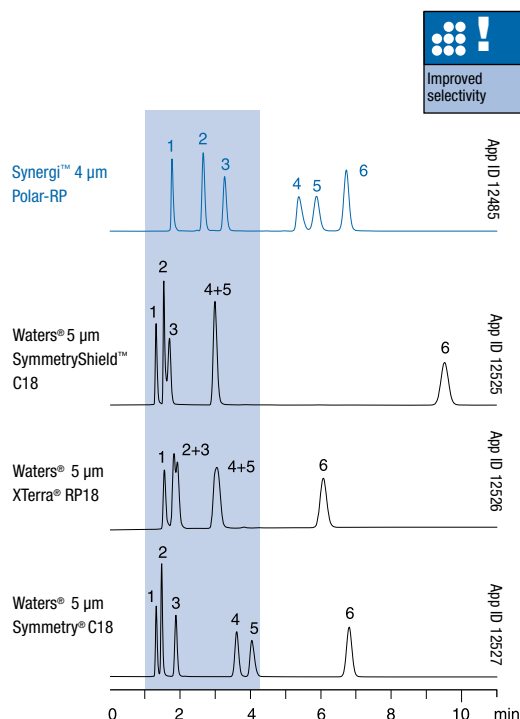


4

ENHANCED SELECTIVITY FOR POLAR AROMATICS

Synergi Polar-RP is an ether-linked phenyl phase with proprietary hydrophilic endcapping designed specifically to maximize retention and selectivity for polar and aromatic analytes. Aromatic selectivity can be further enhanced by the addition of methanol to the mobile phase. Methanol facilitates the π - π interactions between the aromatic rings of the analyte and the phenyl functional group of Synergi Polar-RP. This feature allows for improved polar retention that complements the more conventional C18 column chemistries, as well as provides improved peak shape and an alternative selectivity compared to other polar phases.

INCREASED RESOLUTION OF POLAR COMPOUNDS



Conditions for all columns:

Dimensions: 150 x 4.6 mm

Mobile Phase: 20 mM Potassium phosphate
pH 3 / Methanol (50:50)

Flow Rate: 1.0 mL/min

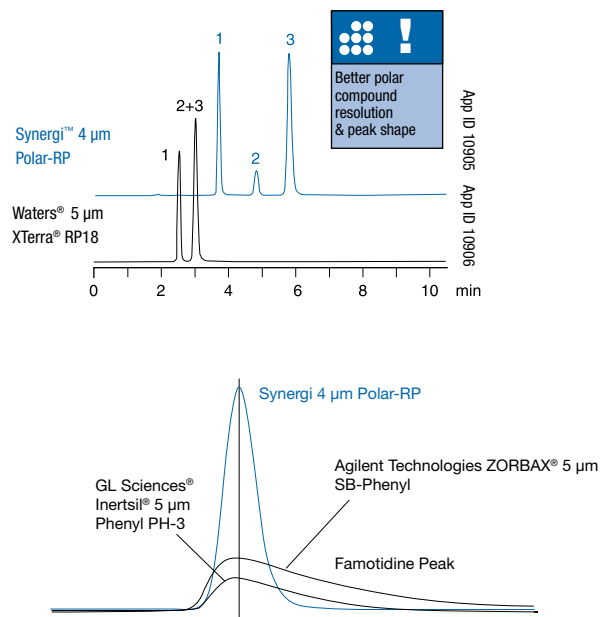
Detection: UV @ 230 nm

Injection: 2 µL

Temperature: 22 °C

Sample: 1. Metaproterenol (0.4 µg)
2. Pindolol (0.6 µg)
3. Metoprolol (0.15 µg)
4. Alprenolol (0.3 µg)
5. Propranolol (0.04 µg)
6. Ethylparaben (0.4 µg)

IMPROVED RESOLUTION AND PEAK SHAPE



Conditions for all columns:

Columns: Synergi 4 µm Polar-RP

Waters 5 µm XTerra® RP18

Agilent 5 µm ZORBAX SB-Phenyl

GL Sciences 5 µm Inertsil Phenyl PH-3

Dimensions: 150 x 4.6 mm

Mobile Phase: 20 mM Potassium phosphate
pH 7.0/Acetonitrile (80:20)

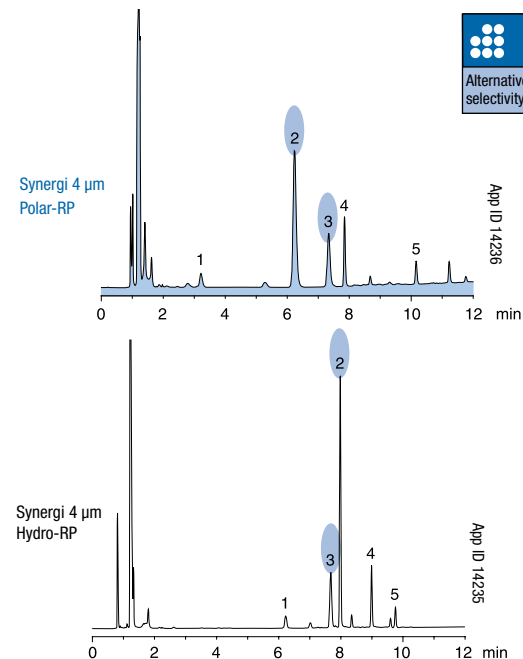
Flow Rate: 1 mL/min

Detection: UV @ 254 nm

Temperature: 25 °C

Sample: 1. Famotidine
2. Cimetidine
3. Ranitidine

SYNERGI POLAR-RP VS. SYNERGI HYDRO-RP



Conditions for both columns:

Dimensions: 150 x 4.6 mm

Mobile Phase: A: 20 mM KH₂PO₄ + 0.1 %
Hexane
Sulfonate, pH 3.0
B: Acetonitrile

Gradient: A/B (97:3) for 3 minutes,
then to A/B (50:50) in 15 minutes

Flow Rate: 1.5 mL/min

Detection: UV @ 210 nm

Temperature: 22 °C

Sample: 1. Pantothenic acid
2. Pyridoxine
3. p-Aminobenzoic acid
4. Thiamine
5. Riboflavin

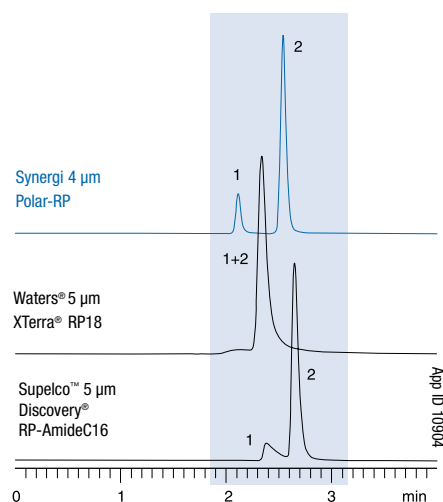
Comparative separations may not be representative of all applications.

100 % BUFFER MOBILE PHASE STABILITY

The ether-linkage on the Synergi 4 μ m Polar-RP phase contributes to not only sharp peak shape for acidic and basic analytes, but also ensures stability under highly aqueous mobile phase conditions. Very polar analytes, like formic acid, are typically poorly retained on alkyl-Bonded phases. However, using a 100 % buffer mobile phase, the formic acid impurity is easily resolved from acetic acid. Other polar-embedded phases typically use a nitrogen-containing amide linkage or carbamate group; this can interfere with the resolution of highly acidic polar compounds. Since Synergi Polar-RP uses an ether-linkage as the polar embedded group, the result is improved peak shape and resolution of the highly acidic polar compound, formic acid.

BETTER ACIDIC COMPOUND RESOLUTION UNDER 100 % BUFFER CONDITIONS

FORMIC AND ACETIC ACIDS



Conditions for all columns:

Dimensions: 150 x 4.6 mm

Mobile Phase: 20 mM Potassium phosphate pH 2.5/
Methanol (97:3)

Flow Rate: 1.0 mL/min

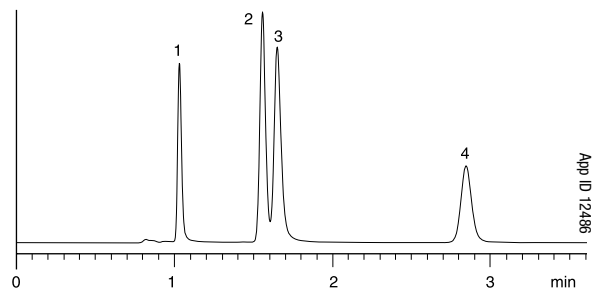
Detection: UV @ 220 nm

Temperature: 25 °C

Sample: 1. Formic acid
2. Acetic acid

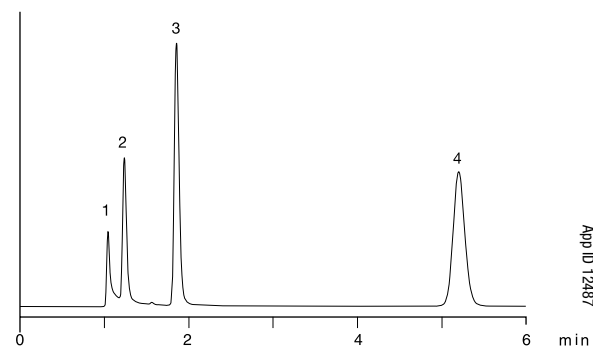
RESOLUTION UNDER 100 % BUFFER CONDITIONS

NUCLEIC ACID BASES



Column: Synergi 4 μ m Polar-RP
Dimensions: 150 x 4.6 mm
Part No.: 00F-4336-E0
Mobile Phase: 20 mM Potassium phosphate pH 2.7
Flow Rate: 2.0 mL/min
Detection: UV @ 254 nm
Injection: 5 μ L
Temperature: 22 °C
Sample: 1. Cytosine (0.125 μ g)
2. Uracil (0.125 μ g)
3. Adenine (0.125 μ g)
4. Thymine (0.125 μ g)

THYMIDINE NUCLEOTIDES



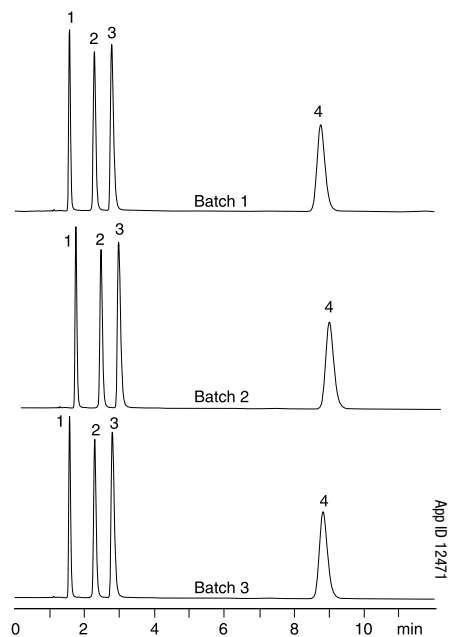
Column: Synergi 4 μ m Polar-RP
Dimensions: 150 x 4.6 mm
Part No.: 00F-4336-E0
Mobile Phase: 20 mM Potassium phosphate pH 2.7
Flow Rate: 2.0 mL/min
Detection: UV @ 254 nm
Injection: 2.5 μ L
Temperature: 22 °C
Sample: 1. Thymidine triphosphate (TTP) (1.25 μ g)
2. Thymidine diphosphate (TDP) (1.25 μ g)
3. Thymidine monophosphate (TMP) (1.25 μ g)
4. Thymidine (1.25 μ g)

Comparative separations may not be representative of all applications.

A REPRODUCIBLE AND STABLE POLAR COLUMN

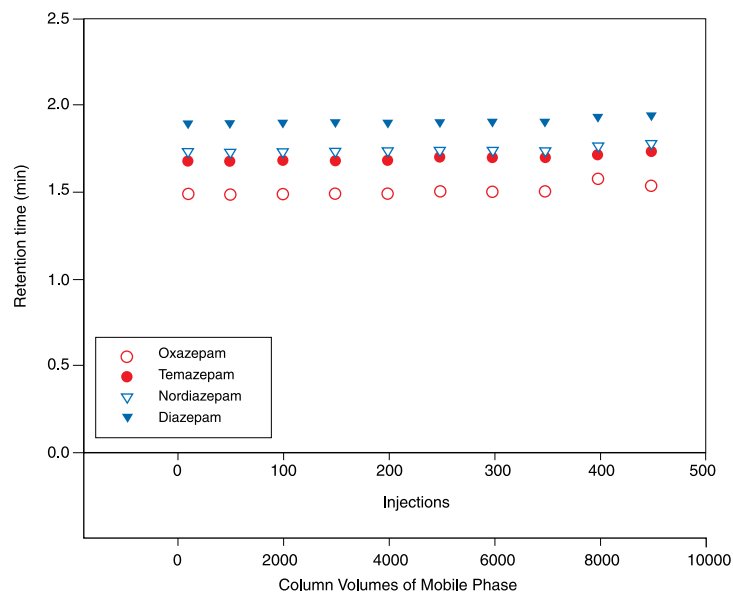
Synergi Polar-RP is highly reproducible. As indicated by the chromatograms from three separate batches of bonded stationary phase, Synergi Polar-RP exhibits almost no variation between batches. In addition, the ether-linkage is extremely resistant to hydrolysis, even at pH 1.5, thus enabling separations even under relatively harsh 0.1 % TFA running conditions for thousands of column volumes. At the other end of the pH spectrum, Synergi Polar-RP is stable to a pH of 7.0.

BATCH REPRODUCIBILITY



Column: Synergi 4 μ m Polar-RP
Dimensions: 150 x 4.6 mm
Part No.: 00F-4336-E0
Mobile Phase: Methanol/20 mM Potassium phosphate pH 6.5 (35:65)
Flow Rate: 1.5 mL/min
Detection: UV @ 210 nm
Injection: 1 μ L
Temperature: 22 °C
Sample: 1. Phenylephrine (1 μ g)
 2. Phenylpropanolamine (1 μ g)
 3. Pseudoephedrine (1 μ g)
 4. Methylparaben (1 μ g)

AQUEOUS STABILITY



Column: Synergi 4 μ m Polar-RP
Dimensions: 30 x 2.0 mm
Part No.: 00A-4336-B0
Mobile Phase: A: Water with 0.1 % TFA
 B: Acetonitrile with 0.1 % TFA
Gradient: A/B (95:5) to A/B (5:95) in 3 min
Flow Rate: 1.0 mL/min
Detection: UV @ 254 nm
Injection: 1 μ L
Temperature: 30 °C
Sample: Precipitated porcine serum
 (2:1 Acetonitrile: serum) containing:
 1. Oxazepam (50 ng)
 2. Temazepam (50 ng)
 3. Nordiazepam (50 ng)
 4. Diazepam (50 ng)

SYNERGI COLUMN TECHNICAL SPECIFICATIONS

Packing Material	Particle Shape/Size (µm)	Pore Size (Å)	Pore Volume (mL/g)	Surface Area (m ² /g)	Carbon Load %	Calculated Bonded Phase Coverage (µmole/m ²)	End Capping
Synergi Max-RP	Spher. 2.5	100	—	400	17	—	TMS
Synergi Hydro-RP	Spher. 2.5	100	—	400	19	—	Hydrophilic
Synergi Polar-RP	Spher. 2.5	100	—	400	11	—	Hydrophilic
Synergi Fusion-RP	Spher. 2.5	100	—	400	12	—	TMS
Synergi Max-RP	Spher. 4, 10	80	1.05	475	17	3.21	TMS
Synergi Hydro-RP	Spher. 4, 10	80	1.05	475	19	2.45	Hydrophilic
Synergi Polar-RP	Spher. 4, 10	80	1.05	475	11	3.15	Hydrophilic
Synergi Fusion-RP	Spher. 4, 10	80	1.05	475	12	N/A	TMS

Conditions for all columns:

Columns: Synergi 4 µm Fusion-RP
Synergi 4 µm Max-RP
Synergi 4 µm Hydro-RP
Synergi 4 µm Polar-RP

Dimensions: 150 x 4.6 mm

Mobile Phase: 1. Water / Methanol (20:80) for k_A Amylbenzene
2. Water / Methanol (20:80) for α (CH₃)
3. Water / Methanol (70:30) for α C/P
4. Methanol / 20 mM Potassium phosphate
pH 2.7 for α B/P, pH 2.75.
5. Methanol / 20 mM Potassium phosphate
pH 7.6 for α B/P, pH 7.6

Flow Rate: 1.0 mL/min

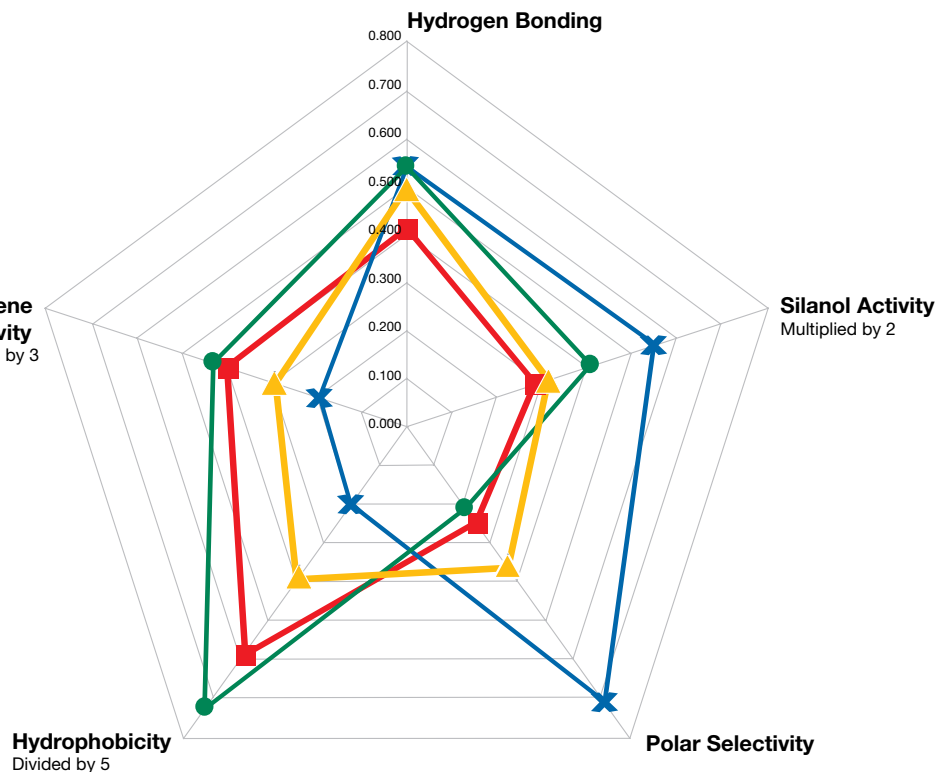
Detection: UV @ 254 nm

Injection: 5 µL

Temperature: 30 °C

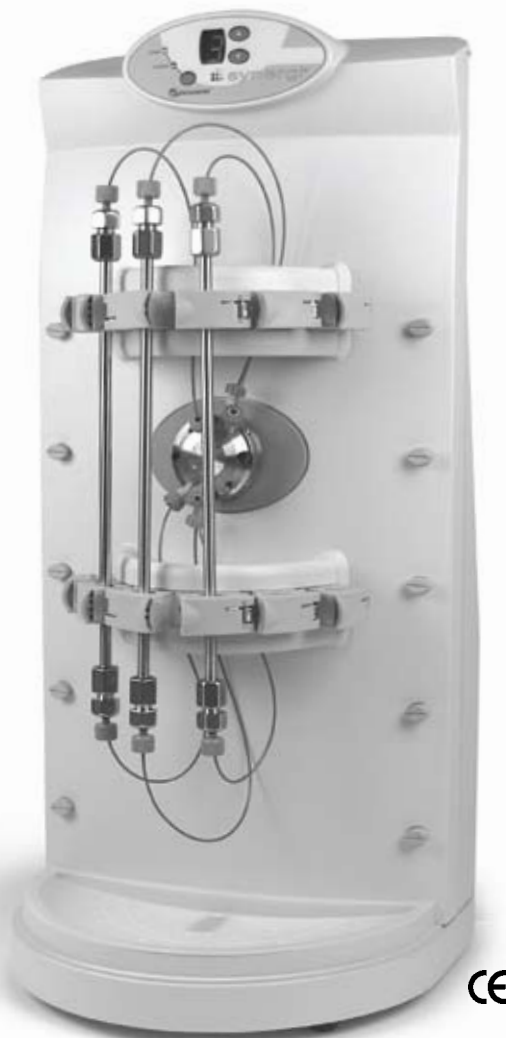
Sample: 1. Amylbenzene
2. Amylbenzene and Butylbenzene
3. Caffeine and phenol (C/P)
4. Benzylamine and phenol (B/P) @ pH 2.75
5. Benzylamine and phenol (B/P) @ pH 7.6

Methylene Selectivity
Multiplied by 3



COLUMN SELECTOR

SIMPLIFY AND AUTOMATE ALL YOUR METHOD DEVELOPMENT AND VALIDATION WORK



Holds up to 6 Analytical
or Semi-Prep Columns

BENEFITS

- Develop, optimize and validate methods faster
- Save time and significantly boost productivity
- Speed and automate routine validation studies

TECHNICAL SPECIFICATIONS

- HPLC system communication protocols via contact closures, pulse and level logic, BCD, RS-232
- A single rear mounted "D" connector
- Spring loaded clips that firmly hold columns from 2-25 mm ID and 5-35 cm length
- Digital valve positioning with fast actuation to minimize dispersion
- Front-mounted switching valve with easy-to-access fittings
- Valve architecture eliminates upswept dead volumes
- Numeric display indicating selected column
- Removable, magnetic cover providing environmental isolation and ambient temperature stabilization
- Pressure rated at 35 MPa/345 bar/5000 psi.

Power Line Cords (specify Part No., included at no charge)

North America	AV0-6091
Schuko (most of Europe)	AV0-6092
Switzerland	AV0-6093
United Kingdom	AV0-6094

ORDERING INFORMATION

Part No.	Description	Price
AV0-6080	Synergi 6-Column Selector, Stainless Steel, 4 Line BCD Control and RS-232 communication, Universal power supply 100-240 VAC, 50-60 Hz	
AV0-7136	Synergi Column Selector Installation Kit	
AV0-7039	Synergi Valve Repair Kit for 6-Column Selector	

Warranty: All Synergi Column Selectors are warranted for one year parts and labor.

1. Call your technical representative for more information on individual systems and your specific requirements.
2. All units supplied with 10-32 threaded PEEK nuts and ferrules for all ports, 3.5 m (12 ft) of 1/16 inch OD PEEK tubing, power line cord (please specify) and RS-232 interface cable.

The selectors are stainless steel and include 4 line BCD control, with port for RS-232 communication, Universal power supply 100-240 VAC, 50-60 Hz. Serial cable and software not included. In order to control the Column Selector via the ChemStation software, Agilent 1100 Systems require the additional purchase (from Phenomenex or Agilent) of a BCD Board (Agilent P/N G1351-68701) and External Contact Cable (Agilent P/N G1103-61611).

HST COLUMNS

- High efficiency of sub-2 μm columns
- Ultra-high performance results on your current HPLC
- Easy method transfer

With High Speed Technology (HST), a balance of speed and efficiency allows you to decrease analysis time while maintaining efficiency and resolution. Synergi HST utilizes the same high quality Synergi media trusted around the world for excellent reproducibility, loadability and scalability. Also, Synergi HST can be used with both your current standard HPLC and newer high performance systems, so there is no need for time-consuming method re-validation!

HIGH EFFICIENCY AT FAST FLOW RATES

At fast linear velocities, HST Technology maintains high efficiencies allowing for increased speed without compromising performance. In the Van Deemter plot below, the 2.5 μm particle shows the lowest reduced plate height (highest efficiency) at the faster flow rates.

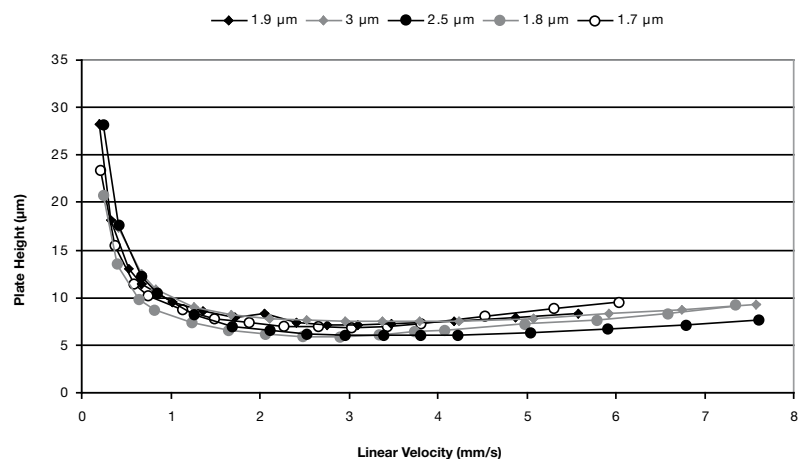
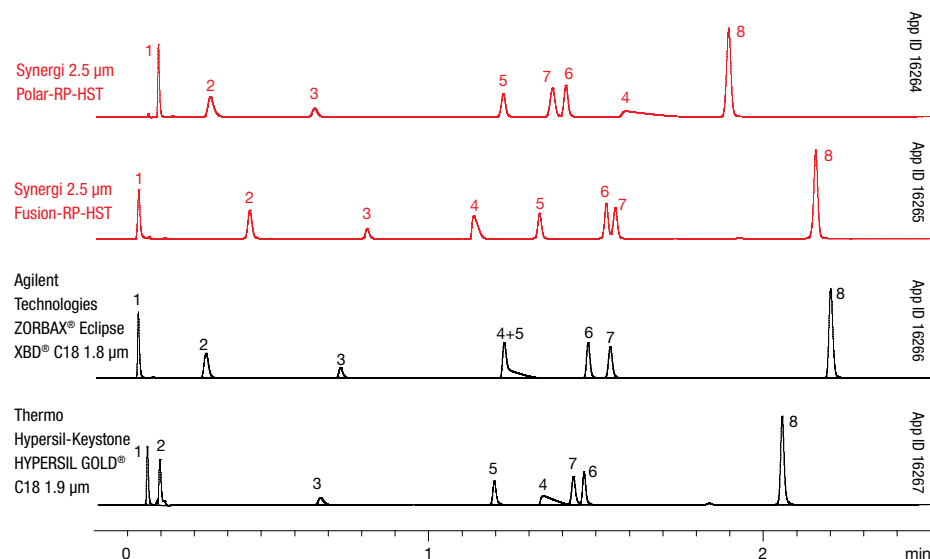


Plate height vs. linear velocity % for 50 x 2.0 mm columns packed with various packing materials. Mobile phases were adjusted between 60-65 % acetonitrile in water in order to match retention factors for naphthalene. Injection volumes of 0.2 μL were used and detection was performed at 254 nm.



Conditions for all columns:

Columns: Synergi 2.5 μm Polar-RP-HST, 50 x 2.0 mm
 Synergi 2.5 μm Fusion-RP-HST, 50 x 2.0 mm
 ZORBAX Eclipse XBD C18 1.8 μm 50 x 2.1 mm
 HYPERSIL GOLD C18 1.9 μm , 50 x 2.1 mm

Mobile Phase: A: 0.1 % Formic Acid in Water
 B: 0.1 % Formic Acid in Acetonitrile
Gradient: A:B (95:5) to (5:95) in 2.9 minutes
Flow Rate: 1.1 mL/min
Detection: UV @ 254 nm
Injection: 1 μL

Temperature: 50 °C

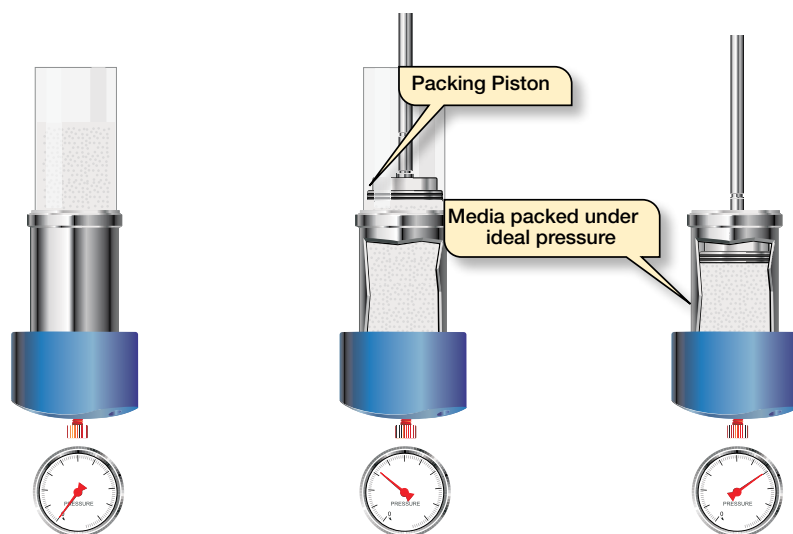
Sample: 1. Pyridine (0.22 mg/mL)
 2. Acetaminophen (0.20 mg/mL)
 3. Benzyl Alcohol (0.32 mg/mL)
 4. Nortriptyline (0.5 mg/mL)
 5. 3-Methyl-4-Nitrobenzoic Acid (0.25 mg/mL)
 6. 4-Chlorocinnamic Acid (0.20 mg/mL)
 7. 3-Hydroxy-3-Methylbenzaldehyde (0.25 mg/mL)
 8. Hexanophenone (1.2 mg/mL)

Comparative separations may not be representative of all applications.

AXIA™ PACKED PREPARATIVE TECHNOLOGY WITH SYNERGI MEDIA

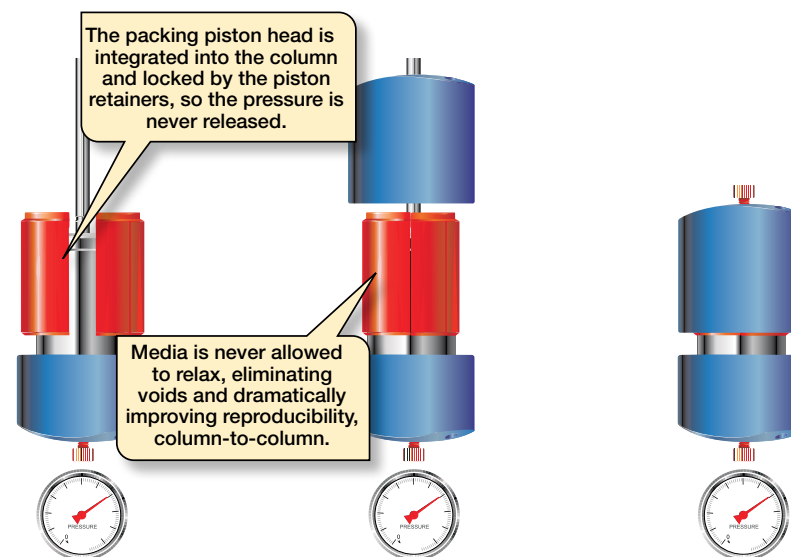
An advanced column packing and hardware design, Axia incorporates patented Hydraulic Piston Compression technology to eliminate bed collapse as a source of failure in short preparative columns. Ideal bed density is custom calculated and automated for each support, chemistry, and column size. Computer control of the entire process assures both proper bed density and uniformity. Using a single, controlled hydraulic compression, the piston assembly is locked in place without allowing the media to decompress or “relax,” thus maintaining media and column bed integrity. Recompression of the bed is not required, as it is for other packing methodologies.

AXIA PACKING PROCESS

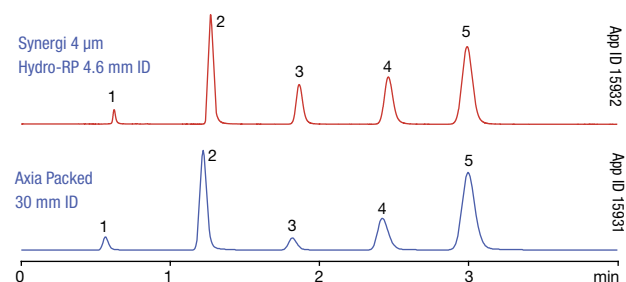


The result is an improved, repeatable packing process, giving preparative chromatographers:

- Extended column lifetime
- Column-to-column reproducibility
- Higher efficiency
- Improved peak shape
- Increased loadability
- Stability under high flow rates



HIGH EFFICIENCY IN A PREPARATIVE COLUMN



Columns: Synergi 4 µm Hydro-RP
 Dimensions: 75 x 4.6 mm
 75 x 30 mm Axia Packed
 Part No.: 00C-4375-E0
 00C-4375-U0-AX
 HPLC System: Agilent 1100 (4.6 mm ID)
 Gilson Preparative System (30 mm ID)
 Mobile Phase: Water/Acetonitrile (35:65)
 Flow Rate: 1.0 mL/min (4.6 mm ID)
 43 mL/min (30 mm ID)

Detection: UV @ 254 nm
 Temperature: Ambient
 Sample: 1. Uracil
 2. Acetophenone
 3. Benzene
 4. Toluene
 5. Naphthalene



FAST LC SOLUTIONS

2.5 µm High Speed Technology (HST) Columns (mm)						
Phases	30 x 2.0	50 x 2.0	100 x 2.0	50 x 3.0	100 x 3.0	50 x 4.6
Max-RP	00A-4372-B0	00B-4372-B0	00D-4372-B0	00B-4372-Y0	00D-4372-Y0	00B-4372-E0
Hydro-RP	00A-4387-B0	00B-4387-B0	00D-4387-B0	00B-4387-Y0	00D-4387-Y0	00B-4387-E0
Polar-RP	00A-4371-B0	00B-4371-B0	00D-4371-B0	00B-4371-Y0	00D-4371-Y0	00B-4371-E0
Fusion-RP	00A-4423-B0	00B-4423-B0	00D-4423-B0	00B-4423-Y0	00D-4423-Y0	00B-4423-E0

2.5 µm MercuryMS LC/MS Cartridges (mm)					Columns (mm)	
Phases	10 x 2.0	10 x 4.0	20 x 2.0	20 x 4.0	20 x 2.0	20 x 4.0
Max-RP	00N-4372-B0-CE	00N-4372-D0-CE	00M-4372-B0-CE	00M-4372-D0-CE	00M-4372-B0	00M-4372-D0
Hydro-RP	00N-4387-B0-CE	00N-4387-D0-CE	00M-4387-B0-CE	00M-4387-D0-CE	00M-4387-B0	00M-4387-D0
Polar-RP	—	00N-4371-D0-CE	00M-4371-B0-CE	00M-4371-D0-CE	00M-4371-B0	—
Fusion-RP	00N-4423-B0-CE	00N-4423-D0-CE	00M-4423-B0-CE	00M-4423-D0-CE	00M-4423-B0	00M-4423-D0

CAPILLARY COLUMNS

4 µm Synergi Capillary Columns (mm)					
Phases	50 x 0.30	150 x 0.30	50 x 0.50	150 x 0.50	250 x 0.50
Max-RP	00B-4337-AC	00F-4337-AC	—	—	00G-4337-AF
Hydro-RP	00B-4375-AC	00F-4375-AC	00B-4375-AF	00F-4375-AF	00G-4375-AF
Fusion-RP	00B-4424-AC	00F-4424-AC	00B-4424-AF	00F-4424-AF	00G-4424-AF

4 µm Synergi Capillary Guard Columns (mm)	
Phases	20 x 0.30
Max-RP	—
Hydro-RP	03M-4375-AC
Fusion-RP	03M-4424-AC



If Synergi analytical columns do not provide at least an equivalent separation as compared to a competing column of similar particle size, similar phase and dimensions, return the column with your comparative data within 45 days for a FULL REFUND.

MERCURY MS™ CARTRIDGE HOLDERS



Direct-Connect Holder

Standard Holder

Direct-Connect Cartridge Holders

Part No.	Description	Price
CHO-7187	10 mm direct-connect holder	
CHO-7188	20 mm direct-connect holder	

Standard Cartridge Holders

Part No.	Description	Price
CHO-5846	10 mm standard holder	
CHO-5845	20 mm standard holder	

MERCURY MS CARTRIDGE HOLDERS

These convenient screening kits allow quick, easy and economical evaluation of multiple phases. Each kit contains one cartridge of each available phase and a standard holder. Available in either 3 µm or 5 µm Luna with 2.5 µm Synergi.



Screening Kits

	20 x 2.0 mm Kit	20 x 4.0 mm Kit
Kit A includes 1 ea of:	KHO-7333	KHO-7334
Luna 3 µm C18(2) Cartridge		
Luna 3 µm C8(2) Cartridge		
Synergi 2.5 µm Max-RP Cartridge		
Synergi 2.5 µm Hydro-RP Cartridge		
20 mm Standard Cartridge Holder		
Kit B includes 1 ea of:	KHO-7335	KHO-7336
Luna 5 µm C18(2) Cartridge		
Luna 5 µm C8(2) Cartridge		
Synergi 2.5 µm Max-RP Cartridge		
Synergi 2.5 µm Hydro-RP Cartridge		
20 mm Standard Cartridge Holder		

HPLC COLUMNS

4 µm Microbore and Minibore Columns (mm)								SecurityGuard™ Cartridges (mm)	
Phases	50 x 1.0	150 x 1.0	250 x 1.0	30 x 2.0	50 x 2.0	75 x 2.0	150 x 2.0	250 x 2.0	4 x 2.0*
Max-RP	00B-4337-A0	00F-4337-A0	—	00A-4337-B0	00B-4337-B0	00C-4337-B0	00F-4337-B0	00G-4337-B0	AJO-6073
Hydro-RP	00B-4375-A0	00F-4375-A0	00G-4375-A0	00A-4375-B0	00B-4375-B0	00C-4375-B0	00F-4375-B0	00G-4375-B0	AJO-7510
Polar-RP	00B-4336-A0	00F-4336-A0	—	00A-4336-B0	00B-4336-B0	00C-4336-B0	00F-4336-B0	00G-4336-B0	AJO-6075
Fusion-RP	00B-4424-A0	00F-4424-A0	—	00A-4424-B0	00B-4424-B0	00C-4424-B0	00F-4424-B0	00G-4424-B0	AJO-7556

for ID: 2.0-3.0 mm

4 µm Narrow Bore Columns (mm)				SecurityGuard™ Cartridges (mm)	
Phases	30 x 3.0	50 x 3.0	250 x 3.0	4 x 2.0*	/10 pk
Max-RP	00A-4337-Y0	00B-4337-Y0	00G-4337-Y0	AJO-6073	
Hydro-RP	00A-4375-Y0	00B-4375-Y0	00G-4375-Y0	AJO-7510	
Polar-RP	00A-4336-Y0	00B-4336-Y0	00G-4336-Y0	AJO-6075	
Fusion-RP	00A-4424-Y0	00B-4424-Y0	00G-4424-Y0	AJO-7556	

for ID: 2.0-3.0 mm

4 µm Analytical Columns (mm)						SecurityGuard™ Cartridges (mm)	
Phases	30 x 4.6	50 x 4.6	75 x 4.6	150 x 4.6	250 x 4.6	4 x 3.0*	/10 pk
Max-RP	00A-4337-E0	00B-4337-E0	00C-4337-E0	00F-4337-E0	00G-4337-E0	AJO-6074	
Hydro-RP	00A-4375-E0	00B-4375-E0	00C-4375-E0	00F-4375-E0	00G-4375-E0	AJO-7511	
Polar-RP	00A-4336-E0	00B-4336-E0	00C-4336-E0	00F-4336-E0	00G-4336-E0	AJO-6076	
Fusion-RP	00A-4424-E0	00B-4424-E0	00C-4424-E0	00F-4424-E0	00G-4424-E0	AJO-7557	

for ID: 3.2-8.0 mm

PREPARATIVE COLUMNS

Axia™ Packed Preparative Columns (mm)						SecurityGuard™ Cartridges (mm)	
Phases	50 x 21.2	100 x 21.2	150 x 21.2	250 x 21.2	15 x 21.2**		
4 µm					/ea		
Max-RP	00B-4337-P0-AX	00D-4337-P0-AX	00F-4337-P0-AX	00G-4337-P0-AX	AJO-7842		
Hydro-RP	00B-4375-P0-AX	00D-4375-P0-AX	00F-4375-P0-AX	00G-4375-P0-AX	AJO-7843		
Polar-RP	00B-4336-P0-AX	00D-4336-P0-AX	00F-4336-P0-AX	00G-4336-P0-AX	AJO-7845		
Fusion-RP	00B-4424-P0-AX	00D-4424-P0-AX	00F-4424-P0-AX	00G-4424-P0-AX	AJO-7844		
10 µm					/ea		
Max-RP	—	00D-4350-P0-AX	Inquire	00G-4350-P0-AX	AJO-7842		
Hydro-RP	—	—	Inquire	00G-4376-P0-AX	AJO-7843		
Polar-RP	—	—	Inquire	00G-4351-P0-AX	AJO-7845		
Fusion-RP	—	—	Inquire	00G-4425-P0-AX	AJO-7844		

for ID: 18-29 mm

Axia™ Packed Preparative Columns (mm) continued						SecurityGuard™ Cartridges (mm)	
Phases	50 x 30	75 x 30	100 x 30	250 x 30	15 x 30.0*		
4 µm				Inquire	/ea		
Max-RP	00B-4337-U0-AX	00C-4337-U0-AX	00D-4337-U0-AX	00G-4337-U0-AX	AJO-8304		
Hydro-RP	00B-4375-U0-AX	00C-4375-U0-AX	00D-4375-U0-AX	00G-4375-U0-AX	AJO-8305		
Polar-RP	00B-4336-U0-AX	00C-4336-U0-AX	00D-4336-U0-AX	00G-4336-U0-AX	AJO-8307		
Fusion-RP	—	—	00D-4424-U0-AX	00G-4424-U0-AX	AJO-8306		
10 µm					/ea		
Max-RP	00B-4350-U0-AX	—	00D-4350-U0-AX	00G-4350-U0-AX	AJO-8304		
Hydro-RP	00B-4376-U0-AX	—	—	00G-4376-U0-AX	AJO-8305		
Polar-RP	00B-4351-U0-AX	—	—	00G-4351-U0-AX	AJO-8307		
Fusion-RP	—	—	00D-4425-U0-AX	—	AJO-8306		

for ID: 30-49 mm

4 µm Semi-Prep Columns (mm)			SecurityGuard™ Cartridges (mm)	
Phases	250 x 10	10 x 10*		
Max-RP	00G-4337-N0	AJO-7275		
Hydro-RP	00G-4375-N0	AJO-7512		
Polar-RP	00G-4336-N0	AJO-7276		
Fusion-RP	00G-4424-N0	AJO-7558		

for ID: 9-16 mm

*SecurityGuard™ Analytical Cartridges require holder, Part No.: KJO-4282
 †SemiPrep SecurityGuard™ Cartridges require holder, Part No.: AJO-7220
 **PREP SecurityGuard™ Cartridges require holder, Part No.: AJO-8223
 *PREP SecurityGuard™ Cartridges require holder, Part No.: AJO-8277



Synergi Bulk Media

Beyond our largest preparative column dimensions, Synergi phases are available in bulk quantities for HPLC purification at the process, pilot, and commercial scale. These medias offer a complementary selectivity to the standard C18, C8, or Silica phases traditionally employed in larger scale HPLC. Additionally, due to the diverse chemical properties of each of the Synergi phases, dramatic differences in chromatographic parameters such as retention time, selectivity, and resolution are often observed. For those challenging purifications where chromatography still makes the most sense, the Synergi family offers an excellent alternative to evaluate! Contact Phenomenex to evaluate these phases today!



PILOT SCALE COLUMNS AND BULK MATERIAL

10 µm Analytical and Semi-Prep Columns (mm)					SecurityGuard™ Cartridges (mm)	
Phases	250 x 4.6	250 x 10	4 x 3.0*	10 x 10†		
Max-RP	00G-4350-E0	00G-4350-N0	AJO-6074	AJO-7275		
Hydro-RP	00G-4376-E0	00G-4376-N0	AJO-7511	AJO-7512		
Polar-RP	00G-4351-E0	00G-4351-N0	AJO-6076	AJO-7276		
Fusion-RP	00G-4425-E0	00G-4425-N0	AJO-7557	AJO-7558		

for ID: 3.2-8.0 mm

9-16 mm

10 µm Bulk Packings			
Phases	100 g	1 kg	5 kg
Max-RP	04G-4350	04K-4350	04L-4350
Hydro-RP	04G-4376	04K-4376	04L-4376
Polar-RP	04G-4351	04K-4351	04L-4351
Fusion-RP	04G-4425	04K-4425	04L-4425

Larger quantities of bulk media available upon request.

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Axia is patented by Phenomenex, Inc. U.S. Patent No. 7,674,383

SecurityGuard is patented by Phenomenex, Inc. U.S. Patent No. 6,162,362

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FULL RANGE SELECTIVITY FOR REVERSED PHASE SEPARATION

Australia

t: 02-9428-6444
f: 02-9428-6445
auinfo@phenomenex.com

Austria

t: 01-319-1301
f: 01-319-1300
anfrage@phenomenex.com

Belgium

t: +31 (0)30-2418700
f: +31 (0)30-2383749
beinfo@phenomenex.com

Canada

t: (800) 543-3681
f: (310) 328-7768
info@phenomenex.com

Denmark

t: 4824 8048
f: +45 4810 6265
nordicinfo@phenomenex.com

Finland

t: 09 4789 0063
f: +45 4810 6265
nordicinfo@phenomenex.com

France

t: 01 30 09 21 10
f: 01 30 09 21 11
franceinfo@phenomenex.com

Germany

t: 06021-58830-0
f: 06021-58830-11
anfrage@phenomenex.com

India

t: 040-3012 2400
f: 040-3012 2411
indiainfo@phenomenex.com

Ireland

t: 01 247 5405
f: +44 1625-501796
eireinfo@phenomenex.com

Italy

t: 051 6327511
f: 051 6327555
italiainfo@phenomenex.com

Luxembourg

t: +31 (0)30-2418700
f: +31 (0)30-2383749
nlinfo@phenomenex.com

Mexico

t: 001-800-844-5226
f: 001-310-328-7768
tecnicomx@phenomenex.com

The Netherlands

t: 030-2418700
f: 030-2383749
nlinfo@phenomenex.com

New Zealand

t: 09-4780951
f: 09-4780952
nzinfo@phenomenex.com

Norway

t: 810 02 005
f: +45 4810 6265
nordicinfo@phenomenex.com

Puerto Rico

t: (800) 541-HPLC
f: (310) 328-7768
info@phenomenex.com

Sweden

t: 08 611 6950
f: +45 4810 6265
nordicinfo@phenomenex.com

United Kingdom

t: 01625-501367
f: 01625-501796
ukinfo@phenomenex.com

United States

t: (310) 212-0555
f: (310) 328-7768
info@phenomenex.com

All other countries: Corporate Office USA

t: (310) 212-0555
f: (310) 328-7768
info@phenomenex.com



www.phenomenex.com

Phenomenex products are available worldwide. For the distributor in your country, contact Phenomenex USA, International Department at international@phenomenex.com