

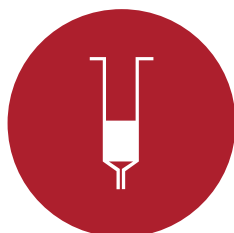
Chromatography consumables

# Connected chromatography solutions

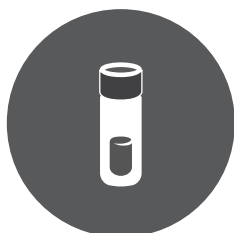
Chromatography consumables catalog

# Comprehensive products to support your chromatography workflows

## Sample preparation solutions



## Sample handling solutions



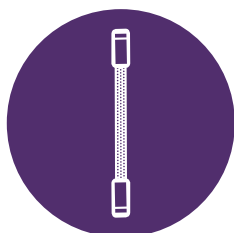
## Low-flow LC columns and accessories



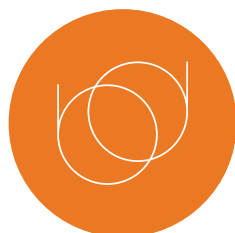
## BioLC columns and accessories



## LC columns and accessories



## GC columns and accessories

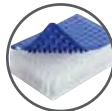


Thermo Scientific™ products:

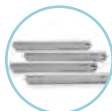
- SMART Digest™ kits
- SOLA™ SPE products
- HyperSep™ SPE products
- TurboFlow™ and online sample preparation products
- QuEChERS products
- Automated micro solid-phase extraction (μSPE) products
- Syringes and syringe filters



- SureSTART™ AVCS™ closures and SureStop vials
- SureSTART™ Gold grade purity glass vials and vial kits
- SureSTART™ low residual microsampling vials and vial kits
- MS certified vials
- Polyspring vial inserts
- Electronic crimping and decrimping tools
- WebSeal™ well-plates and sealing mats for chromatography



- EASY-Spray™ HPLC columns for top-down and bottom-up proteomics
- Double nanoViper PepMap™ Neo HPLC columns for top-down and bottom-up proteomics
- μPAC™ HPLC columns for bottom-up proteomics



- MAbPac™ size exclusion chromatography
- MAbPac™ and ProPac™ charged variant profiling
- MAbPac™ intact and subunit analysis
- HILIC and mixed-mode glycan analysis
- DNAPac™ oligonucleotide and gene therapy analysis
- Vanquish™ UHPLC peptide analysis



- Accucore™ U/HPLC columns
- Acclaim™ U/HPLC columns
- Hypersil GOLD™ U/HPLC columns
- Hypercarb™ HPLC columns
- Application specific HPLC columns
- Hypersil™ BDS and Hypersil™ classical HPLC columns
- LC accessories
- Preparative HPLC columns



- TracePLOT™ GC columns
- TraceGOLD™ packed GC columns
- GuardGOLD™ capillary GC columns
- LinerGOLD™ liners
- Super Clean™ gas cartridge filters
- GC consumables
- Gas management
- GC equipment
- GC reagents



# Our portfolio

## Sample preparation solutions

Save time, improve reproducibility, and extend the lifetime of your High/Ultra High Performance Liquid Chromatography (HPLC/UHPLC) and gas chromatography (GC) columns with our comprehensive range of sample preparation products. Achieve high sensitivity, selectivity, and recovery with advanced solid-phase extraction (SPE) consumables.



## Sample handling solutions

We provide a broad selection of sample handling and containment solutions from all your chromatography requirements. Our vials, closures and well plates, come with the lowest levels of extractables and leachables, are made from glass that has low compound adsorption, and the highest level of standards and certification available in the marketplace. Whether you have routine and robust samples, or you need to ensure the highest level of confidence and compliance, our market leading portfolio of storage and autosampler vials and closure, well plates and sample handling accessories has everything you'll need.



## Low-flow LC columns and accessories

Low-flow chromatography is ideal when detailed sample information is required from small sample volumes, such as proteomics and intact protein analysis. The Thermo Scientific range of nano-, capillary-, and micro-flow columns offer excellent sensitivity and resolution in easy-to-use formats.



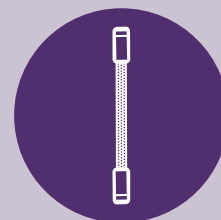
## BioLC columns and accessories

Achieve ultrahigh resolution and high efficiency separations of proteins, peptides, monoclonal antibodies, biosimilars, carbohydrates, oligonucleotides and more. Our unique column chemistries for biological samples have a long-standing reputation for providing excellent reproducibility and durability under a broad range of pH, temperature, and mobile phase compositions.



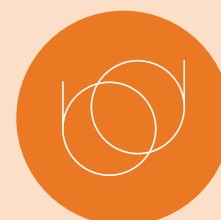
## LC columns and accessories

As a leader in LC column technology including silica, polymer and porous graphitic carbon manufacturing, bonded phase production and column packing for 40 years, you can rely on the quality of Thermo Scientific high performance liquid chromatography (HPLC) products: a comprehensive range of innovative columns, accessories and equipment for fast and reproducible analytical and prep HPLC and ultra-high performance liquid chromatography (UHPLC) analysis.



## GC columns and accessories

We offer a broad portfolio of GC columns and accessories designed to give optimal system performance for today's challenging analyses. Our range of GC accessories include all the tools needed by today's gas chromatographers.



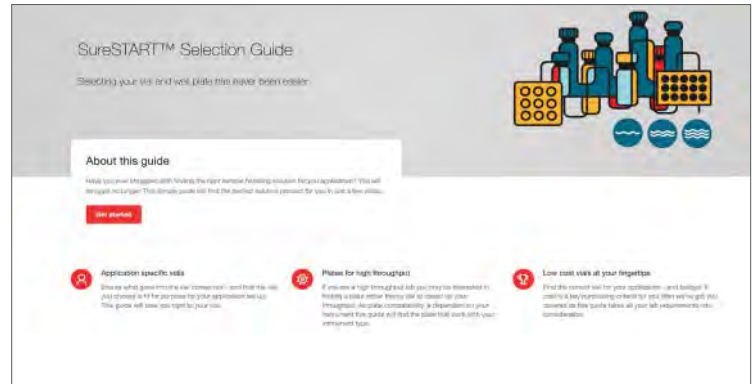
# Product selection tools and additional resources

## Sample handling selection guide



### Need a quick answer?

Why not use our online product selector guide that includes our entire SureSTART Collection of vials, caps, well plates and mats.

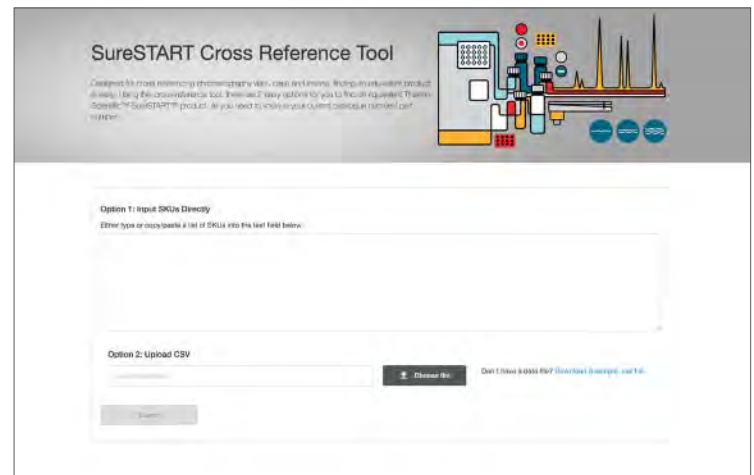


## Sample handling cross reference tool



### Already purchasing an existing product from us or someone else?

Let our cross-reference tool find the equivalent SureSTART product/catalog number for you.





# Product selection tools and additional resources

## Septa selection tool



### Choosing the right septa can be complex!

There are a number of factors that should be considered including: needle type, vial type, solvents and temperature that the septa will be exposed to. Let us help you find the right septa with this easy-to-use tool.



The screenshot shows the 'Septa Selection Tool' website. The header is red with white text: 'Septa Selection Tool' and 'An easy-to-use tool that ensures you find the right septa for your experimental requirements.' Below this is a white box titled 'About this tool' with text explaining the complexity of choosing septa and a red 'Get Started' button. A section titled 'Why use the Septa Selection Guide?' features three red circular icons with white text: '1. Needle / autosampler issues', '2. Septa compatibility with solvents', and '3. New experimental parameters'. The background of the right side shows various colored septa.

## LC columns selection guide



### Find your columns with ease!

Finding the correct column can be a challenge, so we have made it easy for you. This guide will take you directly to the right product for you, so that you can start your method today.



The screenshot shows the 'LC Column Selection Guide' website. The header is grey with white text: 'LC Column Selection Guide' and 'An easy-to-use tool that ensures you find the right LC column for your experimental requirements.' Below this is a white box titled 'Find your column with ease!' with text explaining the challenge and a red 'Get started' button. A section titled 'Find your column with ease!' features three red circular icons with white text: '1. Need an equivalent column?', '2. Setting up a USP method?', and '3. Brand new method?'. The background of the right side shows a red molecular structure.

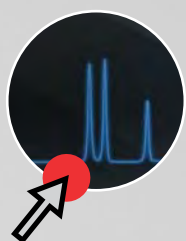
# More information



## Chromatography columns and consumables

For more information on our range of chromatography columns and consumables, including the latest applications, educational resources, selection guides and product literature, please visit

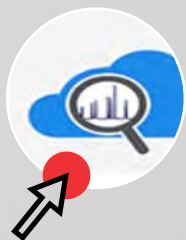
[thermofisher.com/chromatographyconsumables](https://thermofisher.com/chromatographyconsumables)



## Instrumentation and key applications

For more information on our instrumentation and key applications, please visit

[thermofisher.com/chromatography](https://thermofisher.com/chromatography)



## AppsLab

Gain access to our applications expertise on cloud-based Thermo Scientific™ AppsLab library of analytical applications for a comprehensive fully searchable method repository

[appslab.thermofisher.com](https://appslab.thermofisher.com)



## Webinars

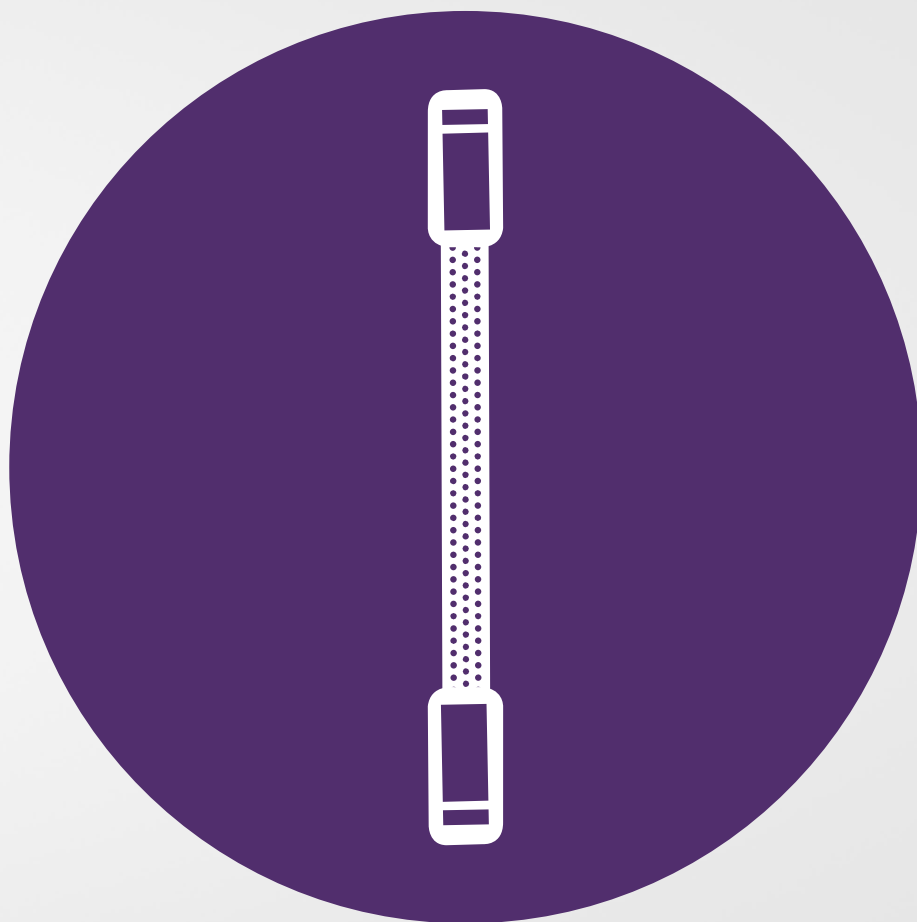
Analytical and life science webinars live and on-demand



## NIBRT collaboration information

A collaboration built for Biopharma between the National Institute for Bioprocessing Research and Training (NIBRT) and Thermo Fisher Scientific

[thermofisher.com/nibrt](https://thermofisher.com/nibrt)



# Connected chromatography solutions

LC columns and accessories

# LC columns and accessories

As a leader in LC column technology including silica, polymer and porous graphitic carbon manufacturing, bonded phase production and column packing for 40 years, you can rely on the quality of Thermo Scientific HPLC products. Here, we showcase our latest and most comprehensive range of innovative columns, accessories and equipment for fast LC, analytical HPLC and UHPLC.



## **Thermo Scientific™ Accucore™ columns**

Solid core particles enabling high speed, high resolution separations with back pressures significantly lower than those associated with UHPLC.



## **Hypersil GOLD**

Thermo Scientific™ Hypersil GOLD™ columns offers chromatographers outstanding peak shape for reversed phase, ion exchange, HILIC or normal phase chromatography.



## **Thermo Scientific™ Acclaim™ columns**

Acclaim columns are based on high-purity, porous silica particles with advanced and innovative column bonding technologies. This provides complementary selectivity, high column efficiencies and symmetrical peaks.



## **Thermo Scientific™ Viper™ fittings**

Maximize liquid chromatography (LC) performance and get zero-dead-volume connections to ensure optimal separations.

## Section contents

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Acclaim HPLC and UHPLC columns	39
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# Accucore HPLC and UHPLC columns

## Accucore Vanquish UHPLC columns

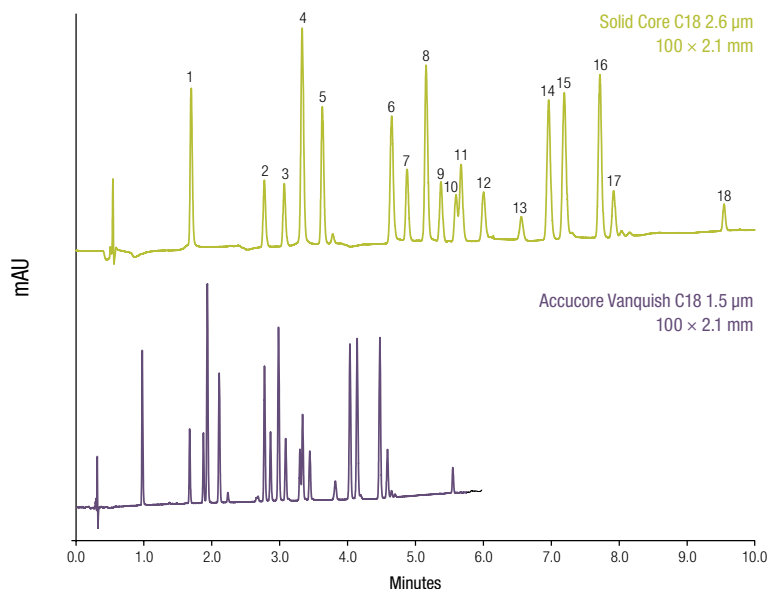
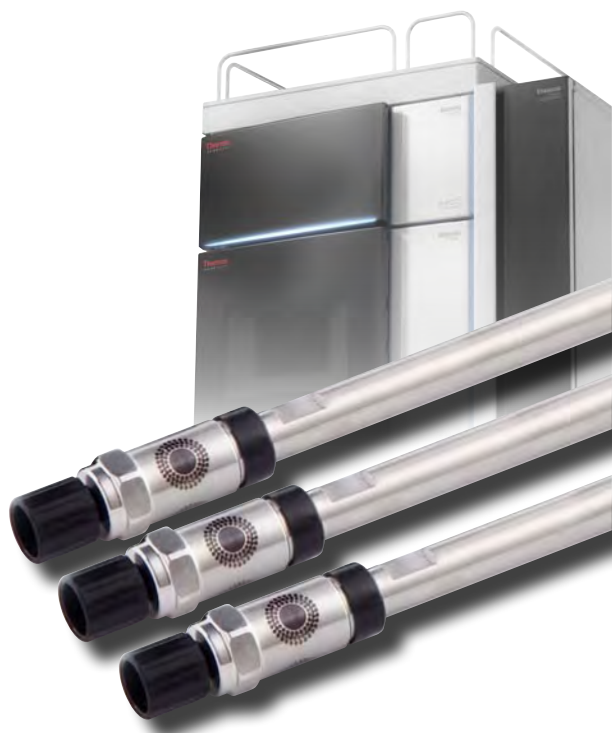
Thermo Scientific™ Accucore™ Vanquish™ UHPLC columns provide a robust chromatography solution to enhance laboratory workflows and productivity. These columns, in combination with Vanquish UHPLC systems, deliver powerful separations to solve your analytical challenges faster and more effectively.

These next-generation UHPLC columns feature 1.5µm solid core particles and combine the benefits of a solid core material and the increased chromatographic efficiency of a sub-2µm particle.

Modern analytical laboratories continue to be driven towards higher throughput workflows which require better separations, more results and easier interaction at a reduced cost. Accucore Vanquish UHPLC columns enable you to achieve this by delivering:

### Better separations

The high efficiency offered by Accucore Vanquish UHPLC columns enables the resolution of very complex mixtures.



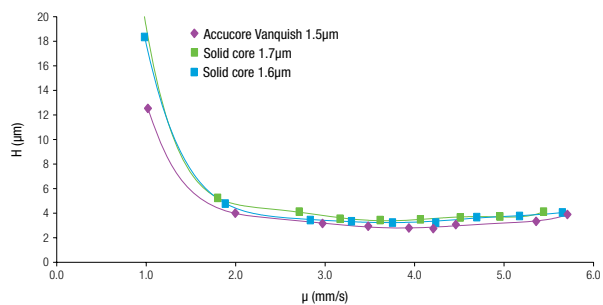
Comparison of separation of 18 pesticides using Accucore Vanquish 1.5µm column to a larger particle size solid core column

Mobile Phase A:Water	
Mobile Phase B:Acetonitrile	
Gradient:	Solid core C18 2.6µm 100 x 2.1mm
Time (min)	%B
0	20
6.9	40
12.1	80
Gradient:	Accucore Vanquish C18 1.5µm 100 x 2.1mm
Time (min)	%B
0	20
4	40
7	80
Temperature:	43°C
Flow Rate:	Solid Core C18 2.6µm 100 x 2.1mm = 380µL/min
	Accucore Vanquish C18 1.5µm 100 x 2.1mm = 650µL/min
Injection Volume:	0.5µL
Detection:	UV, 230nm (0.1s rise time, 50Hz)
Analytes:	1. Desethylatrazine 10. Diuron 2. Metoxuron 11. Isoproturon 3. Hexazinone 12. Metobromuron 4. Simazine 13. Metazachlor 5. Cyanazine 14. Sebuthylazin 6. Methabenzthiazuron
15. Propazine	7. Chlorotoluron 16. Terbutylazine 8. Atrazine 17. Linuron 9. Monolinuron 18. Metolachlor

For more information, visit [thermofisher.com/accucore](http://thermofisher.com/accucore)

### More results

High efficiency is maintained even at high flow rates enabling fast reproducible separations.



#### Accucore Vanquish C18, 1.5μm

Solid Core C18 1.7μm  
Solid Core C18 1.6μm

Mobile Phase: Water:acetonitrile (50:50)

Temperature: 30°C

Flow Rate: 0.1 to 0.6mL/min

### Accucore Vanquish

Particle Size (μm)	Format	Length (mm)	ID (mm)	C18+
1.5	UHPLC Column	50	2.1	27101-052130
		100	2.1	27101-102130
		150	2.1	27101-152130

For more information, visit [thermofisher.com/vanquishcolumn](http://thermofisher.com/vanquishcolumn)



## Validated for Vanquish UHPLC columns

### Delivering Powerful Separations

The Thermo Scientific™ Accucore™ Vanquish™ and VANQUISH UHPLC columns were developed to complement the performance characteristics of the Vanquish UHPLC system. They provide greater selectivity and format flexibility, in combination with the increased chromatographic efficiency of lower particle sizes.

The UHPLC column and system solution allows you to achieve the best possible results for your application by delivering:

- Better Separations: High efficiency enables separation of very complex mixtures
- More Results: High efficiency at high flow rates
- Easier Interactions: Seamless workflow solution, for simple and easy separations
- Capable of pressure operation up to 21,000psi/1500 bar

### Ordering information

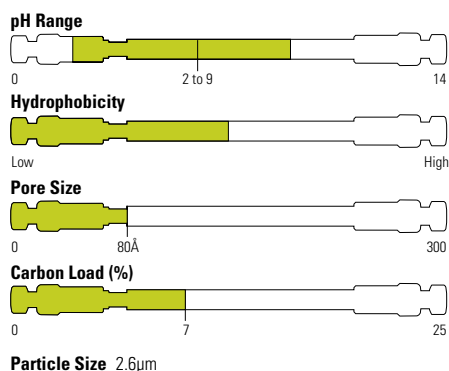
Description	Particle Size	Length (mm)	Diameter (ID)	Part Number
Accucore Vanquish C18+	1.5	50	2.1	27101-052130
		100	2.1	27101-102130
		150	2.1	27101-152130
Hypersil GOLD VANQUISH	1.9	50	2.1	25002-052130-V
		100	2.1	25002-102130-V
		150	2.1	25002-152130-V
Hypersil GOLD VANQUISH PFP	1.9	100	2.1	25402-102130-V
		150	2.1	25402-152130-V
		200	2.1	25402-202130-V
Hypersil GOLD VANQUISH aQ	1.9	100	2.1	25302-102130-V
		150	2.1	25302-152130-V
		200	2.1	25302-202130-V
Acclaim VANQUISH C18	2.2	150	2.1	071399-V
		250	2.1	074812-V
Acclaim VANQUISH PA2	2.2	150	2.1	071401-V
		250	2.1	074814-V

For more information, visit [thermofisher.com/vanquishcolumn](https://thermofisher.com/vanquishcolumn)

## Accucore Biphenyl

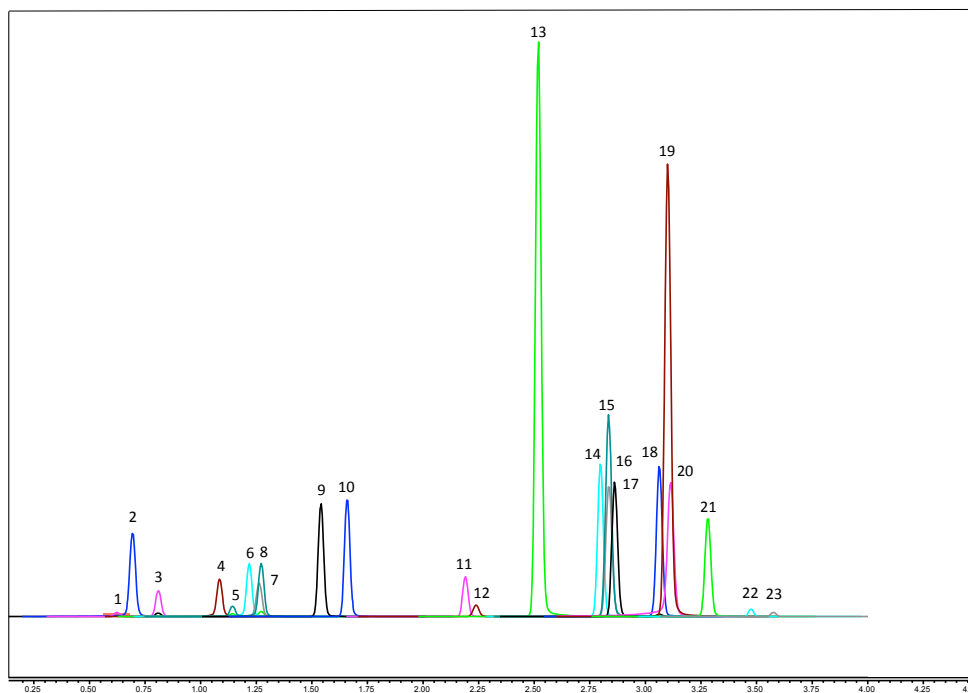
Generally C18 columns offer the ability to resolve a wide variety of analytes without issues. However, there are times when alternative chemistry is required for the separation of aromatic and moderately polar analytes. Biphenyl chemistry offers complementary selectivity to a C18 column, resolving analytes not just on hydrophobicity, but also  $\pi$ - $\pi$  interactions. This chemistry provides the ability to resolve isomeric compounds, such as drugs of abuse and steroids.

- Compatibility with 100% aqueous conditions
- Lower backpressure, UHPLC not required
- Great column lifetime
- Excellent lot-to-lot reproducibility
- Rugged column, suitable for a variety of matrices



### Accucore Biphenyl

Mobile Phase A:	Water/0.1% Formic Acid
Mobile Phase B:	Methanol/ 0.1% Formic Acid
Gradient:	Accucore Biphenyl
	2.6 $\mu$ m 50 x 2.1mm
Injection Volume:	2 $\mu$ L
Column Temp:	45C
Detection:	MS



1	Morphine
2	Oxymorphone
3	Hydromorphone
4	Naloxone
5	Codeine
6	Oxycodone
7	Naltrexone
8	Hydrocodone
9	Tramadol
10	Meperidine
11	Fentanyl
12	Buprenorphine
13	Methadone
14	Lorazepam
15	Oxazepam
16	Nitrazepam
17	Clonazepam
18	Flunitrazepam
19	Temazepam
20	Alprazolam
21	Diazepam
22	11-Hydroxy-THC
23	11-Carboxy-THC

### Part numbers

2.1x50mm	17826-052130
2.1x100mm	17826-102130
2.1x10mm drop in cartridge	17826-012105
Drop in Cartridge holder	852-00

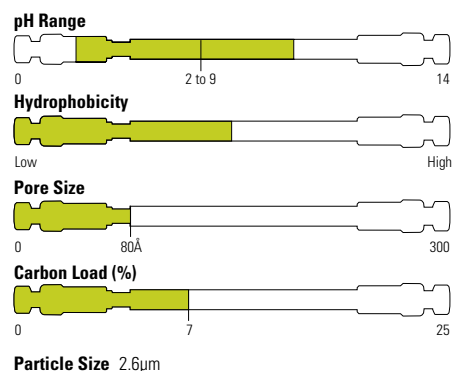
## Accucore RP-MS

- Optimized for MS detection
- Excellent peak shapes
- Excellent combination of speed and efficiency

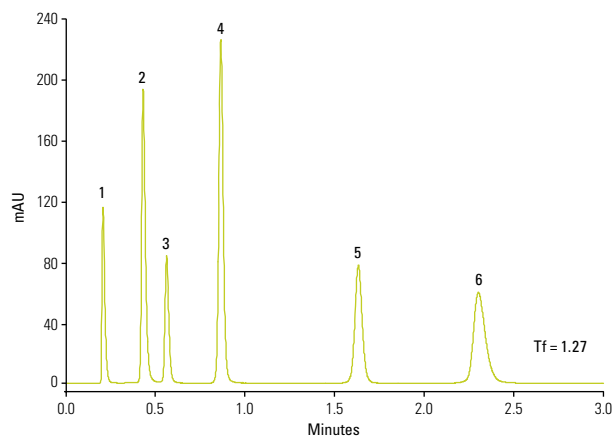
Accucore RP-MS uses an optimized alkyl chain length for more effective coverage of the silica surface. This coverage results in a significant reduction in non-hydrophobic interactions and thus highly efficient peaks with very low tailing.

RP-MS offers slightly lower retention than C18 and this combined with high efficiencies and low peak tailing make this the phase of choice for use with MS detection.

The selectivity offered by Accucore RP-MS matches that of C18 columns.



### Bases



#### Accucore RP-MS 2.6μm, 50mm x 2.1mm

Mobile Phase:	65% Methanol / 35% 25mM Potassium Phosphate pH7.0
Temperature:	30°C
Flow Rate:	500μL/min
Injection Volume:	1μL
Backpressure:	232 bar
Detection:	UV, 215nm
Analytes:	1. Uracil 2. Propranolol 3. Butylparaben 4. Naphthalene 5. Acenaphthene 6. Amitriptyline

### Accucore RP-MS

Particle Size (μm)	Format	Length (mm)	2.1mm ID	3.0mm ID	4.6mm ID
2.6	Defender Guard (4/pk)	10	17626-012105	17626-013005	17626-014005
	HPLC Column	30	17626-032130	-	-
		50	17626-052130	17626-053030	17626-054630
		100	17626-102130	17626-103030	17626-104630
		150	17626-152130	17626-153030	17626-154630
	Thermo Scientific™ UNIGUARD™ Drop-in Guard Cartridge Holder	10	852-00	852-00	850-00

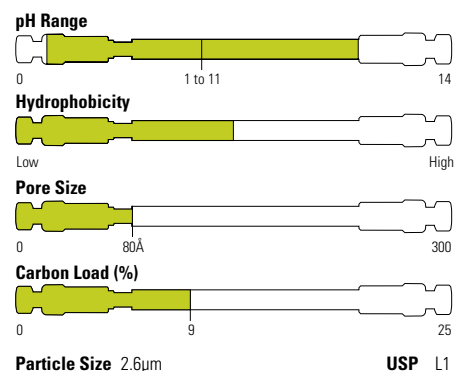
For more information, visit [thermofisher.com/accucore](http://thermofisher.com/accucore)

## Accucore C18

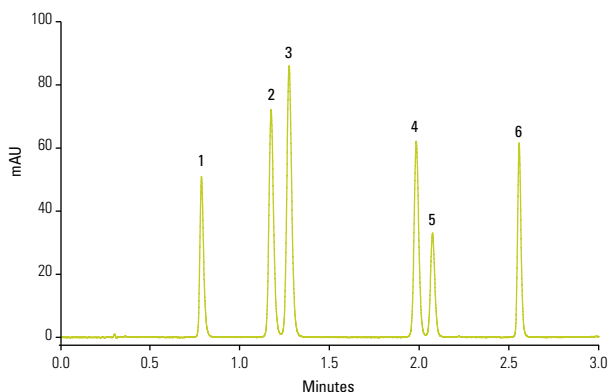
- Optimum retention of non-polar compounds
- Hydrophobic interaction mechanism
- Separates a broad range of analytes

The carbon loading of Accucore C18 phase provides high retention of non-polar analytes via a predominantly hydrophobic interaction mechanism.

The highly retentive nature of Accucore C18 phase means that it can be used to separate a broad range of analytes.



## Triazines



### Accucore C18 2.6µm, 50mm x 2.1mm

Mobile Phase A:	Water	
Mobile Phase B:	Acetonitrile	
Gradient:	Time (min)	%B
	1.0	35
	2.5	70
Temperature:	25°C	
Flow Rate:	600µL/min	
Injection Volume:	2µL	
Backpressure:	298 bar	
Detection:	UV, 280nm	
Analytes:	1. Simazine 2. Simetryn 3. Atrazine 4. Ametryn 5. Propazine 6. Prometryn	

### Accucore C18

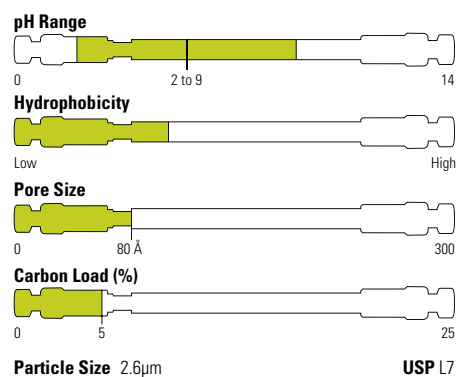
Particle Size (µm)	Format	Length (mm)	1mm ID	2.1mm ID	3.0mm ID	4.6mm ID
2.6	Defender Guard (4/pk)	10	-	17126-012105	17126-013005	17126-014005
	HPLC Column	30	-	17126-032130	-	-
		50	-	17126-052130	17126-053030	17126-054630
		100	17126-101030	17126-102130	17126-103030	17126-104630
		150	-	17126-152130	17126-153030	17126-154630
4	UNIGUARD Drop-in Guard Cartridge Holder	10	-	852-00	852-00	850-00

## Accucore C8

- Lower hydrophobic retention
- Complementary steric selectivity to C18
- Low levels of secondary interactions
- Recommended for moderately polar analytes

Accucore C8 HPLC columns offer lower hydrophobic retention than columns packed with longer alkyl chain length material, such as C18, and are therefore recommended for analytes with medium hydrophobicity or when a less hydrophobic phase provides optimum retention.

The low levels of secondary interactions demonstrated in the phase characterization are the result of excellent bonded phase coverage and allow users of Accucore C8 HPLC columns to benefit from excellent peak shapes.



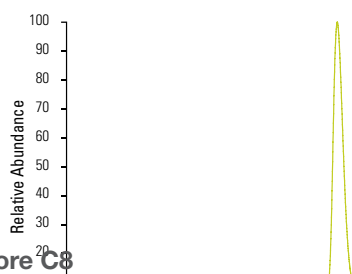
### Testosterone

#### Accucore C8 2.6µm, 50 x 2.1mm

Mobile Phase A: Water + 0.1% formic acid  
 Mobile Phase B: Acetonitrile + 0.1% formic acid  
 Gradient: 5–95 % B in 0.8 minutes  
 Temperature: 60°C  
 Flow Rate: 1500µL/min  
 Injection Volume: 5µL  
 Detection: ESI-MS/MS

Retention time (tR /min)	0.73
%RSD tR	0.22
%RSD Area	3.01

Data from six injections.



Particle Size (µm)	Format	Length (mm)	2.1mm ID	3.0mm ID	4.6mm ID
2.6	Defender Guard (4/pk) HPLC Column	10	17226-012105	17226-013005	17226-014005
		30	17226-032130	-	-
		50	17226-052130	17226-053030	17226-054630
		100	17226-102130	17226-103030	17226-104630
		150	17226-152130	17226-153030	17226-154630
4	UNIGUARD Drop-in Guard Cartridge Holder	10	852-00	852-00	850-00

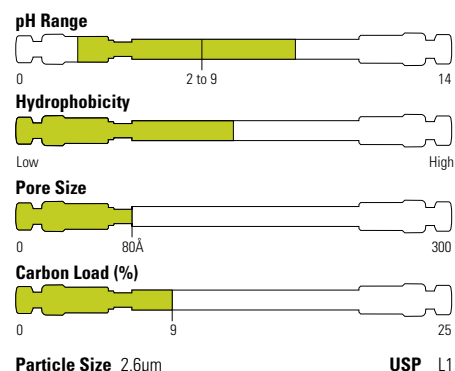
For more information, visit [thermofisher.com/accucore](http://thermofisher.com/accucore)

## Accucore aQ

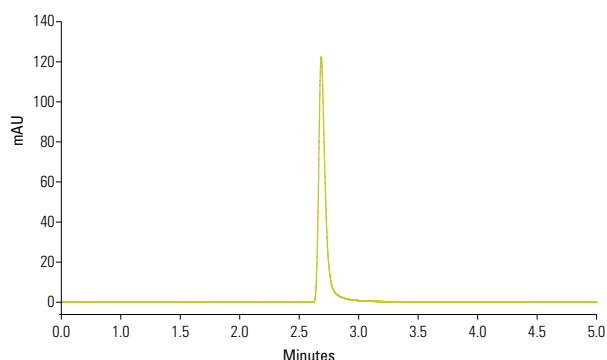
- Retention and resolution of polar analytes
- Polar endcapped C18 stationary phase for alternative selectivity
- Ideal for highly aqueous mobile phases

The polar functional group used to endcap Accucore aQ phase provides an additional controlled interaction mechanism by which polar compounds can be retained and resolved, making the Accucore aQ phase ideal for the quantitative analysis of trace levels of polar analytes.

The wettability of reversed phase media can be increased by the introduction of polar functional groups. The polar endcapping of Accucore aQ media also makes it usable in 100% aqueous mobile phases without the risk of loss of performance or poor stability.



## Lamivudine (USP)



### Accucore aQ 2.6µm, 50mm x 2.1mm

Mobile Phase:	95:5 (v/v) Ammonium Acetate, pH 3.80 / Methanol
Temperature:	35°C
Flow Rate:	200µL/min
Injection Volume:	1µL
Detection:	UV, 277nm
Analytes:	Lamivudine
Asymmetry	1.36
%RSD t <sub>r</sub>	0.00
%RSD Peak area	1.72
(%RSD calculated from 6 replicate injections)	
USP acceptance criteria: % RSD (t <sub>r</sub> , Peak Area) <2.0	

## Accucore aQ

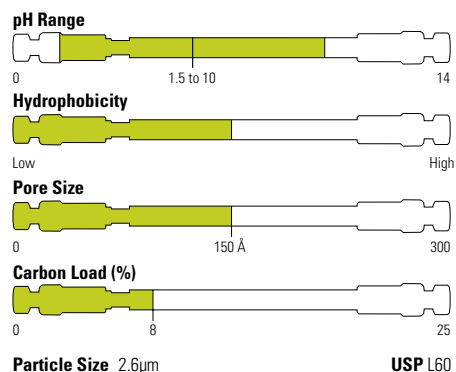
Particle Size (µm)	Format	Length (mm)	2.1mm ID	3.0mm ID	4.6mm ID
2.6	Defender Guard (4/pk)	10	17326-012105	17326-013005	17326-014005
	HPLC Column	30	17326-032130	-	-
		50	17326-052130	17326-053030	17326-054630
		100	17326-102130	17326-103030	17326-104630
		150	17326-152130	17326-153030	17326-154630
	UNIGUARD Drop-in Guard Cartridge Holder	10	852-00	852-00	850-00

## Accucore Polar Premium

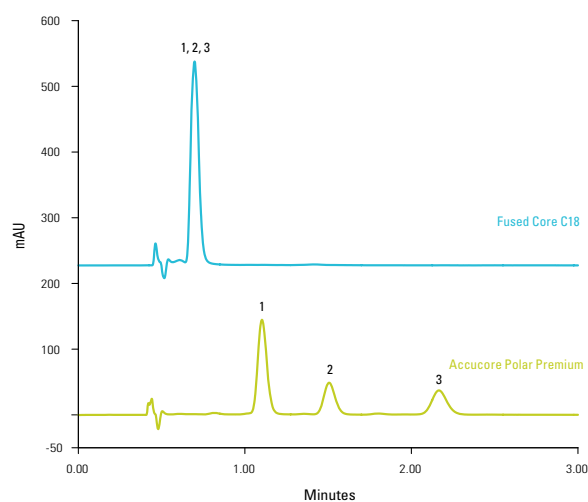
- Rugged amide-embedded C18 phase
- Selectivity complementary to conventional C18 phases
- Stable over a wide pH range and compatible with 100% aqueous mobile phase

Accucore Polar Premium is an exceptionally rugged polar embedded reverse phase material that offers high efficiency, wider operating pH range and unique selectivity complementary to standard C18 phases.

The specially designed bonded phase is stable from pH 1.5 to 10.5 and will not undergo phase collapse in 100% aqueous mobile phase.



### Curcuminoids (Turmeric)



#### Accucore Polar Premium 2.6µm, 100 x 3.0mm Fused Core C18, 100 x 3.0mm

Mobile Phase:	Methanol : 10mM Phosphoric Acid, 80 : 20
Temperature:	40°C
Flow Rate:	800µL/min
Injection Volume:	6µL
Detection:	UV, 428nm
Analytes:	1. Curcumin 2. Desmethoxycurcumin 3. Bis-desmethoxycurcumin

The Accucore Polar Premium HPLC column provides desirable selectivity that resolves the major and minor component under simple isocratic conditions in less than three minutes, while the C18 columns fail to separate these components.

### Accucore Polar Premium

Particle Size (µm)	Format	Length (mm)	2.1mm ID	3.0mm ID	4.6mm ID
2.6	Defender Guard (4/pk) HPLC Column	10	28026-012105	-	-
		50	28026-052130	28026-053030	28026-054630
		100	28026-102130	28026-103030	28026-104630
		150	28026-152130	28026-153030	28026-154630
		250	28026-252130	-	-
	UNIGUARD Drop-in Guard Cartridge Holder	10	852-00	852-00	850-00

For more information, visit [thermofisher.com/accucore](http://thermofisher.com/accucore)

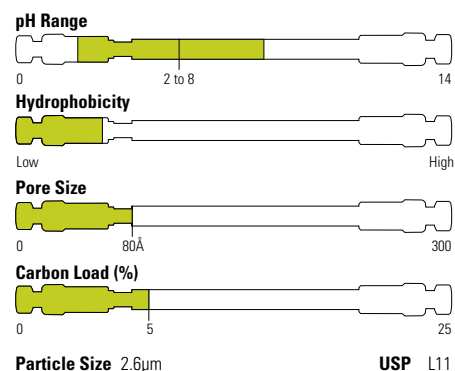


## Accucore Phenyl-Hexyl

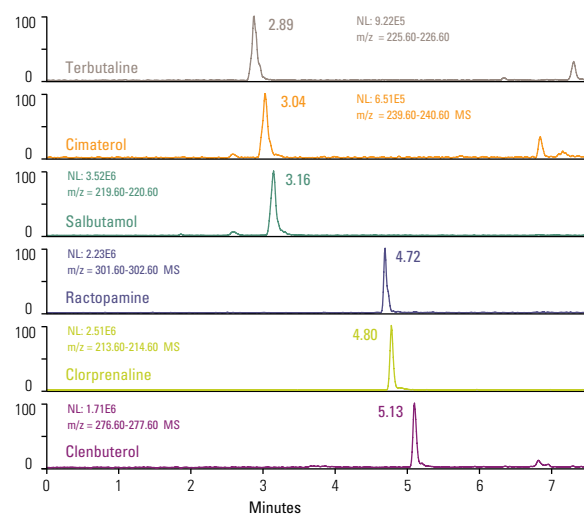
- Mixed-mode selectivity for aromatic and moderately polar analytes
- Enhanced pi-pi interactions with aromatics
- Moderate hydrophobicity

The C6 chain in Accucore Phenyl-Hexyl phase exhibits classical RP retention and selectivity, while the phenyl ring can add special selectivity by interacting with polar groups within the solutes. This results in a mixed-mode separation mechanism. The reduced hydrophobicity of this phase makes it ideal for the separation of very non-polar compounds.

The Phenyl-Hexyl phase should be selected for complex samples where some peaks are well resolved on a conventional alkyl phases, but are not well resolved on a conventional phenyl phase, or when other peaks are well resolved on a phenyl phase, but not well resolved on a conventional alkyl phase.



### Beta-agonistsaa



#### Accucore Phenyl-Hexyl 2.6µm, 100mm x 2.1mm

Mobile Phase A:	Ammonium Acetate 5mM, pH 4	
Mobile Phase B:	Acetonitrile	
Gradient:	Time (min)	%B
	0	5
	1	5
	10	100
Temperature:	40°C	
Flow Rate:	0.25mL/min	
Injection Volume:	1µL	
Backpressure:	120 bar (at 10)	
Detection:	+ESI-MS (45°C, 4.5kV, 60V, scan 150 – 350)	

### Accucore Phenyl-Hexyl

Particle Size (µm)	Format	Length (mm)	2.1mm ID	3.0mm ID	4.6mm ID
2.6	Defender Guard (4/pk)	10	17926-012105	17926-013005	17926-014005
		30	17926-032130	-	-
	HPLC Column	50	17926-052130	17926-053030	17926-054630
		100	17926-102130	17926-103030	17926-104630
		150	17926-152130	17926-153030	17926-154630
	UNIGUARD Drop-in Guard Cartridge Holder	10	852-00	852-00	850-00

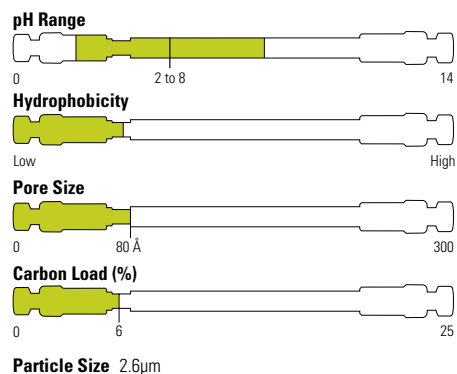
## Accucore Phenyl-X

- Unique reversed-phase shape selectivity
- Enhanced selectivity for aromatic compounds
- Compatible with highly aqueous mobile phases
- Robust, high-efficiency, low column bleed

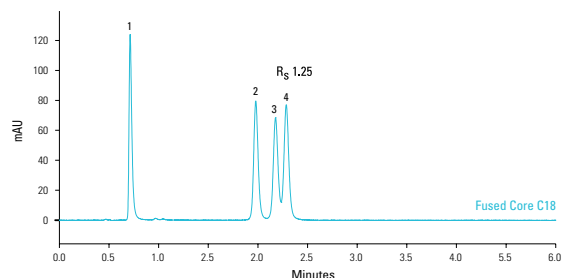
The proprietary Accucore Phenyl-X alkyl aromatic bonded phase provides a unique selectivity when compared to other reversed phase materials such as C18 or Phenyl.

The advanced design of the bonded phase makes it compatible with highly aqueous mobile phases and robust, demonstrating very low bleed.

Phenyl-X exhibits particularly high aromatic selectivity.



## Estrogens



Accucore Phenyl-X 2.6μm, 100 x 2.1mm  
Fused Core C18, 100 x 2.1mm

Mobile Phase: 15:40:45 (v/v)

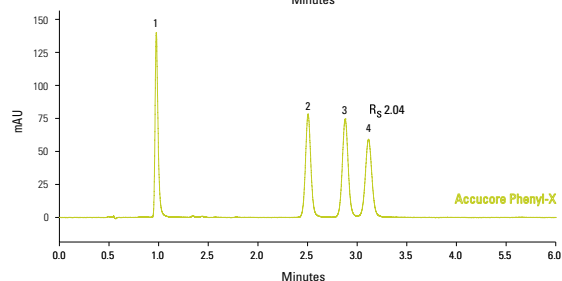
Acetonitrile:Methanol:Water

Temperature: 40°C

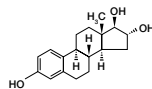
Flow Rate: 400μL/min

Injection Volume: 1μL

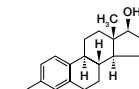
Detection: UV, 220nm



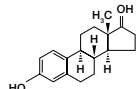
1. Estriol (E3)



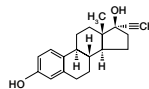
2. Estradiol (E2)



3. Estrone (E1)



4. Ethynylestradiol



## Accucore Phenyl-X

Particle Size (μm)	Format	Length (mm)	2.1mm ID	3.0mm ID	4.6mm ID
2.6	Defender Guard (4/pk)	10	27926-012105	-	-
	HPLC Column	50	27926-052130	27926-053030	27926-054630
		100	27926-102130	27926-103030	27926-104630
		150	27926-152130	27926-153030	27926-154630
		250	27926-252130	-	-
	Uniguard Drop-in Guard Cartridge Holder	10	852-00	852-00	850-00

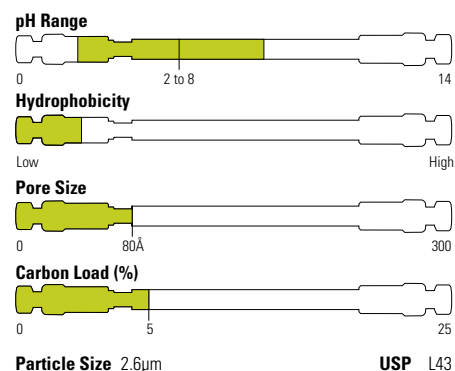
For more information, visit [thermofisher.com/accucore](http://thermofisher.com/accucore)

## Accucore PFP

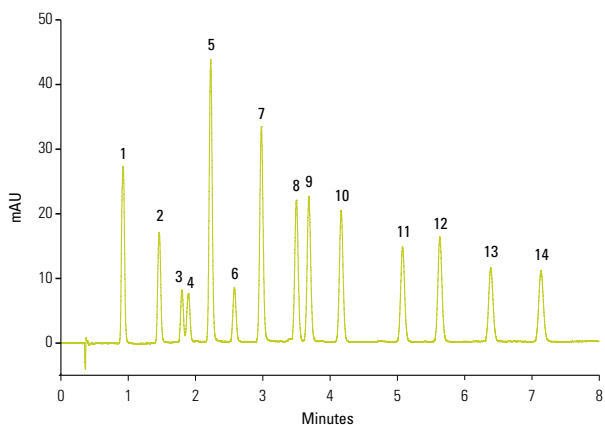
- Alternative selectivity to C18
- Extra retention for halogenated species
- Unique selectivity for non-halogenated polar compounds

The introduction of fluorine groups into the Accucore PFP (pentafluorophenyl) stationary phase causes significant changes in solute-stationary phase interactions. This can lead to extra retention and selectivity for positional isomers of halogenated compounds.

PFP Columns are also well suited to the selective analysis of non-halogenated compounds, in particular polar compounds containing hydroxyl, carboxyl, nitro, or other polar groups. High selectivity is often most apparent when the functional groups are located on an aromatic or other rigid ring system.



### Positional isomers



#### Accucore PFP 2.6µm, 50mm x 2.1mm

Mobile Phase A:	0.1% Formic Acid in Water
Mobile Phase B:	0.1% Formic Acid in Acetonitrile
Gradient:	15-30%B in 7 minutes
Temperature:	50°C
Flow Rate:	600µL/min
Injection Volume:	2µL
Detection:	UV, 270nm
Analytes:	1. 3,4 – Dimethoxyphenol 2. 2,6 – Dimethoxyphenol 3. 2,6 – Difluorophenol 4. 3,5 – Dimethoxyphenol 5. 2,4 – Difluorophenol 6. 2,3 – Difluorophenol 7. 3,4 – Difluorophenol 8. 3,5 – Dimethylphenol 9. 2,6 – Dimethylphenol 10. 2,6 – Dichlorophenol 11. 4 – Chloro-3-Methylphenol 12. 4 – Chloro-2-Methylphenol 13. 3,4 – Dichlorophenol 14. 3,5 – Dichlorophenol

### Accucore PFP

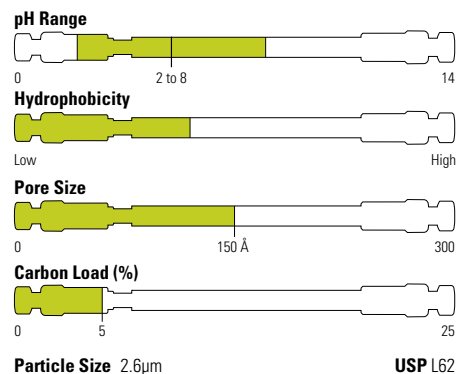
Particle Size (µm)	Format	Length (mm)	2.1mm ID	3.0mm ID	4.6mm ID
2.6	Defender Guard (4/pk)	10	17426-012105	17426-013005	17426-014005
		30	17426-032130	-	-
	HPLC Column	50	17426-052130	17426-053030	17426-054630
		100	17426-102130	17426-103030	17426-104630
		150	17426-152130	17426-153030	17426-154630
	Uniguard Drop-in Guard Cartridge Holder	10	852-00	852-00	850-00

## Accucore C30

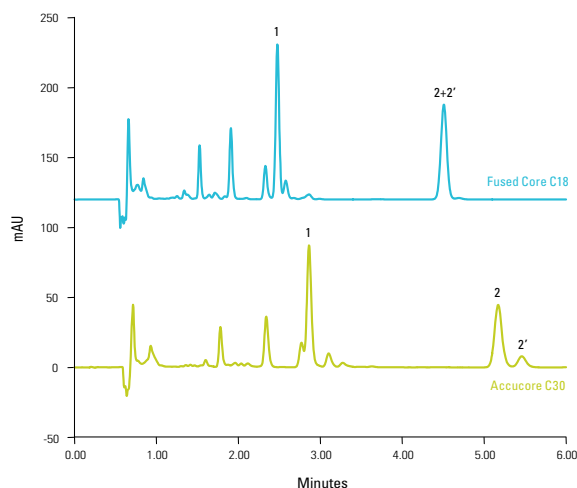
- Ideal for separation of hydrophobic, long alkyl chain compounds
- High shape selectivity for structurally related isomers
- Excellent aqueous-compatibility

Accucore C30 offers high shape selectivity for hydrophobic, long chain, structurally related isomers, for example carotenoids and steroids. This is a different form of shape selectivity from that measured in the steric selectivity phase characterisation test.

It is also an excellent alternative to normal-phase columns for lipid analysis. The optimized bonding density of the long alkyl chains facilitated by a wider pore diameter particle result in a phase that is stable even in highly aqueous mobile phases.



## Vitamin K isomers



Chromatogram showing the separation of Vitamin K compounds  
Minutes 1-Vitamin K2, 2-Vitamin K1 (trans isomer), 2'-Vitamin K1 (cis isomer)

Accucore C30 2.6µm, 100 x 3.0mm  
Fused Core C18, 100 x 3.0mm  
Mobile Phase: Methanol: 2mM Ammonium Acetate, 98:2  
Temperature: 20°C  
Flow Rate: 650µL/min  
Injection Volume: 5µL  
Detection: UV, 250nm  
Accucore C30 shows better separation for vitamin K1 isomers than the C18 column.

## Accucore C30

Particle Size (µm)	Format	Length (mm)	2.1mm ID	3.0mm ID	4.6mm ID
2.6	Defender Guard (4/pk)	10	27826-012105	-	-
	HPLC Column	50	27826-052130	27826-053030	27826-054630
		100	27826-102130	27826-103030	27826-104630
		150	27826-152130	27826-153030	27826-154630
		250	27826-252130	-	-
		Uniguard Drop-in Guard Cartridge Holder	10	852-00	852-00

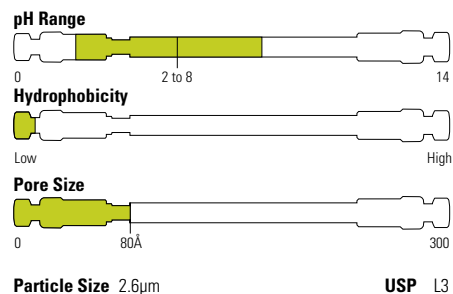
## Accucore HILIC

- Enhanced retention of polar and hydrophilic analytes
- Alternative selectivity to C18 without ion-pair or derivatization

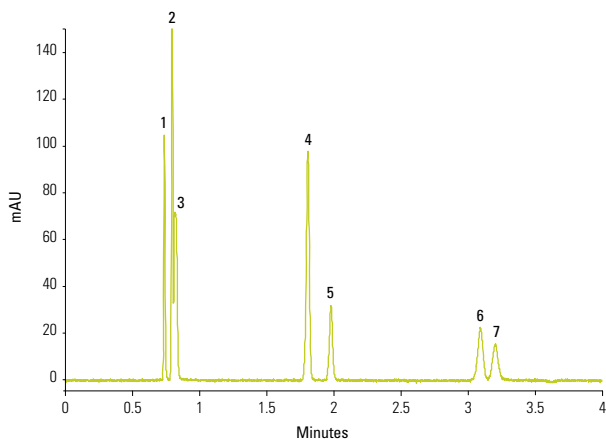
In HILIC mode the separation occurs through two mechanisms. The primary mechanism is a partitioning effect due to the enriched water layer around the polar or charged substrate material. The secondary mechanism involves interaction between the analyte and the active surface moiety.

Analyte properties that govern retention with HILIC phases are acidity/basicity, which determines hydrogen bonding, and polarizability which determines dipole-dipole interactions.

The highly organic mobile phases used with Accucore HILIC phase ensure efficient desolvation in ESI MS detection, which in turn leads to improved sensitivity.



## Catecholamines



### Accucore HILIC 2.6 μm, 50mm x 2.1mm

Mobile Phase:	85:15 Acetonitrile:100mM Ammonium Formate, pH 3.2
Temperature:	40°C
Flow Rate:	2mL/min
Injection Volume:	5 μL
Backpressure:	157 bar
Detection:	UV, 280nm
Analytes:	1. Catechol 2. 5-HIAA 3. DOPAC 4. Serotonin 5. L-tyrosine 6. Dopamine 7. L-DOPA

### Accucore HILIC

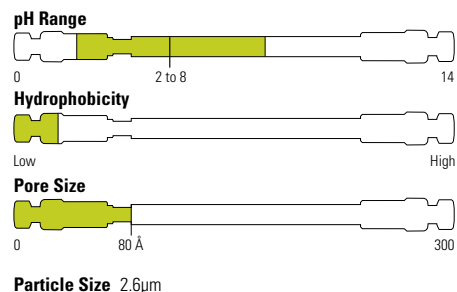
Particle Size (μm)	Format	Length (mm)	2.1mm ID	3.0mm ID	4.6mm ID
2.6	Defender Guard (4/pk)	10	17526-012105	17526-013005	17526-014005
	HPLC Column	30	17526-032130	-	-
		50	17526-052130	17526-053030	17526-054630
		100	17526-102130	17526-103030	17526-104630
		150	17526-152130	17526-153030	17526-154630
	Uniguard Drop-in Guard Cartridge Holder	10	852-00	852-00	850-00

## Accucore Urea-HILIC

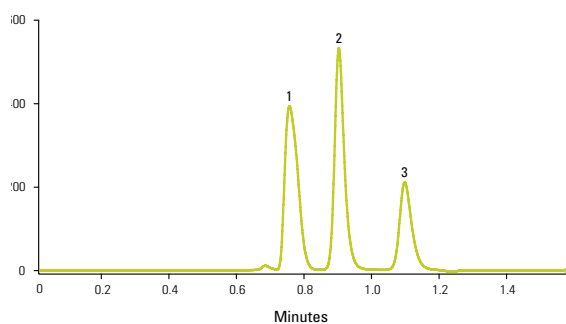
- Bonded hydrophilic stationary phase
- Unique selectivity compared to other HILIC phases
- Low ion exchange activity

Accucore Urea-HILIC has an alternative selectivity and lower ion exchange activity than other HILIC phases.

The bonded hydrophilic stationary phase provides retention of a broad range of polar analytes using up to 20% aqueous mobile phase.



### Analgesic compounds



#### Accucore Urea-HILIC 2.6µm, 100 x 2.1mm

Mobile Phase: Composition 10:80:10, A : B : C  
 A: Water  
 B: Acetonitrile  
 C: 100 mM Ammonium Acetate adjusted to pH 4.9

Temperature: 35°C  
 Flow Rate: 300µL/min  
 Injection Volume: 2µL into 10µL partial loop mode.  
 Backpressure: 71 bar  
 Detection: UV, 230nm

	1. Acetaminophen			2. Salicylic acid			3. Aspirin		
	$t_R$	$A_s$	$R_s$	$t_R$	$A_s$	$R_s$	$t_R$	$A_s$	$R_s$
Mean	0.760	1.474	0.908	1.303	2.359	1.100	1.318	3.264	
CV %	0.00	1.17	0.48	0.92	0.49	0.00	0.63	0.48	

Data from eight replicate analyses of a mixture of acetaminophen, salicylic acid and aspirin

Retention time ( $t_R$ ), peak asymmetry ( $A_s$ ), peak resolution ( $R_s$ )

### Accucore Urea-HILIC

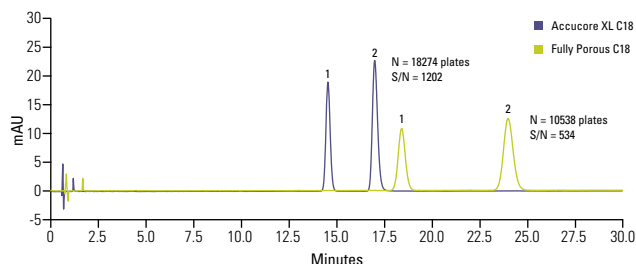
Particle Size (µm)	Format	Length (mm)	2.1mm ID	3.0mm ID	4.6mm ID
2.6	Defender Guard (4/pk)	10	27726-012105	-	-
	HPLC Column	50	27726-052130	27726-053030	27726-054630
		100	27726-102130	27726-103030	27726-104630
		150	27726-152130	27726-153030	27726-154630
		250	27726-252130	-	-
Uniguard Drop-in Guard Cartridge Holder	10	852-00	852-00	850-00	

## Accucore XL C18

- Optimum retention of non-polar compounds
- Hydrophobic interaction mechanism
- Separates a broad range of analytes

The carbon loading of Accucore XL C18 provides high retention of non-polar analytes via a predominantly hydrophobic interaction mechanism.

### Ibuprofen and valerophenone (USP)

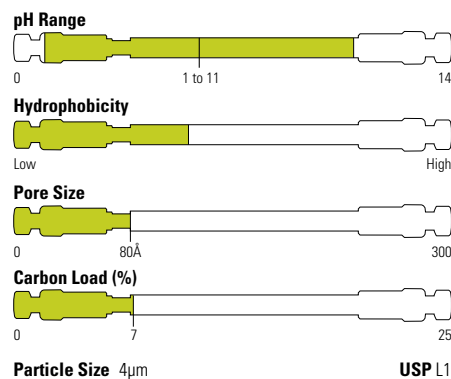
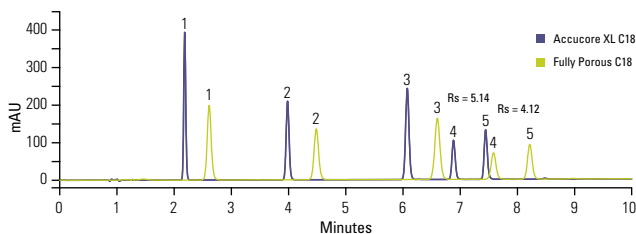


## Accucore XL C8

- Similar selectivity to C18 with lower retention
- Recommended for analytes with moderate hydrophobicity

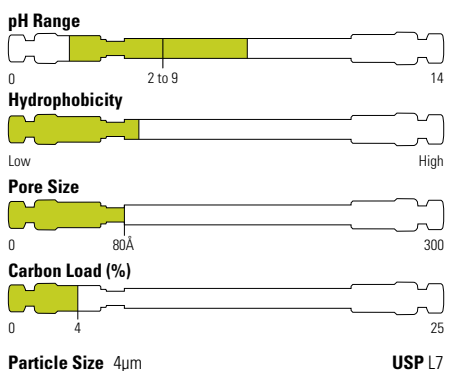
Accucore XL C8 is recommended for analytes with moderate hydrophobicity, or when a less hydrophobic phase provides optimum retention.

### Endocrine disruptors



#### Accucore XL C18 4µm, 150 x 4.6mm Fully porous C18 5µm, 150 x 4.6mm

Mobile Phase:	66.3:33.7 (v/v) Water with Phosphoric Acid, pH 2.5:Methanol
Temperature:	30°C
Flow Rate:	2mL/min
Injection Volume:	5µL
Detection:	UV, 214nm
Analytes:	1. Valerophenone 2. Ibuprofen



#### Accucore XL C8 4µm, 150 x 4.6mm Fully porous C8 5µm, 150 x 4.6mm

Mobile Phase A:	Water
Mobile Phase B:	Acetonitrile
Gradient:	Time (min)
% B	
	0.0 25
	20.0 70
	20.1 75
	25.0 25
Flow rate:	1.5mL/min
Temperature:	25°C
Detection:	UV at 220nm
Injection volume:	5µL
Analytes	1.Desethyl Atrazine 3.Atrazine 2.Simazine 4.Diuron 5.Bisphenol A

### Accucore XL

Particle Size (µm)	Format	Chemistry	Length (mm)	2.1mm ID	3.0mm ID	4.6mm ID
4	Drop-in Guard (4/pk)	C18	10	74104-012101	74104-013001	74104-014001
			HPLC Column	50	74104-052130	74104-053030
	100		74104-102130	74104-103030	74104-104630	
	150		74104-152130	74104-153030	74104-154630	
	250		74104-252130	74104-253030	74104-254630	
4	Drop-in Guard (4/pk)	C8	10	74204-012101	74204-013001	74204-014001
			HPLC Column	50	74204-052130	74204-053030
	100		74204-102130	74204-103030	74204-104630	
	150		74204-152130	74204-153030	74204-154630	
	250		74204-252130	74204-253030	74204-254630	

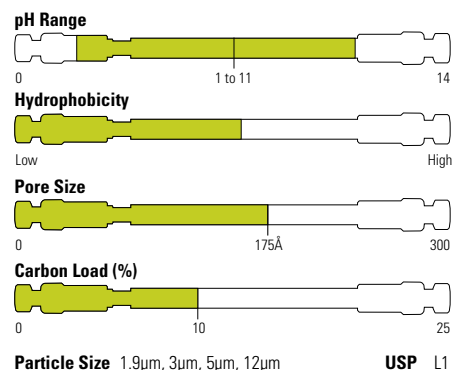
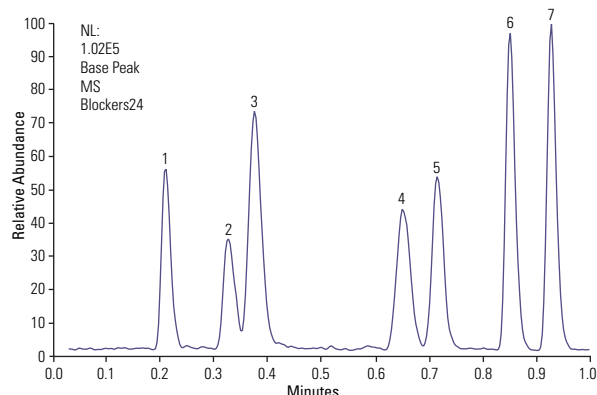


## Hypersil GOLD

Endcapped, ultra-pure, silica-based columns with exceptional peak shape and resolution for HPLC and LC-MS

- Significant reduction in peak tailing while retaining C18 selectivity
- Excellent resolution, efficiency and sensitivity
- Confidence in the accuracy and quality of analytical data

### Seven b-blockers in 1 minute



#### Hypersil GOLD, 1.9µm, 20 x 2.1mm

Mobile Phase A: H<sub>2</sub>O+0.1%formic acid  
Mobile Phase B: MeCN+0.1%formic acid  
Gradient: 15 to 100% B in 1min  
Temperature: 30°C  
Flow Rate: 0.5mL/min  
Detection: +ESI  
Analytes: 1. Atenolol  
2. Nadolol  
3. Pindolol  
4. Timolol  
5. Metoprolol  
6. Oxprenolol  
7. Propranolol

### Hypersil GOLD

Particle Size (µm)	Format	Length (mm)	1.0mm ID	2.1mm ID	3.0mm ID	4.0mm ID	4.6mm ID
1.9	UHPLC Column	20	-	25002-022130	-	-	-
		30	25002-031030	25002-032130	-	-	-
		50	25002-051030	25002-052130	25002-053030	-	25002-054630
		100	25002-101030	25002-102130	25002-103030	-	-
		150	-	25002-152130	-	-	-
		200	-	25002-202130	-	-	-
3	Drop-in Guard (4/pk)	10	25003-011001	25003-012101	25003-013001	25003-014001	25003-014001
		20	-	25003-022130	25003-023030	-	-
	HPLC Column	30	-	25003-032130	25003-033030	-	25003-034630
		50	-	25003-052130	25003-053030	25003-054030	25003-054630
		100	25003-101030	25003-102130	25003-103030	25003-104030	25003-104630
		150	25003-151030	25003-152130	25003-153030	25003-154030	25003-154630
250	-	-	25003-253030	25003-254030	-		
5	Drop-in Guard (4/pk)	10	-	25005-012101	25005-013001	25005-014001	25005-014001
		30	-	25005-032130	25005-033030	-	25005-034630
	HPLC Column	50	-	25005-052130	25005-053030	-	25005-054630
		100	-	25005-102130	25005-103030	25005-104030	25005-104630
		150	-	25005-152130	25005-153030	25005-154030	25005-154630
		250	-	25005-252130	25005-253030	25005-254030	25005-254630
Uniguard Drop-in Guard Cartridge Holder	10	851-00	852-00	852-00	850-00	850-00	

For more information, visit [thermofisher.com/hypersilgold](https://thermofisher.com/hypersilgold)

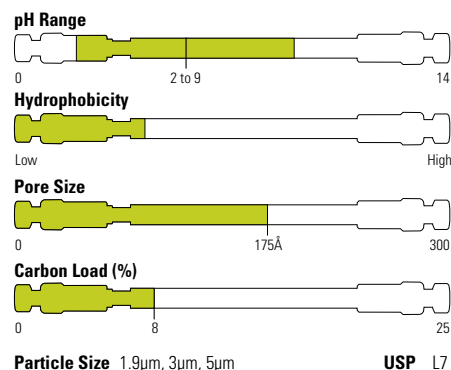
**Hypersil GOLD preparative**

Particle Size (µm)	Format	Length (mm)	10mm ID	20mm ID	21mm ID	30mm ID	50mm ID
5	Preparative HPLC Column	50	25005-059070A	-	25005-059270A	-	-
		100	25005-109070A	-	25005-109270A	-	-
		150	25005-159070A	-	25005-159270A	25005-159370A	-
		250	25005-259070A	-	25005-259270A	25005-259370A	-
12	Preparative Guard Cartridge (3/pk)	10	-	25012-019023A	-	-	-
	Preparative HPLC Column	150	-	25012-159270A	-	25012-159370A	-
		250	25012-259070A	25012-259270A	-	25012-259370A	25012-259570A

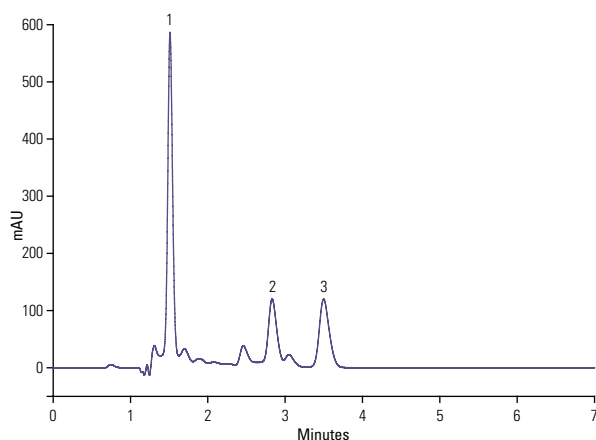
## Hypersil GOLD C8

Recommended for analytes with medium hydrophobicity or when a less hydrophobic phase is required to obtain optimum retention

- Similar selectivity to C18 columns but with reduced retention
- Lower hydrophobicity, allowing compounds to elute quicker
- Faster separations
- Excellent peak shape
- High efficiency
- Outstanding sensitivity



### β-carotene



#### Hypersil GOLD C8 5µm, 150 x 4.6mm

Mobile Phase:	MeOH
Temperature:	25°C
Flow Rate:	1.5mL/min
Detection:	UV, 450nm
Analytes:	1. Lutein 2. Lycopene 3. β-Carotene

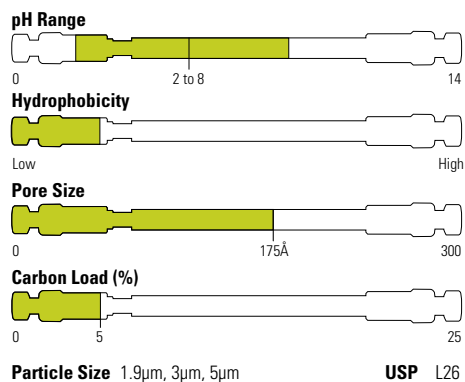
### Hypersil GOLD C8

Particle Size (µm)	Format	Length (mm)	1.0mm ID	2.1mm ID	3.0mm ID	4.0mm ID	4.6mm ID
1.9	UHPLC Column	30	-	25202-032130	-	-	-
		50	25202-051030	25202-052130	25202-053030	-	25202-054630
		100	25202-101030	25202-102130	25202-103030	-	-
		150	-	25202-152130	-	-	-
3	Drop-in Guard (4/pk)	10	25203-011001	25203-012101	25203-013001	25203-014001	25203-014001
		30	-	25203-032130	25203-033030	-	25203-034630
	HPLC Column	50	-	25203-052130	25203-053030	-	25203-054630
		100	25203-101030	25203-102130	25203-103030	-	25203-104630
5	HPLC Column	150	25203-051030	25203-152130	25203-153030	-	25203-154630
		10	-	25205-012101	25205-013001	25205-014001	25205-014001
		50	25205-051030	25205-052130	25205-053030	-	25205-054630
		100	-	25205-102130	25205-103030	-	25205-104630
	150	-	25205-152130	25205-153030	25205-154030	25205-154630	
250	-	25205-252130	25205-253030	25205-254030	25205-254630		
	Uniguard Drop-in Guard Cartridge Holder	10	851-00	852-00	852-00	850-00	850-00

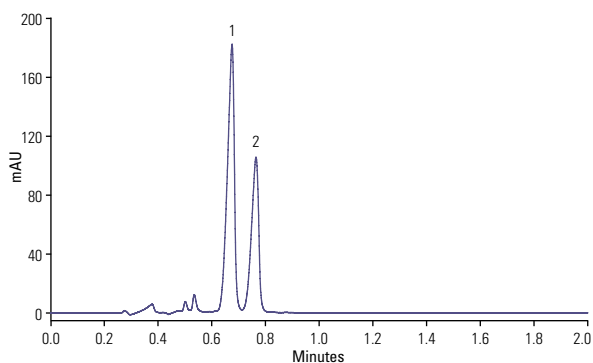
## Hypersil GOLD C4

Lower hydrophobicity than C18 or C8 recommended for very hydrophobic analytes

- Lower hydrophobicity
- Faster separations
- Excellent peak shape
- High efficiency
- Outstanding sensitivity



### Fatty acids



#### Hypersil GOLD C4 1.9µm, 100 x 2.1mm

Mobile Phase:	H <sub>2</sub> O / MeCN (20:80)
Temperature:	30°C
Flow Rate:	0.55mL/min
Injection Volume:	1µL
Detection:	200 nm
Analytes:	1. Linolenic acid 2. Linoleic acid

### Hypersil GOLD C4

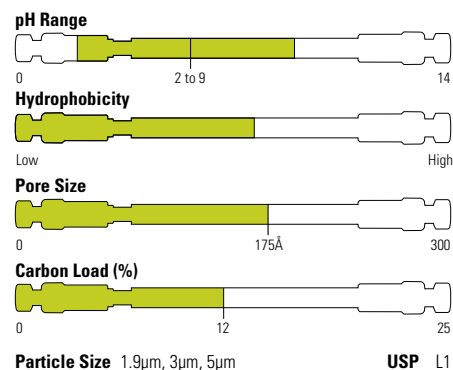
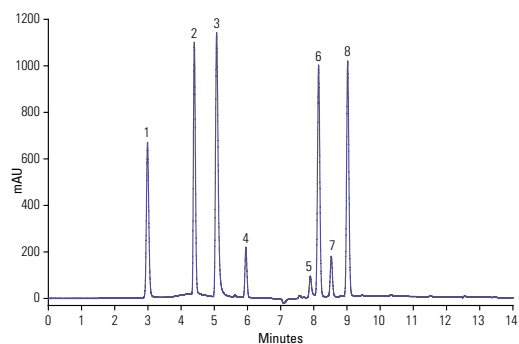
Particle Size (µm)	Format	Length (mm)	1.0mm ID	2.1mm ID	3.0mm ID	4.6mm ID
1.9	UHPLC Column	50	25502-051030	25502-052130	-	-
		100	-	25502-102130	-	-
		150	25502-151030	25502-152130	-	-
3	Drop-in Guard (4/pk)	10	25503-011001	25503-012101	25503-013001	25503-014001
	HPLC Column	50	25503-051030	25503-052130	-	-
		100	-	25503-102130	25503-103030	25503-104630
150		25503-151030	25503-152130	25503-153030	25503-154630	
5	Drop-in Guard (4/pk)	10	-	25505-012101	-	25505-014001
	HPLC Column	50	-	25505-052130	-	25505-054630
		100	-	25505-102130	25505-103030	25505-104630
		150	-	25505-152130	-	25505-154630
		250	-	25505-252130	-	25505-254630
	Uniguard Drop-in Guard Cartridge Holder	10	851-00	852-00	852-00	850-00

## Hypersil GOLD aQ

Controlled interaction mechanism by which polar analytes can be retained and resolved

- Polar endcapped C18 phase for alternative selectivity
- Retention and resolution of polar analytes
- Stable in 100% aqueous mobile phases

### Water soluble vitamins



### Thermo Scientific™ Hypersil GOLD™ aQ 5µm, 150 x 4.6mm

Mobile Phase A: 50 mM KH<sub>2</sub>PO<sub>4</sub>, pH 3.5  
 Mobile Phase B: MeOH  
 Gradient: 0 – 100% B in 15 min  
 Flow Rate: 1mL/min  
 Detection: UV, 205nm  
 Analytes: 1. Vitamin B1 (thiamine)  
 2. Vitamin B6 (pyridoxine)  
 3. Vitamin B3 (nicotinamide)  
 4. Vitamin B5 (pantothenic acid)  
 5. Folic Acid  
 6. Vitamin B12 (cyanocobalamin)  
 7. Vitamin H (biotin)  
 8. Vitamin B2 (riboflavin)

### Hypersil GOLD aQ

Particle Size (µm)	Format	Length (mm)	1.0mm ID	2.1mm ID	3.0mm ID	4.0mm ID	4.6mm ID
1.9	UHPLC Column	20	-	25302-022130	-	-	-
		30	-	25302-032130	-	-	-
		50	25302-051030	25302-052130	25302-053030	-	25302-054630
		100	25302-101030	25302-102130	25302-103030	-	-
		150	-	25302-152130	-	-	-
		200	-	25302-202130	-	-	-
3	Drop-in Guard (4/pk)	10	25303-011001	25303-012101	25303-013001	25303-014001	25303-014001
	HPLC Column	30	-	25303-032130	-	-	-
		50	25303-051030	25303-052130	25303-053030	25303-054030	25303-054630
		100	25303-101030	25303-102130	25303-103030	25303-104030	25303-104630
		150	25303-151030	25303-152130	25303-153030	25303-154030	25303-154630
5	Drop-in Guard (4/pk)	10	-	25305-012101	25305-013001	-	25305-014001
	HPLC Column	50	-	25305-052130	25305-053030	-	25305-054630
		100	-	25305-102130	25305-103030	-	25305-104630
		150	-	25305-152130	25305-153030	-	25305-154630
		250	-	25305-252130	25305-253030	-	25305-254630
	Uniguard Drop-in Guard Cartridge Holder	10	851-00	852-00	852-00	850-00	850-00

### Hypersil GOLD aQ preparative

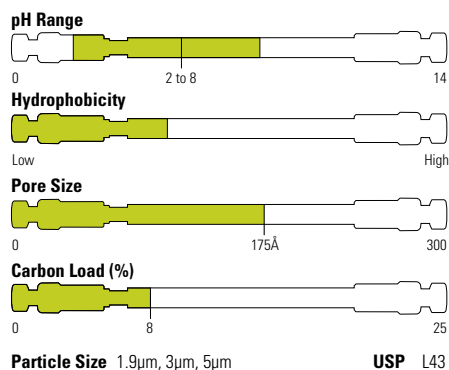
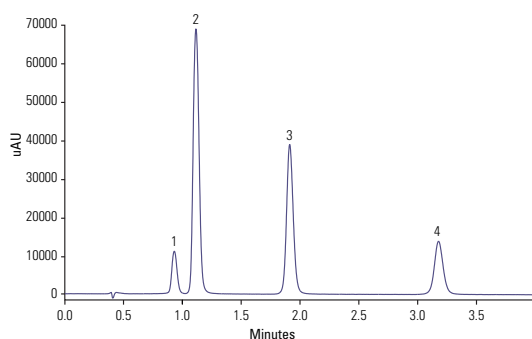
Particle Size (µm)	Format	Length (mm)	10mm ID	20mm ID	30mm ID	50mm ID
5	Preparative Guard Cartridge (3/pk)	10	-	25305-019023A	-	-
	Preparative HPLC Column	100	25305-109070A	25305-159070A	25305-109370A	25305-109570A
		150	25305-159070A	25305-159270A	25305-159370A	25305-159570A
		250	25305-259070A	25305-259270A	25305-259370A	25305-259570A

## Hypersil GOLD PFP

Introduction of a fluorine group into the stationary phase causes significant changes in solute-stationary phase interaction

- Fluorine atoms around the phenyl ring enhance pi-pi interactions with aromatic molecules
- Extra retention for halogenated species
- Selectivity for non-halogenated polar compounds

### Polyphenols



### Hypersil GOLD PFP 1.9µm, 50 x 2.1mm

Mobile Phase:	0.1% Acetic Acid
Temperature:	25°C
Flow Rate:	0.5mL/min
Injection Volume:	0.5µL
Detection:	UV, 280nm
Analytes:	1. Pyrogallol 2. Hydroquinone 3. Resorcinol 4. Phenol

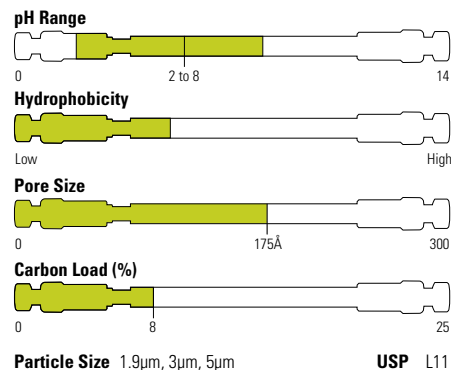
### Hypersil GOLD PFP

Particle Size (µm)	Format	Length (mm)	1.0mm ID	2.1mm ID	3.0mm ID	4.6mm ID
1.9	UHPLC Column	20	-	25402-022130	-	-
		30	-	25402-032130	-	-
		50	25402-051030	25402-052130	25402-053030	25402-054630
		100	25402-101030	25402-102130	25402-103030	-
		150	-	25402-152130	-	-
		200	-	25402-202130	-	-
3	Drop-in Guard (4/pk)	10	25403-011001	25403-012101	25403-013001	25403-014001
	HPLC Column	30	-	-	25403-033030	-
		50	-	25403-052130	25403-053030	-
		100	25403-101030	25403-102130	25403-103030	25403-104630
		150	-	25403-152130	25403-153030	25403-154630
5	Drop-in Guard (4/pk)	10	-	25405-012101	-	25405-014001
	HPLC Column	50	-	25405-052130	-	-
		100	-	25405-102130	25405-103030	25405-104630
		150	-	25405-152130	25405-153030	25405-154630
		250	-	25405-252130	-	25405-254630
	Uniguard Drop-in Guard Cartridge Holder	10	851-00	852-00	852-00	850-00

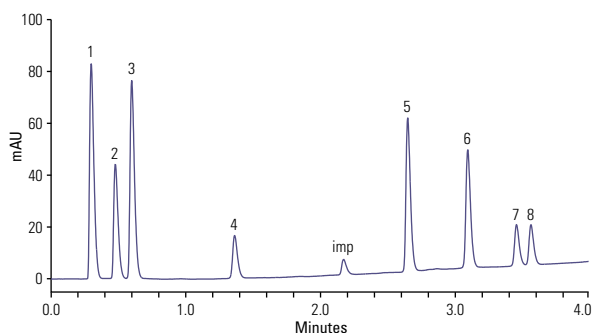
## Hypersil GOLD Phenyl

Contains a C4 linker which allows for superior alignment of the phenyl ring with aromatic molecules

- Enhanced pi-pi interactions with aromatics
- Moderate hydrophobicity
- Outstanding peak shape and sensitivity



### Antidepressants



#### Hypersil GOLD Phenyl 1.9µm, 50 x 2.1mm

Mobile Phase A:	0.1% Formic acid
Mobile Phase B:	0.1% Formic acid in MeCN
Gradient:	10 – 60% B in 3.4mins, 60 - 90% B in 0.24 min
Temperature:	60°C
Flow Rate:	0.5mL/min
Injection Volume:	0.7µL
Detection:	UV, 225 and 254nm
Analytes:	1. Uracil 2. Acetaminophen 3. p-Hydroxybenzoic acid 4. o-Hydroxybenzoic acid 5. Oxazepam 6. Diazepam 7. Di-isopropyl phthalate 8. Di-n-propyl phthalate

### Hypersil GOLD Phenyl

Particle Size (µm)	Format	Length (mm)	1.0mm ID	2.1mm ID	3.0mm ID	4.6mm ID
1.9	UHPLC Column	50	-	25902-052130	-	25902-054630
		100	-	25902-102130	25902-103030	-
		150	-	25902-152130	-	-
		200	-	25902-202130	-	-
3	Drop-in Guard (4/pk)	10	-	25903-012101	25903-013001	25903-014001
	HPLC Column	50	-	25903-052130	25903-053030	-
		100	-	25903-102130	25903-103030	25903-104630
		150	25903-151030	25905-152130	25903-153030	25903-154630
5	Drop-in Guard (4/pk)	10	-	25905-012101	25905-013001	25905-014001
	HPLC Column	50	-	25905-052130	-	25905-054630
		100	-	25905-102130	25905-103030	25905-104630
		150	-	25905-152130	-	25905-154630
		250	-	-	-	25905-254630
	Uniguard Drop-in Guard Cartridge Holder	10	851-00	852-00	852-00	850-00

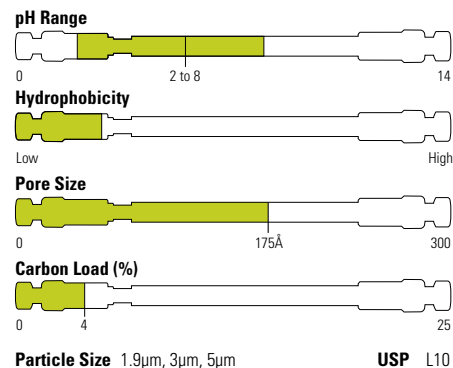
For more information, visit [thermofisher.com/hypersilgold](http://thermofisher.com/hypersilgold)



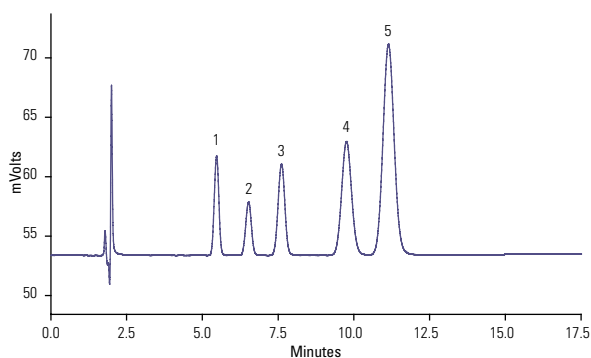
## Hypersil GOLD CN

For both normal phase and reversed-phase separations

- Provide alternative selectivity with lower hydrophobicity
- Excellent peak shape
- Outstanding sensitivity
- Less retention for faster analysis



### Organic acids



#### Hypersil GOLD CN 5µm, 150 x 4.6mm

Mobile Phase A:	25 mM KH <sub>2</sub> PO <sub>4</sub> , pH2
Mobile Phase B:	MeOH
Temperature:	25°C
Flow Rate:	1.5mL/min
Detection:	UV, 230nm
Analytes:	1. 4-Fluorobenzoic
	2. o-Toluic Acid
	3. p-Toluic Acid
	4. 2,4,6-Trimethylbenzoic Acid
	5. 2,5-Dimethylbenzoic Acid

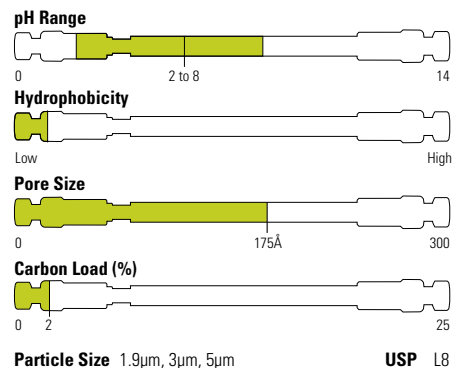
### Hypersil GOLD CN

Particle Size (µm)	Format	Length (mm)	1.0mm ID	2.1mm ID	3.0mm ID	4.0mm ID	4.6mm ID
1.9	UHPLC Column	50	-	25802-052130	-	-	-
		100	-	25802-102130	-	-	-
		150	-	25802-152130	-	-	-
		200	-	25802-202130	-	-	-
3	Drop-in Guard (4/pk)	10	25803-011001	25803-012101	25803-013001	-	25803-014001
		50	-	25803-052130	-	-	-
		100	25803-101030	25803-102130	25803-103030	-	25803-104630
		150	25803-151030	25803-152130	25803-153030	-	25803-154630
5	Drop-in Guard (4/pk)	10	-	25805-012101	25805-013001	25805-014001	25805-014001
		50	-	25805-052130	25805-053030	-	25805-054630
	HPLC Column	100	-	25805-102130	25805-103030	-	25805-104630
		150	-	25805-152130	-	-	25805-154630
		250	-	-	-	25805-254030	25805-254630
	Uniguard Drop-in Guard Cartridge Holder	10	851-00	852-00	852-00	850-00	850-00

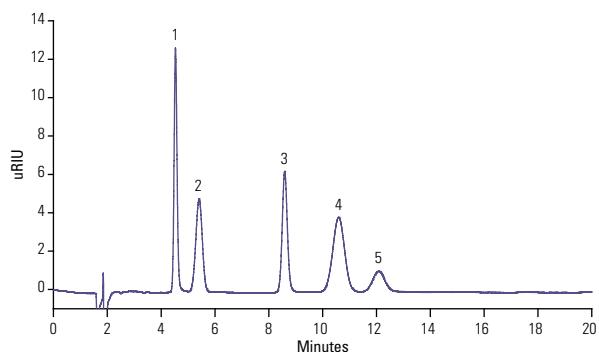
## Hypersil GOLD Amino

A high performance aminopropyl phase that gives excellent chromatographic properties in three modes: weak anion exchange, reversed-phase and normal phase

- Retains anions and organic acids in weak anion exchange
- Excellent for carbohydrate analysis in reversed-phase
- Alternative selectivity to silica columns in normal phase chromatography
- Outstanding peak shape and sensitivity



## Sugars



### Hypersil GOLD Amino 5µm, 150 x 4.6mm

Mobile Phase:	MeCN/Water (80:20)
Temperature:	35°C
Flow Rate:	1.2mL/min
Injection Volume:	20µL
Detection:	RI
Analytes:	1. Fructose
	2. Glucose
	3. Sucrose
	4. Maltose
	5. Lactose

## Hypersil GOLD Amino

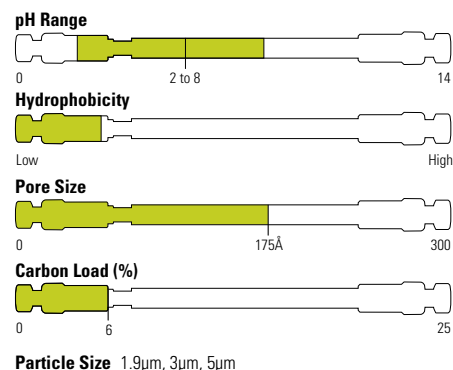
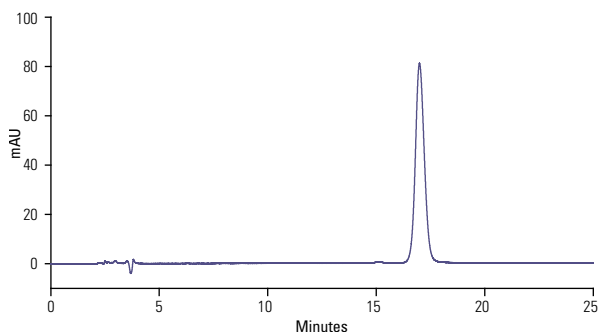
Particle Size (µm)	Format	Length (mm)	1.0mm ID	2.1mm ID	3.0mm ID	4.0mm ID	4.6mm ID
1.9	UHPLC Column	50	-	25702-052130	-	-	-
		100	-	25702-102130	-	-	-
		150	-	25702-152130	-	-	-
		200	-	25702-202130	-	-	-
3	Drop-in Guard (4/pk)	10	25703-011001	25703-012101	25703-013001	-	25703-014001
	HPLC Column	30	-	25703-032130	-	-	-
		50	-	25703-052130	-	-	25703-054630
		100	-	25703-102130	25703-103030	-	25703-104630
		150	25703-151030	25703-152130	25703-153030	-	25703-154630
5	Drop-in Guard (4/pk)	10	-	25705-012101	25705-013001	25705-014001	25705-014001
	HPLC Column	50	-	25705-052130	-	-	25705-054630
		100	-	25705-102130	-	-	25705-104630
		150	-	25705-152130	-	-	25705-154630
		250	-	25705-252130	25705-253030	25705-254030	25705-254630
		Uniguard Drop-in Guard Cartridge Holder	10	851-00	852-00	852-00	850-00

## Hypersil GOLD AX

A novel polymeric amine ligand bonded to highly pure base deactivated silica

- Weak anion exchange phase for multiple charged species
- Suitable for HILIC retention and separation of highly polar molecules
- Higher efficiency than polymer based ion exchange columns
- Outstanding peak shape and selectivity

### Vitamin C



Particle Size 1.9µm, 3µm, 5µm

#### Hypersil GOLD AX 5µm, 100 x 4.6mm

Mobile Phase:	100 mM Ammonium Acetate pH 6.8/ MeCN (30:70)
Temperature:	30°C
Flow Rate:	0.5mL/min
Injection Volume:	50µL
Detection:	UV, 240nm

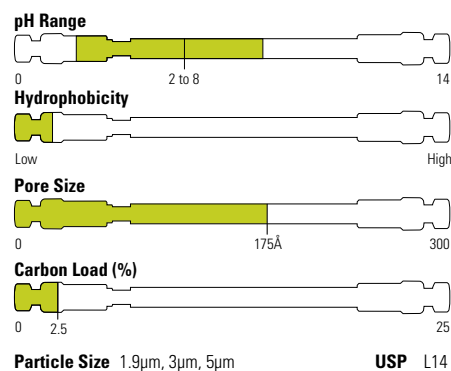
### Hypersil GOLD AX

Particle Size (µm)	Format	Length (mm)	1.0mm ID	2.1mm ID	3.0mm ID	4.6mm ID
1.9	UHPLC Column	50	-	26102-052130	-	-
		100	-	26102-102130	-	-
		150	-	26102-152130	-	-
		200	-	26102-202130	-	-
3	Drop-in Guard (4/pk)	10	26103-011001	26103-012101	-	26103-014001
	HPLC Column	30	-	26103-032130	-	-
		50	-	26103-052130	-	-
		100	-	26103-102130	-	26103-104630
		150	26103-151030	26103-152130	26103-153030	-
5	Drop-in Guard (4/pk)	10	-	26105-012101	26105-013001	26105-014001
	HPLC Column	50	-	-	-	26105-054630
		100	-	-	-	26105-104630
		150	-	-	-	26105-154630
		250	-	26105-252130	26105-253030	26105-254630
	Uniguard Drop-in Guard Cartridge Holder	10	851-00	852-00	852-00	850-00

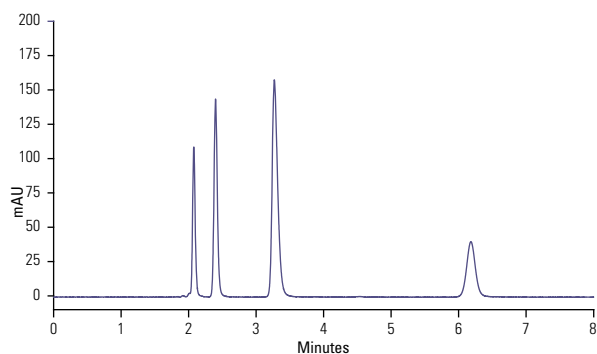
## Hypersil GOLD SAX

A highly stable quaternary amine strong anion exchange column for aqueous and low pH mobile phases

- High stability to aqueous and low pH mobile phases
- Ideally suited to the analysis of smaller organic molecules including nucleotides and organic acids
- Outstanding peak shape and sensitivity



### Monophosphates



#### Hypersil GOLD SAX 5µm, 150 x 4.6mm

Mobile Phase: Aqueous  $\text{KH}_2\text{PO}_4$  (50 mM, pH 3)  
 Temperature: 40°C  
 Flow Rate: 1.0mL/min  
 Injection Volume: 10µL  
 Detection: UV, 254nm

### Hypersil GOLD SAX

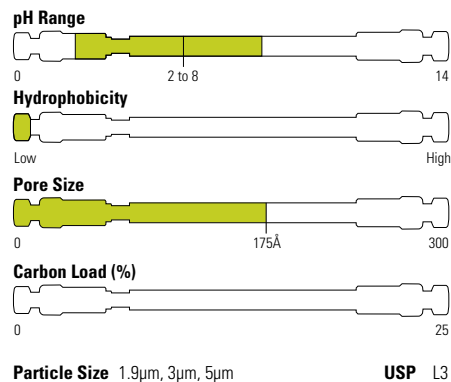
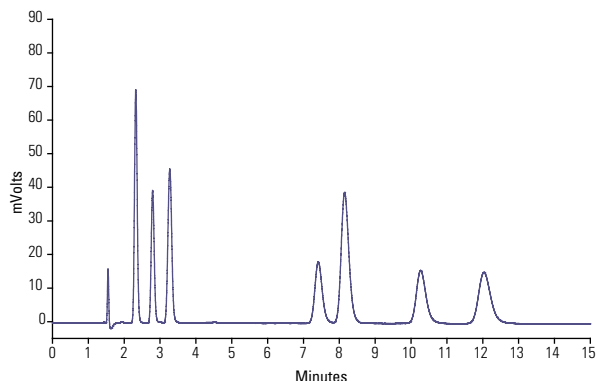
Particle Size (µm)	Format	Length (mm)	2.1mm ID	3.0mm ID	4.6mm ID
1.9	UHPLC Column	50	26302-052130	-	-
		100	26302-102130	-	-
		150	26302-152130	-	-
3	Drop-in Guard (4/pk)	10	26303-012101	-	26303-014001
	HPLC Column	50	26303-052130	-	-
		100	26303-102130	26303-103030	26303-104630
150		26303-152130	26303-153030	26303-154630	
5	Drop-in Guard (4/pk)	10	26305-012101	26305-013001	26305-014001
		HPLC Column	50	26305-052130	-
	100		26305-102130	-	26305-104630
	150		26305-152130	-	26305-154630
	250		26305-252130	26305-253030	26305-254630
	Uniguard Drop-in Guard Cartridge Holder	10	852-00	852-00	850-00

## Hypersil GOLD Silica

Unbonded, highly pure base deactivated silica media that is the backbone of the Hypersil GOLD range of columns

- Highly pure base deactivated silica media
- Outstanding peak shape and sensitivity

### Steroids



#### Hypersil GOLD Silica 5µm, 150 x 4.6mm

Mobile Phase:	19:1 (v/v) n-C6H14/EtOH
Temperature:	30°C
Flow Rate:	1.5mL/min
Injection volume:	5µL
Detection:	UV, 254nm
Analytes:	<ol style="list-style-type: none"> <li>1. Progesterone</li> <li>2. 21-Hydroxyprogesterone-21-acetate</li> <li>3. 17-a-Hydroxyprogesterone</li> <li>4. Cortisone</li> <li>5. 11-a-Hydroxyprogesterone</li> <li>6. Corticosterone</li> <li>7. Hydrocortisone</li> </ol>

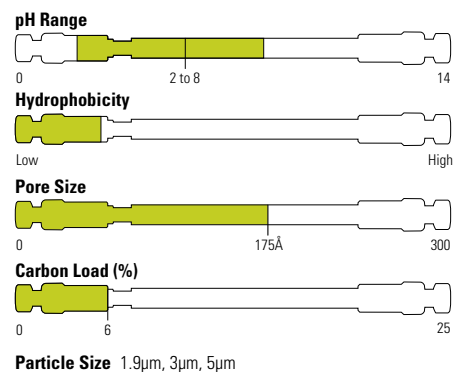
### Hypersil GOLD Silica

Particle Size (µm)	Format	Length (mm)	1.0mm ID	2.1mm ID	3.0mm ID	4.0mm ID	4.6mm ID
1.9	UHPLC Column	50	-	25102-052130	-	-	-
		100	-	25102-102130	-	-	-
		150	-	25102-152130	-	-	-
		200	-	25102-202130	-	-	-
3	Drop-in Guard (4/pk)	10	25103-011001	25103-012101	25103-013001	-	25103-014001
	HPLC Column	30	-	25103-032130	-	-	25103-034630
		100	-	25103-102130	-	-	25101-104630
		150	-	25103-152130	25103-153030	-	25103-154630
5	Drop-in Guard (4/pk)	10	-	25105-012101	-	25105-014001	25105-014001
	HPLC Column	50	-	25105-052130	-	-	25105-054630
		100	-	25105-102130	25105-103030	-	25105-104630
		150	-	25105-152130	-	-	25105-154630
		250	-	25105-252130	-	25105-254030	25105-254630
	Uniguard Drop-in Guard Cartridge Holder	10	851-00	852-00	852-00	850-00	850-00

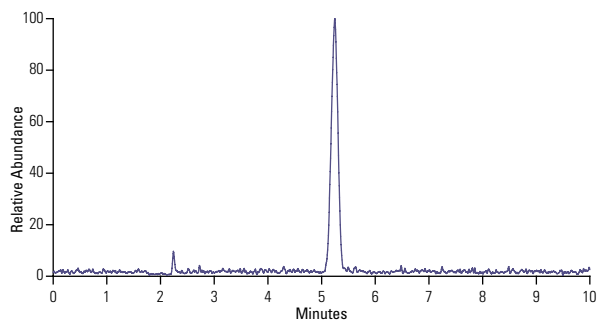
## Hypersil GOLD HILIC

Retains and separates polar analytes that are problematic using reversed-phase columns

- Alternative selectivity to C18
- Improved sensitivity for MS detection
- Alternative to ion-pair or derivatization
- Outstanding peak shape and selectivity



## Urea



### Hypersil GOLD HILIC 5µm, 150 x 4.6mm

Mobile Phase: H<sub>2</sub>O/MeCN (10:90)  
+ 0.1% formic acid

---

Temperature: 30°C

Flow Rate: 0.6mL/min

Injection Volume: 1µL

Detection: +ESI

Analytes: 1. Urea

## Hypersil GOLD HILIC

Particle Size (µm)	Format	Length (mm)	1.0mm ID	2.1mm ID	3.0mm ID	4.6mm ID
1.9	UHPLC Column	50	-	26502-052130	-	-
		100	-	26502-102130	-	-
		150	-	26502-152130	-	-
3	Drop-in Guard (4/pk)	10	26503-011001	26503-012101	26503-013001	26503-014001
	HPLC Column	30	-	26503-032130	-	-
		50	-	26503-052130	-	-
		100	26503-101030	26503-102130	26503-103030	26503-104630
		150	26503-151030	26503-152130	26503-153030	26503-154630
5	Drop-in Guard (4/pk)	10	-	26505-012101	-	26505-014001
	HPLC Column	50	-	26505-052130	-	26505-054630
		100	-	26505-102130	26505-103030	26505-104630
		150	-	26503-101030	-	26505-154630
		250	-	26505-252130	26505-253030	26505-254630
	Uniguard Drop-in Guard Cartridge Holder	10	851-00	852-00	852-00	850-00

# Acclaim HPLC and UHPLC columns

Optimal selectivity through innovative chemistries

Designed for separating a variety of analytes, from small neutral and polar molecules to complex mixtures. Ideal for pharmaceutical, environmental, food and beverage and chemical applications.

## **Diversified selectivities**

- Novel and proprietary surface chemistries

## **Reproducible and reliable**

- Strict manufacturing and quality processes

## **High efficiencies**

- For optimum resolution of complex mixtures

## **Ultra-pure, porous, spherical silica**

- Providing consistent quality and performance

Download the Acclaim column selection guide [here](#)

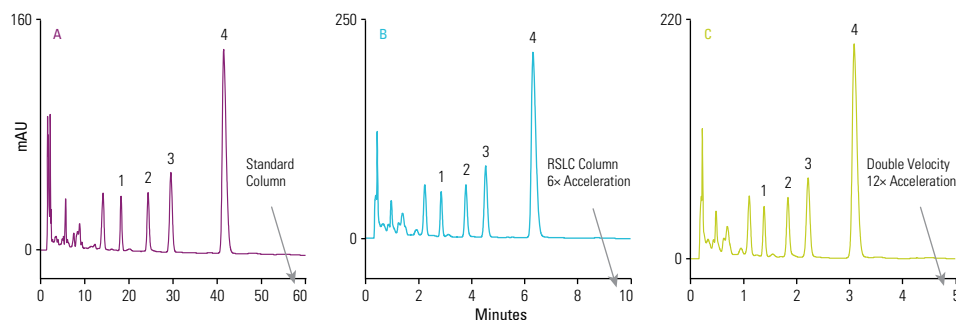
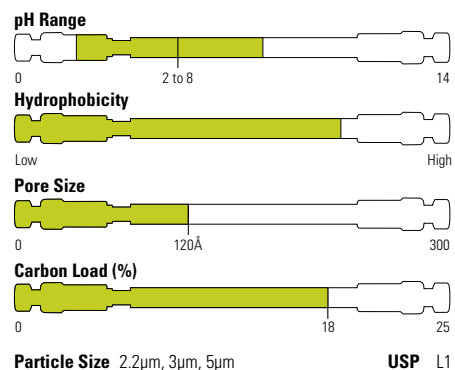
For more information, visit [thermofisher.com/acclaim](https://thermofisher.com/acclaim)

## Acclaim 120 C18

High performance reversed-phase columns for reproducible results

- High hydrophobic retention
- Excellent efficiencies for maximum resolution
- Low silanol activity for excellent peak shapes for basic analytes
- Extremely low bleed, fully compatible with MS

The Acclaim 120 columns are designed for high resolution reversed-phase separations. The very high surface coverage and very low metal content together result in columns with excellent efficiencies. These columns provide exceptional performance for a variety of applications in the pharmaceutical, chemical, environmental and food separations areas.



**A: Acclaim 120 C18, 5µm, 150 x 4.6mm**  
**B, C: Acclaim RSLC C18, 2.2µm, 50 x 2.1mm**

Mobile Phase:	200mM HOAc in 10% (v/v) MeOH
Temperature:	20°C
Flow Rate:	A: 1.00mL/min B: 0.41mL/min C: 0.82mL/min
Injection Volume:	A: 10µL B: 1.2µL C: 1.2µL
Detection:	UV, 254 nm, A: 1 Hz data rate B: 5 Hz data rate C: 10 Hz data rate
Analytes:	1. p-Hydroxybenzoic acid 2. p-Hydroxybenzaldehyde 3. Vanillic acid 4. Vanillin
Sample:	Commercial vanilla extract in 40% ethanol, filtered
Reference:	AOAC Official Method 990.25

### Acclaim 120 C18

Particle Size (µm)	Format	Length (mm)	2.1mm ID	3.0mm ID	4.6mm ID
2.2	RSLC Column	30	071400	071606	-
		50	068981	071605	-
		75	-	075697	-
		100	068982	071604	-
		150	071399	-	-
		250	074812	-	-
3	HPLC Column	33	-	066272	-
		50	059128	068971	059131
		75	-	066273	-
		100	059129	076186	059132
		150	059130	063691	059133
		250	076187	070077	-
5	Guard Cartridge (2/pk)	10	069689	071981	069695
	HPLC Column	50	059142	-	059146
		100	059143	-	059147
		150	059144	-	059148
		250	059145	-	059149

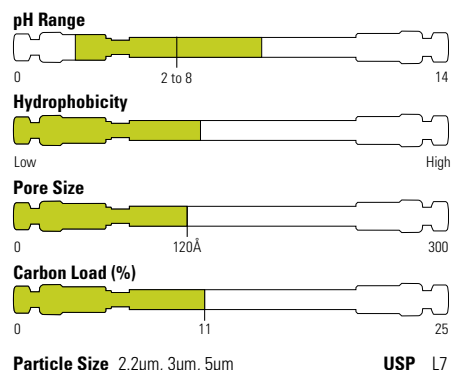


## Acclaim 120 C8

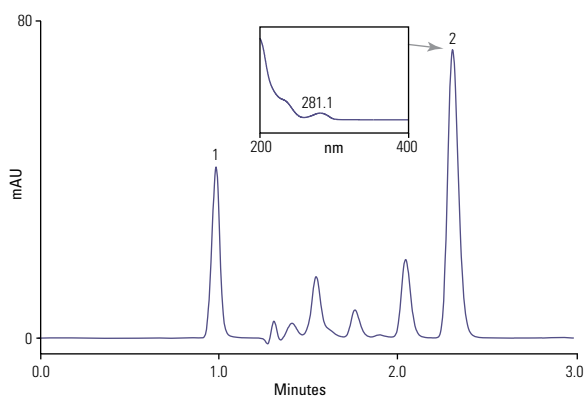
High performance reversed-phase columns with intermediate hydrophobic retention

- Low silanol activity for excellent peak shapes for basic analytes
- Excellent column efficiencies
- LC-MS compatible

Acclaim 120 C8 reversed-phase columns feature densely bonded monolayer C8 ligands on a high-purity, spherical porous silica substrate. The columns are a well-characterized line of LC-MS compatible C8 phases with very high surface coverage and extremely low silanol activity. These columns provide exceptional performance for a variety of applications in the pharmaceutical, environmental, food and many other industrial sectors.



## Triclosan in toothpaste



### Column: Acclaim RSLC C8, 2.2µm, 50 x 2.1mm

Mobile Phase:	Isocratic, 15% buffer, (2mM Ammonium acetate pH5), 85% methanol (v/v)
Temperature:	50°C
Flow Rate:	0.2mL/min
Injection Volume:	1.0µL
Detection:	Diode array detector, 281nm, 10Hz, 0.1 s resp. time and spectra 200-400 nm
Analytes:	1. Saccharin 2. Triclosan
Sample:	Toothpaste containing 0.3% triclosan

### Acclaim 120 C8

Particle Size (µm)	Format	Length (mm)	2.1mm ID	3.0mm ID	4.6mm ID
2.2	RSLC Column	30	-	072618	-
		50	072615	072619	-
		100	072616	072620	-
		150	072617	-	-
		250	074811	-	-
3	HPLC Column	50	059122	-	059125
		100	059123	-	059126
		150	059124	068970	059127
5	Guard Cartridge	10	069688	071979	069696
	HPLC Column	50	059134	-	059138
		100	-	-	059139
		150	059136	-	059140
		250	-	-	059141

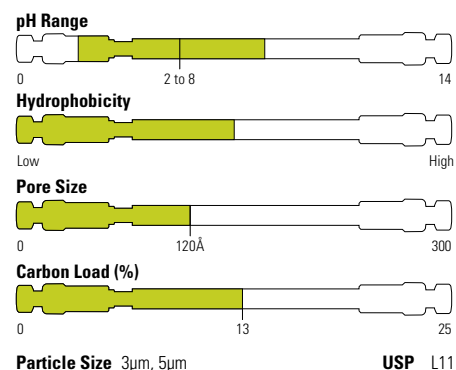
## Acclaim Phenyl-1

A unique reversed-phase column with high aromatic selectivity

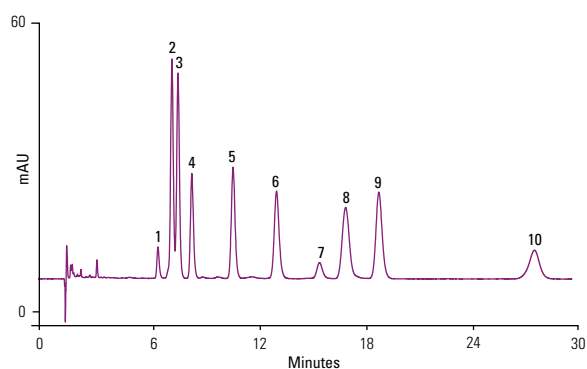
- High aromatic selectivity
- High hydrophobic retention
- Unique and complementary selectivity compared to any other phenyl type column
- Compatibility with highly aqueous mobile phase
- High efficiency and rugged packing

Acclaim Phenyl-1 has a higher pi-pi interaction than other phenyl phases and provides unique selectivity for aromatic compounds while maintaining sufficient hydrophobic interaction and aqueous compatibility for superior chromatographic performance.

The Acclaim Phenyl-1 column can be used in a wide range of applications in pharmaceutical, environmental, food testing and product-quality testing. This column is ideally suited for the analysis of aromatic analytes; some examples include glucocorticosteroids, estrogens, fat-soluble vitamins and phospholipids.



### Separation of fat-soluble vitamins



#### Acclaim Phenyl-1, 3µm, 150 x 3.0mm

Mobile Phase:	Methanol/water v/v 90/10
Temperature:	30°C
Flow Rate:	0.5mL/min
Injection Volume:	2µL
Detection:	UV, 220nm
Analytes:	(100 ppm each)
	1. Retinol acetate (vitamin A acetate)
	2. Vitamin D2
	3. Vitamin D3
	4. delta-Tocopherol
	5. gamma-Tocopherol
	6. alpha-Tocopherol (vitamin E)
	7. Impurity (unknown)
	8. Vitamin E acetate
	9. Vitamin K2
	10. Vitamin K1

#### Acclaim Phenyl-1

Particle Size (µm)	Format	Length (mm)	2.1mm ID	3.0mm ID	4.6mm ID
3	Guard Cartridge	10	-	071974	071973
	HPLC Column	150	071971	071970	071969
5	HPLC Column	250	-	-	079697

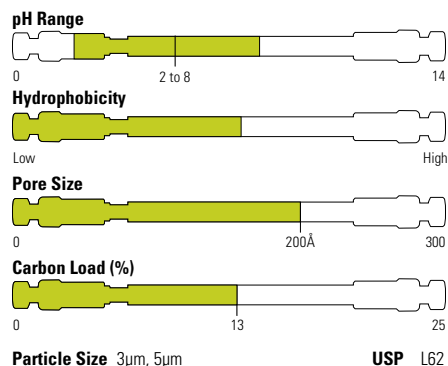
Learn more at [thermofisher.com/acclaim](http://thermofisher.com/acclaim)

## Acclaim C30

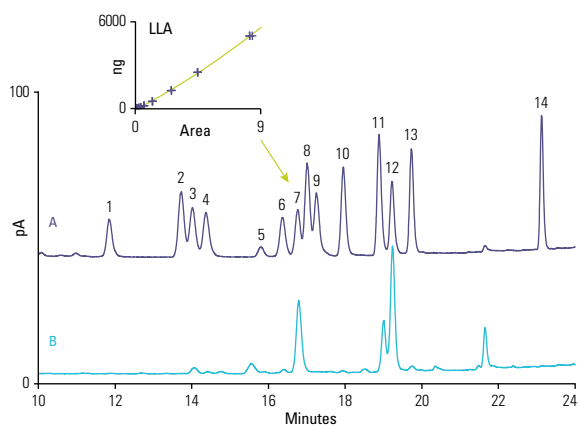
Columns for separating structurally related isomers

- High shape selectivity
- Unique selectivity complementary to other reversed-phase columns
- Compatibility with highly aqueous mobile phase
- High-quality: low column bleed, high efficiency and rugged packing

The Acclaim C30 is designed to provide high shape selectivity for separating hydrophobic structural related isomers and unique selectivity complementary to other reversed-phase columns (e.g. C18).



### Omega fatty acids



#### Acclaim C30, 5µm, 150 x 4.6mm

Mobile Phase A: Water:formic acid:mobile phase B  
900:3:6:100 (v/v)

Mobile Phase B: Acetone:acetonitrile:THF:formic acid  
675:225:100:4(v/v)

Gradient:	Time (min)	%A	%B
	0	100	0
	1	40	60
	13	30	70
	22	5	95
	24	5	95
	29	100	0
	32	100	0

Temperature: 30°C

Flow Rate: 1.00mL/min

Injection Volume: 2µL

Detection: Corona ultra, nebulizer 15°C, filter high

Analytes:  
1. SDA  
2. EPA  
3. ALA  
4. GLA  
5. DHA  
6. Arach.  
7. LLA

Samples:  
A. Standards in isopropanol  
B. Saponified chicken fat

### Acclaim C30

Particle Size (µm)	Format	Length (mm)	2.1mm ID	3.0mm ID	4.6mm ID
3	HPLC Column	50	078666	078663	078661
		100	078665	078662	078660
		150	075725	075724	075723
		250	078664	075726	303056
5	Guard Cartridge	10	075722	075721	075720
	HPLC Column	150	-	-	075719
		250	-	-	075718

### Acclaim guard holder

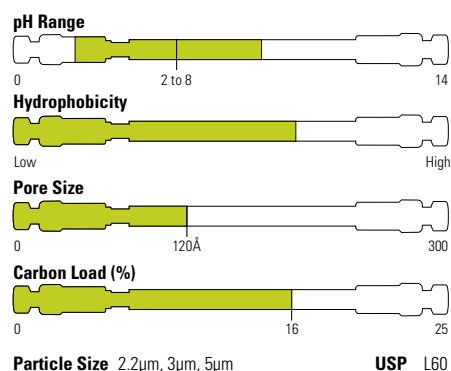
Format	Cat. No.
Acclaim Guard Cartridge Holder V-2	069580
Acclaim Guard Kit (Holder and Coupler) V-2	069707
Guard to Analytical Column Coupler V-2	074188

## Acclaim PolarAdvantage

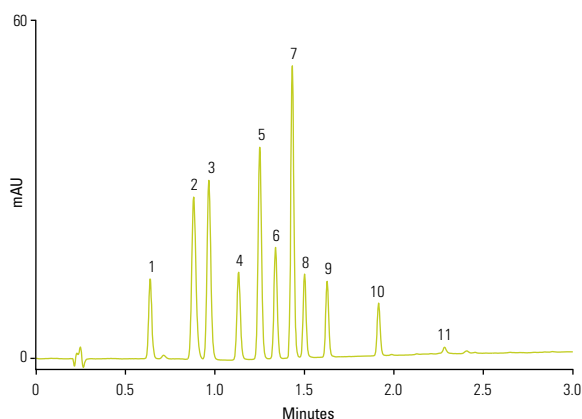
Novel polar-embedded reversed-phase columns with unique selectivity

- Selectivity complementary to the C18 column
- Low silanol activity for excellent peak shape with basic compounds
- Compatible with 100% aqueous mobile phase
- High selectivity for hydrophobic aromatic molecules
- Wide range of applications

Acclaim PolarAdvantage (PA) columns feature a patented bonding column chemistry that incorporates a polar sulfonamide group with an ether linkage near the silica surface. This unique chemistry provides low silanol activity, compatibility with 100% aqueous mobile phase. The Acclaim PA column offers great separation power to resolve a wide variety of polar and non-polar analytes and supports LC-MS analysis.



### EPA 604 Phenols



#### Acclaim RSLC PolarAdvantage, 2.2µm, 50 x 3.0mm

Mobile Phase A: 10mM formic acid + 10mM ammonium formate, pH 3.75 ± 0.05

Mobile Phase B: Acetonitrile

Gradient: -1.5 0.0 0.3 2.6 3.0  
 %A 70 70 70 10 10  
 %B 30 30 30 90 90

Temperature: 30°C

Flow Rate: 1.25mL/min

Injection Volume: 0.5µL

Detection: UV, 280nm, 10Hz, 0.5s resp. time

Analytes: 1. Phenol  
 2. 2,4-Dinitrophenol  
 3. 4-Nitrophenol  
 4. 2-Chlorophenol  
 5. 2-Nitrophenol  
 6. 2,4-Dimethylphenol  
 7. 4,6-Dinitro-2-methylphenol  
 8. 4-Chloro-3-methylphenol  
 9. 2,4-Dichlorophenol  
 10. 2,4,6-Trichlorophenol  
 11. Pentachlorophenol

Sample: Calibration mix, 50µg/mL in water

### Acclaim PolarAdvantage

Particle Size (µm)	Format	Length (mm)	2.1mm ID	3.0mm ID	4.6mm ID
2.2	RSLC Column	50	072622	-	-
		100	072623	072627	-
		150	072624	-	-
		250	074813	-	-
3	HPLC Column	50	063174	068972	-
		100	061316	076214	-
		150	061317	063693	061318
		250	-	070079	-
5	Guard Cartridge	10	069691	071983	069698
	HPLC Column	50	-	-	061319
		150	-	-	061320
		250	-	-	061321

Learn more at [thermofisher.com/acclaim](http://thermofisher.com/acclaim)

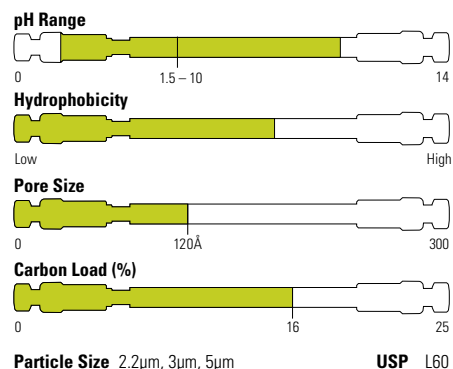
## Acclaim PolarAdvantage II

Complementary selectivity and enhanced hydrolytic stability

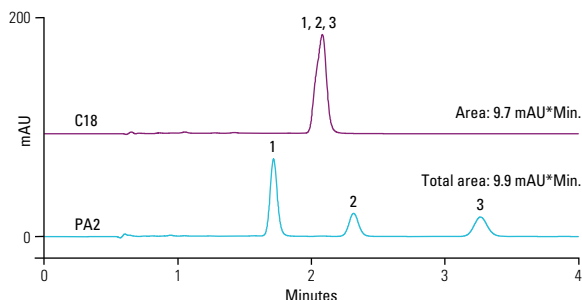
- Unique selectivity complementary to the C18 column
- Novel polar-embedded column chemistry for hydrolytic stability
- Compatible with 100% aqueous mobile phase
- Low bleed for MS compatibility
- Wide range of applications

Acclaim PolarAdvantage II (PA2) columns feature a patented surface chemistry that incorporates an amide-embedded polar group and multi-point attachment between the ligands and the silica surface. This unique chemistry provides enhanced hydrolytic stability from pH 1.5-10 with 100% aqueous mobile phases and exhibits high reversed-phase capacity, with selectivity complementary to conventional C18 columns.

The Acclaim PA2 column is specifically designed to withstand high pH conditions, making it a good choice for the separation of both basic and acidic analytes.



### Turmeric



<b>Acclaim RSLC 120 C18 2.2µm, 100 x 2.1mm</b>
<b>Acclaim RSLC PA2, 2.2µm, 100 x 2.1mm</b>
Mobile Phase A: 15mM H <sub>3</sub> PO <sub>4</sub>
Mobile Phase B: Methanol
Isocratic: C18: 70% B (v/v)
PA2: 80% B (v/v)
Temperature: 30°C
Flow Rate: 0.41mL/min
Detection: UV, 428nm
Analytes: 1. Curcumin
2. Demethoxycurcumin
3. Bis-demethoxycurcumin
Sample: Turmeric extract

### Acclaim PolarAdvantage II

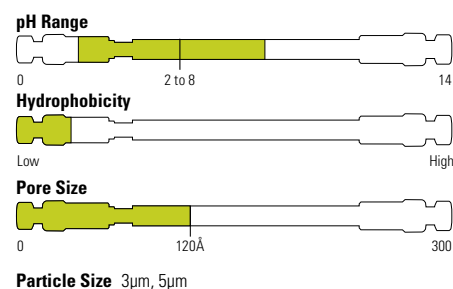
Particle Size (µm)	Format	Length (mm)	2.1mm ID	3.0mm ID	4.6mm ID
2.2	RSLC Column	30	071402	-	-
		50	068989	071608	-
		100	068990	071607	-
		150	071401	-	-
		250	074814	-	-
3	HPLC Column	33	-	066276	-
		50	077999	068973	063189
		75	-	066277	-
		100	077998	078000	078001
		150	063187	063705	063191
		250	077997	070080	-
5	Guard Cartridge	10	069692	071985	069699
	HPLC Column	150	-	-	063197
		250	-	-	063199

## Acclaim HILIC-10

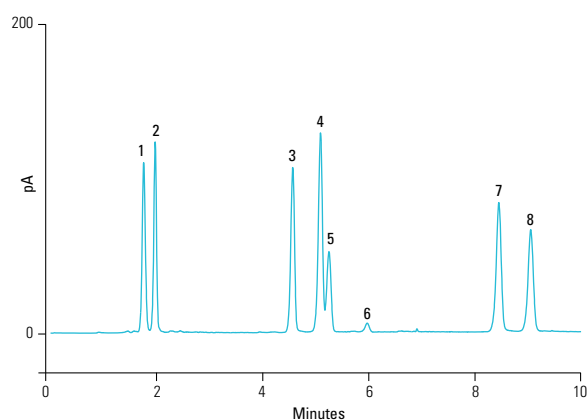
Designed with unique selectivity for hydrophilic molecules

- Retains highly polar molecules that are not retained by reversed-phase chromatography
- Unique selectivity, complementary to reversed-phase columns
- Hydrolytically stable
- Rugged column packing
- Broad application range

The Acclaim HILIC-10 column is designed for separating highly hydrophilic molecules by Hydrophilic Interaction Liquid Chromatography (HILIC). This column is based on high-purity spherical porous silica covalently modified with a proprietary hydrophilic layer.



### Glycerides



#### Acclaim HILIC-10, 3µm, 150 x 3.0mm

Mobile Phase A: Heptane  
 Mobile Phase B: 2-Propanol/acetic acid 99.5:0.5  
 Temperature: 25°C  
 Flow Rate: 0.50mL/min  
 Injection Volume: 4µL  
 Detection: Corona ultra, nebulizer 15°C  
 Analytes:  
 1. Tristearin  
 2. Trilaurin  
 3. Distearin isomer 1  
 4. Dilaurin isomer 1  
 5. Distearin isomer 2  
 6. Dilaurin isomer 2  
 7. Monostearin  
 8. Monolaurin

### Acclaim HILIC-10

Particle Size (µm)	Format	Length (mm)	2.1mm ID	3.0mm ID	4.6mm ID
3	HPLC Column	150	074259	074258	074257
5	Guard Cartridge	10	074263	074261	074262

### Acclaim guard holder

Format	Cat. No.
Acclaim Guard Cartridge Holder V-2	069580
Acclaim Guard Kit (Holder and Coupler) V-2	069707
Guard to Analytical Column Coupler V-2	074188

Learn more at [thermofisher.com/acclaim](https://www.thermofisher.com/acclaim)

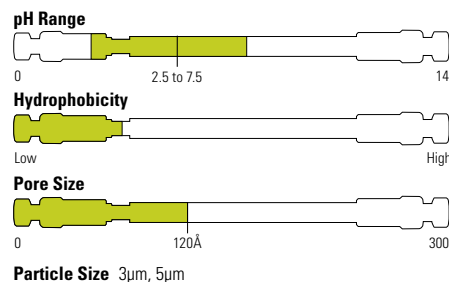
## Acclaim Mixed-Mode HILIC-1

Uniquely designed for both reversed-phase and HILIC operations

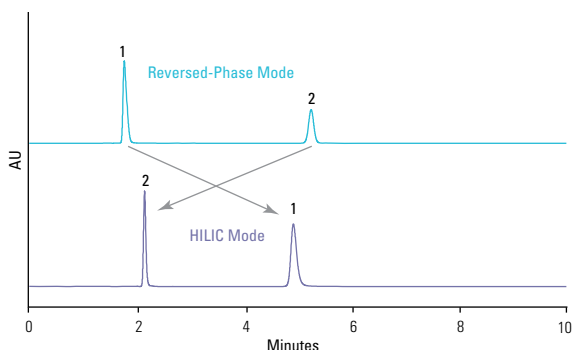
- Can operate in both RP and HILIC modes
- Retains highly polar molecules
- Unique selectivity complementary to RP columns
- Broader application range compared with conventional diol-based columns
- High-efficiency column for high-resolution separations

The Acclaim Mixed-Mode HILIC-1 column features a unique, high-efficiency, silica-based HPLC mixed-mode stationary phase that combines both reversed-phase (RP) and hydrophilic interaction liquid chromatography (HILIC) properties. This combination allows both hydrophobic and hydrophilic interactions to be utilized to optimize separations.

The functional group is of a hydrophobic alkyl chain with a diol group at the terminus. This unique combination results in the adjustable selectivity, making Acclaim Mixed-Mode HILIC-1 separate mixtures that would be impossible for a C18 column. This column is suitable for a broad range of applications, including non-ionic ethoxylated surfactants, drug metabolites, lipids, polyethylene glycols (PEGs), ethoxylated surfactants, and more.



### Cytosine and naphthalene



#### Acclaim Mixed-Mode HILIC-1, 5µm, 150 x 4.6mm

Mobile Phase:	CH <sub>3</sub> CN/0.1 M NH <sub>4</sub> OAc, pH 5.2 v/v 52/48 for RP mode v/v 92/8 for HILIC mode
Temperature:	30°C
Flow Rate:	1mL/min
Injection Volume:	10µL
Detection:	UV, 254nm
Analytes:	1. Cytosine (100 ppm) 2. Naphthalene (100 ppm)

#### Acclaim Mixed-Mode HILIC-1

Particle Size (µm)	Format	Length (mm)	2.1mm ID	3.0mm ID	4.6mm ID
3	HPLC Column	50	-	071912	-
		150	070091	070090	-
5	Guard Cartridge	10	069694	071913	069706
	HPLC Column	150	066847	-	066843
		250	-	-	066844

#### Acclaim guard holder

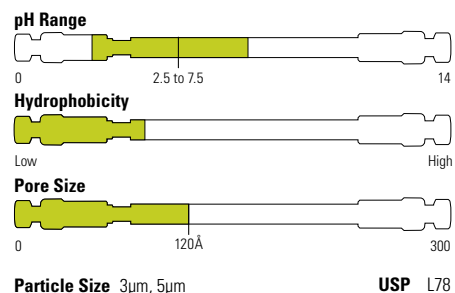
Format	Cat. No.
Acclaim Guard Cartridge Holder V-2	069580
Acclaim Guard Kit (Holder and Coupler) V-2	069707
Guard to Analytical Column Coupler V-2	074188

## Acclaim Mixed-Mode WAX-1

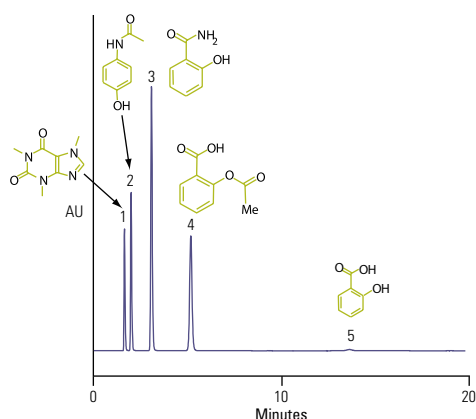
Designed for separating anionic molecules with powerful adjustable selectivity control

- Adjustable selectivity
- Selectivity orthogonal to reversed-phase (RP) columns
- Ideal selectivity for anionic molecules
- Excellent column efficiency and peak asymmetry
- Multimode retention mechanisms: reversed-phase, weak anion exchange, and HILIC modes

The Acclaim Mixed-Mode WAX-1 is a novel, high-efficiency silica HPLC column that combines hydrophobic and weak anion exchange characteristics. Its unique chemistry results in a multimode separation mechanism that includes reversed-phase, anion exchange, and HILIC interactions. Selectivity can be adjusted by changing ionic strength, pH or organic solvent content.



### Pain relief medicine



#### Acclaim Mixed-Mode WAX-1, 5µm, 150 x 4.6mm

Mobile Phase:	40/60 v/v Acetonitrile/buffer (6.8 g potassium monophosphate and 0.5 g pyrophosphate in 1000 g D.I. H <sub>2</sub> O, pH is adjusted to 6.0 with NaOH)
Temperature:	30°C
Flow Rate:	1mL/min
Injection Volume:	1µL
Detection:	UV, 220nm
Analyses:	1. Caffeine 2. Acetaminophen 3. Salicylamide 4. Acetyl salicylic acid (Aspirin) 5. Salicylic acid

### Acclaim Mixed-Mode WAX-1

Particle Size (µm)	Format	Length (mm)	2.1mm ID	3.0mm ID	4.6mm ID
3	HPLC Column	50	-	071908	-
		150	070089	070088	-
5	Guard Cartridge	10	069686	071909	069704
	HPLC Column	150	067084	-	064984
		250	-	-	064985

### Acclaim guard holder

Format	Cat. No.
Acclaim Guard Cartridge Holder V-2	069580
Acclaim Guard Kit (Holder and Coupler) V-2	069707
Guard to Analytical Column Coupler V-2	074188

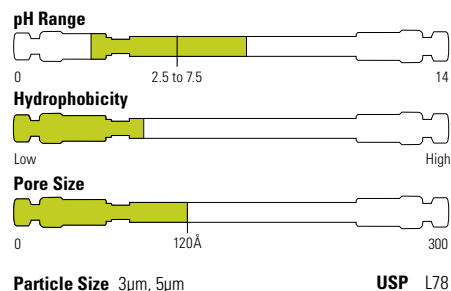


## Acclaim Mixed-Mode WCX-1

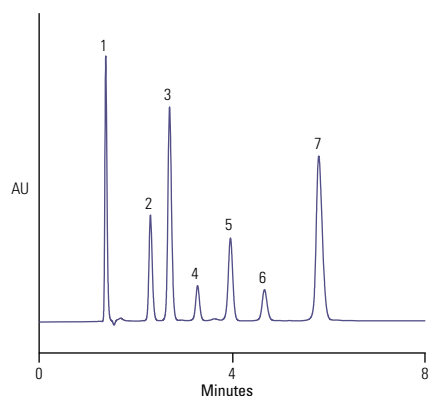
Designed for separating cationic molecules with adjustable selectivity control

- Adjustable selectivity
- Ideal selectivity for separating basic molecules
- Selectivity complementary to C18 RP columns
- Multimode separation mechanism: reversed-phase, weak cation exchange, anion-exclusion and HILIC

The Acclaim Mixed-Mode WCX-1 is a novel, high-efficiency, silica-based column, with a proprietary ligand with both hydrophobic and weak cation exchange properties. Selectivity of ionizable and neutral compounds can be controlled independently or simultaneously by tuning mobile phase ionic strength, pH or organic modifier. This column therefore can separate using multiple separation modes: reversed-phase, cation exchange, and normal-phase/HILIC and is recommended for a variety of industrial applications, including pharmaceutical, chemical, consumer products, foods and beverages.



### Pharmaceutical counterions



#### Acclaim Mixed-Mode WCX-1, 5µm, 150 x 4.6mm

Mobile Phase:	40/60 v/v CH <sub>3</sub> CN/NH <sub>4</sub> OAc, pH 5.2 (20 mM total)
Temperature:	30°C
Flow Rate:	1mL/min
Injection Volume:	5µL
Detection:	UV (225 nm)
Analytes:	1. Maleate 50µg/mL 2. Ketoprofen 30µg/mL 3. Naproxen 30µg/mL 4. Hydrocortisone 60µg/mL 5. Dexamethasone 60µg/mL 6. Oxprenolol 300µg/mL 7. Timolol 250µg/mL

### Acclaim Mixed-Mode WCX-1

Particle Size (µm)	Format	Length (mm)	2.1mm ID	3.0mm ID	4.6mm ID
3	HPLC Column	50	-	071910	-
		150	070093	070092	-
5	Guard Cartridge	10	085455	071911	069705
	HPLC Column	150	068371	-	068353
		250	-	-	068352

### Acclaim guard holder

Format	Cat. No.
Acclaim Guard Cartridge Holder V-2	069580
Acclaim Guard Kit (Holder and Coupler) V-2	069707
Guard to Analytical Column Coupler V-2	074188

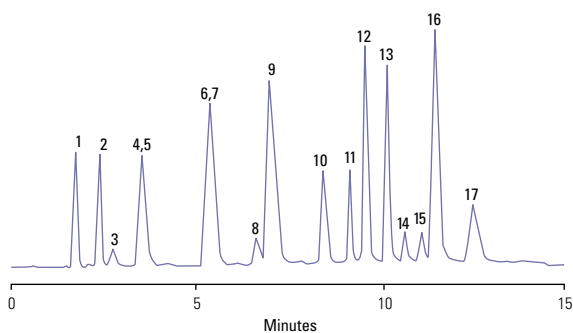
## OmniPac

DVB polymer columns for combined ion exchange and reversed-phase separations

- Acid, base and solvent compatible, pH 0 to 14
- Ideal for the separation of high molecular weight organic acids
- Delivers optimal separation of very hydrophobic anions
- Delivers optimal separation of halogenated anions
- Provides simultaneous separation of neutral and ionic species
- Unique selectivity for polar and ionic organic analytes
- Delivers optimal separation of organic, hydrophobic, and halogenated cations

Thermo Scientific™ OmniPac™ is a range of latex-based columns. Both PAX columns have an ion exchange capacity of about 40µeq per column, and the PCX columns have a capacity of approximately 120µeq per column. The PAX-500 and PCX-500 columns separate analytes through both ion exchange and reversed-phase mechanisms, due to their higher reversed-phase capacity relative to the PAX-100 and PCX-100 columns.

### Gradient separation of nitrogen-containing compounds



#### OmniPac PCX-500, 250 x 4.0mm

Mobile Phase:	Acetonitrile/Sodium Chloride/ Hydrochloric Acid Gradient
Flow Rate:	1.0mL/min
Detection:	UV, 254nm
Analytes:	1. Orotic Acid 2. 4-Hydroxybenzamide 3. Luminol Impurity 4. Luminol 5. Pyridine 6. PABA 7. 2,2'-Bipyridine 8. p-Phenylenediamine 9. Naphthylamine 10. Nitrobenzoic Acid 11. Tribenzylamine 12. p-Nitroaniline 13. 2,4-Dinitroaniline 14. Dibenzylamine 15. N-Methyl-N-nitrosoaniline 16. 4-Chloro-2-nitroaniline 17. 2,6-Dichloro-4-nitroaniline

#### OmniPac anion exchange

Description	Porosity	Length (mm)	4.0mm ID
PAX-100	Microporous	50	042151
		250	042150
PAX-500	Microporous	50	042153
		250	042152

#### OmniPac cation exchange

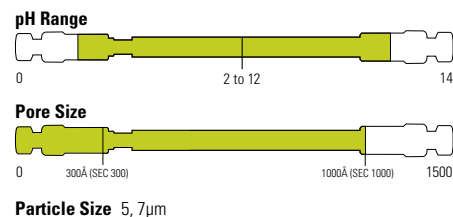
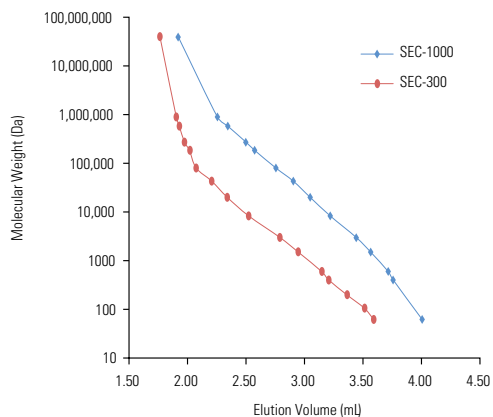
Description	Porosity	Length (mm)	4.0mm ID
PCX-100	Microporous	50	042193
		250	042189
PCX-500	Microporous	50	042195
		250	042191

## Acclaim Size Exclusion Chromatography (SEC)

High performance SEC columns for analysis of water soluble polymers

- Proprietary mono-dispersed multi-pore hydrophilic resin: no inflection points in calibration curve
- SEC-300 calibrated from 100 to 50,000 Daltons
- SEC-1000 calibrated from 1,000 to 1,000,000 Daltons
- Availability of small particle sizes packed in 300 x 4.6mm dimension allows for high-resolution analysis at reduced solvent consumption
- Stable surface bonding with low column bleed and compatibility with UV, RI, MS, ELSD and Thermo Scientific™ Dionex™ Corona™ Charged Aerosol Detectors

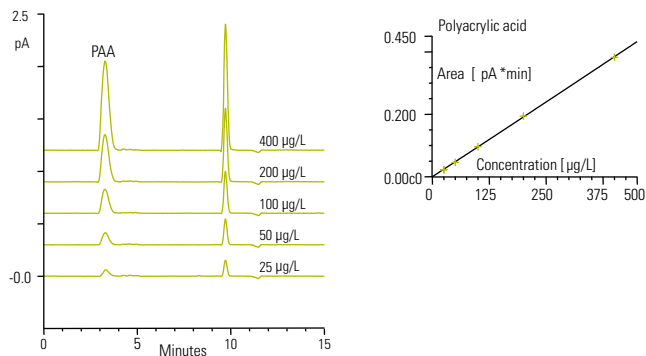
Thermo Scientific™ Acclaim™ SEC-300 and SEC-1000 are a family of resin based, high performance size exclusion chromatography columns specifically designed for the separation of water soluble polymers and oligomers.



**Acclaim SEC-300, 5μm, 300 x 4.6mm**  
**Acclaim SEC-1000, 7μm, 300 x 4.6mm**

Mobile Phase:	10mM sodium perchlorate
Temperature:	25°C
Flow Rate:	0.35mL/min
Injection Volume:	50μL
Detection:	RI
Analytes:	(0.03% - 0.1% in mobile phase) dextran (MW 5,000,000-40,000,000), PEO (MW 895,000, 580,000, 272,000, 185,000, 80,000, 43,000, and 20,000), PEG (MW 8,300, 3,000, 1,500, 600, 400 and 200), diethylene glycol (MW 106 and ethylene glycol (MW 62)

### Polyacrylic acid using SEC with charged-aerosol detection



**Acclaim SEC-300, 5μm, 300 x 4.6mm**

Mobile Phase A:	Acetonitrile
Mobile Phase B:	Water
Temperature:	30°C
Flow Rate:	0.35mL/min
Injection Volume:	35μL
Detection:	Corona III; evaporator 55°C, Engine 40 °C, 2 Hz, filter 5, power function 1.20
Analytes:	1. PAA standards in water

### Acclaim size exclusion chromatography (SEC)

Description	Particle Size (μm)	Format	Length (mm)	4.6mm ID	7.8mm ID
Acclaim SEC-300	5	Guard	33	082740	—
		HPLC Column	150	—	079726
			300	079723	079725
Acclaim SEC-1000	7	Guard	33	082739	—
		HPLC Column	150	—	079722
			300	079724	079721

# Application specific HPLC and UHPLC columns

Innovative chemistries tailored for challenging and critically important applications

Application specific columns utilize novel and unique chemistries to provide superior resolution with ease of use for key pharmaceutical and environmental applications.

## Acclaim AmG C18

- Aminoglycoside antibiotics separation

## Acclaim Trinity P1 and P2

- API & counterion analysis

## Acclaim organic acid

- Fast organic acid analysis

## Acclaim surfactant and surfactant plus

- Separation of surfactants

## Acclaim explosives

- Separation of explosive residues

## Acclaim Trinity Q1

- Diquat and paraquat analysis

## Acclaim Carbamate

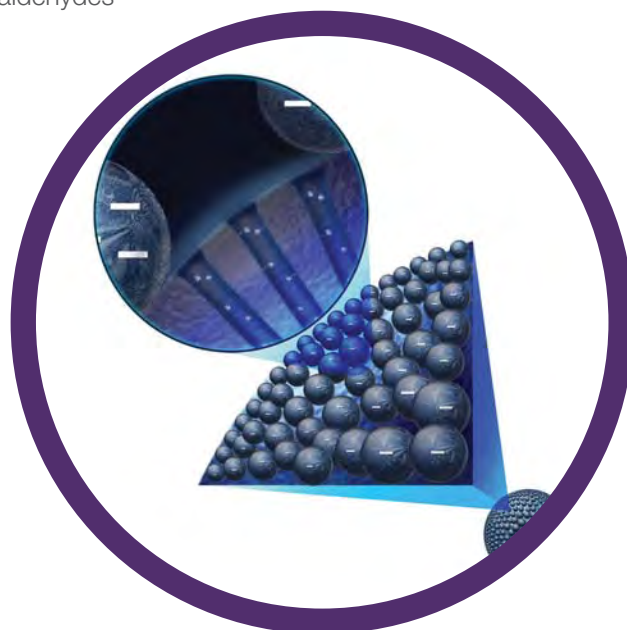
- The separation of carbamate pesticides

## Acclaim Carbonyl C18

- Separation of DNPH derivatives of aldehydes and ketones

Download the Acclaim column selection guide [here](#)

For more information, visit [thermofisher.com/acclaim](http://thermofisher.com/acclaim)



## Acclaim AmG C18

Designed to provide rugged and reproducible reversed-phase chromatography of aminoglycoside antibiotics.

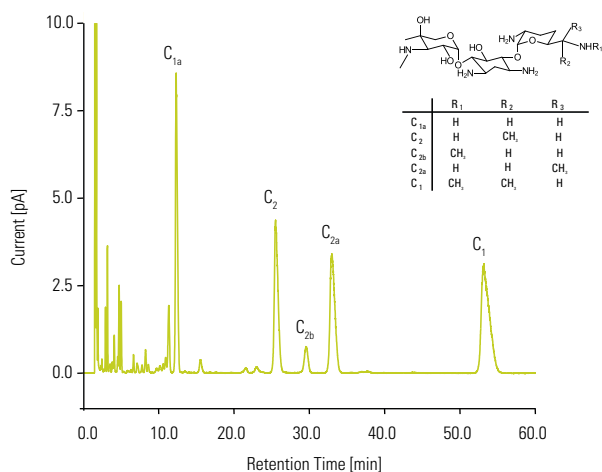
- Rugged and reproducible
- Excellent selectivity for the HPLC of aminoglycosides
- Superior resistance to acidic conditions for long column lifetime
- Easy to use with only aqueous mobile phase; TFA only, or TFA/HFBA or PFPA is needed
- Compatible with simple rugged methods; no solvents are required
- High efficiency and throughput



Aminoglycoside antibiotics are commonly used as clinical and veterinary medicines to treat bacterial infections. HPLC using ion-pairing reversed-phase separations is an effective technique for simultaneous qualitative and quantitative determination of aminoglycosides.

The Acclaim AmG C18 column is designed to provide excellent stability, selectivity and high resolution. It has a unique surface, a polymer encapsulated silica covalently bonded with a C18 ligand. This ensures ultra-stability when exposure to low pH (<1) and high temperature separation conditions.

### Isocratic separation of gentamicin sulfate using 100 mM TFA as the mobile phase



#### Acclaim AmG C18, 3µm, 150 x 3.0mm

Mobile Phase:	100 mM TFA
Temperature:	30°C
Flow Rate:	0.425 mL/min
Injection Volume:	2µL
Detection:	Corona Veo RS (Filter = 5.0 s; Evaporation Temp = 35 °C; Data Rate = 5 Hz; Power Function = 1.00)
Sample:	Gentamicin (1 mg/mL)

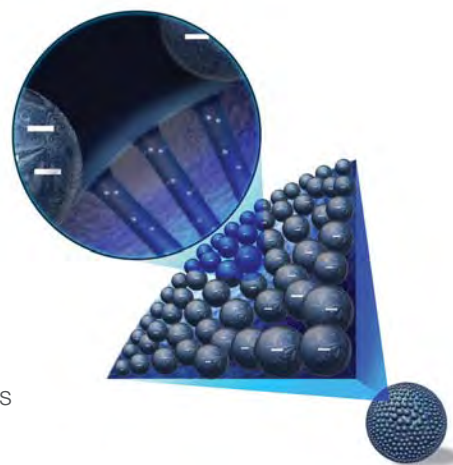
#### Acclaim AmG C18

Particle Size (µm)	Format	Length (mm)	2.1mm ID	3.0mm ID	4.6mm ID
3	Guard Cartridges (2/pk)	10	088754	088756	088758
	HPLC Column	150	088753	088755	088757
Guard Cartridge Holder			069580	069580	069580

## Acclaim Trinity P1

Mixed mode column technology combining reversed-phase, anion exchange and cation exchange functionality on a single support

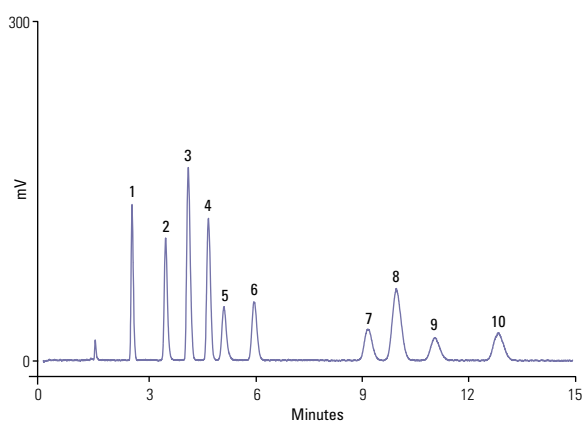
- Ideal selectivity for simultaneous separation of API and counterion
- Adjustable selectivity by mobile phase ionic strength, electrolyte type, pH, and organic solvent
- Low bleed; compatible with MS, CAD and ELSD
- Retention of hydrophilic ionic and ionizable analytes without ion-pairing reagents
- Greater flexibility in method development: each retention mechanisms can be controlled independently



The Thermo Scientific™ Acclaim™ Trinity™ P1 HPLC column is designed with Nanopolymer Silica Hybrid (NSH) technology, which results in a multimode surface chemistry ideal for the simultaneous separation of drugs and their counterions. The surface chemistry concurrently provides reversed-phase, cation exchange, and anion exchange functionalities. The result is maximum flexibility in method development. Separations can be optimized easily by adjusting the chromatographic parameters (mobile phase pH, ionic strength, and organic strength).

Download the Acclaim column selection guide [here](#)

### Simultaneous separation of pharmaceutical counterions



#### Acclaim Trinity P1, 3µm, 100 x 3.0mm

Mobile Phase: 60/40 v/v CH<sub>3</sub>CN/20mM (total) NH<sub>4</sub>OAc, pH 5

Temperature: 30°C

Flow Rate: 0.5mL/min

Injection Volume: 2µL

Detection: Corona ultra (Gain = 100 pA;

Filter = med; Neb Temp =

30°C)

Analytes: 1. Choline  
 (50 to 100ppm) 2. Tromethamine  
 3. Sodium  
 4. Potassium  
 5. Meglumine  
 6. Mesylate  
 7. Nitrate  
 8. Chloride  
 9. Bromide  
 10. Iodide

### Acclaim Trinity P1

Particle Size (µm)	Format	Length (mm)	2.1mm ID	3.0mm ID
3	Guard Cartridges (2/pk)	10	071391	071390
	HPLC Column	50	075565	071388
		100	071389	071387
		150	075564	075563

### Acclaim guard holder

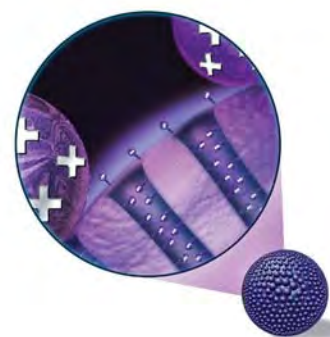
Format	Cat. No.
Acclaim SST Guard Cartridge Holder V-2	069580
Acclaim Guard Kit (Holder and coupler) V-2	069707
Guard to Analytical Column Coupler V-2	074188

For more information, visit [thermofisher.com/acclaim](http://thermofisher.com/acclaim)

## Acclaim Trinity P2

Mixed-mode column technology; hydrophilic interaction combining HILIC, anion exchange and cation exchange functionalities

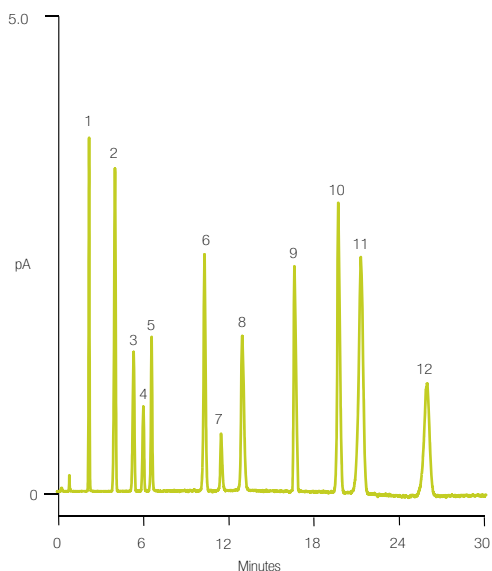
- Ideal for separating pharmaceutical counterions, including monovalent and divalent cations or anions
- Selectivity complementary to the Trinity P1 column
- Low column bleed, compatible with CAD and MS
- Hydrolytically stable
- High efficiency



The Acclaim Trinity P2 is a unique, high-efficiency, silica-based column specifically designed for separation of pharmaceutical counterions, including monovalent and divalent cations or anions. This column is based on Nanopolymer Silica Hybrid (NSH) technology, which consists of high-purity porous spherical silica particles coated with charged nanopolymer particles. The inner-pore area of the silica bead is modified with a covalently bonded organic layer that provides cation-exchange retention, while the outer surface is modified with anion-exchange nanopolymer beads.

Acclaim Trinity P2 column is aimed to complement Acclaim Trinity P1 to provide a total solution for pharmaceutical counter ion analysis by HPLC.

### Pharmaceutical-related anions and cations



#### Acclaim Trinity P2, 3µm, 100 x 3.0mm

Mobile Phase:	D.I. water and 100 mM NH <sub>4</sub> OFm, pH 3.65 gradient
Temperature:	30°C
Flow Rate:	0.60 mL/min
Injection Volume:	2µL
Detection:	Corona Veo Charged Aerosol Detector
Analytes:	<ol style="list-style-type: none"> <li>1. Phosphate</li> <li>2. Sodium</li> <li>3. Potassium</li> <li>4. Chloride</li> <li>5. Malate</li> <li>6. Bromide</li> <li>7. Nitrate</li> <li>8. Citrate</li> <li>9. Fumarate</li> <li>10. Sulfate</li> <li>11. Magnesium</li> <li>12. Calcium</li> </ol>
Samples:	0.02 – 0.10 mg/mL each in D.I. water

Time (min)	H <sub>2</sub> O	0.1 M Ammonium formate, pH3.65
-10	0.760	1.474
0	80	20
2	80	20
22	0	100
30	0	100

### Acclaim Trinity P2

Particle Size (µm)	Format	Length (mm)	2.1mm ID	3.0mm ID
3	Guard Cartridges (2/pk)	10	085435	085436
	HPLC Column	50	085431	085433
		100	085432	085434

### Acclaim guard holder

Format	Cat. No.
Acclaim Guard Cartridge Holder V-2	069580
Acclaim Guard Kit (Holder and coupler) V-2	069707
Guard to Analytical Column Coupler V-2	074188

## Acclaim organic acid

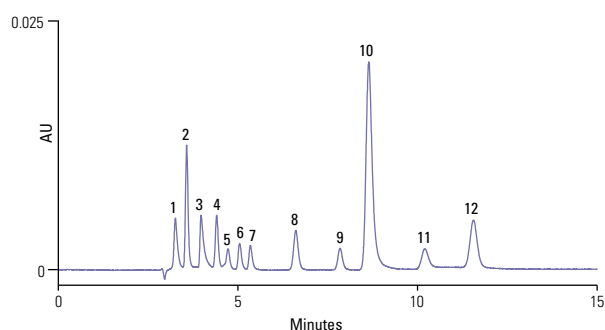
Optimized and application-tested for the analysis of hydrophilic organic acids

- Tested to guarantee consistent hydrophilic organic acid separations
- Compatible with 100% aqueous mobile phases
- Hydrolytic stability at low-pH conditions
- Ideal selectivity for separating a wide spectrum of organic acids
- Excellent column efficiency and peak shapes for organic acids



The Acclaim Organic Acid (OA) is a silica-based reversed-phase column designed for high-efficiency, high-throughput organic acids analysis. It offers unparalleled performance for separating hydroxyl aliphatic and aromatic organic acids. The Acclaim OA is the recommended column for determining small hydrophilic organic acids, C1 to C7 aliphatic acids, and hydrophilic aromatic acid and is also valuable for the analysis and quality assurance of food and beverage products, pharmaceutical preparations, plating baths, and manufacturing chemicals, chemical intermediates, and environmental samples.

### Hydrophilic organic acids



#### Acclaim Organic Acid, 5µm, 4 × 250mm

Mobile Phase:	100mM Na <sub>2</sub> SO <sub>4</sub> , pH 2.65 (adjusted with methanesulfonic acid)
Temperature:	30°C
Flow Rate:	0.6mL/min
Injection Volume:	5µL
Detection:	UV, 210nm
Analytes:	1. Oxalic acid 15mg/L (ppm) 2. Tartaric acid 120 3. Formic acid 180 4. Malic acid 120 5. iso-Citric acid 120 6. Lactic acid 180 7. Acetic acid 120 8. Citric acid 120 9. Succinic acid 120 10. Fumaric acid 7 11. cis-Aconitic acid * 12. trans-Aconitic acid *

\* 7ppm total for cis and trans isomers

Download the Acclaim column selection guide [here](#)

### Acclaim organic acid

Particle Size (µm)	Format	Length (mm)	2.1mm ID	3.0mm ID	4.0mm ID
3	HPLC Column	150	070087	070086	–
5	Guard Cartridges (2/pkg)	10	–	071987	069700
	HPLC Column	150	–	–	062903
		250	–	–	062902

### Acclaim guard holder

Format	Cat. No.
Acclaim SST Guard Cartridge Holder V-2	069580
Acclaim Guard Kit (Holder and coupler) V-2	069707
Guard to Analytical Column Coupler V-2	074188

For more information, visit [thermofisher.com/acclaim](http://thermofisher.com/acclaim)





## Acclaim surfactant

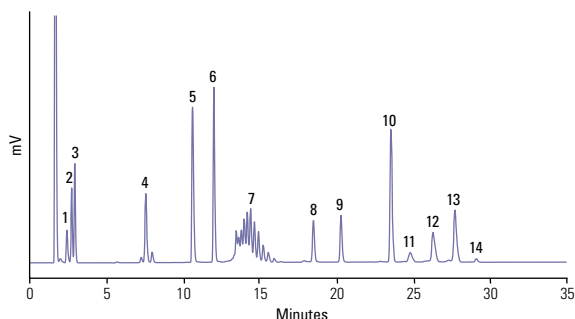
Excellent performance for separating a broad range of surfactants

- Ideal selectivity for separation of anionic, nonionic, cationic and amphoteric surfactants
- Excellent peak shapes, especially for cationic surfactants
- Compatible with highly aqueous mobile phases
- Improved resolution for ethoxylated surfactants
- Rugged separations under a variety of conditions

The Acclaim Surfactant columns are the first generation high-efficiency, silica-based columns designed specifically for separating a wide variety of surfactants, including anionic, cationic, nonionic, ethoxylated and amphoteric surfactants using UV, ELSD or RI detection.

Surfactants are widely used in industrial, agricultural, and pharmaceutical markets, in products as diverse as pesticides, detergent powders, petroleum products, cosmetics, and pharmaceuticals. The Acclaim Surfactant column was designed specifically for HPLC separation of these surfactants.

### Inorganic anion, hydrotropes, cationic, nonionic, amphoteric, and anionic surfactants



#### Acclaim Surfactant, 5µm, 150 x 4.6mm

Mobile Phase A:	CH <sub>3</sub> CN,
Mobile Phase B:	0.1 M NH <sub>4</sub> OAc, pH 5.4
Gradient:	25% to 85% A in 25min, then hold 85% A for 10min
Temperature:	30°C
Flow Rate:	1mL/min
Injection Volume:	25µL
Detection:	ELS detector
Analytes:	1. Chloride 2. Bromide 3. Nitrate 4. Xylene sulfonate 5. Laurylpyridinium chloride 6. Lauryldimethylbenzyl-ammonium chloride 7. Triton X-100 8. Cetyl betaine 9. Decyl sulfate 10. Dodecyl sulfate 11. C <sub>10</sub> -LAS 12. C <sub>11</sub> -LAS 13. C <sub>12</sub> -LAS 14. C <sub>13</sub> -LAS

### Acclaim surfactant

Particle Size (µm)	Format	Length (mm)	2.1mm ID	3.0mm ID	4.6mm ID
3	HPLC Column	150	070085	070084	–
5	Guard Cartridges (2/pk)	10	069693	071991	069701
	HPLC Column	150	068123	–	063201
	HPLC Column	250	–	–	063203

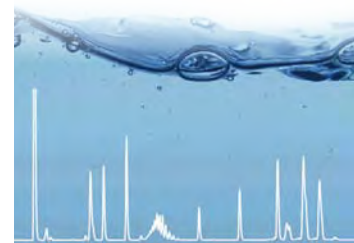
### Acclaim guard holder

Description	Cat. No.
Acclaim SST Guard Cartridge Holder V-2	069580
Acclaim Guard Kit (Holder and coupler) V-2	069707
Guard to Analytical Column Coupler V-2	074188

## Acclaim surfactant plus

Column of choice for surfactant analysis using higher sensitivity detection: performance, versatility, throughput

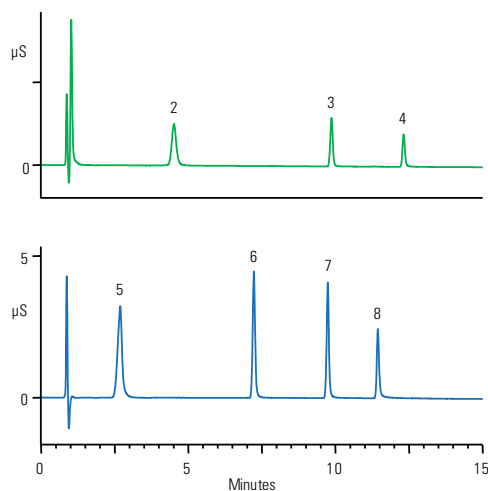
- Ideal selectivity for simultaneous separation of anionic, nonionic, cationic, and amphoteric surfactants
- Compatible with multiple detectors including MS, CAD, ELSD and UV
- Well suited for the determination of cationic surfactants
- High efficiency and fast analysis
- Rugged separations under a variety of conditions



Acclaim Surfactant Plus is a new generation of columns offering improved performance and higher throughput for analyzing surfactants. These columns exhibit exceptionally low bleed and are ideal for use with charged aerosol detectors (CAD) and mass spectrometers (MS). These columns can be used to separate a wide variety of surfactants including anionic, cationic, nonionic and amphoteric surfactants, as well as isomers of xylene sulfonate.

These columns can be used with evaporative light scattering detectors (ELSD), suppressed conductivity detectors (SCD), and UV-Vis detectors (UV). Non-metallic PEEK hardware is available for best compatibility with Dionex ion chromatography systems.

### Cationic surfactants



#### Acclaim Surfactant Plus, 3µm, 150 x 3.0mm

Mobile Phase A: Acetonitrile  
Mobile Phase B: 100mM Formic acid  
Mobile Phase C: Water

Gradient:

Time (min)	%A	%B	%C
-12	5	5	90
0	5	5	90
12	40	5	55
20	40	5	55

Temperature: 25°C

Flow Rate: 0.5mL/min

Injection Volume: 5µL

Detection: Conductivity with blank subtraction

Analytes:

1. Tetrabutylammonium
2. Tetrapentylammonium
3. Tetrahexylammonium
4. Tetraheptylammonium
5. Decyl-trimethylammonium
6. Dodecyl-trimethylammonium
7. Tetradecyl-trimethylammonium
8. Hexadecyl-trimethylammonium

### Acclaim Surfactant Plus

Particle Size (µm)	Format	Length (mm)	2.1mm ID	3.0mm ID	4.6mm ID	4.0mm ID PEEK
3	HPLC Column	100	078955	078952	–	–
		150	078954	078951	078950	–
		250	078953	–	–	–
5	Guard Cartridges (2/pk)	10	078960	078959	082773	–
	HPLC Column	250	–	–	082767	–
		150	–	–	082768	078956

### Acclaim guard holder

Description	Cat. No.
Acclaim SST Guard Cartridge Holder V-2	069580
Acclaim Guard Kit (Holder and coupler) V-2	069707
Guard to Analytical Column Coupler V-2	074188

## Acclaim explosives E2

The best solution for explosives analysis (EPA Method 8330)

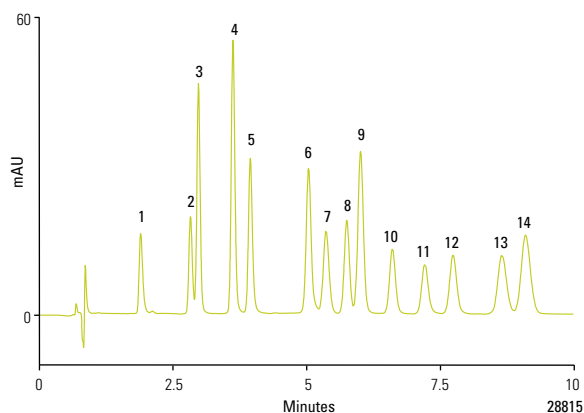
- Acclaim E2 columns provide baseline resolution of all 14 compounds targeted by EPA Method 8330
- Columns available in 2.2, 3 and 5µm particle size
- Simple isocratic elution conditions
- Rugged columns with good lot-to-lot reproducibility



Acclaim Explosives E2 columns are specifically designed to resolve all 14 explosives listed in EPA SW-846 Method 8330: Nitroaromatics and Nitramines by HPLC. The novel and unique chemistries of these columns provide superior resolution with complementary selectivities.

The Acclaim Explosives E2 may be used as either a primary or a confirmatory column. The unique selectivity and versatility of this column provides a wider application range, including the analysis of explosives beyond U.S. EPA Method 8330 (ISO22478).

### Rapid determination of EPA 8330A explosives



#### Acclaim RSLC Explosives E2, 2.2µm, 100 x 2.1mm

Mobile Phase:	Methanol:water 48:52 (v/v)														
Temperature:	31°C														
Flow Rate:	0.34mL/min (293 bar)														
Injection Volume:	1µL														
Detection:	UV, 254nm														
Analytes:	<table border="0"> <tr> <td>1. HMX</td> <td>8. 2,6-DNT</td> </tr> <tr> <td>2. RDX</td> <td>9. 2,4-DNT</td> </tr> <tr> <td>3. 1,3,5-TNB</td> <td>10. 2-NT</td> </tr> <tr> <td>4. 3,5-DNB</td> <td>11. 4-NT</td> </tr> <tr> <td>5. NB</td> <td>12. 3-NT</td> </tr> <tr> <td>6. 2,4,6-TNT</td> <td>13. 4-Am-2,6-DNT</td> </tr> <tr> <td>7. Tetryl</td> <td>14. 2-Am-4,6-DNT</td> </tr> </table>	1. HMX	8. 2,6-DNT	2. RDX	9. 2,4-DNT	3. 1,3,5-TNB	10. 2-NT	4. 3,5-DNB	11. 4-NT	5. NB	12. 3-NT	6. 2,4,6-TNT	13. 4-Am-2,6-DNT	7. Tetryl	14. 2-Am-4,6-DNT
1. HMX	8. 2,6-DNT														
2. RDX	9. 2,4-DNT														
3. 1,3,5-TNB	10. 2-NT														
4. 3,5-DNB	11. 4-NT														
5. NB	12. 3-NT														
6. 2,4,6-TNT	13. 4-Am-2,6-DNT														
7. Tetryl	14. 2-Am-4,6-DNT														
Sample:	Calibration mix, 25µg/mL in 50% acetonitrile														

### Acclaim Explosives E2

Particle Size (µm)	Format	Length (mm)	2.1mm ID	3.0mm ID	4.6mm ID
2.2	RSLC Column	100	076225	076227	–
		150	076226	–	–
3	HPLC Column	150	070083	070082	–
		250	–	070081	–
5	Guard Cartridges (2/pk)	10	–	071989	069703
	HPLC Column	250	–	–	064309

## Acclaim Trinity Q1

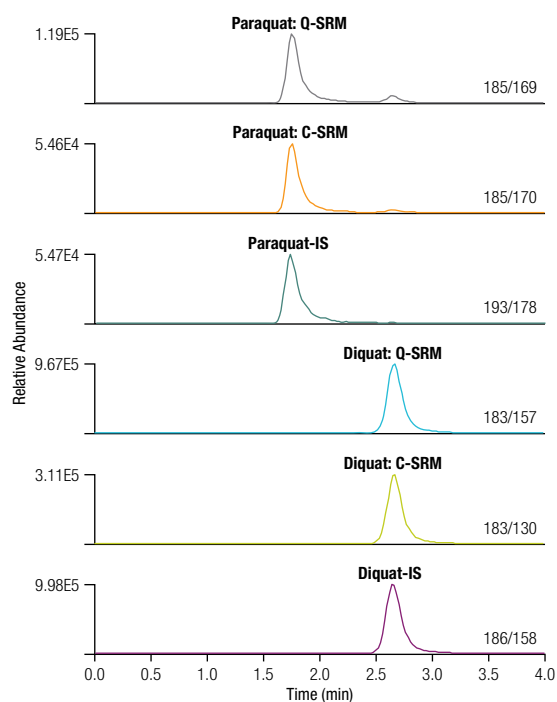
For trace analysis of diquat and paraquat

- Excellent resolution of diquat and paraquat
- Good peak shape
- Fast analysis
- LC-MS compatible
- No ion-pairing reagent needed



Acclaim Trinity Q1 columns are unique, high-efficiency, silica-based columns designed for the separation of the herbicides diquat and paraquat. These herbicides are toxic and residues are monitored in drinking water, wastewater and agricultural products. The Acclaim Trinity Q1 column is a tri-mode (WCX, WAX, RP), column based on Nano-polymer Silica Hybrid technology. It offers unmatched high-resolution and high-throughput trace analysis of the herbicides diquat and paraquat by LC-MS/MS and LC-UV methods.

### Diquat and Paraquat



#### Acclaim Trinity Q1, 3µm, 50 x 3.0mm

Mobile Phase:	25% ammonium acetate (100mM, pH 5.0); 75% acetonitrile		
Temperature:	Ambient		
Flow Rate:	0.5mL/min		
Injection Volume:	5µL		
Detection:	Show Mass Spectrometric conditions and the scan events etc. table underneath are the peaks section		
Mass Spectrometric Conditions System:	Thermo Scientific TSQ Quantiva Access MAX Quadrupole Mass Spectrometer		
Interface:	Heated Electrospray Ionization with HESI II probe		
Spray Voltage:	1500 V		
Vaporizer Temp:	400 °C		
Sheath Gas Pressure:	70		
Aux Gas Pressure:	10		
Capillary Temp:	350 °C		
Quantitation Mode:	Selected Reaction Monitoring (SRM)		
Scan Events	Precursor	Quantitative SRM (CID)	Confirmative SRM (CID)
Paraquat	185	169 (27)	170 (17)
Paraquat-d <sub>6</sub>	193	178 (17)	
Diquat	183	157 (22)	130 (31)
Diquat-d <sub>3</sub>	186	158 (22)	

Download the Acclaim column selection guide [here](#)

#### Acclaim Trinity Q1

Particle Size		Length (mm)	2.1mm ID	3.0mm ID
3	HPLC Column	50	083242	083241
		100	079717	079715
5	Guard Cartridges (2/pk)	10	083244	079719

For more information, visit [thermofisher.com/acclaim](http://thermofisher.com/acclaim)

## Acclaim Carbamate

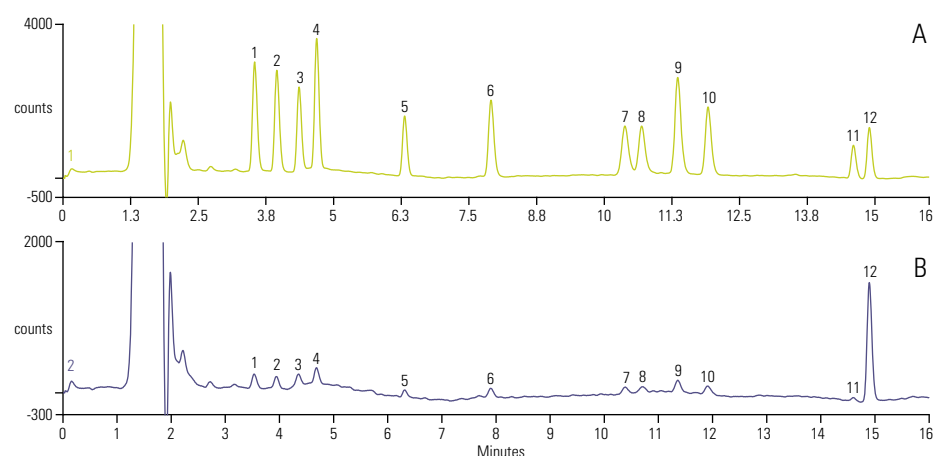
Designed for baseline separation of carbamate pesticides specified in US EPA Method 531.2

- Baseline separation of carbamate pesticides specified in US EPA Method 531.2
- Use with either LC/postcolumn derivatization/fluorescence or LC-MS detection
- Available in 2.2, 3 and 5µm particle size
- Compatible with both binary (methanol/water) and ternary (acetonitrile/methanol/water) mobile phase gradients
- High-efficiency, extremely low column bleed, and rugged column packing



Acclaim Carbamate columns are designed for baseline separation of carbamates (N-methylcarbamate and N-methylcarbamoyloxime pesticides) specified in US EPA Method 531.2. Carbamate pesticides are widely used throughout the world. Drinking water and raw surface water is monitored for the presence of carbamate pesticides and related compounds using an established EPA Method 531.2 that uses HPLC with postcolumn derivatization. LC-MS is the method of choice for the ultimate sensitivity.

### Carbamate standard - spiked rice samples



A: without dispersive SPE  
B: with dispersive SPE using PSA

#### Acclaim Carbamate, 3µm, 150 x 3.0mm

Mobile Phase:	Methanol-H <sub>2</sub> O
Gradient:	Methanol, -4.0-0.0 min, 14%;
	2.0 min, 20%; 8.0 min, 40%;
	13.6-16 min, 70%
Temperature:	50 °C
Flow Rate:	0.9mL/min
Injection Volume:	250µL
Detection:	Excitation/330nm and Emission/465nm
Analytes:	1. Aldicarb sulfoxide
	2. Aldicarb sulfone
	3. Oxamyl
	4. Methomyl
	5. 3-Hydroxy carbofuran
	6. Aldicarb
	7. Propoxur
	8. Carbofuran
	9. Carbaryl
	10. 1-Naphthol
	11. Methiocarb
	12. BDMC (I.S.)

### Acclaim carbamate

Particle Size (µm)	Format	Length (mm)	2.1mm ID	3.0mm ID	4.6mm ID
2.2	RSLC Column	100	075597	—	—
		150	075596	—	—
3	Guard Cartridges (2/pk)	10	072930	072929	072928
	HPLC Column	150	072927	072926	072925
5	HPLC Column	250	—	—	072924

### Acclaim guard holder

Description	Cat. No.
Acclaim SST Guard Cartridge Holder V-2	069580
Acclaim Guard Kit (Holder and coupler) V-2	069707
Guard to Analytical Column Coupler V-2	074188

## Acclaim Carbonyl C18

A silica-based, reversed-phase column designed specifically for separating DNPH derivatives of aldehydes and ketones

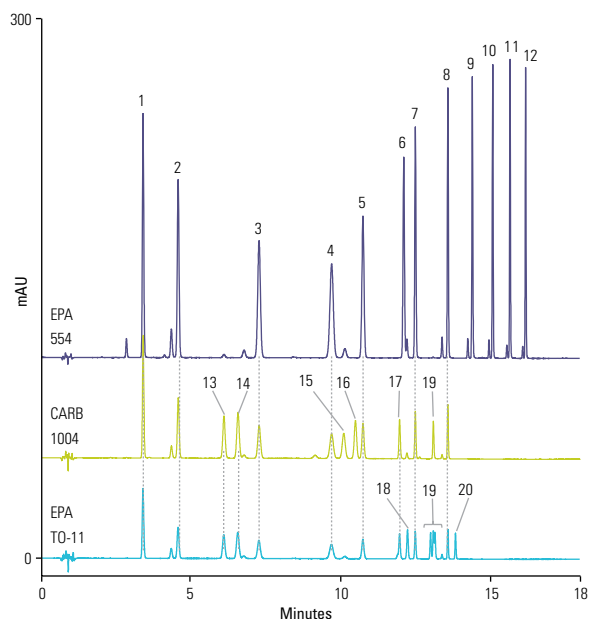
- Ideal selectivity for baseline resolution of DNPH derivatives of aldehydes and ketones regulated by various official methods, including EPA 554, EPA 8315, EPA 1667, EPA TO-11, and CARB 1004
- High efficiency for UHPLC performance
- Rugged columns with good lot-to-lot reproducibility
- Proven robust methods



Acclaim Carbonyl C18 columns are silica-based reversed phase columns designed specifically for separating DNPH derivatives of aldehydes and ketones. They exhibit superior resolution compared with other commercially available columns.

Aldehydes and ketones are common pollutants in air and water. Several standard methods have been developed to apply using dinitrophenylhydrazine (DNPH) to various environmental situations to measure these compounds. Some of the better known ones include CARB 1004 for vehicle exhaust, EPA 554 for drinking water, EPA 1667 for pharmaceutical wastewater, and EPA 8315 for general wastewater.

### DNPH aldehydes and ketones



#### Acclaim Carbonyl RSLC, 2.2µm, 150 x 2.1mm

Mobile Phase A:	D.I. water
Mobile Phase B:	Acetonitrile
Gradient (min):	-4,50.0 8.3 15.0 18.0
	%A 48 48 48 0 0
	%B 52 52 52 100 100
Flow Rate:	0.400mL/min
Injection Volume:	1µL
Temperature:	28°C
Detection:	UV, 360nm
Samples:	Calibration mixes diluted in methanol
Analytes:	1. Formaldehyde DNPH 2. Acetaldehyde DNPH 3. Propionaldehyde DNPH 4. Crotonaldehyde DNPH 5. Butyraldehyde DNPH 6. Cyclohexanone DNPH 7. Valeraldehyde DNPH 8. Hexanal DNPH 9. Heptanal DNPH 10. Octanal DNPH 11. Nonanal DNPH 12. Decanal DNPH 13. Acetone DNPH 14. Acrolein DNPH 15. Butanone DNPH 16. Methacrolein DNPH 17. Benzaldehyde DNPH 18. Isovaleraldehyde DNPH 19. Toluvaldehyde DNPH 20. Xylaldehyde DNPH

### Acclaim Carbonyl C18

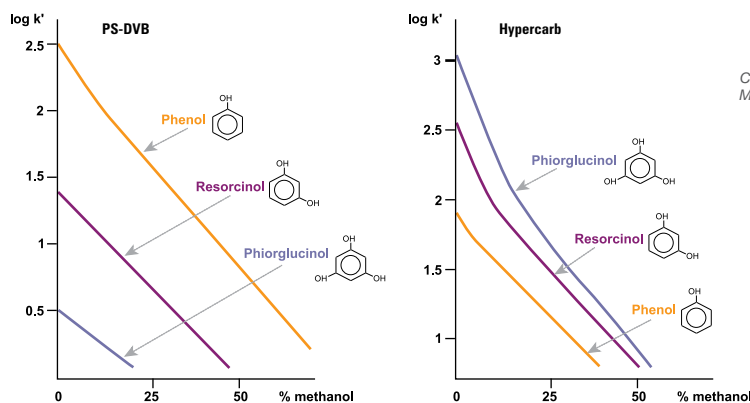
Particle Size (µm)	Format	Length (mm)	2.1mm ID	3.0mm ID	4.6mm ID
2.2	RSLC Column	100	077972	077974	–
		150	077973	–	–
3	HPLC Column	150	079011	079010	–
		250	–	079009	–
5	Guard Cartridge (2/pk)	10	079012	079013	079014
		250	–	–	083214

For more information, visit [thermofisher.com/acclaim](http://thermofisher.com/acclaim)



## Increased retention of polar analytes

In typical reversed phase chromatography, the retention of an analyte is directly related to its hydrophobicity: the more hydrophobic the analyte, the longer its retention. Conversely, as the polarity of the analyte increases, analyte-solvent interactions begin to dominate and retention is reduced. This observation holds true for the majority of reversed phase systems. An exception to this rule is Hypercarb columns, for which retention may in some cases increase as the polarity of the analyte increases, illustrated to the right. This phenomenon is referred to as the "polar retention effect on graphite" (PREG). This property makes Hypercarb columns particularly useful for the separation of highly polar compounds (with logP as low as -4) that are normally difficult to retain and resolve on silica-based alkyl chain



Courtesy V. Coquart and M-C. Henion, J. Chrom., 1992

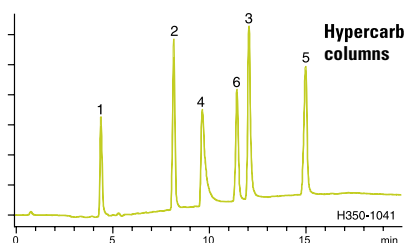
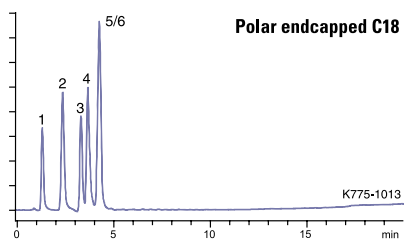
Retention on Hypercarb columns increases as polarity of the analyte increases, which is the opposite of typical reversed phase materials such as PS-DVB

phases. The retention of very polar solutes on Hypercarb columns can be achieved without ion pair reagents or complex mobile phase conditions, as illustrated in the chromatogram below.

### Extended pH range

One of the other key benefits of Hypercarb columns is the extreme stability of the phase to chemical or

physical attack. Due to the unique characteristics of the media, it can withstand chemical attack across the entire pH range of 0 to 14, allowing applications to be run at pH levels that are incompatible with typical silica-based columns. Hypercarb columns offer more choice in buffer selection while handling both high temperature and high pressure.



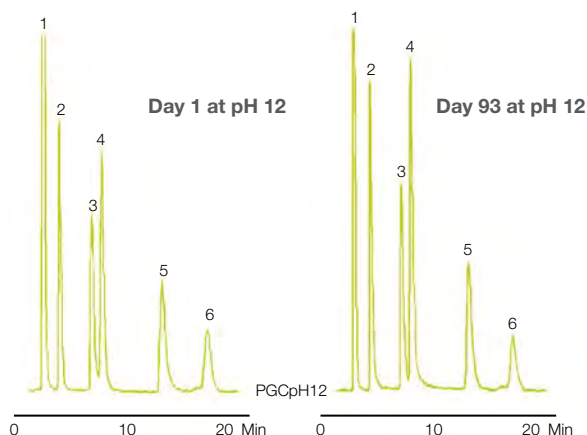
Additional retention is achieved for polar compounds using a Hypercarb column compared to a polar endcapped C18. Note also the change in elution order.

### Hypercarb, 5µm, 100 x 0.32mm

Mobile Phase A:	H <sub>2</sub> O + 0.1% formic acid
Mobile Phase B:	ACN + 0.1% formic acid
Gradient:	0 to 25% B in 15 minutes
Temperature:	25°C
Flow Rate:	8µL/min
Detection:	UV, 254nm
Analytes:	1. Cytosine 2. Uracil 3. Guanine 4. Adenine 5. Xanthine 6. Thymine

### Hypercarb, 5µm, 100 x 4.6mm

Mobile Phase:	MeOH:H <sub>2</sub> O
Gradient:	70:30
Flow Rate:	0.7mL/min
Detection:	UV, 254nm
Analytes:	1. Acetone 2. Phenol 3. p-Cresol 4. Anisol 5. Phenetole 6. 3,5 -Xylenol



Hypercarb column stability at pH 12: retention and selectivity do not change even after 93 days of storage in 0.1M NaOH/MeOH

## Hypercarb

Particle Size (µm)	Format	Length (mm)	ID (mm)	Cat. No.		
3	Drop-in Guard (4/pk)	10	2.1	35003-012101		
			3.0	35003-013001		
			4.0 / 4.6	35003-014001		
	HPLC Column	30	30	2.1	35003-032130	
				3.0	35003-033030	
				4.6	35003-054630	
		50	50	2.1	35003-052130	
				3.0	35003-053030	
				4.6	35003-054630	
		100	100	2.1	35003-102130	
				3.0	35003-103030	
				4.6	35003-104630	
		150	150	2.1	35003-152130	
				3.0	35003-153030	
				4.6	35003-154630	
		High Temperature HPLC Column	30	30	2.1	35003-032146
					4.6	35003-054646
			50	50	2.1	35003-052146
	4.6				35003-054646	
	100		100	2.1	35003-102146	
				4.6	35003-104646	
5	Drop-in Guard (4/pk)	10	2.1	35005-012101		
			3.0	35005-013001		
			4.6	35005-014001		
	HPLC Column	30	30	2.1	35005-032130	
				3.0	35005-033030	
				4.6	35005-034630	
		50	50	2.1	35005-052130	
				3.0	35005-053030	
				4.6	35005-054630	
		100	100	2.1	35005-102130	
				3.0	35005-103030	
				4.6	35005-104630	
		150	150	2.1	35005-152130	
				3.0	35005-153030	
				4.6	35005-154630	
High Temperature HPLC Column		30	30	2.1	35005-032146	
				4.6	35005-034646	
		50	50	2.1	35005-052146	
	4.6			35005-054646		
	100	100	2.1	35005-102146		
			4.6	35005-104646		
Javelin HTS Column	20	20	2.1	35005-022135		
Preparative HPLC Column	100	100	10	35005-109070A		
			21.2	35005-109270A		
			30	35005-109370A		
			150	35005-159070A		
			21.2	35005-159270A		

Format	Length (mm)	ID (mm)	Cat. No.
Uniguard Guard Cartridge Holder	10	1.0	851-00
		2.1	852-00
		3.0	852-00
		4.6	850-00



# Synchronis HPLC and UHPLC columns

Remarkable separations  
guaranteed time after time

Thermo Scientific™ Synchronis™ HPLC columns are used to achieve consistent, reproducible separations. Chemistries available for a variety of applications.

## Consistent separations

- Highly pure, high surface area silica

## Dense bonding and double endcapping

- Reduction of residual silanols available to interact with basic analytes

## Strong quality control

- Rigorously tested to ensure quality

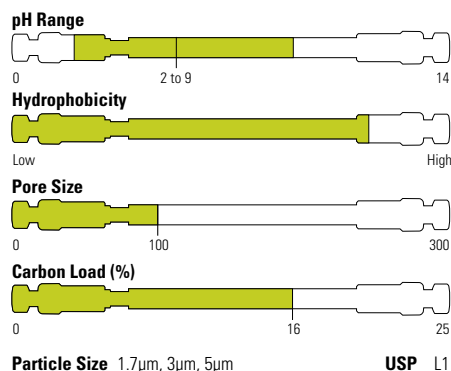


For more information,  
visit [thermofisher.com/synchronis](https://thermofisher.com/synchronis)

## Synchronis C18

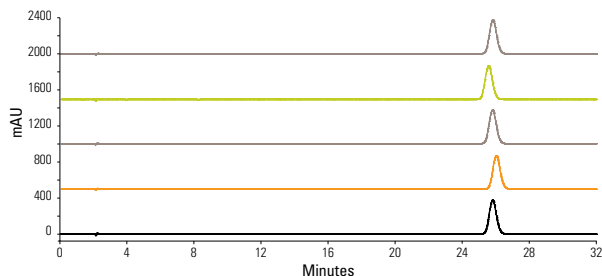
Synchronis C18 columns deliver remarkable separations, time after time

- Highly pure, high surface area silica
- High carbon load for increased retention
- Double endcapped for extra surface coverage
- Highly inert towards basic compounds
- Rigorously tested to ensure quality



Synchronis C18 columns show excellent column to column reproducibility, as illustrated here by the analysis of zidovudine using five separate columns. The reproducibility in terms of retention time and peak area is less than or equal to 0.5%, column to column.

### Zidovudine



#### Synchronis C18, 5µm, 150 x 4.6mm

Mobile Phase: Water:Methanol (4:1)  
 Temperature: 25°C  
 Flow Rate: 1.0mL/min  
 Injection Volume: 10µL  
 Detection: UV, 265nm  
 Analytes: 1. Zidovudine

### Synchronis C18

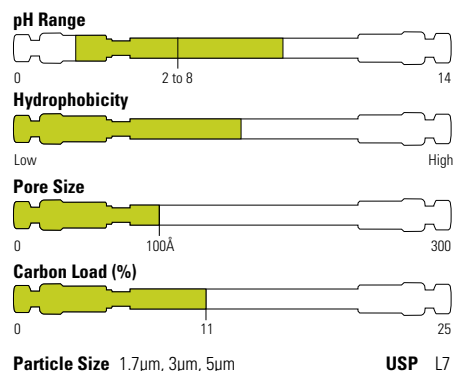
Particle Size (µm)	Format	Length (mm)	2.1mm ID	3.0mm ID	4.6mm ID
1.7	UHPLC Column	30	97102-032130	-	-
		50	97102-052130	-	-
		100	97102-102130	97102-103030	-
3	HPLC Column	50	97103-052130	-	97103-054630
		100	97103-102130	97103-103030	97103-104630
		150	97103-152130	-	97103-154630
5	Drop-in Guard (4/pk)	10	97105-012101	97105-013001	97105-014001
	HPLC Column	30	97105-032130	-	-
		50	97105-052130	-	97105-054630
		100	97105-102130	97105-103030	97105-104630
		150	97105-152130	97105-153030	97105-154630
		250	97105-252130	97105-253030	97105-254630
		Uniguard Drop-in Guard Cartridge Holder	10	852-00	852-00

For more information, visit [thermofisher.com/synchronis](http://thermofisher.com/synchronis)

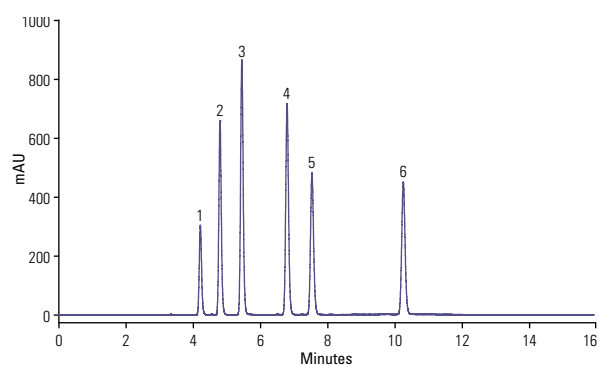
## Synchronis C8

Reduces hydrophobic interactions allowing compounds to elute quicker from the column. Recommended for analytes with medium hydrophobicity or when a less hydrophobic phase is required to obtain optimum retention.

- Highly pure, high surface area silica
- Less hydrophobic than Synchronis C18
- Double endcapped for extra surface coverage
- Rigorously tested to ensure quality



### Uron herbicides



#### Synchronis C8, 5µm, 150 x 4.6mm

Mobile Phase A:	Water
Mobile Phase B:	Acetonitrile
Gradient:	35 to 60% B in 10 minutes
Temperature:	30°C
Flow Rate:	1.0mL/min
Injection Volume:	20µL
Detection:	240nm
Analytes:	1. Tebuthiuron 2. Metoxuron 3. Monuron 4. Chlorotoluron 5. Diuron 6. Linuron

### Synchronis C8

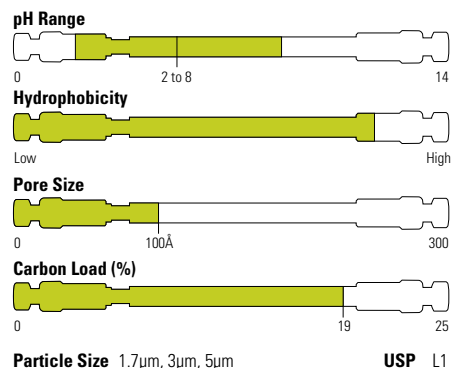
Particle Size (µm)	Format	Length (mm)	2.1mm ID	3.0mm ID	4.6mm ID
1.7	UHPLC Column	50	97202-052130	-	-
		100	97202-102130	-	-
3	HPLC Column	100	-	97203-103030	97203-104630
		150	-	-	97203-154630
5	Drop-in Guard (4/pk)	10	97205-012101	97205-013001	97205-014001
		100	-	-	97205-104630
		150	97205-152130	-	97205-154630
		250	-	97205-253030	97205-254630
	Uniguard Drop-in Guard Cartridge Holder	10	852-00	852-00	850-00

## Synchronis aQ

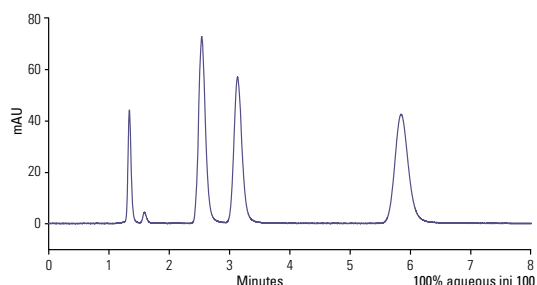
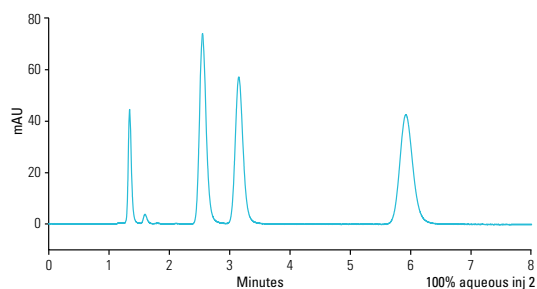
Polar endcapped Synchronis aQ columns provide a controlled interaction mechanism that retains and resolves polar analytes

- Stable in 100% aqueous mobile phase
- Enhanced retention of polar compounds
- Rigorously tested to ensure quality

In comparison to a conventionally endcapped C18, the Synchronis aQ polar end-capped C18 stationary phase exhibits superior stability towards aqueous mobile phase. Synchronis aQ shows no degradation in performance after 100 injections in a buffered 100% aqueous eluent.



### Stability of synchronis aQ in 100% aqueous mobile phase



#### Synchronis aQ, 5µm, 100 x 4.6mm

Mobile Phase:	50mM Aqueous $K_2HPO_4$ (pH 6)
Temperature:	30°C
Flow Rate:	0.7mL/min
Injection Volume:	2µL
Detection:	260nm
Analytes:	1. Cytidine-5'-diphosphate 2. Adenosine-5'-triphosphate 3. Adenosine-5'-diphosphate 4. Adenosine-5'-monophosphate

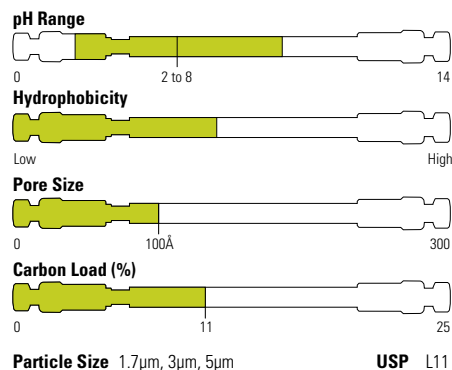
### Synchronis aQ

Particle Size (µm)	Format	Length (mm)	2.1mm ID	3.0mm ID	4.0mm ID	4.6mm ID
1.7	UHPLC Column	50	97302-052130	-	-	-
		100	97302-102130	97302-103030	-	-
3	HPLC Column	50	97303-052130	-	-	-
		100	-	97303-103030	-	97303-104630
		150	-	-	-	97303-154630
5	Drop-in Guard (4/pk)	10	97305-012101	97305-013001	97305-014001	97305-014001
		50	-	97305-053030	-	-
		100	97305-102130	-	-	97305-104630
		150	-	-	-	97305-154630
		250	-	-	97305-254030	97305-254630
		Uniguard Drop-in Guard Cartridge Holder	10	852-00	852-00	850-00

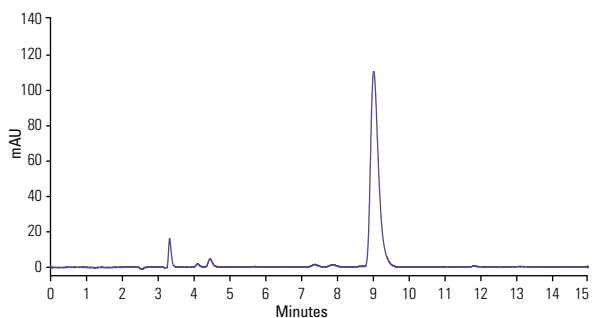
## Synchronis phenyl

Provides an alternative to Synchronis C18 and is particularly useful for retention of aromatic compounds

- Alternative selectivity to Synchronis C18
- Double endcapped for extra surface coverage
- Highly inert towards basic compounds
- Rigorously tested to ensure quality



## Oxacillin sodium (USP)



### Synchronis Phenyl, 5µm, 300 x 4.0mm

Mobile Phase: Phosphate Buffer: MeCN:MeOH (70:30:10)  
 Temperature: 25°C  
 Flow Rate: 1.0mL/min (2mL/min in USP method)  
 Injection Volume: 10µL  
 Detection: UV, 225nm  
 Analytes: 1. Oxacillin Sodium (0.11mg/mL)

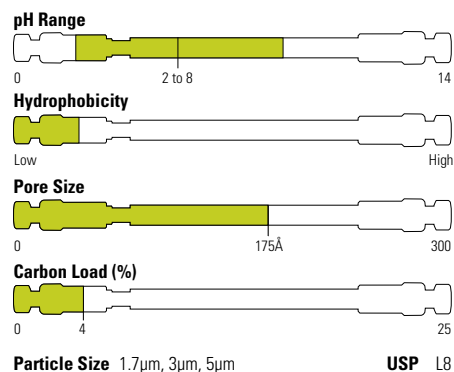
## Synchronis Phenyl

Particle Size (µm)	Format	Length (mm)	2.1mm ID	3.0mm ID	4.6mm ID
1.7	UHPLC Column	50	97902-052130	-	-
		100	97902-102130	-	-
3	HPLC Column	100	-	-	97903-104630
5	Drop-in Guard (4/pk)	10	97905-012101	-	97905-014001
		HPLC Column	50	-	-
	HPLC Column	150	97905-152130	-	97905-154630
		250	-	-	97905-254630
Uniguard Drop-in Guard Cartridge Holder		10	852-00	852-00	850-00

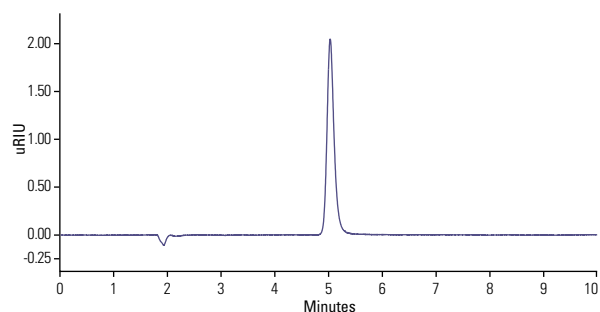
## Synchronis amino

Provides a versatile aminopropyl phase that gives excellent chromatographic properties in four modes: weak anion exchange, reversed-phase, normal phase and HILIC

- Highly pure, high surface area silica
- Double endcapped for extra surface coverage
- Rigorously tested to ensure quality



## Lactulose



**Synchronis Amino 5µm, 150 x 4.6mm**  
 Mobile Phase: Water: MeCN (30:70)  
 Temperature: 35°C  
 Flow Rate: 1.0mL/min  
 Detection: RI  
 Injection Volume: 5µL  
 Analytes: 1. Lactulose

## Synchronis amino

Particle Size (µm)	Format	Length (mm)	2.1mm ID	3.0mm ID	4.0mm ID	4.6mm ID
1.7	UHPLC Column	50	97702-052130	-	-	-
		100	97702-102130	-	-	-
3	HPLC Column	150	-	-	-	97703-154630
5	Drop-in Guard (4/pk)	10	97705-012101	97705-013001	97705-014001	97705-014001
		150	97705-152130	97705-153030	97705-154030	97705-154630
		250	-	-	97705-254030	97705-254630
	Uniguard Drop-in Guard Cartridge Holder	10	852-00	852-00	850-00	850-00

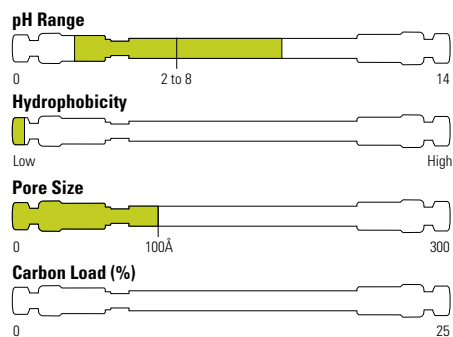
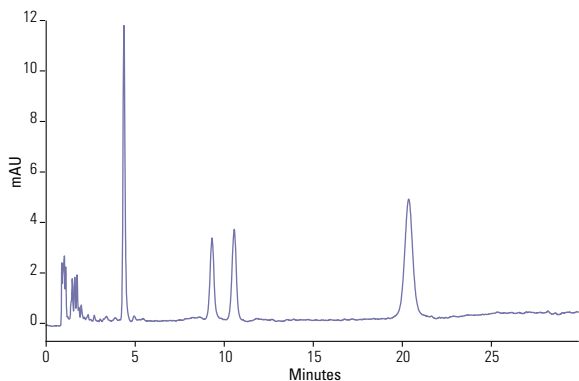
For more information, visit [thermofisher.com/synchronis](http://thermofisher.com/synchronis)

## Synchronis silica

Serves as a powerful and efficient tool for the chromatography of moderately polar organic compounds by normal phase chromatography

- Highly pure, high surface area silica
- Excellent reproducibility for normal phase chromatography
- Rigorously tested to ensure quality

## Tocopherols



Particle Size 1.7µm, 3µm, 5µm **USP** L3

### Synchronis Silica 5µm, 150 x 4.6mm

Mobile Phase: Hexane +0.2% propan-2-ol (IPA)  
 Temperature: 40°C  
 Flow Rate: 2.0mL/min  
 Injection Volume: 10µL  
 Detection: UV, 254nm  
 Analytes: a-tocopherol  
 b-tocopherol  
 g-tocopherol  
 d-tocopherol

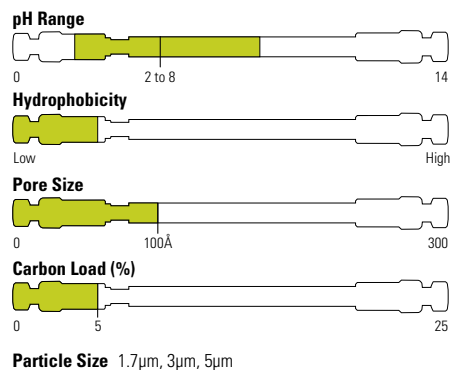
## Synchronis silica

Particle Size (µm)	Format	Length (mm)	2.1mm ID	3.0mm ID	4.0mm ID	4.6mm ID
1.7		100	97002-102130	-	-	-
5	Drop-in Guard (4/pk)	10	97005-012101	97005-013001	97005-014001	97005-014001
		50				97005-054630
		100	97005-102130	-	-	-
		150	97005-152130	-	-	97005-154630
		250	-	97005-253030	97005-254030	97005-254630
	Uniguard Drop-in Guard Cartridge Holder	10	852-00	852-00	850-00	850-00

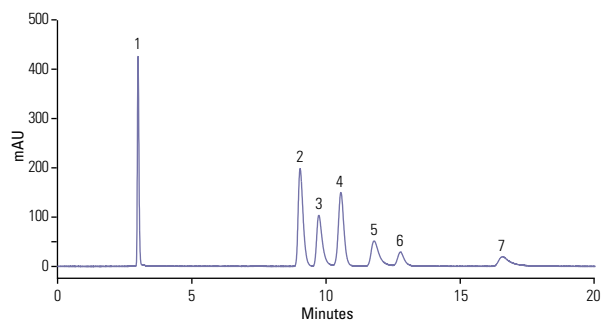
## Synchronis HILIC

Provides enhanced retention of polar and hydrophilic analytes

- Alternative selectivity to Synchronis C18
- Improved sensitivity with MS detection
- No need for ion-pair or derivatization
- Outstanding peak shape and sensitivity
- Highly pure, high surface area silica particles
- Neutral (uncharged), highly polar surface



### Catecholamines



#### Synchronis HILIC, 5µm, 250 x 4.6mm

Mobile Phase:	Water : acetonitrile : 200mM ammonium formate (10.5 : 84.5 : 5)
Temperature:	40°C
Flow Rate:	1.0mL/min
Injection Volume:	5µL
Detection:	UV, 280nm
Analytes:	1. catechol 2. 5-HIAA 3. DOPAC 4. serotonin 5. tyrosine 6. dopamine 7. L-DOPA

### Synchronis HILIC

Particle Size (µm)	Format	Length (mm)	2.1mm ID	3.0mm ID	4.6mm ID
1.7	UHPLC Column	50	97502-052130	-	-
		100	97502-102130	-	-
3	HPLC Column	50	97503-052130	-	-
		100	-	-	97503-104630
		150	-	-	97503-154630
5	Drop-in Guard (4/pk)	10	97505-012101	-	97505-014001
	HPLC Column	50	97505-052130	-	-
		100	97505-102130	-	97505-104630
		150	97505-152130	97505-153030	97505-154630
		250	-	-	97505-254630
	Uniguard Drop-in Guard Cartridge Holder	10	852-00	852-00	850-00

For more information, visit [thermofisher.com/synchronis](http://thermofisher.com/synchronis)



# Hypersil BDS and Hypersil classical HPLC columns

Exceptionally reliable and reproducible general purpose columns

Exceptionally reliable robust columns that guarantee you have the same results time after time, even after changing your column. Chemistries available for a variety of applications.

## Excellent reproducibility

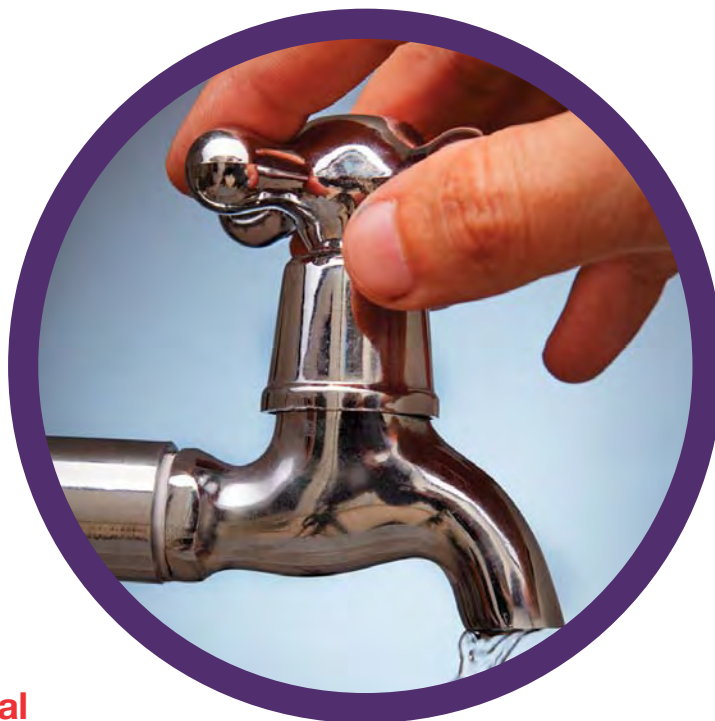
- Manufactured to the highest standards

## Very robust and rugged

- Rigorous quality control under certified processes

## Long column lifetimes

- Ideal for QA/QC labs



For more information, visit

[thermofisher.com/hypersilclassical](https://thermofisher.com/hypersilclassical)

# Hypersil BDS

A good choice for robust, general purpose columns

## Hypersil BDS

Particle Size (µm)	Format	Length (mm)	ID (mm)	C18	C8	Phenyl	CN		
2.4	Drop-in Guard (4/pk)	10	2.1	28102-012101	28202-012101	-	-		
			4.0/4.6	28102-014001	28202-014001	-	-		
		50	2.1	28102-052130	28202-052130	-	-		
			4.6	28102-054630	-	-	-		
		100	2.1	28102-102130	28202-102130	-	-		
			4.6	28102-104630	28202-104630	-	-		
		150	4.6	-	28202-154630	-	-		
		3	Drop-in Guard (4/pk)	10	2.1	28103-012101	28203-012101	-	-
					3.0	28103-013001	28203-013001	-	-
					4.0/4.6	28103-014001	28203-014001	28903-014001	28803-014001
HPLC Column	30			2.1	28103-032130	-	-	-	
				50	2.1	28103-052130	28203-052130	-	-
	100			3.0	28103-053030	-	-	-	
				4.6	28103-054630	28203-054630	-	-	
				2.1	28103-102130	-	-	-	
	150			3.0	28103-103030	-	-	-	
				4.0	28103-104030	-	-	-	
4.6			28103-104630	28203-104630	-	-			
2.1			28103-152130	-	-	-			
5	Drop-in Guard (4/pk)		10	3.0	28103-153030	28203-153030	-	-	
				4.0	28103-154030	-	-	-	
				4.6	28103-154630	28203-154630	28903-154630	28803-154630	
			HPLC Column	50	2.1	28105-012101	28205-012101	-	-
					3.0	28105-013001	28205-013001	-	-
					4.0/4.6	28105-014001	28205-014001	28905-014001	28805-014001
	HPLC Column		100	2.1	28105-052130	28205-052130	-	-	
				3.0	28105-053030	28205-053030	-	-	
4.6				28105-054630	28205-054630	-	-		
125			2.1	28105-102130	28205-102130	-	-		
			3.0	28105-103030	-	-	-		
			4.0	28105-104030	-	-	-		
150			4.6	28105-104630	28205-104630	-	-		
			3.0	28105-123030	-	-	-		
			4.0	28105-124030	-	-	-		
250			4.6	28105-124630	-	-	-		
		2.1	28105-152130	-	-	-			
		3.0	28105-153030	-	-	-			
HPLC Column	250	4.0	28105-154030	28205-154030	-	-			
		4.6	28105-154630	28205-154630	28905-154630	28805-154630			
		2.1	28105-252130	-	-	-			
		3.0	28105-253030	-	-	-			
HPLC Column	250	4.0	28105-254030	28205-254030	28905-254030	-			
		4.6	28105-254630	28205-254630	28905-254630	28805-254630			

Format	Length (mm)	ID (mm)	Cat. No.
Uniguard Guard Cartridge Holder	10	1.0	851-00
		2.1	852-00
		3.0	852-00
		4.0/4.6	850-00

# Hypersil classical

A global standard for many existing methods

## Hypersil ODS

Particle Size (µm)	Format	Length (mm)	ID (mm)	Cat. No.		
3	Drop-in Guard (4/pk)	10	2.1	30103-012101		
			3.0	30103-013001		
			4.0/4.6	30103-014001		
	HPLC Column	50	100	3.0	30103-053030	
				4.6	30103-054630	
				2.1	30103-102130	
			3.0	30103-103030		
			4.0	30103-104030		
			4.6	30103-104630		
		125	4.0	30103-124030		
			4.6	30103-124630		
			2.1	30103-152130		
		150	3.0	30103-153030		
			4.0	30103-154030		
			4.6	30103-154630		
			2.1	30103-252130		
			3.0	30103-253030		
			4.0	30103-254030		
		4.6	30103-254630			
			5	10	2.1	30105-012101
					3.0	30105-013001
4.0/4.6	30105-014001					
HPLC Column	50		100	3.0	30105-053030	
				4.6	30105-054630	
				2.1	30105-102130	
			3.0	30105-103030		
			4.0	30105-104030		
		4.6	30105-104630			
	125	3.0	30105-123030			
		4.0	30105-124030			
		4.6	30105-124630			
	150	2.1	30105-152130			
		3.0	30105-153030			
		4.0	30105-154030			
		4.6	30105-154630			
		200	2.1	30105-202130		
			4.0	30105-204030		
	4.6		30105-204630			
	250	2.1	30105-252130			
		3.0	30105-253030			
		4.0	30105-254030			
		4.6	30105-254630			

## Hypersil ODS-2

Particle Size (µm)	Format	Length (mm)	ID (mm)	Cat. No.
3	Drop-in Guard (4/pk)	10	4.0/4.6	31603-014001
		50	4.6	31603-054630
	HPLC Column	100	4.0	31603-104030
			4.6	31603-104630
		150	4.6	31603-154630
5	Drop-in Guard (4/pk)	10	4.0/4.6	31605-014001
		50	4.6	31605-054630
	HPLC Column	100	4.6	31605-104630
		150	4.6	31605-154630
		250	4.0	31605-254030
			4.6	31605-254630

## Hypersil MOS (C8)

Particle Size (µm)	Format	Length (mm)	ID (mm)	Cat. No.
5	Drop-in Guard (4/pk)	10	4.0/4.6	30205-014001
		50	4.6	30205-054630
	HPLC Column	100	4.6	30205-104630
		150	4.6	30205-154630
		250	4.0	30205-254030
	4.6	30205-254630		

## Hypersil MOS-2 (C8)

Particle Size (µm)	Format	Length (mm)	ID (mm)	Cat. No.
5	Drop-in Guard (4/pk)	10	4.0/4.6	30305-014001
		150	4.6	30305-154630
	HPLC Column	250	4.0	30305-254030
			4.6	30305-254630

## Hypersil SAS (C1)

Particle Size (µm)	Format	Length (mm)	ID (mm)	Cat. No.
5	Drop-in Guard (4/pk)	10	4.0/4.6	30505-014001
		150	4.6	30505-154630
	HPLC Column	250	4.6	30505-254630

## Hypersil Phenyl

Particle Size (µm)	Format	Length (mm)	3.0 mm ID	4.0 mm ID	4.6 mm ID
3	Drop-in Guard (4/pk)	10mm	-	30903-014001	30903-014001
		50mm	-	-	30903-054630
	HPLC Column	150mm	30903-153030	-	30903-154630
5	Drop-in Guard (4/pk)	10mm	-	30905-014001	-
		50mm	-	-	30905-054630
	HPLC Column	100mm	-	-	30905-104630
		150mm	-	-	30905-154630
		250mm	-	30905-254030	30905-254630
		300mm	-	30905-304030	-

## Hypersil Phenyl-2

Particle Size (µm)	Format	Length (mm)	ID (mm)	Cat. No.
5	Drop-in Guard (4/pk)	10	4.0/4.6	31905-014001
		150	4.6	31905-154630
	HPLC Column	250	4.6	31905-254630

### Hypersil CPS (Cyano)

Particle Size (µm)	Format	Length (mm)	4.0 mm ID	4.6 mm ID
3	Drop-in Guard (4/pk)	100mm	-	30803-104630
	HPLC Column	150mm	-	30803-154630
5	Drop-in Guard (4/pk)	10mm	30805-014001	30805-014001
	HPLC Column	125mm	30805-124030	30805-124630
		150mm	-	30805-154630
		200mm	30805-204630	-
		250mm	30805-254030	30805-254630
		300mm	-	30805-304630

### Hypersil CPS-2

Particle Size (µm)	Format	Length (mm)	4.0 mm ID	4.6 mm ID
5	Drop-in Guard (4/pk)	150mm		31805-154630
	HPLC Column	250mm	31805-254030	31805-254630

### Hypersil APS-2

Particle Size (µm)	Format	Length (mm)	ID (mm)	Cat. No.
3	Drop-in Guard (4/pk)	10	2.1	30703-012101
			4.6	30703-014001
	HPLC Column	50	4.6	30703-054630
			2.1	30703-102130
			2.1	30703-152130
			4.6	30703-154630
5	Drop-in Guard (4/pk)	10	3.0	30705-013001
			4.0/4.6	30705-014001
	HPLC Column	100	3.0	30705-103030
			4.6	30705-104630
			4.6	30705-154630
			4.0	30705-254030
		4.6	30705-254630	

### Hypersil silica

Particle Size (µm)	Format	Length (mm)	2.1 mm ID	4.0 mm ID	4.6 mm ID
3	Drop-in Guard (4/pk)	10mm	-	30003-014001	30003-014001
	HPLC Column	50mm	30003-052130	-	30003-054630
		100mm	-	-	30003-104630
		125mm	-	30003-124030	-
		150mm	30003-152130	30003-154030	30003-154630
		250mm	-	-	30003-254630
5	Drop-in Guard (4/pk)	10mm	-	30005-014001	30005-014001
	HPLC Column	50mm	30005-052130	30005-054030	30005-054630
		100mm	30005-102130	-	-
		150mm	-	30005-154030	30005-154630
		200mm	-	-	30005-204630
		250mm	-	30005-254030	30005-254630
		300mm	-	30005-304030	-

## Hypersil Classical continued

### Hypersil SAX

Particle Size (µm)	Format	Length (mm)	ID (mm)	Cat. No.
5	Drop-in Guard (4/pk)	10	3.0	34105-013001
			4.6	34105-014001
	HPLC Column	250	3.0	34105-253030
			4.6	34105-254630

### Hypersil Green PAH

Particle Size (µm)	Format	Length (mm)	ID (mm)	Cat. No.
3	Guard Cartridge	10	2.1	31103-012101
			3.0	31103-013001
			4.6	31103-014001
	HPLC Column	100	2.1	31103-102130
			3.0	31103-103030
			4.6	31103-104630
	HPLC Column	150	2.1	31103-152130
			4.6	31103-154630
5	Guard Cartridge	10	4.6	31105-014001
	HPLC Column	100	4.6	31105-104630
		150	4.6	31105-154630
		250	4.6	31105-254630

## BETASIL columns

	Particle Size (µm)	Format	Length (mm)	2.1 mm ID	3.0 mm ID	4.0 mm ID	4.6 mm ID
Silica	5	Drop-in Guard (4/pk)	10mm	70005-012101	70005-013001	70005-014001	70005-014001
		HPLC Column	50mm	70005-052130	70005-053030	-	-
			100mm	70005-102130	70005-103030	-	-
			150mm	70005-152130	70005-153030	-	70005-154630
			250mm	-	70005-253030	-	70005-254630
C18	3	Drop-in Guard (4/pk)	10mm	70103-012101	70103-013001	70103-014001	70103-014001
		Javelin Guards (4/pk)	20mm	70105-022106	-	-	-
		HPLC ColumnS	50mm	70103-052130	70103-053030	-	70103-054630
			100mm	70103-102130	-	70103-104030	70103-104630
			150mm	70103-152130	70103-153030	-	70103-154630
			250mm	-	-	-	70103-254630
	5	Drop-in Guard (4/pk)	10mm	70105-012101	70105-013001	70105-014001	70105-014001
		HPLC Column	50mm	70105-052130	70105-053030	-	70105-054630
			100mm	70105-102130	-	-	70105-104630
			125mm	-	-	70105-124030	70105-124630
			150mm	70105-152130	-	70105-154030	70105-154630
			250mm	70105-252130	70105-253030	70105-254030	70105-254630
			300mm	-	-	70105-304030	-
C8	3	HPLC Column	50mm	70203-052130	70203-053030	-	-
			150mm	-	-	-	70203-154630
	5	Drop-in Guard (4/pk)	10mm	-	70205-013001	70205-014001	70205-014001
		HPLC Column	50mm	70205-052130	70205-053030	-	-
			100mm	70205-102130	-	-	70205-104630
			125mm	-	-	70205-124030	70205-124630
			150mm	-	-	70205-154030	70205-154630
			250mm	-	-	-	70205-254630
			-	-	-	-	-
			-	-	-	-	-
C6	5	Drop-in Guard (4/pk)	10mm	-	-	70305-014001	70305-014001
		HPLC Column	100mm	-	-	-	70305-104630
			125mm	-	-	-	70305-124630
			150mm	-	-	70305-154030	70305-154630
			250mm	-	-	-	70305-254630

C1	5		250mm				70505-254030	70505-254630
Phenyl	3	Drop-in Guard (4/pk)	10mm	70603-012101	-	-	-	-
		HPLC Column	150mm	70603-152130	-	-	-	-
	5	Drop-in Guard (4/pk)	10mm	-	-	-	70605-014001	70605-014001
		HPLC Column	100mm	70605-102130	-	-	-	-
			150mm	-	-	-	70605-154630	
			250mm	-	-	-	70605-254630	
Cyano	5	HPLC Column	50mm	70805-052130	70805-053030	-	-	70805-054630
						-	-	70805-104630
			250mm	-	-	-	70805-254030	70805-254630
Diol	5	HPLC Column	50mm	-	-	-	-	72605-054630
			150mm	72605-152130	72605-153030	72605-154030	72605-154630	
			250mm	-	-	72605-254030	72605-254630	
Phenyl/ Hexyl	3	Drop-in Guard (4/pk)	10mm	73003-012101	-	-	-	-
		HPLC Column	50mm	73003-052130	73003-053030	-	-	-
			100mm	-	73003-103030	-	-	73003-104630
	150mm		-	73003-153030	-	-	73003-154630	
	5	Drop-in Guard (4/pk)	10mm	73005-012101	-	-	-	-
		HPLC Column	50mm	73005-052130	73005-053030	-	-	-
150mm			73005-152130	-	-	-	73005-154630	
250mm	-		-	73005-254030	73005-254630			

## IonPac NS1 and NS2

Polymeric reversed-phase column ideal for the separation of hydrophobic, ionizable compounds

- Excellent resolution
- Good peak shape
- Ideal for separation of large molecules that carry localized charges, such as surfactants
- Compatible with acids, bases, and solvent from pH 0 to 14
- Can also be used for traditional polymeric reversed-phase applications
- Utilize ion-pair chromatography for difficult separations

Thermo Scientific™ Dionex™ IonPac™ NS1-10µm and NS1-5µm columns are packed with a neutral, macroporous, high-surface-area, ethylvinylbenzene polymer crosslinked with 55% divinylbenzene. This resin makes the NS1 resistant to solvents, acids, and bases, and permits the use of eluent from pH 0 to 14. The Dionex IonPac NS1 column is the column of choice for routine ion pair chromatography.

IonPac NS2 is a silica-based column for mobile-phase ion chromatography (MPIC) applications using eluents containing trifluoroacetic acid (TFA), heptafluorobutyric acid (HFBA), or tetrabutylammonium borate (TBAB). It provides high performance analysis for hydrophobic amines and hydrophobic acids using suppressed conductivity detection.

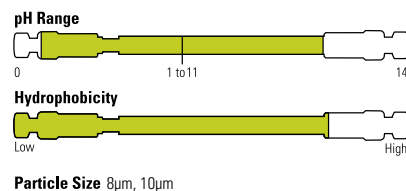
### IonPac NS1 and NS2

Description	Particle Size (µm)	Format	Length (mm)	2.0mm ID	4.0mm ID
IonPac NS1	5	HPLC Column	150	-	039568
		Guard Column	35	-	039567
	10		50	088763	-
		HPLC Column	250	088762	035321
IonPac NS2	5	Guard Column	35	-	088788
		HPLC Column	150	-	088787
			250	-	088786

## HyperREZ XP

Polymer-based columns for carbohydrate analysis

- Designed for the determination of carbohydrates, saccharides, organic acids, and alcohols
- Efficient and reproducible monodisperse particles
- Stable for long column lifetimes even at low pH and high temperatures



### HyperREZ XP

	Particle Size (µm)	Format	Length (mm)	ID (mm)	Cat. No.
HyperREZ XP Carbohydrate H+	8	Guard Cartridge (2/pk)	5	3.0	69008-903027
		Guard Column	50	7.7	69008-057726
		HPLC Column	300	7.7	69008-307780
HyperREZ XP Carbohydrate Ca <sup>2+</sup>	8	Guard Cartridge (2/pk)	5	3.0	69208-903027
		Guard Column	50	7.7	69208-057726
		HPLC Column	300	7.7	69208-307780
HyperREZ XP Carbohydrate Pb <sup>2+</sup>	8	Guard Cartridge (2/pk)	5	3.0	69108-903027
		Guard Column	50	7.7	69108-057726
		HPLC Column	300	7.7	69108-307780
HyperREZ XP Carbohydrate Na+	10	Guard Column	50	7.7	69310-057726
		HPLC Column	300	7.7	69310-307780
HyperREZ XP Organic Acids	8	Guard Cartridge (2/pk)	5	3.0	69008-903027
		HPLC Column	100	7.7	69608-107780
HyperREZ XP Sugar Alcohols	8	Guard Cartridge (2/pk)	5	3.0	69208-903027
		HPLC Column	250	4.0	69708-254080

Format	Length (mm)	ID (mm)	Cat. No.
HyperRez Guard Cartridge Holder	5	3	60002-354

Saccharide	H <sup>+</sup>	Ca <sup>2+</sup>	Pb <sup>2+</sup>
Adonitol	11.5	14.9	20.4
Arabinose	11.4	13.6	19.4
Erythritol	12.7	15.6	20.3
Fructose	10.6	13.5	19.3
Fucose	12.2	13.7	17.1
Galactose	1.07	12.2	15.6
Glucose	9.9	11.1	13.9
Glycerol	14.1	16.1	19.5
Lactose	8.6	9.7	12.8
Maltose	8.4	9.5	12.5
Maltotriose	7.7	8.7	11.9
Mannitol	11.0	17.3	28.9
Mannose	1.5	12.5	16.7
Raffinose	8.2	8.6	11.4
Sorbitol	11.1	20.7	N/A
Sucrose	9.8	9.4	11.9
Xylose	10.6	12.0	15.0

**HyperREZ Carbohydrate H+ 300 x 7.7mm**  
**HyperREZ Carbohydrate Ca<sup>2+</sup> 300 x 7.7mm**  
**HyperREZ Carbohydrate Pb<sup>2+</sup> 300 x 7.7mm**  
 Mobile Phase: H<sub>2</sub>O  
 Flow Rate: 0.6mL/min  
 Detection: RI  
 Temperature: 75°C (H<sup>+</sup>)  
 85°C (Ca<sup>2+</sup>)  
 80°C (Pb<sup>2+</sup>)  
 Note: partial hydrolysis may occur with some saccharides using H<sup>+</sup>.

For more information, visit  
[thermofisher.com/LCcolumns](http://thermofisher.com/LCcolumns)



BETASIL columns continue

C6	5	Drop-in Guard (4/pk)	10mm	-	-	70305-014001	70305-014001	
		HPLC Column	100mm	-	-	-	70305-104630	
			125mm	-	-	-	70305-124630	
			150mm	-	-	70305-154030	70305-154630	
			250mm	-	-	-	70305-254630	
C1	5		250mm			70505-254030	70505-254630	
Phenyl	3	Drop-in Guard (4/pk)	10mm	70603-012101	-	-	-	
		HPLC Column	150mm	70603-152130	-	-	-	
	5	Drop-in Guard (4/pk)	10mm	-	-	70605-014001	70605-014001	
		HPLC Column	100mm	70605-102130	-	-	-	
			150mm	-	-	-	70605-154630	
			250mm	-	-	-	70605-254630	
Cyano	5	HPLC Column	50mm	70805-052130	70805-053030	-	70805-054630	
			250mm	-	-	-	70805-104630	
Diol	5	HPLC Column	50mm	-	-	-	70805-254030	70805-254630
			150mm	72605-152130	72605-153030	72605-154030	72605-154630	
			250mm	-	-	72605-254030	72605-254630	
Phenyl/ Hexyl	3	Drop-in Guard (4/pk)	10mm	73003-012101	-	-	-	
		HPLC Column	50mm	73003-052130	73003-053030	-	-	
100mm	-		73003-103030	-	73003-104630			
150mm	-		73003-153030	-	73003-154630			
	5	Drop-in Guard (4/pk)	10mm	73005-012101	-	-	-	
		HPLC Column	50mm	73005-052130	73005-053030	-	-	
			150mm	73005-152130	-	-	73005-154630	
			250mm	-	-	73005-254030	73005-254630	

Thermo Scientific™ HyPURITY™ columns

Particle Size (µm)		Format	Length (mm)	2.1 mm ID	3.0 mm ID	4.0 mm ID	4.6 mm ID
C18	3	Drop-in Guard (4/pk)	10mm	22103-012101	-	22103-014001	22103-014001
		HPLC Column	30mm	22103-032130	-	-	-
			50mm	22103-052130	-	22103-054630	-
			100mm	22103-102130	22103-103030	22103-104630	-
			125mm	-	-	-	22103-124630
			150mm	22103-152130	22103-153030	22103-154030	22103-154630
			250mm	-	-	-	22103-254630
	5	Drop-in Guard (4/pk)	10mm	22105-012101	22105-013001	22105-014001	22105-014001
		HPLC Column	30mm	22105-032130	-	-	-
			50mm	22105-052130	-	-	22105-054630
			100mm	22105-102130	-	22105-104030	22105-104630
			125mm	-	-	22105-124030	22105-124630
			150mm	22105-152130	22105-153030	22105-154030	22105-154630
			250mm	22105-252130	22105-253030	22105-254030	22105-254630
C8	5	HPLC Column	50mm	-	-	-	22205-054630
			100mm	-	-	-	22205-104630
			150mm	22205-152130	22205-153030	-	22205-154630
			250mm	-	-	-	22205-254630

## HyPURITY columns continued

C4	5	Drop-in Guard (4/pk)	10mm	22405-012101	-	-	-
		HPLC Column	50mm	22405-052130	22405-053030	-	-
			100mm	-	-	-	22405-104630
			150mm	-	-	-	22405-154630
			250mm	-	-	-	22405-254630
Aqua-star	3	Drop-in Guard (4/pk)	10mm	22503-012101	22503-013001	-	-
		HPLC Column	100mm	-	-	22503-104030	-
			150mm	-	22503-153030	-	22503-154630
	5	Drop-in Guard (4/pk)	10mm	-	-	22505-014001	-
		HPLC Column	50mm	22505-052130	-	-	-
			100mm	22505-102130	-	-	-
			150mm	-	22505-153030	-	22505-154630
			250mm	-	-	-	22505-254630

## Aquasil columns

Particle Size (µm)	Format	Length (mm)	2.1 mm ID	3.0 mm ID	4.0 mm ID	4.6 mm ID	
5	Drop-in Guard (4/pk)	10mm	77505-012101	77505-013001	77505-014001	-	
	Javelin Guards (4/pk)	10mm	-	-	77505-014006	-	
		20mm	77505-022106	-	-	-	
	HPLC Column	20mm	77505-022130	-	-	-	
		30mm	-	-	77505-034030	-	
		50mm	77505-052130	77505-053030	-	77505-054630	
		100mm	77505-102130	77505-103030	-	77505-104630	
		125mm	-	-	77505-124030	-	
		-	-	77505-152130	77505-153030	77505-154030	77505-154630
		250mm	77505-252130	77505-253030	77505-254030	77505-254630	

## BetaBasic

Particle Size (µm)	Format	Length (mm)	2.1 mm ID	3.0 mm ID	4.0 mm ID	4.6 mm ID
C8	HPLC Column	50mm	71403-052130	-	-	-
		100mm	-	-	-	-
		150mm	-	-	-	71403-154630
5	Drop-in Guard (4/pk)	10mm	71405-012101	-	-	-
	Javelin Guards (4/pk)	10mm	71405-012106	-	71405-014001	-
		20mm	71405-022106	-	-	-
	HPLC Column	50mm	71405-052130	-	-	71405-054630
		100mm	-	-	-	71405-104630
		150mm	-	-	-	71405-154630
		250mm	-	-	-	71405-254630

For more information, visit [thermofisher.com/LCcolumns](https://thermofisher.com/LCcolumns)

C18	3	Drop-in Guard (4/pk)	10mm	71503-012101	71503-013001	71503-014001	71503-014001
		HPLC Column	30mm	-	-	-	71503-034630
			50mm	71503-052130	-	71503-054030	71503-054630
			100mm	71503-102130	-	-	71503-104630
			150mm	71503-152130	71503-153030	-	71503-154630
	250mm	-	-	-	71503-254630		
	5	Drop-in Guard (4/pk)	10mm	71505-012101	-	71505-014001	71505-014001
		Javelin Guards (4/pk)	10mm	71505-012106	-	71505-014006	-
			20mm	71505-022106	-	71505-024006	-
		HPLC Column	30mm	71505-032130	-	-	-
50mm			71505-052130	-	-	71505-054630	
100mm			71505-102130	-	-	71505-104630	
150mm			71505-152130	-	-	71505-154630	
250mm			-	71505-253030	-	71505-254630	
C4		3	HPLC Column	50mm	71603-052130	-	-
	100mm			71603-102130	-	-	-
	5	HPLC Column	50mm	71605-052130	-	-	-
			150mm	-	-	-	71605-154630
Cyano	5	Drop-in Guard (4/pk)	10mm	-	-	71705-014001	-
		Javelin Guards (4/pk)	20mm	71705-022106	-	-	-
		HPLC Column	100mm	71705-102130	-	-	-
			150mm	-	-	-	71705-154630
			250mm	-	-	-	71705-254630
Phenyl	3µm	Drop-in Guard (4/pk)	10mm	71803-012101	-	-	-
		HPLC Column	50mm	71803-052130	-	-	-
	5µm	Drop-in Guard (4/pk)	10mm	-	-	71805-014001	71805-014001
		HPLC Column	150mm	-	-	-	71805-154630
			250mm	71805-252130	-	-	71805-254630

# LC accessories

## Excellence in LC accessories providing optimal performance

Thermo Scientific offers a wide range of accessories to suit your LC needs, ensuring confidence in your analysis and delivery of exceptionally reproducible data and reliable chromatography.

### **Viper fingertight fitting**

- Providing zero dead volume fingertight connections up to 1,250 bar

### **Rheodyne sample injectors**

- Biocompatible and stainless steel versions for highly accurate and precise injections

### **LC syringes**

- Supporting manual and automated injections

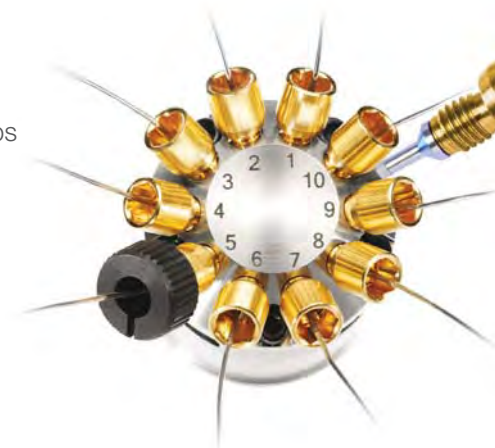


For more information, visit [thermofisher.com/LCaccessories](https://www.thermofisher.com/LCaccessories)

## Viper fingertight fittings

Provides ease of use and dead-volume free plumbing of every conventional HPLC and UHPLC system

- Provides zero-dead volume fingertight connections
- Supports operating pressures up to 1,500 bar (22,000 psi)
- Available in different lengths: 65mm and from 150 to 950mm in 100mm steps
- Available in different inner diameters: 0.1mm (0.004in), 0.13mm (0.005in) or 0.18mm (0.007in)
- Easy to use due to stainless steel or biocompatible MP35N™ capillaries (1/32in OD) and fingertight design
- Works with virtually any valve and column from any manufacturer
- Fits narrow connections such as 10-port valves and enables mixed use with different designs



The Thermo Scientific™ Viper™ fingertight fitting system provides ease of use and dead-volume free plumbing of every conventional HPLC and modern UHPLC system. Together with flexible stainless steel (SST) or biocompatible MP35N™ capillaries, it opens a new dimension in liquid chromatography. The Viper system improves chromatographic results, independent of various different connection geometries and system

backpressures. Connecting LC modules, valves, and columns quickly and easily without tools is simple with the Viper system.

Extra column volumes in HPLC have the most detrimental effects on the separation efficiency of an LC system and must be minimized. Conventional fittings tightened by hand or using tools have considerable drawbacks which can compromise efficiency. The Viper fitting system overcomes these

drawbacks by design, working without ferrules to reduce the dead volume of any fluidic connection to zero. The Viper system unifies robust performance, ease of use, acceptable lifetime, and universal compatibility with virtually all different valves and columns for HPLC system users. All Thermo Scientific™ UltiMate™ 3000 XRS, RS, BioRS and SD systems are equipped with Viper fingertight fitting system as a standard.

### Viper fingertight fitting systems - SST

Length (mm)	0.1mm ID	0.13mm ID	0.18mm ID
65	6040.2207	6040.2307	6040.2357
150	6040.2215	6040.2315	6040.2360
250	6040.2225	6040.2325	6040.2385
350	6040.2235	6040.2335	6040.2375
450	6040.2245	6040.2345	6040.2365
550	6040.2255	6040.2305	6040.2355
650	6040.2265	6040.2310	6040.2395
750	-	6040.2320	6040.2370
850	-	6040.2330	6040.2380
950	-	6040.2340	6040.2390

### Viper fingertight fitting systems - biocompatible

Length (mm)	0.065mm ID, PEEK	0.090mm ID, PEEK	0.1mm ID, MP35N	0.13mm ID, MP35N	0.13mm ID, PEEK	0.18mm ID, MP35N
65	-	6041.9075*	6042.2306	-	-	-
150	6041.5615	-	6042.2320	-	6041.5616	6042.2315
250	6041.5625	6041.9025	6042.2330	-	-	6042.2327
350	-	-	6042.2340	-	-	6042.2337
450	-	-	6042.2350	-	-	6042.2365
550	-	-	6042.2360	-	-	6042.2355
650	6041.5665	-	6042.2370	6042.2363	-	6042.2380
750	6041.5675	-	6042.2390	6042.2373	-	6042.2375
850	6041.5685	-	-	-	-	-
950	-	-	6042.2395	-	-	6042.2385

\* 75mm length

### Viper accessories

Description	Cat. No.	Quantity
Plug, Biocompatible	6040.2303	1 Each
Union, SST	6040.2304	1 Each
Calibration Tool	6040.2312	1 Each
Inline Filter	6036.1045	1 Each

For more information, visit [thermofisher.com/viper](https://www.thermofisher.com/viper)



## Viper fingertight fitting kits for UltiMate 3000 systems

### Viper fingertight fitting kits for UltiMate 3000 systems

Description	SD Systems	RS Systems
Viper Capillary Kit for ISO, LPG or DGP pumps	6040.2302	6040.2301
Viper Capillary Kit for HPG pumps	6040.2309	6040.2308
Viper Capillary Kit for biocompatible RSLC systems	–	6841.2301
Online SPE Solution Kit for x2 Dual Standard or RSLC systems	6040.2802	6040.2801
Tandem Operation Solution Kit for x2 Dual Standard or RSLC systems	6040.2804	6040.2803
Application Switching Solution Kit for x2 Dual Standard or RSLC systems	6040.2806	6040.2805
Parallel Setup Solution Kit for x2 Dual Standard or RSLC systems	6040.2810	6040.2809
Inverse Gradient Kit for x2 Dual Standard or RSLC systems	6040.2819	6040.2820
Automated Method Scouting Solution Kit for Standard or RSLC systems	6040.2808	6040.2807
MS Connection Kit for MS-frontends with WPS autosampler, excluding UV detection	6720.0355	6720.0370
MS Connection Kit for MS-frontends with WPS autosampler, including UV detection	6720.0365	6720.0375
MS Connection Kit for MS-frontends with HPG-RS pump and OAS autosampler excluding UV detection	–	6720.0372
MS Connection Kit for MS-frontends with HPG-RS pump and OAS autosampler including UV detection	–	6720.0377

Description	XRS Systems
Viper Capillary Kit for standalone system with with WPS autosampler	6043.2301
Viper Capillary Kit for standalone system with with OAS autosampler	6845.2301A
MS Connection Kit for MS-frontends with WPS autosampler excluding UV detection	6720.0380
MS Connection Kit for MS-frontends with WPS autosampler including UV detection	6720.0385
MS Connection Kit for MS-frontends with LPG-XRS pump and OAS autosampler excluding UV detection	6720.0372
MS Connection Kit for MS-frontends with LPG-XRS pump and OAS autosampler including UV detection	6720.0377

## Javelin direct-connection column filters

One-piece filter protects HPLC systems

- Direct-connection design for maximum efficiency
- Replace entire disposable filter unit for easy changes
- Recommended for use as dedicated filters for a column rather than the HPLC system
- 1/16in CPI tip attaches directly to HPLC column inlet without tubing or wrenches
- 0.5µm porosity



### Javelin direct-connection column filter

Description	2.1mm ID	3.0mm ID	4.0/4.6mm ID	Quantity
Javelin Column Filter	88200	88700	88400	4 Pack

## ColumnSaver precolumn filters

Filter mesh size 2µm

### ColumnSaver precolumn filters

Filter Mesh Size (µm)	Cat. No	Quantity
2	60140-412	10 Pack

## UNIFILTER direct-connection HPLC filter systems

Quickly replaced for minimal down time

- Replaceable 0.5µm drop-in filter enhances column lifetime and improved performance
- Holder attached directly to the inlet of your analytical system for maximum convenience



### Thermo Scientific™ UNIFILTER™ direct-connection HPLC filter systems

Description	2.1/3.0mm ID	4.0/4.6mm ID	Quantity
UNIFILTER Direct Connection Holder	27002	27000	1 Each
Replacement Filter, 0.5µm	22017	22155	5 Pack
Replacement Tip, CPI, Standard	850-RT	850-RT	1 Each
Replacement Tip, Waters End-fitting	850-WT	850-WT	1 Each

## UHPLC filter

Column protection for Hypersil GOLD 1.9µm and Synchronis 1.7µm columns without compromising performance

- Low volume filter cartridge design
- Maintain peak shape
- Minimal efficiency loss through dispersion



### UHPLC filter

Description	Cat. No.	Quantity
UHPLC Direct Connect Filter Holder	27006	1 Each
2.1mm ID Replacement Filter Cartridge, 0.2µm	22180	5 Pack
1.0mm ID Replacement Filter Cartridge, 0.2µm	22185	5 Pack



## PTFE one-piece column connector

Excellent for high-throughput screening and quick connection

- Fingertight, leak-free connection of analytical and guard columns with 10-32 threads
- Minimizes dead volume
- Inert and biocompatible material



## PEEK one-piece column connector




Description	Cat. No.	Quantity
One Piece Coupler	60170-370	1 Each



## Solvent filters

- Efficient draw
- 100% PTFE polymer, including 2µm filters
- Built-in helium sparge port and frit

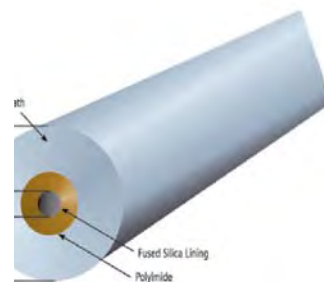
### Solvent filters

	Type	For Use with	Cat. No.	Quantity
	Stainless Steel	Fit 1/16in OD tube to 1/8in OD plastic tubing	A-302	1 Each
	Stainless Steel	Fit to 1/8in OD plastic tubing using 1/8in PP nut	A-302A	1 Each
	Bottom-of-the-Bottle™	3/16in OD plastic tubing	A-436	1 Each
	Bottom-of-the-Bottle	1/8in OD tubing	A-437	1 Each

## PEEKsil capillary tubing

Excellent chemical compatibility and very low carryover

- Precision-bore fused silica tubing coated with 1/16in OD PEEK covering
- Usable in most standard chromatography systems
- Withstands high pressures
- Smooth internal surface for excellent flow characteristics
- Tubing is stiff: not recommended for uses requiring tubing bends
- Precut lengths only: cutting in the lab may damage tubing



### PEEKsil capillary tubing

ID (in)	Length (cm)	Cat. No.	Quantity
0.002	10	60182-500	5 Pack
	20	60182-501	5 Pack
	50	60182-502	2 Pack
0.004	10	60182-503	5 Pack
	20	60182-504	5 Pack
	50	60182-505	2 Pack
0.007	10	60182-506	5 Pack
	20	60182-507	5 Pack
	50	60182-508	2 Pack

### Applications:

- HPLC
- LC-MS

## PEEK sleeves for fused silica capillary tubing

Withstands high pressures

### 1/16in OD PEEK sleeves for fused silica capillary tubing

ID (in)	Color	Cat. No.	Quantity
0.008	Yellow	F-227	1 Each
0.010	Blue	F-228	1 Each
0.012	Natural	F-229	1 Each
0.015	Orange	F-230	1 Each
0.021	Natural	F-231	1 Each
0.030	Natural	F-232	1 Each

For more information, visit [thermofisher.com/LCaccessories](https://www.thermofisher.com/LCaccessories)



## 316 stainless steel capillary tubing

Cleaned, polished, passivated and ready-to-use

- Suitable for ultra high pressure applications
- Wide chemical compatibility
- Prefinished, square, burr-free ends and interiors to minimize dead volume connections
- Not recommended for biological samples
- Rough internal surface may lead to sample carryover



### 316 stainless steel capillary tubing

ID (in)	Length (cm)	Color	Cat. No.	Quantity
<b>1/16in OD Precut Tubing</b>				
0.005	5	Red	U-152	1 Each
	10	Red	U-153	1 Each
	20	Red	U-154	1 Each
	30	Red	U-155	1 Each
	50	Red	U-156	1 Each
	100	Red	U-157	1 Each
0.007	5	Black	U-126	1 Each
	10	Black	U-127	1 Each
	20	Black	U-128	1 Each
	30	Black	U-129	1 Each
	50	Black	U-130	1 Each
	100	Black	U-131	1 Each
0.010	5	Blue	U-111	1 Each
	10	Blue	U-112	1 Each
	20	Blue	U-113	1 Each
	30	Blue	U-114	1 Each
	50	Blue	U-132	1 Each
	100	Blue	U-133	1 Each

### 1/16in 316 stainless steel tubing, 5-foot coil

ID (in)	Cat. No.	Quantity
0.005	U-158	1 Each
0.007	U-108	1 Each
0.010	U-106	1 Each
0.020	U-105	1 Each
0.030	U-107	1 Each
0.040	U-144	1 Each
0.046	U-151	1 Each

### Terry tool tubing cutters

Description	Cat. No.	Quantity
1/16in stainless steel tubing	60182-509	1 Each
1/8in stainless steel tubing	60182-510	1 Each

## PEEK capillary tubing

Pre-cut and color-coded for easy identification and use

- Broad chemical compatibility
- Biocompatible
- Easily cut to desired length
- Appropriate for many HPLC applications
- Resistant to most organic solvents, except for nitric acid, sulfuric acid, dichloromethane, THF and DMSO



### 1/16in OD precut PEEK tubing

ID (in)	Length (cm)	Color	Cat. No.	Quantity
0.003	5	Natural	37003-5	1 Each
	10	Natural	37003-10	1 Each
	20	Natural	37003-20	1 Each
	30	Natural	37003-30	1 Each
	50	Natural	37003-50	1 Each
	100	Natural	37003-100	1 Each
0.005	5	Red	37005-5	1 Each
	10	Red	37005-10	1 Each
	20	Red	37005-20	1 Each
	30	Red	37005-30	1 Each
	50	Red	37005-50	1 Each
0.007	5	Yellow	37007-5	1 Each
	10	Yellow	37007-10	1 Each
	20	Yellow	37007-20	1 Each
	30	Yellow	37007-30	1 Each
	50	Yellow	37007-50	1 Each
	100	Natural	37007-100	1 Each
0.010	5	Blue	37010-5	1 Each
	10	Blue	37010-10	1 Each
	20	Blue	37010-20	1 Each
	30	Blue	37010-30	1 Each
	50	Blue	37010-50	1 Each
	100	Natural	37010-100	1 Each
0.020	5	Orange	37020-5	1 Each
	10	Orange	37020-10	1 Each
	20	Orange	37020-20	1 Each
	30	Orange	37020-30	1 Each
	50	Orange	37020-50	1 Each
	100	Natural	37020-100	1 Each

### 1/16in OD PEEK tubing, 5-foot coil

ID (in)	Cat. No.	Quantity
0.003	37003	1 Each
0.005	37005	1 Each
0.007	37007	1 Each
0.010	37010	1 Each
0.020	37020	1 Each
0.030	37030	1 Each
0.040	37040	1 Each

### Polymer tubing cutter





Description	Cat. No.	Quantity
Polymeric Tubing Cutter	A-327	1 Each
Replacement blades	A-328	5 Pack

## High pressure stainless steel nuts and ferrules

Accommodate a wide range of configurations

- Designed for 10-32 port configurations
- Burr and contaminant free

### High pressure stainless steel nuts and ferrules

Type	Nut Cat. No.	Quantity	Description	Replacement Ferrule Cat. No.	Quantity
 10-32 thread nut with ferrule	F-190	1 Each	Replacement PEEK Ferrules	F-192x	10 Pack
 Male hex nut	U-400x	10 Pack	Universal Ferrules, 0.625in	U-401x	10 Pack
 Valco male hex nut, 10-32 thread	U-320x	10 Pack	Valco ferrules, 0.625in	U-321x	10 Pack
 Male hex nut, Waters compatible	U-410x	10 Pack	Universal Ferrules, 0.625in	U-401x	10 Pack

## Reducing union for preparative columns

Connects 30 to 50mm ID preparative columns to 1/16in tubing

- Stainless steel construction
- 1.0mm bore
- Without frit

### Reducing union for preparative column








Description	Cat. No.	Quantity
1/8in to 1/16in Reducing Union for Preparative Column	60182-357	1 Each

## PEEK Fingertight fittings

Machined for reliability and ease of use

- Resist cracking, breaking, thread stripping and leaking in both low and high pressure applications
- Biocompatible for a broad range of applications

### PEEK fingertight fittings









Type	Cat. No.	Quantity
 One-Piece Fingertight Fitting, 1/16in, 0.37in head	F-120x	10 Pack
 One-Piece Long Fingertight Fitting, 1/16in, 0.37in head	F-130x	10 Pack
 One-Piece PEEK Fingertight Fitting, 1/32in, 0.25in head	M-645	1 Each
 Two-Piece Fingertight Wing Nut with Ferrule, 1/16in	F-300x	10 Pack
 Replacement PEEK Ferrules	F-142x	10 Pack
 Column End Plug, 1/16in, 10-32 coned, Delrin, Red	U-467R	1 Each
 Column End Plug, 1/16in, 10-32 coned, Delrin, Black	U-467BLK	1 Each

## Stainless steel unions, tees and crosses

Well-suited to high-pressure applications

- Absolute zero or low dead volume formats
- Includes two stainless steel nuts and ferrules

### Stainless steel unions, tees and crosses





	Description	Through Hole (in)	Swept Volume (μL)	Cat. No.	Quantity
	Union, stainless steel, Upchurch Scientific/Parker fittings compatible, includes 2 stainless steel nuts and ferrules	0.010	0.025	U-435	1 Each
	Union, stainless steel, Upchurch Scientific/Parker fittings compatible, includes 2 stainless steel nuts and ferrules	0.020	0.134	U-402	1 Each
	Union, stainless steel, Upchurch Scientific/Parker fittings compatible, includes 2 stainless steel nuts and ferrules	0.050	0.836	U-437	1 Each
	Union, stainless steel, Upchurch Scientific/Parker fittings compatible, includes 2 stainless steel nuts and ferrules	0.062	~0.0	U-438	1 Each
	Union, stainless steel, Waters fittings compatible, includes 2 stainless steel nuts and ferrules	0.020	0.129	U-412	1 Each
	Union, stainless steel, Valco fittings compatible, includes 2 stainless steel nuts and ferrules	0.020	0.103	U-322	1 Each
	Tee, stainless steel, 10-32 fittings for use with 1/16in OD tubing	0.020	0.57	U-428	1 Each
	Cross, stainless steel, 10-32 fittings for use with 1/16in OD tubing	0.020	0.72	U-430	1 Each

## PEEK unions, tees and crosses

Well-suited to high pressure applications

- Absolute zero or low dead volume formats
- Biocompatible

### PEEK unions, tees and crosses

	Description	Through Hole (in)	Swept Volume (μL)	Cat. No.	Quantity
	Union, PEEK polymer, includes two PEEK 2-piece fittings	0.010	0.070	P-742	1 Each
	Union, PEEK polymer, includes two PEEK 2-piece fittings	0.020	0.28	P-704	1 Each
	Tee, PEEK, 10-32 fittings for use with 1/16in OD tubing, includes three 10-32 PEEK double-winged nuts	0.020	0.57	P-727	1 Each
	PEEK, 10-32 fittings for use with 1/16in OD tubing, includes four 10-32 PEEK double-winged nuts	0.020	0.72	P-729	1 Each

## Rheodyne 7725 and 7725i sample injectors

Allow continuous flow between the load and inject positions to protect against pressure shock

- Stainless steel construction
- Make-Before-Break (MBB) design
- Can use partial filling for zero sample waste or complete filling for better reproducibility
- Inject 1µL to 5mL with high accuracy and precision
- 7725i features a position sensing switch for a reproducible start signal



### Rheodyne 7725 and 7725i sample injectors

Model	Mode	Features	Cat. No.	Quantity
7725	Dual	Continuous flow	7725	1 Each
7725i	Dual	Continuous flow, position sensing switch	7725i	1 Each

### Stainless steel sample loops

Description	Volume	ID (mm / in)	Cat. No.	Quantity
Sample loops for 7725 and 7725i injectors	5µL	0.18 / 0.007	7755-020	1 Each
	10µL	0.30 / 0.012	7755-021	1 Each
	20µL	0.30 / 0.012	7755-022	1 Each
	50µL	0.51 / 0.020	7755-023	1 Each

### RheBuild kits

For Use with Rheodyne Models	Cat. No.	Quantity
7725/7725i	7725-999	1 Each

### Rheodyne stators

For Use with Rheodyne Models	Cat. No.	Quantity
7725	7725-010	1 Each

## Rheodyne 9725 and 9725i sample injectors

Allow continuous flow between the load and inject positions to protect against pressure shock

- Biocompatible PEEK construction
- Make-Before-Break (MBB) design
- Can use partial filling for zero sample waste or complete filling for better reproducibility
- Inject 1µL to 5mL with high accuracy and precision
- 9725i features a position sensing switch for a reproducible start signal

### Rheodyne 9725 and 9725i sample injectors

Model	Mode	Features	Cat. No.	Quantity
9725	Dual	Continuous flow	9725	1 Each
9725i	Dual	Continuous flow, position sensing switch	9725i	1 Each

### PEEK sample loops

Description	Volume	ID (mm / in)	Cat. No.	Quantity
Sample loops for 9725 and 9725i injectors	2µL	Internal	7755-015	1 Each
	5µL	0.18 / 0.007	9055-020	1 Each
	10µL	0.25 / 0.010	9055-021	1 Each
	20µL	0.25 / 0.010	9055-022	1 Each
	50µL	0.51 / 0.020	9055-023	1 Each
	100µL	0.51 / 0.020	9055-024	1 Each
	200µL	0.51 / 0.020	9055-025	1 Each
	500µL	0.76 / 0.030	9055-026	1 Each
	1mL	0.76 / 0.030	9055-027	1 Each
	5mL	0.76 / 0.030	9055-029	1 Each

### Rheodyne suction needle adapter

For Use with	Cat. No.	Quantity
Rheodyne Injector Models 9725 and 9725i	9125-076	1 Each

For more information, visit [thermofisher.com/LCaccessories](https://www.thermofisher.com/LCaccessories)



## Rheodyne 8125 low-dispersion microscale injector

Designed for use with 1 and 2mm ID HPLC columns

- Can use partial filling for zero sample waste or complete filling for better reproducibility
- Position sensing switch provides reproducible start signal
- Suitable for use with 5 to 50µL sample loops



### Rheodyne 8125 low-dispersion microscale injector

Model	Mode	Features	Cat. No.	Quantity
8125	Dual	Continuous flow	8125	1 Each

### Stainless steel sample loops

Description	Volume	ID (mm / in)	Cat. No.	Quantity
Sample loops for 8125 injectors	5µL	0.20 / 0.008	8020	1 Each
	10µL	0.20 / 0.008	8021	1 Each
	20µL	0.25 / 0.010	8022	1 Each
	50µL	0.30 / 0.012	8023	1 Each

### RheBuild kits

For Use with Rheodyne Models	Cat. No.	Quantity
8125	8125-999	1 Each

### Rheodyne replacement rotor seals for injectors

For Use with Rheodyne Models	Cat. No.	Quantity
<b>Vespel Seals</b>		
8125/8126	8125-038	1 Each
<b>Tefzel Seals</b>		
8125	8125-097	1 Each

### Rheodyne stators

For Use with Rheodyne Models	Cat. No.	Quantity
8125/8126	8125-098	1 Each

### Rheodyne stator face assemblies

For Use with Rheodyne Models	Cat. No.	Quantity
8125	8125-074	1 Each

## Rheodyne 7010 sample injector

Single-mode sample injector designed for the complete filling method



### Compatible with:

Sample loop sizes 5µL to 20mL

### Rheodyne 7010 sample injector

Model	Mode	Features	Cat. No.	Quantity
7010	Single	Complete filling method	7010	1 Each

### Rheodyne ports for Rheodyne injectors

For Use with Rheodyne Model	Cat. No.	Quantity
7010 Filler Port, Stainless Steel	7012	1 Each

### Stainless steel sample loops

Description	Volume	ID (mm / in)	Cat. No.	Quantity
Sample loops for 7010 and 7125 injectors	5µL	0.18 / 0.007	7020	1 Each
	10µL	0.30 / 0.012	7021	1 Each
	20µL	0.30 / 0.012	7022	1 Each
	50µL	0.51 / 0.020	7023	1 Each
	100µL	0.51 / 0.020	7024	1 Each
	200µL	0.76 / 0.030	7025	1 Each
	500µL	0.76 / 0.030	7026	1 Each
	1mL	0.76 / 0.030	7027	1 Each
	5mL	1.0 / 0.040	7029	1 Each

### RheBuild kits

For Use with Rheodyne Models	Cat. No.	Quantity
7010/7000	7010-999	1 Each

### Rheodyne replacement rotor seals for injectors

For Use with Rheodyne Models	Cat. No.	Quantity
<b>Vespel Seals</b>		
7010	7010-039	1 Each
<b>Tefzel Seals</b>		
7010	7010-071	1 Each

For more information, visit [thermofisher.com/LCaccessories](https://www.thermofisher.com/LCaccessories)

## Rheodyne 9010 sample injector

Single-mode sample injector designed for the complete filling method

- Compatible with sample loop sizes 5µL to 10mL
- PEEK stator
- Position sensing switch provides a reproducible start signal

### Rheodyne 9010 sample injector

Model	Mode	Features	Cat. No.	Quantity
9010	Single	Continuous flow, position sensing switch	9010	1 Each

### Rheodyne ports for rheodyne injectors

For Use with Rheodyne Model	Cat. No.	Quantity
9010 Filler Port, PEEK	9012	1 Each
9010 Needle Port, PEEK	9013	1 Each

### PEEK Sample Loops

Description	Volume	ID (mm / in)	Cat. No.	Quantity
Sample loops for 9010 injectors	2µL	Internal	7755-015	1 Each
	5µL	0.18 / 0.007	9055-020	1 Each
	10µL	0.25 / 0.010	9055-021	1 Each
	20µL	0.25 / 0.010	9055-022	1 Each
	50µL	0.51 / 0.020	9055-023	1 Each
	100µL	0.51 / 0.020	9055-024	1 Each
	200µL	0.51 / 0.020	9055-025	1 Each
	500µL	0.76 / 0.030	9055-026	1 Each
	1mL	0.76 / 0.030	9055-027	1 Each
	5mL	0.76 / 0.030	9055-029	1 Each

### Rheodyne replacement rotor seals for injectors

For Use with Rheodyne Models	Cat. No.	Quantity
<b>Tefzel Seals</b>		
9010	9010-051	1 Each

### Rheodyne stators

For Use with Rheodyne Models	Cat. No.	Quantity
9010	9125-043	1 Each

### Rheodyne stator face assemblies






For Use with Rheodyne Models	Cat. No.	Quantity
9125	8125-094	1 Each

## RheFlex high-pressure fittings

Precision machined from 316 stainless steel



### RheFlex high pressure fittings

Type	Cat. No.	Quantity
 Short Fittings Set	6000-109	5 Pack
 Short Fittings Set	6000-209	10 Pack
 Long Fittings Set	6000-111	5 Pack
 Long Fittings Set	6000-211	10 Pack
 Extra Long Fittings Set	6000-162	5 Pack
 Extra Long Fittings Set	6000-262	10 Pack
 1/16in Ferrule	6000-110	5 Pack
 1/16in Ferrule	6000-210	10 Pack

## RheFlex two-piece PEEK fittings

Provide inert, metal-free connections

- Slotted backside of the ferrule is squeezed down onto the tube by the mating conical surface of the nut
- May be used on 1/16in metal or plastic tubing reliably up to 5000psi
- Reusable ferrule and nut



### RheFlex two-piece PEEK fittings

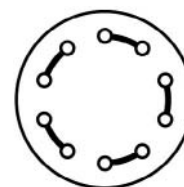
Type	Cat. No.	Quantity
Fitting set, standard length	6000-054	5 Pack
Fitting set, short	6000-055	5 Pack
Fitting set, X-long	6000-066	1 Each
Replacement ferrules	6000-051	5 Pack

For more information, visit [thermofisher.com/LCaccessories](https://thermofisher.com/LCaccessories)

## Cheminert model C2 microbore injector

Can be used as an injector or switching valve

- 1/16in fittings
- 0.010in ports
- Available in 6-port or 10-port configurations
- Available with manual or microelectric actuator



### Cheminert model C2 microbore injector

Description	Sample Volume	Cat. No.	Quantity
Model C2 injector, N60 stainless stator, 5µL loop, manual	6 ports	C2-1006	1 Each
	10 ports	C2-1000	1 Each
Model C2 injector, N60 stainless stator, 5µL loop, microelectric actuator	6 ports	C2-1006EH	1 Each
	10 ports	C2-1000EP	1 Each
Sample injector loops, stainless steel	5µL	CSL5	1 Each
	10µL	CSL10	1 Each
	20µL	CSL20	1 Each
	50µL	CSL50	1 Each
	100µL	CSL100	1 Each
Model C4 injector, PAEK stator, 5µL loop, microelectric actuator	6 ports	C2-1346EH	1 Each
Sample injector loops, PAEK	5µL	CZSL5PK	1 Each
	10µL	CZSL10PK	1 Each
	50µL	CZSL50PK	1 Each

## Valco injector model C6W

Description	Volume	Cat. No.	Quantity
Model C6W injector, six 0.016in ports, manual	20µL loop	C6W	1 Each
Model EPC6W injector, six 0.016in ports, microelectric actuator	20µL loop	EPC6W	1 Each
Replacement rotor	–	SSAC6W	1 Each
Sample injector loop, stainless steel	2µL	SL2CW	1 Each
Sample injector loop, stainless steel	5µL	SL5CW	1 Each
Sample injector loop, stainless steel	10µL	SL10CW	1 Each
Sample injector loop, stainless steel	20µL	SL20CW	1 Each
Sample injector loop, stainless steel	50µL	SL50CW	1 Each
Sample injector loop, stainless steel	100µL	SL100CW	1 Each

## Valco accessories

Description	Volume	Cat. No.	Quantity
Valco syringe ports	22 ga. needles; 1/16in fittings	VISF-1	1 Each
Valco syringe ports	22 ga. 2in needles	VISF-2	1 Each
Valco Nuts and Ferrules	1/16in standard nut	ZN1-10	10 Pack
Valco Nuts and Ferrules	1/16in long nut	LZN1-10	10 Pack
Valco Nuts and Ferrules	1/16in SS ferrule	ZF1-10	10 Pack

## LC syringes for manual injection valves

Easy, accurate and reproducible manual injection

- Square tip to prevent damage to the injector
- Wide range of volumes
- Precision made from borosilicate glass and stainless steel
- Robust design and easy-to-read markings

### Removable needle, gas tight syringes for Rheodyne / Valco injectors

Volume (µL)	Length (mm)	Gauge	Tip Style	Cat. No.	Quantity	Replacement Needle Cat. No.	Quantity
10	50	22	90° Blunt End	365DLG21	1 Each	365RNL15	5 Pack
25	50	22	90° Blunt End	365FLG31	1 Each	365RNL25	5 Pack
50	50	22	90° Blunt End	365GLG41	1 Each	365RNL25	5 Pack
100	50	22	90° Blunt End	365HLG51	1 Each	365RNL25	5 Pack
500	50	22	90° Blunt End	365JLG71	1 Each	365RNL25	5 Pack

### Fixed needle, gas tight syringes for Rheodyne / Valco injectors

Volume (µL)	Length (mm)	Gauge	Tip Style	Cat. No.	Quantity
10	50	22	90° Blunt End	365DL263	1 Each
25	50	22	90° Blunt End	365F6315	1 Each
50	50	22	90° Blunt End	365G6316	1 Each
100	50	22	90° Blunt End	365H6317	1 Each
500	50	22	90° Blunt End	365J6319	1 Each

### Fixed needle syringes for Rheodyne / Valco injectors

Volume (µL)	Length (mm)	Gauge	Tip Style	Cat. No.	Quantity
5	50	22	90° Blunt End	365CL221	1 Each
10	50	22	90° Blunt End	365DL231	1 Each
25	50	22	90° Blunt End	365FL241	1 Each
50	50	22	90° Blunt End	365GL251	1 Each
100	50	22	90° Blunt End	365HL261	1 Each
250	50	22	90° Blunt End	365IL271	1 Each
500	50	22	90° Blunt End	365JL281	1 Each

For more information, visit [thermofisher.com/LCaccessories](https://thermofisher.com/LCaccessories)

## HPLC syringes

- Instrument specific syringes
- Luer-Lok syringes ideal for priming
- Macro volume sampling syringes suitable for liquid or gas samples

### Removable needle syringes for Thermo Scientific instruments

Volume (µL)	Length (mm)	Gauge	Instrument	Cat. No.	Quantity
250	50	22	LCQ	365ILT21	1 Each
500	50	22	LCQ	365JLT41	1 Each
250	–	–	AS1000, AS3000	365ILT91	1 Each
500	–	–	AS1000, AS3000	365JLT61	1 Each
2500	–	–	AS3000, AS3500	365LLT81	1 Each

### Mass spectrometry replacement ESI probe needles

Instrument	Cat. No.	Quantity
LCQ, XP, DECA, Advantage	365RNL1	1 Each
LCQ MS	365RNL2	1 Each
LCQ XSQ	365RNL3	1 Each

### Fixed needle syringes for CTC instruments

Volume (µL)	Length (mm)	Gauge	Tip Style	Cat. No.	Quantity
10	50	22	–	365DL991	1 Each
25	50	22	–	365FL715	1 Each
50	50	22	–	365GL810	1 Each
100	50	22	–	365HL331	1 Each

### PTFE Luer-Lok syringes

Volume (mL)	Cat. No.	Quantity	Replacement Needle Cat. No.	Quantity
1	365KL531	1 Each	365RNL22	2 Pack
2.5	365LL541	1 Each	365RNL22	2 Pack
5	365ML551	1 Each	365RNL22	2 Pack
10	365NL561	1 Each	365RNL22	2 Pack
25	365PL571	1 Each	365RNL22	2 Pack

### Syringes for Macro volume sampling

Volume (mL)	Length (mm)	Gauge	Tip Style	Cat. No.	Quantity
1	50	22s	Bevel	365K3051	1 Each
2.5	50	22s	Bevel	365LL375	1 Each
5	50	22s	Bevel	365M5212	1 Each
10	50	22s	Bevel	365N5214	1 Each

## Thermo Scientific™ HOT POCKET and COOL POCKET column temperature controllers

Wrap-around column temperature control systems

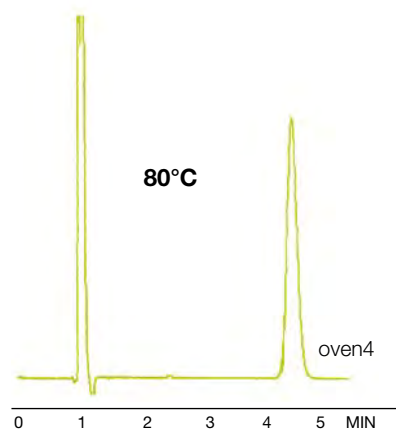
- Easy to install and use with a variety of column lengths
- Dual display of both actual and set point temperature
- HOT POCKET range from just above ambient to 85°C
- COOL POCKET range from 5°C to 55°C
- Explore sample selectivity and stability on both sides of ambient



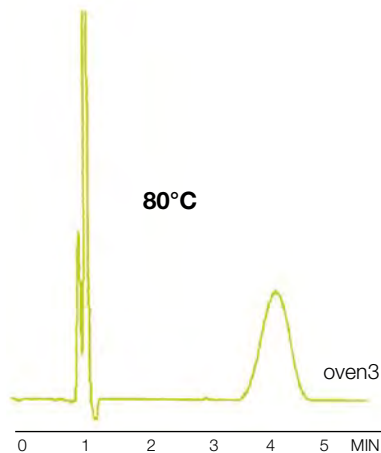
### Product specifications

	HOT POCKET	COOL POCKET
Operating Range	5°C above ambient to 85°C	5°C to 55°C
Display	Dual LED displays of actual and set point temperatures in °C	
Temperature Accuracy	± 2°C over entire range	± 2°C over entire range
Temperature Repeatability	± 1°C	± 1°C
Temperature Stability	± 0.1°C	± 0.1°C
Time to Stabilization (from ambient)	85°C in less than 30 minutes	55°C in 25 minutes, 5°C in 20 minutes

### With eluent pre-heater



### Without eluent pre-heater



Effect of eluent pre-heater on efficiency

Data courtesy of Dr. Richard F. Myer, Quantitative Technologies, Inc., Whitehouse, NJ

### HOT POCKET column heaters, eluent preheater/precooler and COOL POCKET chiller

Description	Cat. No.	Quantity
HOT POCKET Column Heater	92016	1 Each
HOT POCKET Column Heater – short version	92016-150	1 Each
COOL POCKET Column Chiller	92017	1 Each
Eluent Preheater/Precooler	92018	1 Each

Learn more at [thermofisher.com/LCaccessories](http://thermofisher.com/LCaccessories)



# LC reagents

Providing the selectivity needed for high-quality separation of charged compounds

Control selectivity, resolve complex ionic mixtures and improve peak symmetry with the use of our LC reagents.

## By using the correct reagent you achieve:

- Increased or decreased retention, permitting controlled selectivity
- Resolution of complex ionic mixtures without using ion exchange columns
- Improved peak symmetry

## Reagent types:

- High purity pre-column derivatization reagents
- Hydrolysis reagents
- HPLC ion pair reagents
- Derivatization and visualization reagents
- Amino acid detection reagents
- Peptide standards

For more information, visit [thermofisher.com//LCreagents](https://thermofisher.com//LCreagents)

# HPLC Ion pair reagents

## Heptafluorobutyric acid

Ion-pair reagent for the reversed-phase HPLC separation of proteins and peptides

- Typical purity is 99.7% by GC; <0.1% water
- Sequencing reagent for classical and automated Edman degradation of peptides and proteins
- Density: 1.645
- B.P. 120°C
- Packaged under nitrogen in amber glass ampules or bottles
- Clear, colorless liquid

### Heptafluorobutyric acid

Description	Quantity	Cat. No.	Quantity
Heptafluorobutyric Acid, Sequencing Grade	100mL	X TS-25003	1 Each
Heptafluorobutyric Acid, HPLC Grade	10 x 1mL ampules	TS-53104	1 Pack

X in the ordering table indicates that hazardous shipping charges apply.

## Triethylamine (TEA)

Ideal for HPLC separation and analysis of peptides

Triethylamine is an ion-pairing reagent that alters selectivity in reversed-phase HPLC separations. By pairing with peptides, it effectively sharpens peaks, resulting in improved peak resolution.

- 99.5% triethylamine purity, allowing sensitive peptide detection at low UV wavelengths in reverse-phase HPLC peptide separation systems
- Packaged in amber glass bottles with protective PTFE-lined fluorocarbon caps for reagent integrity
- Has a low UV absorbance to provide the most sensitive detection across all wavelengths

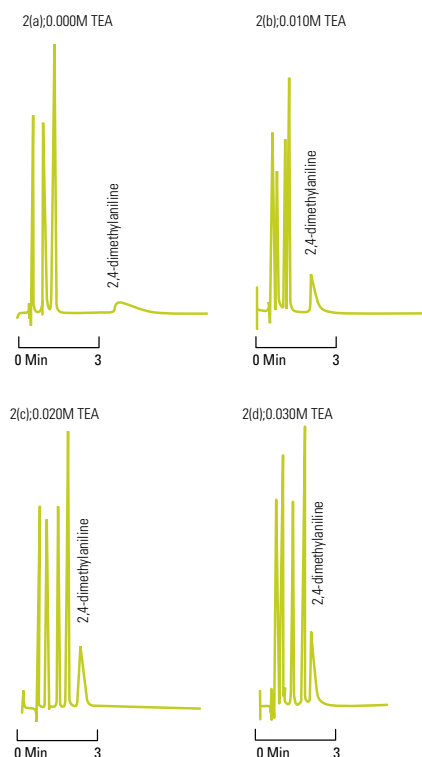
### Properties of triethylamine

- Alternate names TEA, Diethylethanamine
- Molecular formula  $C_6H_{15}N$
- Molecular weight 101.19g/mol
- Density 0.726g/mL

### Triethylamine (TEA)

Description	Quantity	Cat. No.	Quantity
Triethylamine, Sequencing Grade	100g	X TS-25108	1 Each

X in the ordering table indicates that hazardous shipping charges apply.



For more information, visit [thermofisher.com/LCreagents](https://thermofisher.com/LCreagents)

## Formic acid ampules

Well suited for HPLC and mass spectrometry applications

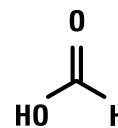
Formic acid is a component found in reverse-phase mobile phases to provide protons for LC-MS analysis. The presence of a low concentration of formic acid in the mobile phase is also known to improve the peak shapes of the resulting separation. Unlike trifluoroacetic acid (TFA), formic acid is not an ion-pairing reagent, and it does not suppress MS ionization of polypeptides when used as a mobile phase component.

- Prescored, nitrogen-flushed, amber glass to protect formic acid from light and moisture
- 99% purity for consistent LC baselines and no interference introduced into LC and mass spectrometry applications
- Convenient format simplifies preparation of gradient and isocratic mobile phases containing 0.1% (v/v) formic acid in water or acetonitrile
- Contents of a single vial in a final volume of 1L solvent yields a mobile phase of the most common formic acid concentration

### Formic acid ampules

Description	Quantity	Cat. No.	Quantity
Formic Acid 99+%	10 x 1mL ampules	TS-28905	1 Each

For complex peptide separations, the key to success can be to vary selectivity. Varying mobile phase composition on the same column can change selectivity enough to resolve peptides that would otherwise overlap. The TFA concentration is usually specified as 0.1% for reverse-phase HPLC of peptides. For reproducible separations from run-to-run or from lab-to-lab, it is essential to make concentrations the same.



**Formic Acid**  
MW 46.03



# Derivatization and visualization reagents for HPLC

## Trifluoroacetic acid (TFA)

Routinely used ion-pairing agent in reversed-phase peptide separations

- Purity: >99.5% TFA and exceptional clarity allows sensitive, non-destructive peptide detection at low UV wavelengths
- High-performance packaging: Packaged under nitrogen in amber glass with protective TFE-lined fluorocarbon caps to ensure TFA integrity
- Choice of formats for convenience: 1mL ampules can prepare 1L of 0.1% v/v TFA solution for the mobile phase in reversed-phase chromatography in moments

### Trifluoroacetic acid (TFA)

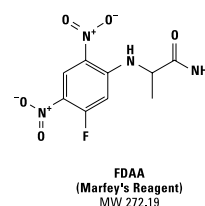
Description	Quantity	Cat. No.	Quantity
Trifluoroacetic Acid, Sequencing Grade	500mL	X TS-28901	1 Each
Trifluoroacetic Acid, Sequencing Grade	100g	X TS-28903	1 Each
Trifluoroacetic Acid, Sequencing Grade	10 × 1mL	X TS-28904	1 Pack
Trifluoroacetic Acid, Sequencing Grade	1g	X TS-28902	1 Each

X in the ordering table indicates that hazardous shipping charges apply.

## FDAA, Marfey's reagent

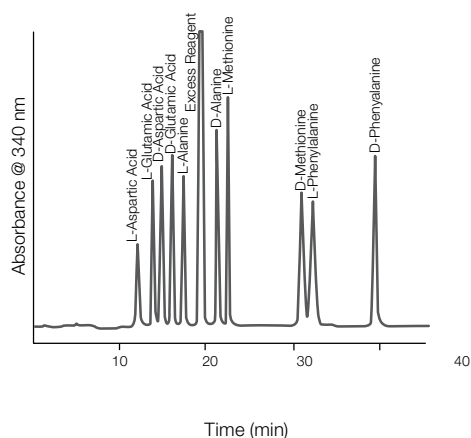
Makes separation and quantitation of optical isomers of amino acids by reversed-phase chromatography quick and easy

- Optical isomers of amino acids derivatization complete in just 90 minutes
- Derivatives have an absorption coefficient of  $\sim 3 \times 10^4$
- Derivatives can be detected by UV at 340nm with picomole sensitivity



### FDAA, marfey's reagent

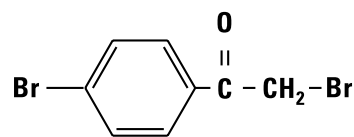
Description	Quantity	Cat. No.	Quantity
FDAA, Marfey's Reagent	50mg	TS-48895	1 Each



## p-Bromophenacylate reagent

Gives quantitative yields with few or no side reactions

- Premixing of phenacylbromide and crown ether is not necessary
- Derivatization is both rapid and quantitative, with yields of >95% in 15 to 20 minutes at 80°C
- Excess reactants do not interfere
- Large excess of alkylating reagent is not necessary
- Small amounts of water or alcohol do not interfere
- If isolation is desired, products are usually crystalline



**p-Bromophenacylate**  
MW 277.94

### p-bromophenacylate reagent

Description	Quantity	Cat. No.	Quantity
p-Bromophenacylate Reagent	10mL	TS-48891	1 Each

## TNBSA (Trinitrobenzene Sulfonic Acid)

An excellent choice for spectrophotometric detection

- Couples with primary amines, sulfhydryls and hydrazides in aqueous solution at pH 8, without undesirable side reactions
- Excellent for solution or solid phase analysis
- Suitable for qualitative and quantitative estimation of biomolecules; including amino acids, peptides or proteins
- Chromogenic,  $\lambda_{max} = 335\text{nm}$
- Colored derivatives are monitored at 345nm and have extinction coefficients in range of  $1-1.5 \times 10^4$

### TNBSA

Description	Quantity	Cat. No.	Quantity
TNBSA	100mL	X TS-28997	1 Each

X in the ordering table indicates that hazardous shipping charges apply.

## Hydrolysis reagents

### Constant Boiling (6N) Hydrochloric Acid

Sequencing-grade reagent for total protein hydrolysis

- Hydrolyzes peptides in 6 hours at 150°C
- Specially purified to give ninhydrin-negative blank on hydrolysis
- Packaged in prescored ampules to eliminate contamination and ensure product integrity

#### Constant boiling (6N) hydrochloric acid

Description	Quantity	Cat. No.	Quantity
Hydrochloric Acid 6N	10 × 1mL	TS-24308	1 Pack

### Amino Acid Standard H

High-purity calibration standard for protein hydrolysates

- Uses L-form configuration to permit standardization of microbial and other assays
- Molar concentration verified by conventional amino acid analysis methods
- With the exception of cystine, each amino acid is supplied at a concentration of 2.5µmoles/mL in 0.1N HCl

#### The following amino acids are included in amino acid standard H:

L-Alanine, Ammonia [(NH<sub>4</sub>)<sub>2</sub>SO<sub>4</sub>], L-Arginine, L-Aspartic Acid, L-Cystine, L-Glutamic Acid, Glycine, L-Histidine, L-Isoleucine, L-Leucine, L-Lysine•HCl, L-Methionine, L-Phenylalanine, L-Proline, L-Serine, L-Threonine, L-Tyrosine, L-Valine.

#### Amino acid standard H

Description	Quantity	Cat. No.	Quantity
Amino Acid Standard H	10 × 1mL	TS-20088	1 Pack

When kept frozen, an unopened vial has an indefinite storage life. Once the seal is broken, the reagent has a maximum storage life of six months. Store frozen between uses.

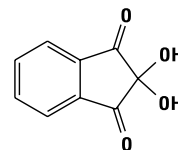
For more information, visit [thermofisher.com/LCreagents](https://www.thermofisher.com/LCreagents)

## Amino acid detection reagents

### Ninhydrin

The reagent of choice for detection of amino acids

- Used in amino acid chromatography
- Offers superb color response and low blank
- Indefinitely stable and requires no refrigeration



**Ninhydrin**  
MW 178.14

#### Ninhydrin

Description	Quantity	Cat. No.	Quantity
Ninhydrin	500g	TS-21003	1 Each

Indefinitely stable. No refrigeration required. Keep bottle tightly sealed. Avoid exposure to direct sunlight and ammonia.

## HPLC and spectrophotometric grade solvents

Ultrapure solvents are carefully packed for thorough protection

- Distilled in glass, filtered through 0.2µm TFE membranes and packed in solvent-rinsed, amber glass bottles
- TFE-lined screw caps seal bottles

#### Acetonitrile, HPLC grade, physical properties

- UV Cutoff: 190nm
- Optical Absorbance: <0.02 at 220nm
- Refractive Index at 25°C: 1.342

#### Water, HPLC grade, physical properties

- UV Cutoff: 190nm
- Optical Absorbance: <0.005 at 220nm
- Refractive Index at 25°C: 1.332

#### Dimethylformamide (DMF), sequencing grade, physical properties

- $\text{HCON}(\text{CH}_3)_2$
- Purity (GC): ≥99%
- MW: 73.09
- Density: 0.944
- B.P. 153°C
- Water: 0.1%

#### Dimethylsulfoxide (DMSO), sequencing grade, physical properties

- $\text{C}_2\text{H}_6\text{OS}$
- Purity (GC): >99.5%
- MW: 78.13
- Density: 1.101
- Water: ≤0.2%

#### Pyridine, physical properties

- $\text{C}_5\text{H}_5\text{N}$
- Purity (GC): ≥99%
- MW: 79.10
- Density: 0.978
- B.P. 115°C

#### HPLC and spectrophotometric grade solvents

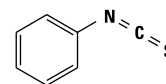
Description	Quantity	Cat. No.	Quantity
Acetonitrile	1L	X TS-51101	1 Each
Water	1L	TS-51140	1 Each
Dimethylformamide (DMF)	50mL	X TS-20673	1 Each
Dimethylsulfoxide (DMSO)	950mL	X TS-20688	1 Each
Pyridine	100g	X TS-25104	1 Each

X in the ordering table indicates that hazardous shipping charges apply.

## High-purity pre-column derivatization reagents

### PITC (Phenylisothiocyanate)

High-purity reagent for pre-column quantitative derivatization of amino acids by reversed-phase HPLC



**PITC**  
**Edman's Reagent**  
MW 135.19

- Also known as Edman's Reagent
- Reacts readily with amino acids in 5 to 10 minutes at room temperature
- Resulting phenylthiocarbamyl derivatives can be separated and quantified in 30 minutes using reverse-phase HPLC to produce stable products with all amino acids including proline

#### **PITC (Phenylisothiocyanate)**

Description	Quantity	Cat. No.	Quantity
PITC (Edman's Reagent)	10 × 1mL	TS-26922	1 Pack

For more information, visit [thermofisher.com/LCreagents](https://www.thermofisher.com/LCreagents)



# Preparative HPLC columns

Scale up to more options.

Columns in every format, media and size

For Prep LC columns, one size does not fit all. Whether you need unique chemistries for difficult separations, XtendedLife columns for longer use, or budget-friendly solutions for routine separations, we deliver. Our full range of column hardware offers robust performance and our wide variety of chemistries makes it easy to scale-up from your current analytical method.

## Expect reproducible results with sample prep, columns and vials

Preparative scale liquid chromatography is used for purification and isolation of molecules, which are of value in the pharmaceutical, biopharmaceutical and associated chemical industries. The production of highly pure compounds in these industries is increasingly important in terms of the chemical activity, toxicity and usefulness for screening in highly defined and costly experimental processes.

These processes start on an analytical scale with only a few micrograms of material (e.g., for enzymes in biopharmaceutical applications) or a few milligrams (e.g., for structural or identification of synthesized or natural products). Further along the process, gram quantities are usually required for standard and reference compounds or compounds targeted for pharmacology and toxicology testing.

Find out more at [thermofisher.com/PrepLC](https://www.thermofisher.com/PrepLC)



## Phase properties

Preparative HPLC columns are available in 40 chemistries\* for maximum flexibility and options to scale up analytical methods with chemistry continuity for easy method transfer.

Phase name	Phase properties
<b>Premium</b>	
Hypersil GOLD	Hypersil GOLD HPLC columns provide excellent peak shape for all analyte types
Hypersil GOLD C8	Hypersil GOLD C8 columns provide similar selectivity to C18 columns, but with reduced retention
Hypersil GOLD aQ	Hypersil GOLD aQ polar endcapped C18 columns are stable in 100% aqueous mobile phase and provide enhanced retention and resolution of polar analytes
Hypersil GOLD C4	Hypersil GOLD C4 columns provide similar selectivity to C18 and C8 columns, but with reduced retention
Hypersil GOLD Phenyl	Hypersil GOLD Phenyl columns offer excellent retention and unique selectivity for aromatic analytes
Hypercarb	Hypercarb columns have unique properties for retention and resolution of polar analytes and resolution of isomers
Synchronis C18	Synchronis C18 columns have highly pure, high surface area silica that is double end-capped for robust and high-resolution separations
Synchronis HILIC	Synchronis HILIC columns provide enhanced retention of polar and hydrophilic analytes that are problematic using reversed phase columns
Accucore XL C18	Thermo Scientific Accucore C18 solid-core particles provide optimal retention of a broad range of nonpolar analytes across multiple applications
Accucore XL C8	Accucore C8 solid-core particles provide optimal retention of analytes with moderate hydrophobicity
DNAPac RP	DNAPac RP is designed for analysis of oligonucleotides and double-stranded (ds) DNA/RNA fragments under a broad range pH, temperature, and mobile phase compositions
DNAPac PA200	DNAPac PA200 is a strong anion exchange resin for high-resolution analysis and purification of synthetic oligonucleotides
MABPac	MABPac columns separate closely-related monoclonal antibody variants for characterization and quality control assessment and offer the highest resolution and exceptionally high efficiency
ProPac	ProPac columns are for high resolution separation of therapeutic proteins, monoclonal antibodies, and associated charge variants; high efficiency with reproducible separations, high recovery with low carry-over
<b>Hypersil PREP</b>	
Hypersil PREP BDS C18	Hypersil PREP C18 BDS offers C18 retention with base deactivation for reduced silanol activity in analytical and preparative scale
Hypersil PREP BDS C8	Hypersil PREP C8 BDS offers selectivity similar to C18 BDS, but with reduced retention in analytical and preparative scale
Hypersil PREP ODS	Hypersil PREP ODS is a general purpose C18 used in a broad range of applications
Hypersil PREP BDS Si	Hypersil PREP Si BDS is a base deactivated Si for normal phase chromatography of nonpolar and moderately polar organic compounds
Hypersil PREP Si	Hypersil PREP Si is for normal phase chromatography of nonpolar and moderately polar organic compounds
Hypersil PREP BDS Phenyl	Hypersil PREP Phenyl BDS is a base-deactivated column with unique selectivity for aromatic and slightly polar compounds
<b>Hypersil PREP HS</b>	
Hypersil PREP HS C18	Hypersil PREP HS C18 phases offers high loading capacity and fully scalable from analytical to prep, suitable for all USP-L1 applications
Hypersil PREP HS C8	Hypersil PREP HS C8 High loading capacity and fully scalable from analytical to pprep, suitable for all USP-L1 applications
Hypersil PREP HS Si	Hypersil PREP HS Si is a pure silica chemistry with high loading capacity that is fully scalable from analytical to prep, suitable for all USP-L3 applications
Hypersil PREP HS Phenyl	Hypersil PREP HS phenyl chemistry with high loading capacity and fully scalable from analytical to prep, suitable for all USP-L11 applications
<b>Hypersil Chiral</b>	
Hypersil Chiral JT	Hypersil Chiral JT columns are a good starting point for method development of chiral separations
Hypersil Chiral AT	Hypersil Chiral AT columns are the highest generality of all chiral phases designed for separations of neutral, acidic and basic racemates in normal phase mode
Hypersil Chiral OT	Hypersil Chiral OT columns are designed for separations of neutral, acidic and basic racemates in normal phase mode

\*Displayed are our most requested phases for preparative HPLC columns. If there is a Thermo Scientific stationary phase you are currently using and would like to obtain it in preparative scale or would like to discuss a specific phase not listed above, please contact your local sales representative to discuss your requirements, including custom orders.

## Column hardware

Options based on column inner diameter (i.d.) and column performance needs:

### Standard threaded and standard flange hardware

- Expertly packed and robustly designed to balance cost and lifetime for routine use
- Made of high quality stainless steel for standard applications up to 200 mm i.d.
- Standard threaded hardware for column i.d. < 40 mm and standard flange hardware for column i.d. ≥ 40 mm
- Can be modified on request to be compatible with supercritical fluid chromatography (SFC)

### XtendedLife hardware

- Extends column lifetime by incorporating an internal Dynamic Axial Compression (DAC) system, ensuring the media bed is continuously packed tightly
- Compatible with SFC and is available in dimensions up to 50 mm i.d.



Column hardware examples:  
 1: Standard threaded hardware  
 2: Standard flange hardware  
 3: XtendedLife hardware

## Phase overview and details

Our wide range of stationary phases\* routinely available in analytical and preparative scale and in a variety of particle sizes that can be packed into our hardware options for maximum flexibility.

Phase name	Pore Size (Å)	Surface Area (m <sup>2</sup> /g)	Carbon Load (%)	USP code	pH Range
<b>Premium</b>					
Hypersil GOLD	175	220	10	L1	2 to 9
Hypersil GOLD C8	175	220	8	L7	2 to 9
Hypersil GOLD aQ	175	220	12	L1	2 to 9
Hypersil GOLD C4	175	220	5	L26	2 to 8
Hypersil GOLD Phenyl	175	220	8	L11	2 to 8
Hypercarb	250	120	100	L109	0 to 14
Syncronis C18	100	320	16	L1	2 to 9
Syncronis HILIC	100	320	5	None	2 to 8
Accucore XL C18	80	90	7	L1	2 to 9
Accucore XL C8	80	90	4	L7	2 to 9
DNAPac RP	Proprietary wide pore	N/A	N/A	None	0 to 14
DNAPac PA200	Nonporous	N/A	N/A	None	4 to 10
MAbPac	Nonporous	N/A	N/A	None	Dependent on chemistry
ProPac	Nonporous	N/A	N/A	None	Dependent on chemistry
<b>Hypersil PREP</b>					
Hypersil PREP BDS C18	145	185	11	L1	2 to 8
Hypersil PREP BDS C8	145	185	7	L7	2 to 8
Hypersil PREP ODS	130	195	10	L1	2 to 8
Hypersil PREP BDS Si	145	185	0	L3	2 to 7
Hypersil PREP Si	130	195	0	L3	2 to 7
Hypersil PREP BDS Phenyl	145	185	5	L11	2 to 8
<b>Hypersil PREP HS</b>					
Hypersil PREP HS C18	100	350	15	L1	2 to 9
Hypersil PREP HS C8	100	350	7	L7	2 to 8
Hypersil PREP HS Si	100	350	0	L3	2 to 7
Hypersil PREP HS Phenyl	100	350	9	L11	2 to 8
<b>Hypersil Chiral</b>					
Hypersil Chiral JT	1000	30	N/A	L80	N/A
Hypersil Chiral AT	1000	30	N/A	L51	N/A
Hypersil Chiral OT	1000	30	N/A	L40	N/A

\*Displayed are our most requested phases for preparative HPLC columns. If you are using a specific Thermo Scientific stationary phase and would like to obtain it in preparative scale or would like to discuss a specific phase not listed above, please contact your local sales representative to discuss your requirements, including custom orders.



# Premium prep columns

Particle size (µm)	Format	i.d. (mm)	Length (mm)	Hypersil GOLD	Hypersil GOLD C8	Hypersil GOLD aQ	Hypersil GOLD C4	Hypersil GOLD Phenyl	Hypercarb	Synchronis C18	Synchronis HILIC		
4	Standard	10	150										
5	Standard	7.8	100										
			10	50	25005-059070A					35005-059070A			
				100	25005-109070A		25305-109070A			35005-109070A			
				150	25005-159070A		25305-159070A			35005-159070A	97105-159070A		
		20	250	25005-259070A	25205-259070A	25305-259070A			25905-259070A	35005-259070A	97105-259070A		
			50	25005-059270A						35005-059270A			
			100	25005-109270A		25305-109270A	25505-109270A			35005-109270A			
			150	25005-159270A		25305-159270A				35005-159270A	97105-159270A		
			250	25005-259270A	25205-259270A	25305-259270A	25505-259270A			35005-259270A	97105-259270A	97505-259270A	
			22	250									
		30	100			25305-109370A				35005-109370A			
			150	25005-159370A		25305-159370A				35005-159370A	97105-159370A		
			250	25005-259370A		25305-259370A						97505-259370A	
		50	100			25305-109570A							
			150			25305-159570A							
			250			25305-259570A						97505-259570A	
		XtendedLife	10	250						25905-259070XL			
				25	50	25005-059270XL					35005-059270XL		
	100				25005-109270XL		25305-109270XL	25505-109270XL		35005-109270XL			
	150				25005-159270XL		25305-159270XL			35005-159270XL	97105-159270XL		
	30		250	25005-259270XL	25205-259270XL	25305-259270XL	25505-259270XL			35005-259270XL	97105-259270XL	97505-259270XL	
			100			25305-109370XL				35005-109370XL			
			150	25005-159370XL		25305-159370XL				35005-159370XL	97105-159370XL		
	50		250	25005-259370XL		25305-259370XL						97505-259370XL	
			100			25305-109570XL							
			150			25305-159570XL							
	Guard		8	10		25205-018823A	25305-018823A					97105-018823A	
				20		25205-028823A							
		20	10		25205-019023A	25305-019023A					97105-019023A	97505-019023A	
			20		25205-029023A	25305-029023A					97105-029023A	97505-029023A	
	22	50											
	Guard 1/16"	30	10			25305-019323A					97105-019323A	97505-019323A	
20					25305-029323A					97105-029323A	97505-029323A		
Guard 1/8"	30	10			25305-019323B					97105-019323B	97505-019323B		
		20			25305-029323B					97105-029323B	97505-029323B		
7	Standard	30	100						35007-109370A				
	XtendedLife	30	100						35007-109370XL				
	Guard	8	10						35007-018823A				
			20	10					35007-019023A				
	Guard 1/16"	30	10						35007-029023A				
			20						35007-019323A				
	Guard 1/8"	30	10						35007-029323A				
20								35007-019323B					
								35007-029323B					
8	Standard	22	250										
10	Standard	9	250										
		22	250										
12	Standard	10	250	25012-259070A									
			150	25012-159270A									
		30	250	25012-259270A									
			150	25012-159370A									
		50	250	25012-259370A									
			250	25012-259570A									
	XtendedLife	25	150	25012-159270XL									
			250	25012-259270XL									
		30	150	25012-159370XL									
			250	25012-259370XL									
		50	250	25012-259570XL									
	Guard	8	10	25012-018823A									
			20	10	25012-019023A								
	Guard 1/16"	30	10	25012-029023A									
			20	25012-019323A									
	Guard 1/8"	30	10	25012-019323B									
			20	25012-029323B									
13.5	Standard	9	50										
		22	50										
			250										



# Premium prep columns

Format	i.d. (mm)	Length (mm)	Hypersil PREP C18 BDS	Hypersil PREP C8 BDS	Hypersil PREP ODS	Hypersil PREP Si BDS	Hypersil PREP Si	Hypersil PREP Phenyl BDS	
Standard	2	50	40003-052130	40103-052130	40203-052130	40303-052130			
		100	40003-102130	40103-102130	40203-102130	40303-102130			
		150	40003-152130	40103-152130	40203-152130	40303-152130			
		250	40003-252130	40103-252130	40203-252130	40303-252130			
	4.6	50	40003-054630	40103-054630	40203-054630	40303-054630			
		100	40003-104630	40103-104630	40203-104630	40303-104630			
		150	40003-154630	40103-154630	40203-154630	40303-154630			
		250	40003-254630	40103-254630	40203-254630	40303-254630			
Standard	2	50	40005-052130	40105-052130	40205-052130	40305-052130	40405-052130	40505-052130	
		100	40005-102130	40105-102130	40205-102130	40305-102130	40405-102130	40505-102130	
		150	40005-152130	40105-152130	40205-152130	40305-152130	40405-152130	40505-152130	
		250	40005-252130	40105-252130	40205-252130	40305-252130	40405-252130	40505-252130	
	4.6	50	40005-054630	40105-054630	40205-054630	40305-054630	40405-054630	40505-054630	
		100	40005-104630	40105-104630	40205-104630	40305-104630	40405-104630	40505-104630	
		150	40005-154630	40105-154630	40205-154630	40305-154630	40405-154630	40505-154630	
		250	40005-254630	40105-254630	40205-254630	40305-254630	40405-254630	40505-254630	
	10	50	40005-059070A	40105-059070A	40205-059070A	40305-059070A	40405-059070A	40505-059070A	
		100	40005-109070A	40105-109070A	40205-109070A	40305-109070A	40405-109070A	40505-109070A	
		150	40005-159070A	40105-159070A	40205-159070A	40305-159070A	40405-159070A	40505-159070A	
		250	40005-259070A	40105-259070A	40205-259070A	40305-259070A	40405-259070A	40505-259070A	
	20	50	40005-059270A	40105-059270A	40205-059270A	40305-059270A	40405-059270A	40505-059270A	
		100	40005-109270A	40105-109270A	40205-109270A	40305-109270A	40405-109270A	40505-109270A	
		150	40005-159270A	40105-159270A	40205-159270A	40305-159270A	40405-159270A	40505-159270A	
		250	40005-259270A	40105-259270A	40205-259270A	40305-259270A	40405-259270A	40505-259270A	
	30	150	40005-159370A	40105-159370A	40205-159370A	40305-159370A	40405-159370A	40505-159370A	
		250	40005-259370A	40105-259370A	40205-259370A	40305-259370A	40405-259370A	40505-259370A	
	50	150	40005-159570A	40105-159570A	40205-159570A	40305-159570A	40405-159570A	40505-159570A	
		250	40005-259570A	40105-259570A	40205-259570A	40305-259570A	40405-259570A	40505-259570A	
	XtendedLife	25	50	40005-059270XL	40105-059270XL	40205-059270XL	40305-059270XL	40405-059270XL	40505-059270XL
			100	40005-109270XL	40105-109270XL	40205-109270XL	40305-109270XL	40405-109270XL	40505-109270XL
			150	40005-159270XL	40105-159270XL	40205-159270XL	40305-159270XL	40405-159270XL	40505-159270XL
			250	40005-259270XL	40105-259270XL	40205-259270XL	40305-259270XL	40405-259270XL	40505-259270XL
		30	150	40005-159370XL	40105-159370XL	40205-159370XL	40305-159370XL	40405-159370XL	40505-159370XL
			250	40005-259370XL	40105-259370XL	40205-259370XL	40305-259370XL	40405-259370XL	40505-259370XL
		50	150	40005-159570XL	40105-159570XL	40205-159570XL	40305-159570XL	40405-159570XL	40505-159570XL
			250	40005-259570XL	40105-259570XL	40205-259570XL	40305-259570XL	40405-259570XL	40505-259570XL
Guard		8	10					40405-018823A	40505-018823A
			20					40405-019023A	40505-019023A
			20					40405-029023A	40505-029023A
Guard 1/16"		30	10					40405-019323A	40505-019323A
	20						40405-029323A	40505-029323A	
Guard 1/8"	30	10					40405-019323B	40505-019323B	
		20					40405-029323B	40505-029323B	
Standard	10	50	40010-059070A	40110-059070A	40210-059070A	40310-059070A			
		100	40010-109070A	40110-109070A	40210-109070A	40310-109070A			
		150	40010-159070A	40110-159070A	40210-159070A	40310-159070A			
		250	40010-259070A	40110-259070A	40210-259070A	40310-259070A			
	20	50	40010-059270A	40110-059270A	40210-059270A	40310-059270A			
		100	40010-109270A	40110-109270A	40210-109270A	40310-109270A			
		150	40010-159270A	40110-159270A	40210-159270A	40310-159270A			
		250	40010-259270A	40110-259270A	40210-259270A	40310-259270A			
	30	150	40010-159370A	40110-159370A	40210-159370A	40310-159370A			
		250	40010-259370A	40110-259370A	40210-259370A	40310-259370A			
	50	150	40010-159570A	40110-159570A	40210-159570A	40310-159570A			
		250	40010-259570A	40110-259570A	40210-259570A	40310-259570A			
	XtendedLife	25	50	40010-059270XL	40110-059270XL	40210-059270XL	40310-059270XL		
			100	40010-109270XL	40110-109270XL	40210-109270XL	40310-109270XL		
			150	40010-159270XL	40110-159270XL	40210-159270XL	40310-159270XL		
			250	40010-259270XL	40110-259270XL	40210-259270XL	40310-259270XL		
30		150	40010-159370XL	40110-159370XL	40210-159370XL	40310-159370XL			
		250	40010-259370XL	40110-259370XL	40210-259370XL	40310-259370XL			
50		150	40010-159570XL	40110-159570XL	40210-159570XL	40310-159570XL			
		250	40010-259570XL	40110-259570XL	40210-259570XL	40310-259570XL			
Guard	8	10	40010-018823A	40110-018823A	40210-018823A	40310-018823A			
		20	40010-019023A	40110-019023A	40210-019023A	40310-019023A			
		20	40010-029023A	40110-029023A	40210-029023A	40310-029023A			
Guard 1/16"	30	10	40010-019323A	40110-019323A	40210-019323A	40310-019323A			
		20	40010-029323A	40110-029323A	40210-029323A	40310-029323A			
Guard 1/8"	30	10	40010-019323B	40110-019323B	40210-019323B	40310-019323B			
		20	40010-029323B	40110-029323B	40210-029323B	40310-029323B			

## Premium prep columns

Particle size (µm)	Format	i.d. (mm)	Length (mm)	Hypersil PREP C18 HS	Hypersil PREP C8 HS	Hypersil PREP Si HS	Hypersil PREP Phenyl HS	Hypersil PREP Phenyl BDS		
3	Standard	2	50	41003-052130	41103-052130					
			100	41003-102130	41103-102130					
			150	41003-152130	41103-152130					
			250	41003-252130	41103-252130					
		4.6	50	41003-054630	41103-054630					
			100	41003-104630	41103-104630					
			150	41003-154630	41103-154630					
			250	41003-254630	41103-254630					
5	Standard	2	50	41005-052130	41105-052130	41405-052130	41505-052130	40505-052130		
			100	41005-102130	41105-102130	41405-102130	41505-102130	40505-102130		
			150	41005-152130	41105-152130	41405-152130	41505-152130	40505-152130		
			250	41005-252130	41105-252130	41405-252130	41505-252130	40505-252130		
		4.6	50	41005-054630	41105-054630	41405-054630	41505-054630	40505-054630		
			100	41005-104630	41105-104630	41405-104630	41505-104630	40505-104630		
			150	41005-154630	41105-154630	41405-154630	41505-154630	40505-154630		
			250	41005-254630	41105-254630	41405-254630	41505-254630	40505-254630		
		10	50	41005-059070A	41105-059070A	41405-059070A	41505-059070A	40505-059070A		
			100	41005-109070A	41105-109070A	41405-109070A	41505-109070A	40505-109070A		
			150	41005-159070A	41105-159070A	41405-159070A	41505-159070A	40505-159070A		
			250	41005-259070A	41105-259070A	41405-259070A	41505-259070A	40505-259070A		
		20	50	41005-059270A	41105-059270A	41405-059270A	41505-059270A	40505-059270A		
			100	41005-109270A	41105-109270A	41405-109270A	41505-109270A	40505-109270A		
			150	41005-159270A	41105-159270A	41405-159270A	41505-159270A	40505-159270A		
			250	41005-259270A	41105-259270A	41405-259270A	41505-259270A	40505-259270A		
		30	150	41005-159370A	41105-159370A	41405-159370A	41505-159370A	40505-159370A		
			250	41005-259370A	41105-259370A	41405-259370A	41505-259370A	40505-259370A		
		50	150	41005-159570A	41105-159570A	41405-159570A	41505-159570A	40505-159570A		
			250	41005-259570A	41105-259570A	41405-259570A	41505-259570A	40505-259570A		
		XtendedLife	25	50	41005-059270XL	41105-059270XL	41405-059270XL	41505-059270XL	40505-059270XL	
				100	41005-109270XL	41105-109270XL	41405-109270XL	41505-109270XL	40505-109270XL	
				150	41005-159270XL	41105-159270XL	41405-159270XL	41505-159270XL	40505-159270XL	
				250	41005-259270XL	41105-259270XL	41405-259270XL	41505-259270XL	40505-259270XL	
			30	150	41005-159370XL	41105-159370XL	41405-159370XL	41505-159370XL	40505-159370XL	
				250	41005-259370XL	41105-259370XL	41405-259370XL	41505-259370XL	40505-259370XL	
			50	150	41005-159570XL	41105-159570XL	41405-159570XL	41505-159570XL	40505-159570XL	
				250	41005-259570XL	41105-259570XL	41405-259570XL	41505-259570XL	40505-259570XL	
		Guard	8	10			41405-018823A	41505-018823A	40505-018823A	
				20			41405-019023A	41505-019023A	40505-019023A	
				20			41405-029023A	41505-029023A	40505-029023A	
		Guard 1/16"	30	10			41405-019323A	41505-019323A	40505-019323A	
				20			41405-029323A	41505-029323A	40505-029323A	
		Guard 1/8"	30	10			41405-019323B	41505-019323B	40505-019323B	
				20			41405-029323B	41505-029323B	40505-029323B	
		10	Standard	10	50	41010-059070A	41110-059070A			
					100	41010-109070A	41110-109070A			
					150	41010-159070A	41110-159070A			
					250	41010-259070A	41110-259070A			
				20	50	41010-059270A	41110-059270A			
100	41010-109270A				41110-109270A					
150	41010-159270A				41110-159270A					
250	41010-259270A				41110-259270A					
30	150			41010-159370A	41110-159370A					
	250			41010-259370A	41110-259370A					
50	150			41010-159570A	41110-159570A					
	250			41010-259570A	41110-259570A					
XtendedLife	25			50	41010-059270XL	41110-059270XL				
				100	41010-109270XL	41110-109270XL				
				150	41010-159270XL	41110-159270XL				
				250	41010-259270XL	41110-259270XL				
	30			150	41010-159370XL	41110-159370XL				
				250	41010-259370XL	41110-259370XL				
	50			150	41010-159570XL	41110-159570XL				
				250	41010-259570XL	41110-259570XL				
Guard	8			10	41010-018823A	41110-018823A				
				20	41010-019023A	41110-019023A				
				20	41010-029023A	41110-029023A				
Guard 1/16"	30			10	41010-019323A	41110-019323A				
				20	41010-029323A	41110-029323A				
Guard 1/8"	30			10	41010-019323B	41110-019323B				
				20	41010-029323B	41110-029323B				

## Chiral columns

Particle size (µm)	Format	i.d. (mm)	Length (mm)	Hypersil Chiral JT	Hypersil Chiral AT	Hypersil Chiral OT	Kit of Three Columns (one in each phase)
3	Standard	4.6	50		42103-054630	42003-054630	
			100	42203-104630	42103-104630	42003-104630	Chiral KIT 3UM 100
			150	42203-154630	42103-154630	42003-154630	Chiral KIT 3UM 150
			250	42203-254630	42103-254630	42003-254630	Chiral KIT 3UM 250
5	Standard	4.6	100	42205-104630	42105-104630	42005-104630	Chiral KIT 5UM 100
			150	42205-154630	42105-154630	42005-154630	Chiral KIT 5UM 150
			250	42205-254630	42105-254630	42005-254630	Chiral KIT 5UM 250
		10	250	42205-259070A	42105-259070A	42005-259070A	
		20	250		42105-259270A	42005-259270A	
10	Standard	4.6	100	42210-104630	42110-104630	42010-104630	Chiral KIT 10UM 100
			150	42210-154630	42110-154630	42010-154630	Chiral KIT 10UM 150
			250	42210-254630	42110-254630	42010-254630	Chiral KIT 10UM 250
		10	250	42210-259070A	42110-259070A	42010-259070A	
		20	250		42110-259270A	42010-259270A	

## Guard holders

Format	i.d. (mm)	Length (mm)	Guard Holder	Guard Holder 1/16"	Guard Holder 1/8"
Stand-alone	10	8	885-010		
	20	10	887-020		
		20	889-020		
	30	10		887-030	887-031
		20		891-030	891-031



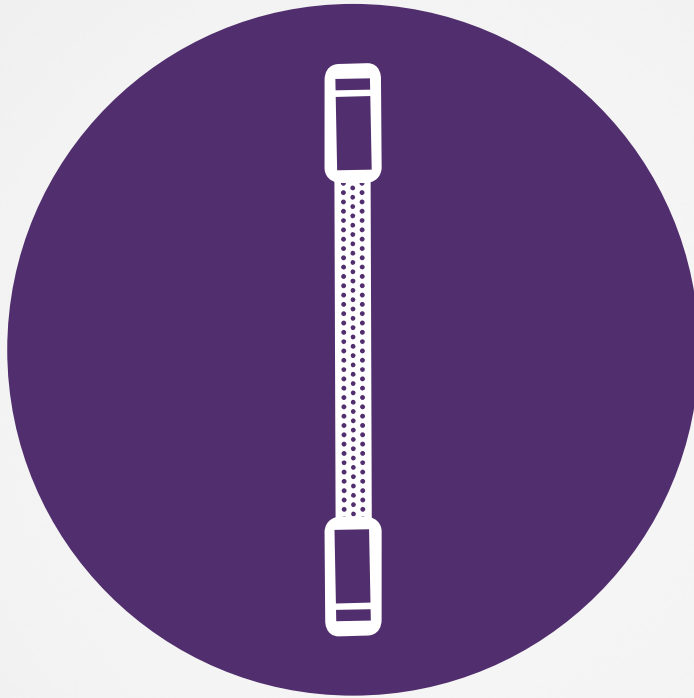
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