Astec Amino and Reversed-Phase Columns

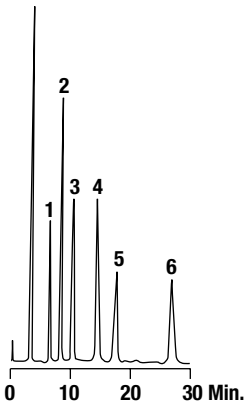
- Durable vinyl alcohol copolymer
- Stable from pH 2–13
- Stable and reproducible performance

Choose Astec amino columns for separating mono- and oligosaccharides. Astec's polymer base makes these columns much more stable than silica-based amino columns.

Choose Astec reversed-phase columns for amines and high recoveries of proteins and peptides. Because there are no silanols, elution order is always based on hydrophobicity of the analytes rather than polar interactions with the base material. High recovery of proteins and peptides is typical even at low sample loads.

Mono-, Di-, and Trisaccharides

CHROM 9103



1. Rhamnose
2. Fructose
3. Glucose
4. Sucrose
5. Maltose
6. Raffinose

Column: Astec Amino, 5µm, 4.6 x 250mm (Part No. **16012**)
Mobile Phase: Acetonitrile:Water (75:25)
Flow Rate: 1.0mL/min
Detector: RI

Astec Amino and Reversed-Phase 300Å Columns

Packing	Format	i.d. x Length	Part No.
C18, 5µm	Analytical	4.6 x 150mm	**16004**
	Analytical	4.6 x 250mm	**16005**
C8, 5µm	Analytical	4.6 x 150mm	**16006**
	Analytical	4.6 x 250mm	**16007**
C4, 5µm	Analytical	4.6 x 150mm	**16008**
Amino, 5µm	Analytical	4.6 x 250mm	**16012**

Astec Amino and Reversed-Phase Guard Columns

Packing	i.d. x Length	Qty.	Part No.
C18, 5µm	4.6 x 10mm	ea	**28180**
C8, 5µm	4.6 x 10mm	ea	**28181**
Amino, 5µm	4.6 x 10mm	ea	**28187**

Astec Cyclobond™ Columns

For Chiral Separations

- Versatile chiral selectors
- High-purity 5µm spherical silica

Cyclodextrin Phases	
Designation	**Substituent**
I 2000	β-Cyclodextrin
I 2000 Ac	β-Cyclodextrin Acetylate
I 2000 RSP	β-Cyclodextrin R,S-Hydroxypropyl Ether

Cyclobond™ I 2000 has the broadest applicability, and is ideal for small analytes in pharmaceutical, chemical, and environmental applications.

Cyclobond™ 1 2000 Ac is ideal for aromatic alcohols or amines that are chiral on the alpha or beta carbon.

Cyclobond™ I 2000 RSP is a general-purpose chiral stationary phase. It can separate non-aromatic structures such as t-boc amino acids.

Astec Cyclobond™ Columns

Packing	Format	i.d. x Length	Part No.
I 2000, 5µm	Analytical	4.6 x 100mm	**400101**
	Analytical	4.6 x 250mm	**410101**
I 2000 Ac, 5µm	Analytical	4.6 x 250mm	**410121**
I 2000 RSP, 5µm	Analytical	4.6 x 250mm	**411121**

Astec Cyclobond™ Guard Cartridges*

Packing,	i.d. x Length	Qty.	Part No.
I 2000, 5µm	4.0 x 20mm	ea	**430102**
I 2000 RSP, 5µm	4.0 x 20mm	ea	**430105**
Astec Guard Cartridge Holder		ea	**11014**

*Guard holder required.

Astec Chirobiotic™ HPLC Columns

For Multi-Mode Chiral Separations

- Bonded macrocyclic glycopeptide phases
- Three complimentary selectivities
- High-purity 5µm spherical silica

Chirobiotic™ columns demonstrate a broad selectivity in reversed phase, normal phase, and polar organic modes. This gives Chirobiotic™ columns the ability to separate a greater variety of chiral analytes than columns that can only operate in one mode.

Chirobiotic™ V

Chirobiotic™ V Specifications	
Ligand:	Vancomycin
Ideal For:	Neutral molecules, amides, acids, esters, cyclic amines

Chirobiotic™ V has a selectivity similar to glycoprotein phases while also being stable from 0–100% organic modifiers. New Chirobiotic™ V2 has enhanced selectivity and capacity in the polar organic mode, and increased capacity.

Chirobiotic™ T

Chirobiotic™ T Specifications	
Ligand:	Teicoplanin
Ideal For:	Underivatized amino acids, n-derivatized amino acids, carboxylic acids, phenols, neutral aromatics, cyclic aromatics with aliphatic amines

Chirobiotic™ T is an excellent alternative to crown ether and ligand exchange for amino acids and hydroxy acids. New Chirobiotic™ T2 has enhanced selectivity and capacity in the polar organic mode.

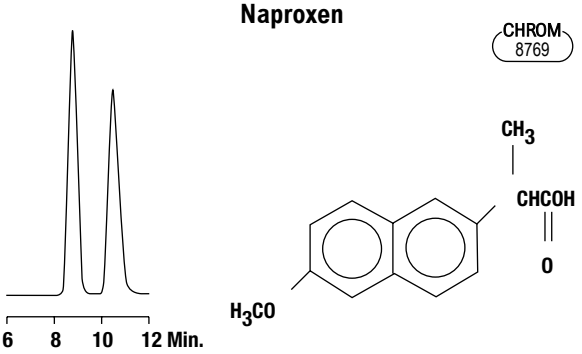
Chirobiotic™ R

Chirobiotic™ R Specifications	
Ligand:	Ristocetin A
Ideal For:	Anionic molecules, di- and tri-peptides, α-hydroxy acids, substituted aliphatic acids, aromatic esters, chiral alcohols, secondary and tertiary amines

Chirobiotic™ R is the largest and most complex of the Chirobiotic™ ligands. Sugar moieties, a peptide chain, and additional ionizable groups give this structure the complexity and diversity to separate a wide variety of analytes.

Naproxen

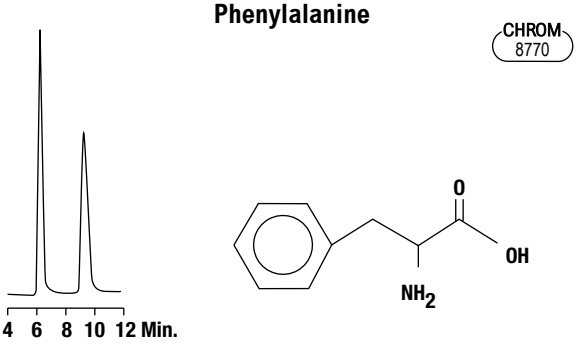
CHROM 8769



Column: Chirobiotic™ V, 4.6 x 250mm (Part No. **11024**)
Mobile Phase: THF:0.1% Triethylammonium Acetate, pH 7 (10:90)
Flow Rate: 1.0mL/min
Detector: UV at 254nm

Phenylalanine

CHROM 8770



Column: Chirobiotic™ T, 4.6 x 250mm (Part No. **12053**)
Mobile Phase: Ethanol:Water (80:20)
Flow Rate: 1.0mL/min
Detector: UV at 210nm

Astec Chirobiotic™ Columns

Packing	Format	i.d. x Length	Part No.
Chirobiotic™ V	Analytical	4.6 x 50mm	**11346**
	Analytical	4.6 x 150mm	**11023**
	Analytical	4.6 x 250mm	**11024**
Chirobiotic™ V2	Analytical	4.6 x 100mm	**A15022**
	Analytical	4.6 x 150mm	**A15023**
	Analytical	4.6 x 250mm	**A15024**
Chirobiotic™ T	Analytical	4.6 x 50mm	**11349**
	Analytical	4.6 x 150mm	**12051**
	Analytical	4.6 x 250mm	**12053**
Chirobiotic™ T2	Analytical	4.6 x 100mm	**A16022**
	Analytical	4.6 x 150mm	**A16023**
	Analytical	4.6 x 250mm	**A16024**
Chirobiotic™ R	Analytical	4.6 x 150mm	**12516**

Astec Chirobiotic™ Guard Cartridges*

Packing	i.d. x Length	Qty.	Part No.
Chirobiotic™ V, 5µm	4.0 x 20mm	ea	**11019**
Chirobiotic™ T, 5µm	4.0 x 20mm	ea	**12445**
Astec Guard Cartridge Holder		ea	**11014**

*Guard holder required.

Brownlee™ Columns

Economical MPLC™ Cartridge System with Reusable Hardware

- Finger-tight modular design
- Reusable end assemblies with interchangeable holders
- Guards fit conventional columns or MPLC™ hardware

The Brownlee™ MPLC™ Cartridge system is convenient and easy to use. Decide which column length you prefer, and purchase the hardware and the disposable packed cartridges separately.

Cartridge Hardware

Brownlee™ MPLC™ Cartridge Hardware

Photo	Description	Part No.
MPLC™ Cartridge Holders		
 5424	30mm	**140200**
 0647A	100mm	**140230**
	220mm	**140400**
MPLC™ Cartridge Accessories		
 0647B	MPLC™ Cartridge Union	**140300**
 0647C	MPLC™ Cartridge End Assembly	**1402501**
MPLC™ Cartridge Holder Bodies		
	30mm	**140203**
 0647D	100mm	**140003**
	220mm	**140403**

Brownlee™ MPLC™ Cartridge Hardware Seals

Description	Part No.
Analytical Holder Seal Replacement Kit Includes Tool and 2 Seals	**140260**
Analytical Seals, 2/pk Seal Replacement Tool Required	**140216**

NewGuard™ System

Brownlee™ MPLC™ NewGuard™ Hardware

Photo	Description	Part No.
 0647E	NewGuard™ Cartridge Holders NewGuard™ Holder for use with Conventional Columns	**140601**
 0647F	220mm NewGuard™ System Holder for Direct Coupling of 220mm Analytical Cartridge with a NewGuard™ Cartridge	**140410**
 0647G	NewGuard™ End Assembly	**140600**

Brownlee™ NewGuard™ Cartridges*

Description	Qty.	Part No.
RP-18	3	**141004**
RP-8	3	**141003**
Cyano	3	**141008**
Amino	3	**141007**
Anion (AX-300)	3	**141009**

*NewGuard™ cartridge holder required (Part No. **140601**).

Spheri-5™ and Spheri-10™ Cartridges

- Rugged and reproducible
- Use with MPLC™ cartridge hardware
- 80Å, spherical silica

RP-18 and RP-8 phases are monomeric for optimum mass transfer kinetics and high efficiency. The ODS phase is polymeric and more suitable for acidic mobile phases.

Brownlee™ Spheri-5™ Cartridges*

Packing	i.d. x Length	Qty.	Part No.
ODS (C18), 5µm	4.6 x 30mm	2	**141060**
	4.6 x 100mm	ea	**141062**
	4.6 x 220mm	ea	**141064**
RP-18, 5µm	2.1 x 30mm	2	**141052**
	2.1 x 100mm	ea	**141054**
	4.6 x 100mm	ea	**141053**
	4.6 x 220mm	ea	**1410551**
RP-8, 5µm	4.6 x 30mm	2	**141027**
	4.6 x 100mm	ea	**141029**
	4.6 x 220mm	ea	**141031**
Amino, 5µm	4.6 x 30mm	2	**141177**
	4.6 x 100mm	ea	**141179**
Silica, 5µm	4.6 x 30mm	2	**141193**

*Brownlee™ MPLC™ cartridge holder required.

Brownlee™ Spheri-10™ Cartridges*

Packing	i.d. x Length	Qty.	Part No.
RP-18, 10µm	4.6 x 30mm	2	**141043**
RP-8, 10µm	4.6 x 30mm	2	**141020**
	4.6 x 100mm	ea	**141022**

*Brownlee™ MPLC™ cartridge holder required.

Jordi Columns

Normal- and Reversed-Phase

- **Rugged**—use at high temperatures, from pH 0–14, with any solvent
- **Silanol Free**—analyze polar compounds without silanol effects

Jordi normal-phase and reversed-phase columns are made from highly pure 5µm DVB, for extremely durable and efficient phases.

Jordi Specifications

Phase	Particle Size	Pore Size	Description
RP-DVB	5µm	500Å, 1000Å	Reversed-phase, not bonded
C18-DVB	5µm	500Å	Reversed-phase, C18 bonded
Polyamine-DVB	5µm	500Å	Normal-phase

RP-DVB

RP-DVB is a reversed-phase non-polar packing with a high degree of aromatic character. SM-500, with a 500Å pore, is recommended for most applications. LM-1000, with a 1000Å pore, is ideal for molecules 100,000 Daltons or larger.

C18-DVB

C18-DVB has C18 chains bonded to the DVB base. These columns are more hydrophobic than traditional C18 columns and have different selectivities due to the absence of silanols.

Polyamine-DVB

Polyamine-DVB is a normal-phase column for simple sugar and polysaccharide applications. The DVB-based packing provides a non-reactive amine surface that lasts longer and equilibrates faster than traditional silica-based amine columns. Polyamine-DVB columns can be used with aqueous mobile phases, even 1M NaOH. Ideal for carbohydrate analyses requiring sharp peaks and short run times.

Jordi HPLC Columns

Packing	Format	i.d. x Length	Part No.
RP-DVB (LM-1000Å), 5µm	Analytical	4.6 x 250mm	**1005585**
C18-DVB (500Å), 5µm	Analytical	4.6 x 150mm	**18500**
	Analytical	4.6 x 250mm	**18501**

Jordi All-Guard™ Cartridges*

Packing	i.d. x Length	Qty.	Part No.
RP-DVB (SM-500Å), 5µm	4.6 x 7.5mm	3	**1005595**
C18-DVB (500Å), 5µm	4.6 x 7.5mm	3	**1005601**
All-Guard™ Cartridge Holder (Includes Direct-Connect Column Coupler)		ea	**80101**

*All-Guard™ holder required. Other particle sizes available.

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related product

Looking for column heaters?

See pages 16 and 17.

GPC Columns

Organic GPC

- **Rugged**—highly crosslinked DVB for broad temperature stability and solvent compatibility
- **Powerful**—high pore volume for greater resolution from a single column

Jordi Organic and Aqueous GPC Specifications

Pore Size	Pressure Limit	MW Range (Daltons)
100Å	8000psig	100–5000
500Å	8000psig	100–10,000
103Å	8000psig	100–25,000
104Å	2000psig	100–2,000,000
105Å	2000psig	10,000–10,000,000
Mixed Bed	2000psig	100–>10,000,000

Jordi HPLC columns, offer unparalleled resistance to shrinking and swelling, as well as better temperature and solvent compatibility than traditional ps-DVB phases.

The high pore volume speeds up your analyses. A single 10 x 500mm Jordi column replaces three 7.8 x 300mm ps-DVB columns and separates the same sample in 40% less time.

Aqueous GPC

Glucose-DVB packings are rugged, hydrophilic packings for separating polar compounds. Glucose units are bonded to the DVB base to yield a hydrophilic surface. Glucose-DVB columns equilibrate faster than silica-based columns.

Jordi Organic GPC Columns*

Pore Size	Format	i.d. x Length	Part. No.
100Å, 5µm	Semi Prep	7.8 x 300mm	**10510**
	Prep	10 x 250mm	**100561**
500Å, 5µm	Prep	10 x 250mm	**100565**
	Prep	10 x 500mm	**100567**
103Å, 5µm	Prep	10 x 250mm	**100569**
104Å, 5µm	Semi Prep	7.8 x 300mm	**10513**
	Prep	10 x 250mm	**100573**
105Å, 5µm	Prep	10 x 250mm	**100577**
Mixed-Bed Linear, 5µm	Semi Prep	7.8 x 300mm	**10515**
	Prep	10 x 250mm	**100581**
	Prep	10 x 500mm	**100583**

*Jordi GPC columns are constructed from Type 316 stainless steel. All tubing connections are 1/16" female. Columns are shipped in Chloroform unless otherwise requested when placing order.

Jordi Aqueous GPC Columns

Pore Size	Format	i.d. x Length	Part No.
100Å, 5µm	Semi Prep	7.8 x 300mm	**10517**
	Prep	10 x 250mm	**100761**
500Å, 5µm	Prep	10 x 250mm	**100765**
103Å, 5µm	Prep	10 x 250mm	**100769**
104Å, 5µm	Semi Prep	7.8 x 300mm	**10520**
	Prep	10 x 250mm	**100773**
105Å, 5µm	Prep	10 x 250mm	**100777**
Mixed-Bed Linear, 5µm	Semi Prep	7.8 x 300mm	**10522**
	Prep	10 x 250mm	**100781**
	Prep	10 x 500mm	**100783**

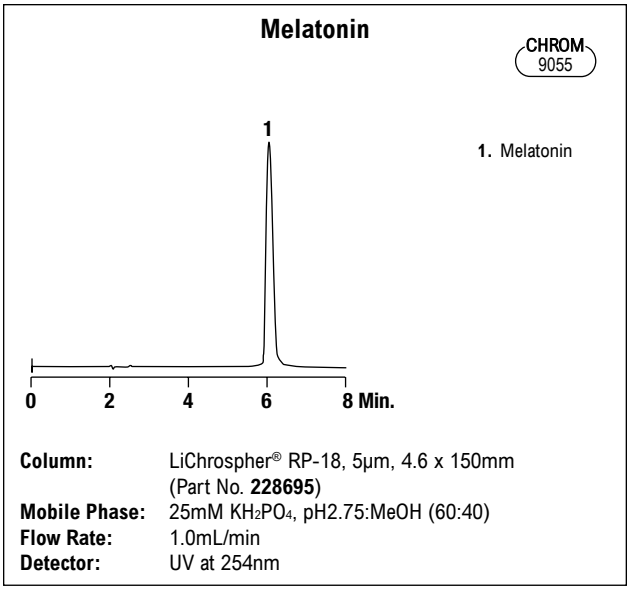
Merck LiChrosorb® and LiChrospher® Columns

- LiChrosorb®—irregular silica for larger surface areas
- LiChrospher®—spherical silica for higher stability and reproducibility

All Merck columns are packed by Grace to our highest QC standards. Custom columns are available.

LiChrosorb® HPLC Columns

Packing	Format	i.d. x Length	Part No.
RP-18, 5µm	Solvent Reducer	3.0 x 250mm	**38514**
	Analytical	4.6 x 250mm	**8684**
RP Select B, 5µm	Analytical	4.6 x 250mm	**228685**
RP-8, 5µm	Solvent Reducer	3.0 x 250mm	**38516**
	Analytical	4.6 x 250mm	**8692**
Si-100, 10µm	Analytical	4.6 x 250mm	**8720**



LiChrospher® HPLC Columns

Packing	Format	i.d. x Length	Part No.
RP-18, 5µm	Analytical	4.6 x 150mm	**228695**
	Analytical	4.6 x 250mm	**228673**
RP-18 EC, 3µm	Analytical	4.6 x 150mm	**228686**
RP-18 EC, 5µm	Analytical	4.6 x 150mm	**228694**
	Analytical	4.6 x 250mm	**228672**
RP-8, 5µm	Analytical	4.6 x 150mm	**228696**
	Analytical	4.6 x 250mm	**228675**
RP-8 EC , 5µm	Analytical	4.6 x 250mm	**228678**
RP-Select B, 5µm	Analytical	4.6 x 150mm	**228611**
	Analytical	4.6 x 250mm	**228613**
Amino, 5µm	Analytical	4.6 x 250mm	**228670**
Si-60, 5µm	Analytical	4.6 x 150mm	**228699**
	Analytical	4.6 x 250mm	**228683**

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Alltech® All-Guard™ System—change cartridges in seconds without tools.

LiChrosorb® All-Guard™ Cartridges*

Packing	i.d. x Length	Qty.	Part No.
RP-18, 5µm	4.6 x 7.5mm	3	**96171**
RP-Select B, 5µm	4.6 x 7.5mm	3	**96181**
RP-8, 5µm	4.6 x 7.5mm	3	**96173**
All-Guard™ Cartridge Holder (Includes Direct-Connect™ Column Coupler)		ea	**80101**

*All-Guard™ holder required. Other particle sizes available.

LiChrospher® All-Guard™ Cartridges*

Packing	i.d. x Length	Qty.	Part No.
RP-18, 5µm	4.6 x 7.5mm	3	**96185**
RP-18 Endcapped, 5µm	4.6 x 7.5mm	3	**96183**
RP-8, 5µm	4.6 x 7.5mm	3	**96189**
RP-8 Endcapped, 5µm	4.6 x 7.5mm	3	**96187**
RP Select B, 5µm	4.6 x 7.5mm	3	**96425**
Amino, 5µm	4.6 x 7.5mm	3	**96191**
All-Guard™ Cartridge Holder (Includes Direct-Connect™ Column Coupler)		ea	**80101**

*All-Guard™ holder required. Other particle sizes available.

Macherey-Nagel Nucleosil® Columns

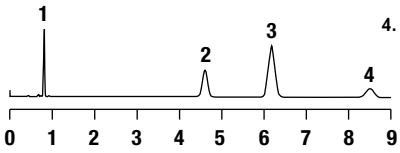
- 100Å, high-purity silica
- Narrow particle size distribution
- A choice of phases for any application

All Nucleosil® columns are packed by Grace to our highest QC standards.

C18 AB is polymerically bonded specifically for reversed-phase chromatography of acidic and basic compounds. It has a 25% carbon load for strong retention.

SRM 869

CHROM 9320

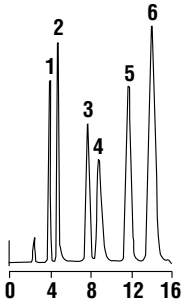


1. Acetone
2. Phenanthroanthrene
3. 1,2:3,4:5,6:7, 8-Tetrabenzonaphthalene
4. Benzo[a]pyrene

Column: Nucleosil® C18 AB, 5µm, 4.6 x 150mm (Part No. **11652**)
Mobile Phase: (85:15) Acetonitrile:Water
Flow Rate: 2.0mL/min
Detector: UV at 254nm
Column Temp: 25°C

Opium Alkaloids

CHROM 5243



1. Morphine
2. Codeine
3. Cryptopine
4. Thebaine
5. Narcotine
6. Papaverine

Column: Nucleosil® CN, 10µm, 4.6 x 250mm (Part No. **89281**)
Mobile Phase: 80% 15mM Ammonium Acetate pH 5.8 10% Acetonitrile 10% Dioxane
Flow Rate: 1.5mL/min
Detector: UV at 210nm
Column Temp: Ambient

more applications

To view our complete searchable chromatogram database visit www.discoverysciences.com/chromdb/

Nucleosil® HPLC Columns

Packing	Format	i.d. x Length	Part No.	Waters® Fittings Part No.
C18, 3µm	Analytical	4.6 x 100mm	**89531**	**—**
	Analytical	4.6 x 150mm	**89511**	**89512**
C18, 5µm	Analytical	4.6 x 150mm	**89161**	**89162**
	Analytical	4.6 x 250mm	**89141**	**89142**
C18, 10µm	Analytical	4.6 x 250mm	**89121**	**89122**
C18 AB, 5µm	Analytical	4.6 x 150mm	**11652**	**—**
	Analytical	4.6 x 250mm	**11657**	**—**
C8, 5µm	Analytical	4.6 x 150mm	**89221**	**89222**
	Analytical	4.6 x 250mm	**89201**	**—**
C8, 10µm	Analytical	4.6 x 250mm	**—**	**89182**
Cyano, 5µm	Analytical	4.6 x 250mm	**89301**	**—**
Cyano, 10µm	Analytical	4.6 x 250mm	**89281**	**—**
Amino, 5µm	Analytical	4.6 x 150mm	**89381**	**—**
	Analytical	4.6 x 250mm	**89361**	**—**
Amino, 10µm	Analytical	4.6 x 250mm	**89341**	**—**
Silica, 5µm	Analytical	4.6 x 250mm	**89421**	**89422**
SA, 5µm	Analytical	4.6 x 150mm	**228498**	**228504**
	Analytical	4.6 x 250mm	**228497**	**—**
SA, 10µm	Analytical	4.6 x 250mm	**228496**	**—**
SB, 5µm	Analytical	4.6 x 150mm	**228501**	**228507**
	Analytical	4.6 x 250mm	**—**	**228506**
SB, 10µm	Analytical	4.6 x 250mm	**—**	**228505**

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Alltech® All-Guard™ System—change cartridges in seconds without tools.

Nucleosil® All-Guard™ Cartridges*

Packing	i.d. x Length	Qty.	Part No.
C18, 5µm	4.6 x 7.5mm	3	**96210**
C8, 5µm	4.6 x 7.5mm	3	**96211**
Cyano, 5µm	4.6 x 7.5mm	3	**96213**
Amino, 5µm	4.6 x 7.5mm	3	**96212**
Silica, 5µm	4.6 x 7.5mm	3	**96215**
SB, 5µm	4.6 x 7.5mm	3	**89345**
All-Guard™ Cartridge Holder (Includes Direct-Connect Column Coupler)		ea	**80101**

*All-Guard™ holder required. Other particle sizes available.

more info

For more HPLC Applications, see pages 395–453.

Whatman Partisil™ Columns

All Whatman Partisil™ columns are packed by Grace to our highest QC standards. Partisil® columns use 85Å, irregular silica with a surface area of 350m^2/g.

Partisil™ PAC is a polar amino cyano phase with secondary amino groups for thermal and chemical stability. It separates primarily by reversed-phase or weak anion exchange.

Partisil™ HPLC Columns

Packing	Format	i.d. x Length	Part No.	Waters® Fittings Part No.
ODS, 10µm	Analytical	4.6 x 250mm	**8246**	**8247**
ODS-2, 5µm	Analytical	4.6 x 250mm	**12571**	**—**
ODS-2, 10µm	Analytical	4.6 x 250mm	**8251**	**—**
ODS-3, 5µm	Analytical	4.6 x 250mm	**8660**	**8662**
ODS-3, 10µm	Analytical	4.6 x 250mm	**8256**	**—**
PAC, 5µm	Analytical	4.6 x 250mm	**8676**	**—**
Silica, 5µm	Analytical	4.6 x 250mm	**8266**	**—**
SAX, 10µm	Analytical	4.6 x 250mm	**8165**	**8167**
SCX, 10µm	Analytical	4.6 x 250mm	**8173**	**8175**

Partisil™ All-Guard™ Cartridges*

Packing	i.d. x Length	Qty.	Part No.
ODS, 5µm	4.6 x 7.5mm	3	**96252**
ODS-3, 5µm	4.6 x 7.5mm	3	**96254**
SAX, 5µm	4.6 x 7.5mm	3	**96259**
SCX, 5µm	4.6 x 7.5mm	3	**96258**
All-Guard™ Cartridge Holder (Includes Direct-Connect Column Coupler)		ea	**80101**

*All-Guard™ holder required. Other particle sizes available.

technical assistance

Contact Tech Support: Phone: 1.800.255.8324 (North America)
Email: contact.alltech@grace.com
Online: www.discoverysciences.com

Polymer Labs Columns

Outstanding Durability and Stability

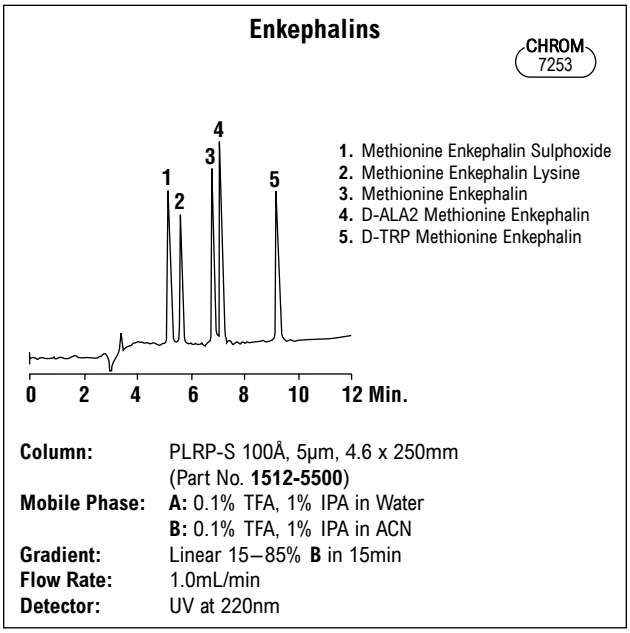
- Ideal for elevated temperature and pressure applications
- Stable from pH 1–13

PLRP-S is a polystyrene divinylbenzene copolymer designed specifically for reversed-phase HPLC. PLRP-S columns are extremely stable, performing over a wide pH range and at elevated temperatures and pressures.

PLRP-S Choice of Pore Sizes:

- 100Å for small molecules, peptides, and nucleotides
- 300Å for polypeptides and globular proteins
- 1000Å for fibrous proteins
- 4000Å for the analysis of very large biomolecules or high-speed/high-resolution separations

PLRP-S HPLC Specifications	
Base Material	**Polystyrene Divinylbenzene**
Organic Modifier	0 to 100%
Particle Size	3, 5, 8, 10µm
Pore Size	100, 300, 1000, 4000Å
pH Range	1–13
Max. Temp.	80ºC
Max. Pressure	3000psig
Max. Flow Rate	4mL/min



Column: PLRP-S 100Å, 5µm, 4.6 x 250mm (Part No. **1512-5500**)
Mobile Phase: **A:** 0.1% TFA, 1% IPA in Water
B: 0.1% TFA, 1% IPA in ACN
Gradient: Linear 15–85% **B** in 15min
Flow Rate: 1.0mL/min
Detector: UV at 220nm

PLRP-S HPLC Columns

Packing	Format	i.d. x Length	Part No.
100Å, 3µm	Analytical	4.6 x 150mm	**1512-3300**
100Å, 5µm	Microbore	2.1 x 50mm	**1912-1500**
	Microbore	2.1 x 150mm	**1912-3500**
	Microbore	2.1 x 250mm	**1912-5500**
	Analytical	4.6 x 50mm	**1512-1500**
	Analytical	4.6 x 250mm	**1512-5500**
300Å, 3µm	Analytical	4.6 x 150mm	**1512-3301**
300Å, 5µm	Analytical	4.6 x 50mm	**1512-1501**
	Analytical	4.6 x 150mm	**1512-3501**
	Analytical	4.6 x 250mm	**1512-5501**
300Å, 8µm	Analytical	4.6 x 150mm	**1512-3801**
	Analytical	4.6 x 250mm	**1512-5801**
1000Å, 5µm	Microbore	2.1 x 50mm	**1912-1502**
1000Å, 8µm	Microbore	2.1 x 50mm	**1912-1802**
	Microbore	2.1 x 150mm	**1912-3802**
	Analytical	4.6 x 150mm	**1512-3802**
	Analytical	4.6 x 250mm	**1512-5802**
4000Å, 5µm	Analytical	4.6 x 50mm	**1512-1503**
4000Å, 8µm	Microbore	2.1 x 150mm	**1912-3803**

PLRP-S Guard Columns

Packing	i.d. x Length	Qty.	Part No.
PLRP-S, 5µm	3 x 5mm	2	**1512-1503**
Guard Column Holder		ea	**1310-0016**

more info
For more large molecule columns, see pages 84–97.

related product
Looking for column heaters?
See page 16–17.


6219

Shodex® Columns

Aqueous Size Exclusion

- High efficiency and high mass recovery
- Separate biopolymers by their effective size in solution
- Stable sugar GFC columns

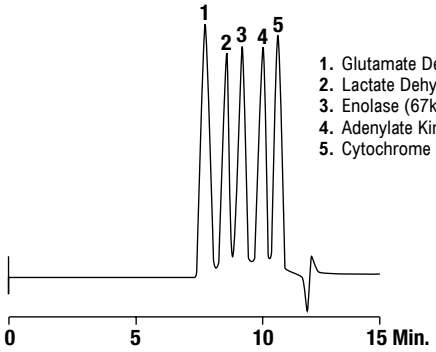
Shodex® Ohpak and Sugar columns are designed for high-resolution separations of water-soluble compounds such as organics, inorganics, oligomers, and polymers. Three different gel filtration size exclusion materials are available.

Shodex® Sugar columns use a sulfonated gel with a sodium counter ion for separation of mono, di, oligo, and polysaccharides, starches, and celluloses.

Aqueous Size Exclusion Columns		
Packing Series	**Description**	**Applications**
OHpak SB-800	Polyhydroxymethacrylate	General purpose GFC of water-soluble polymers, proteins, and enzymes
Protein KW-800	Porous Silica Gel	GFC of proteins, glycoproteins, and peptides
Sugar KS-800	Sulfonated PS Gel (Na+ counter ion)	Separation of mono, di, oligo, and polysaccharides, starches, and celluloses

Proteins by GFC

CHROM 9162

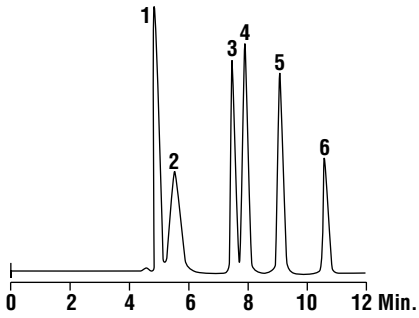


1. Glutamate Dehydrogenase (290k)
2. Lactate Dehydrogenase (142k)
3. Enolase (67k)
4. Adenylate Kinase (32k)
5. Cytochrome (12.4k)

Column: Shodex® Protein KW-803, 8.0 x 300mm (Part No. **5749**)
Mobile Phase: 50mM Phosphate buffer + 0.3M NaCl, pH 7.0
Flow Rate: 1.0mL/min
Detector: ELSD
Column Temp: 28°C

Pullulan, Saccharides, and Ethanol

CHROM 9163



1. Pullulan (46.7k)
2. Pullulan (5.3k)
3. Raffinose
4. Sucrose
5. Fructose
6. Ethanol

Column: Shodex® Sugar KS-802, 8.0 x 300mm (Part No. **5743**)
Mobile Phase: Water
Flow Rate: 1.0mL/min
Detector: RI
Column Temp: 80°C

Shodex® Size Exclusion HPLC Columns

	Particle Size	Format	Packing	MW Range	i.d. x Length	Part No.
OHpak	8µm	Analytical	SB-802 HQ	50–4000	8.0 x 300mm	**5730**
	6µm	Analytical	SB-802.5 HQ	50–10,000	8.0 x 300mm	**5731**
	6µm	Analytical	SB-803 HQ	50–100,000	8.0 x 300mm	**5732**
	10µm	Analytical	SB-804 HQ	100–1,000,000	8.0 x 300mm	**5733**
	13µm	Analytical	SB-805 HQ	500–4,000,000	8.0 x 300mm	**5734**
	13µm	Analytical	SB-806M HQ	100–20,000,000	8.0 x 300mm	**5736**
Protein	5µm	Analytical	KW-802.5	50–50,000	8.0 x 300mm	**5748**
	5µm	Analytical	KW-803	50–150,000	8.0 x 300mm	**5749**
	7µm	Analytical	KW-804	100–600,000	8.0 x 300mm	**5750**
Sugar	5µm	Analytical	KS-801	50–1000	8.0 x 300mm	**5742**
	5µm	Analytical	KS-802	50–10,000	8.0 x 300mm	**5743**

related product
Doing carbohydrate analysis?
ELSD offers greater sensitivity than RI. See pages 5–11.


6219

related product
Looking for column heaters?
See pages 16 and 17.

Shodex® ODP2 HP Columns

High-Efficiency Polymer-Based Reversed-Phase Column

- Column efficiency is comparable with that of silica-based ODS columns
- Better retention of highly polar substances comparing to ODS columns
- Long column life even with high protein content samples: ODP2 HP prevent protein adsorption that causes ODS column degradation
- Excellent peak shape using low salt mobile phase, ideal for microbore
- High pH stability

ODP2 HP series is a polymer-based [poly(hydroxymethacrylate)] column for reversed-phase chromatography. The efficiency of ODP2 HP is improved over most resin-based columns, with typical theoretical plate number >65,000 per meter.

ODP2 HP Columns

Packing	Format	i.d. x Length	Part No.
ODP2 HP-4B, 5µm	Analytical	4.6 x 50mm	**F7622001**
ODP2 HP-4D, 5µm	Analytical	4.6 x 150mm	**F7622002**
ODP2 HP-4E, 5µm	Analytical	4.6 x 250mm	**F7622003**
ODP2 HPG-4A, 5µm	Analytical	4.6 x 10mm	**F6714010**
ODP2 HP-2B, 5µm	Analytical	4.6 x 50mm	**F7622004**
ODP2 HP-2D, 5µm	Analytical	4.6 x 150mm	**F7622005**
ODP2 HPG-2A, 5µm	Analytical	4.6 x 10mm	**F6714011**

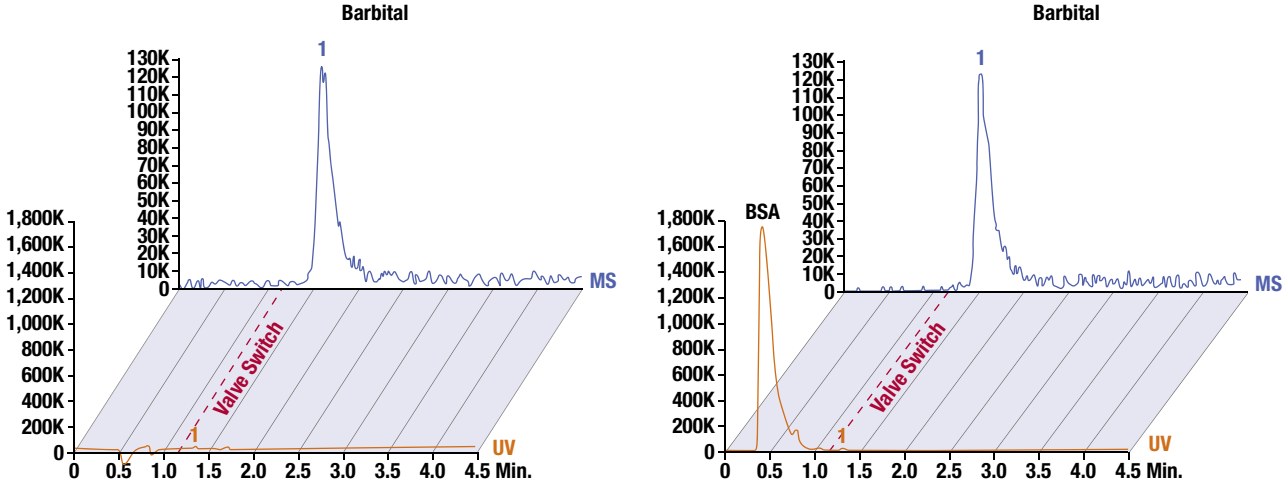
ODP2 HP Columns Specifications

Packing	Theoretical Plate Number (per column)	Theoretical Plate Number (per meter)	Particle Size	pH Range	i.d. x Length
ODP2 HP-4B	≥3500	70,000	5µm	3–12	4.6 x 50mm
ODP2 HP-4D	≥13,000	86,000	5µm	3–12	4.6 x 150mm
ODP2 HP-4E	≥17,000	68,000	5µm	3–12	4.6 x 250mm
ODP2 HPG-4A	guard column	guard column	5µm	3–12	4.6 x 10mm
ODP2 HP-2B	≥3000	60,000	5µm	3–12	2.0 x 50mm
ODP2 HP-2D	≥7000	46,600	5µm	3–12	2.0 x 150mm
ODP2 HPG-2A	guard column	guard column	5µm	3–12	2.0 x 10mm

Drug in Biological Fluid

Microbore is effective for the high sensitivity analysis of drugs; however, when protein is present and enters the MS (Mass detector), it contaminates the MS or suppresses ionization of the sample. Often pretreatment does not remove protein thoroughly. Drugs in biological fluid are hard to analyze because protein co-elutes with the component of interest. The target drug receives ion suppression from the protein and appears as a small peak.

ODP2 HP can separate the target drug from protein by eluting protein early. The result of barbital analysis with BSA using microbore is shown as below. Barbital was introduced into the MS by a switching valve after BSA was eluted, and barbital was detected without any influence of ion suppression.



more info

For other Shodex® columns, including KW400, KF-400, SB-800, KF-400, KF-600, KF-800, NH2P, Ion Exchange, affinity, and sugar columns, visit www.discoverysciences.com.

Waters® Spherisorb® Columns

All Waters® columns are packed by Grace to our highest QC standards. Spherisorb® columns have 80Å pores and 220m²/g surface area. ODS-1 is unendcapped with a 6% carbon load, and ODS-2 is endcapped with a 12% carbon load.

Spherisorb® HPLC Columns

Packing	Format	i.d. x Length	Part No.	Waters® Fittings Part No.
ODS-1, 5µm	Analytical	4.6 x 150mm	**8441**	—
	Analytical	4.6 x 250mm	**8364**	—
ODS-2, 3µm	Analytical	4.6 x 150mm	**8558**	—
ODS-2, 5µm	Analytical	4.6 x 150mm	**8545**	—
	Analytical	4.6 x 250mm	**8736**	**8738**
Phenyl, 5µm	Analytical	4.6 x 150mm	**8689**	—
	Analytical	4.6 x 250mm	**8752**	**8754**
Cyano, 5µm	Analytical	4.6 x 150mm	**8713**	—
	Analytical	4.6 x 250mm	**8361**	**8362**
Amino, 5µm	Analytical	4.6 x 150mm	**8739**	—
	Analytical	4.6 x 250mm	**8371**	—
Silica, 3µm	Analytical	4.6 x 100mm	**8382**	**8383**
Silica, 5µm	Analytical	4.6 x 150mm	**8389**	—
	Analytical	4.6 x 250mm	**8376**	—
SAX, 5µm	Analytical	4.6 x 250mm	**8765**	—

Spherisorb® All-Guard™ Cartridges*

Packing	i.d. x Length	Qty.	Part No.
ODS-1, 5µm	4.6 x 7.5mm	3	**96218**
ODS-2, 5µm	4.6 x 7.5mm	3	**96219**
Amino, 5µm	4.6 x 7.5mm	3	**96224**
SAX, 5µm	4.6 x 7.5mm	3	**96228**
All-Guard™ Cartridge Holder (Includes Direct-Connect Column Coupler)		ea	**80101**

*All-Guard™ holder required. Other particle sizes available.

more info
If you like Spherisorb®, try Grace's lower cost Allsphere™ on page 59.

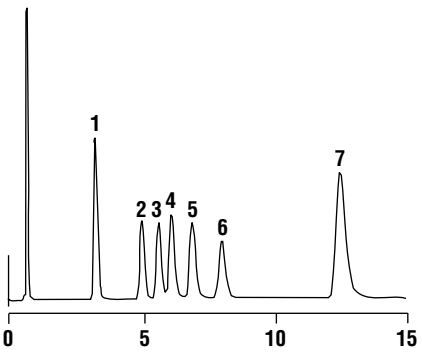
Beckman® Ultrasphere® Columns

- Low metal content for symmetrical peaks
- Narrow particle size range for high efficiency
- Maximum surface coverage for long column lifetimes

All Ultrasphere® columns are packed by Grace to our highest QC standards. Ultrasphere® columns are highly endcapped to reduce silanol interactions and have a narrow particle size range for excellent resolving power.

Tricyclic Antidepressants

CHROM 7739



1. Doxepin
2. Desipramine
3. Nortriptyline
4. Imipramine
5. Amitriptyline
6. Trimipramine
7. Clomipramine

Column: Ultrasphere® C18, 5µm, 4.6 x 150mm (Part No. **235330**)
Mobile Phase: 10mM Triethylamine, pH2.5:Acetonitrile (71:29)
Flow Rate: 2.0mL/min
Detector: UV at 216nm

Ultrasphere® HPLC Columns

Packing	Format	i.d. x Length	Part No.
C18, 3µm	Analytical	4.6 x 75mm	**244254**
C18, 5µm	Analytical	4.6 x 150mm	**235330**
	Analytical	4.6 x 250mm	**235329**
	Prep	10 x 250mm	**235328**
C18-IP, 5µm	Analytical	4.6 x 250mm	**235335**
C8, 5µm	Analytical	4.6 x 250mm	**235332**
Cyano, 5µm	Analytical	4.6 x 150mm	**244070**
	Analytical	4.6 x 250mm	**244071**
Silica, 5µm	Analytical	4.6 x 150mm	**235342**
	Analytical	4.6 x 250mm	**235341**

Ultrasphere® Guard Columns

Description	i.d. x Length	Qty.	Part No.
C18, 5µm	4.6 x 45mm	ea	**243536**

Ultrasphere® guard columns connect directly to the analytical column with a zero dead volume connector, or a small piece of tubing with finger tight fittings. No holder required.

Tips for Best Results with Reverse Phase Columns

Column ID (mm)	Flow Rate Range mL/min
4.6	0.5-1.5
10	1.0-2.0
22	3.0-6.0

1. Run your reverse phase columns at the following flow rates for best results.
2. Do not worry about high backpressures. Jordi columns are packed at 8,000psig and can run for months at pressures in the 3,000-5,000psig range without damage.
3. If you notice a change in plate count or resolution after significant use, you may need a clean frit(s), particularly on the column inlet.
4. Try to keep at least 10% organic in your solvent when using Jordi DVB and Fluorinated DVB columns. Jordi gel is very hydrophobic and will not wet in water. When pure water/buffer is used as the mobile phase, the gel will shrink slightly and can cause a premature loss in column efficiency. For aqueous applications, we recommend using Jordi Hydroxylated DVB or Glucose DVB columns.

Avoiding Tailing and/or Adsorption Phenomena

Because of the large number of aromatic rings inherent in the packing's structure, Jordi Gel columns based on divinylbenzene will give unique responses to certain types of samples

If your samples contain aromatic rings or atoms such as O or N with unshared electron pairs, they have the potential to be strongly retained and/or tail on the Jordi Gel columns UNLESS there is a competing electron-rich solvent in the mobile phase.

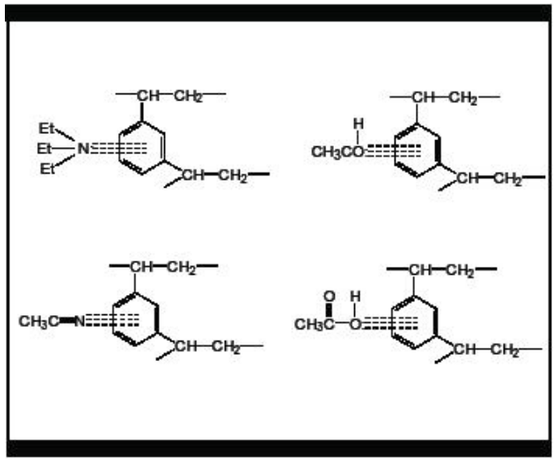
To obtain sharper peaks we recommend using a competing electron-rich solvent like acetonitrile, triethylamine (TEA), or n-butylamine, which coordinates with the aromatic rings of the packing material creating a less electron-dense surface chemistry.

For certain separations, it is also possible to use sodium acetate to modify peak shape and retention. In like manner, using low percentages of glycerol, 2-propanol, or other similarly hydrophilic hydroxylated solvents reduces the net effective surface hydrophobicity.

The diagrams below indicate several possible interactions of the mobile phase modifiers with the aromatic rings of the DVB gel.

In our experience, it is best to use quantities of 0.5-2.0% of TEA or ethylene glycol, or 0.01M Na Acetate, and anywhere from 2.0-100% of solvents such as CH_3CN, CH_3OH, or 2-propanol. We have also found that a 50/50 V/V CH_3CN/CH_3OH mixture as strong solvent is better than either used alone.

For samples containing the peperazine group, such as hindered amine light stabilizers, we have found that 98/2 V/V CHCl /TEA or 75/25 V/V THF/ MeOH with 0.01 M NaAc are excellent mobile phases and yield high quality GPC results on the Jordi Gel DVB base GPC columns.



HPLC Columns
Care and Tips Guide

Material Solutions. Uncompromising Integrity.

4 Mill Street • Bellingham, MA • 02019 • USA
phone: 1 508 • 966 • 1301 fax: 1 508 • 966 • 4063
www.jordilabs.com info@jordilabs.com

Introduction

Thank you for purchasing a Jordi column for your analysis. We strive to provide the highest quality HPLC columns on the market. Our goal is to make you successful. If you experience any problems or need any technical advice, please call or email us; we are here to help you. All Jordi columns are warranted for 90 days upon receipt. For technical support, Jordi customer service is available at:

Email: techsupport@jordilabs.com

Phone: 508-966-1301

Installation

Jordi recommends the use of stainless steel tubing of 1/16" OD and 0.010"ID for column connections of analytical columns. Preparative columns 22mm and greater require 0.020" ID tubing. Excessive tubing volume should be avoided by minimizing the tubing length between the column, detector and injector. The use of Jordi Column Connectors is recommended when connecting multiple columns in series. These connectors come preassembled and ready to use. For more information, see the Jordi Column Accessories at the end of the guide.

General Guidelines for All Jordi Columns

In an effort to maximize column life expectancy and performance, steps should be taken to prepare each sample before injection. This should include sample filtration to remove particulates, and possibly, solid phase extraction (SPE) to remove highly retained sample components. Jordi offers a complete line of SPE products for sample cleanup.

Jordi recommends using a guard column to protect your analytical column. The guard column will help protect your analytical column from particulate matter and highly retained sample components. The guard column should be changed when performance measures decline, such as plate count, pressure, or resolution. A list of Jordi guard columns is found at the end of this guide.

Optimum sample injection volumes and concentrations are best determined for each type of analysis and are dependent on sample MW. Broad distribution polymers can generally be injected at higher concentrations than lower polydispersity samples. Overloading will not damage the Jordi column, but distorted peaks and questionable results may occur.

Tips for Best Results with GPC Columns

JORDI GPC Specifications	
Description	**MW Range**
GPC NPR	2,000—400,000,000
GPC 100Å	<100—5,000
GPC 500Å	<100—10,000
GPC 10^3Å	<100—50,000
GPC 10^4Å	100—100,000
GPC 10^5Å	10,000—>10,000,000
GPC Mixed Bed	100—>10,000,000

1. Run your column at 0.5-2.0mL/min for maximum life and best results. Our recommended flow rate is 1.2mL/min.
2. For use in TCB at 140-150°C, we recommend purging the columns at 0.2mL/min overnight with TCB at 40°C and then ramping up to your desired temperature over 6 hr.
3. If you notice a calibration change after significant use, you may need a clean frit(s) particularly on the column inlet. If the original inlet frit clogs, it will contribute to shearing of high MW polymer and thus, must be changed.
4. For special solvents, i.e. DMSO/H_2O, MeOH, Acetone, please call a Jordi technician.
5. For any solvent changeover involving miscible solvents, it is best to purge with the new solvent at 0.2mL/min overnight. Immiscible solvents require an intermediary solvent that both the initial and final solvent are miscible with.
6. The Jordi Mixed-Bed, 10^4Å, and 10^5Å materials should never exceed 2000psig, as this will crush the gel. For solid bead, 100Å, 300Å, 500Å and 1000 Å gels, you may run at pressures up to 8000psig without failure.
7. If you have any specific questions, please call us. We are here to serve you.

Solvent Changeover

Jordi columns are some of the most durable in the industry, tolerating a very wide range of solvents. When purging your column into a new solvent, it is important to keep in mind the following important facts:

1 **Before changing solvents, please confirm that your column is compatible with your new mobile phase. The solvent compatibility of Jordi Columns is so broad that it is easier to list which solvents should not be used. Jordi DVB and Jordi Fluorinated DVB columns should not be used in 100% water or buffer solutions. At least 10% organic solvent should be maintained at all times. All other columns have no know solvent limitations.**

2 **Always purge your column into a new solvent at .2ml/min until two full column volumes have passed through the column.**

Column Size	Volume
10mm x 25cm	40ml
7.8mm x 30cm	40ml
10mm x 50cm	80ml
4.6mm x 15cm	15ml
4.6mm x 25cm	25ml

Frit Replacement

Changing column frits is simple and can be accomplished using the Jordi Frit Removal Tool. To change a column frit, please follow these steps:

1 **Clamp the column, with outlet and inlet plugs in place, in a ring stand or a bench vice with the column inlet pointing up.**

2 **Allow the column to equilibrate to room temperature before removing the column end fitting.**

3 **Carefully loosen and remove the column end fitting. Hold the column end fitting steady with one wrench while loosening the column nut with another wrench until it drops away from the end fitting.**

4 **Remove the column distributor frit using a frit removal tool (Jordi Frit Removal Tool recommended) or by pulling up on the plastic housing. Be careful when removing the frit to prevent the loss of significant gel from the tube end.**

5 **Clean the top surface of the column by gently scraping a flat spatula or a razor blade across the gel surface. Be sure to avoid disturbing the packing material in the column. To get the surface even, you may have to wet the packing with the solvent that the column is conditioned in or another miscible solvent.**

6 **Place a new distributor frit cap on top of the cleaned surface of the column. Press the frit firmly down onto the column end.**

7 **Rinse all residual packing material from the column end fitting and frit. Failure to remove packing material from threads and sealing surfaces, e.g. frit, may result in leaks or clogging.**

8 **Replace the column end fitting. Use wrenches to tighten the end fitting nut approximately 1/4 turn past finger tight. Do not over tighten.**

9 **Connect the column to the HPLC system and check for leaks.**

10 **If the column leaks, turn the pump flow off; allow the pressure to bleed off, and then tighten the end-fitting nut slightly more, approximately 1/8 of a turn.**

Guard Columns

Guard columns are an excellent way to protect the investment you have made in your analytical columns. This is especially true when working with unknown samples, which may contain reactive or adsorbable materials. A guard column is a shorter version of the analytical column, which is sacrificed in order to protect your main column.

Jordi Guard columns are available for all GPC columns and most RP and NP columns. In all cases, your Guard column(s) will be packed with the same high quality gels used in your analytical column. See the Guard Column Guide at the end of this brochure for further ordering details.

We recommend the following guard column sizes:

Analytical Column ID	Guard column Length
2.1mm, 4.6mm	3cm, 5cm
7mm Bullet Columns	Not Recommended
7.8mm	4cm
10mm	5cm
22mm, 30mm, 50mm	10cm

Quality Assurance

Jordi has a strict quality assurance program designed to provide our customers with a product they can trust every time.

All Jordi columns come with a Quality Assurance Certificate to ensure customer satisfaction. This certificate provides the customer with performance information for the specific column received. Performance measures included are plate count, backpressure, resolution and symmetry. Since instrumentation, tubing, and other elements can alter performance, your results may vary slightly from the results shown on the Jordi certificate. Taking care to follow the instructions outlined in this guide will help ensure the product is being used in the best manner possible.

Storage

Jordi end plugs should be used to cap the column when not in use. Jordi columns should be stored at room temperature; preferably in the box they were originally shipped in for safekeeping. Jordi columns can be stored in many solvents without concern. However, reactive solvents such as unstabilized Tetrahydrofuran (THF) should not be used to store columns for extended periods. If you have any questions regarding a specific solvent, please contact a Jordi representative for technical advice.

Warranty

Jordi columns come with a 90 day warranty from the date of delivery. This warranty does not cover: installation or service of product, conditions resulting from consumer mishandling such as improper maintenance or misuse, abuse, accident, or alteration.

Return Policy

Jordi products can be returned within 30 days of delivery. There is a 15% restocking fee on all orders. All returned products must be accompanied by a Return Merchandise Authorization (RMA) number. To obtain an RMA number, please contact the Jordi representative from which the items were originally purchased. You may also contact Jordi customer service directly at:

Email: info@jordilabs.com
Phone: 508-966-1301

Choosing a Guard Column

Jordi Guard columns are available for all GPC columns and most RP and NP columns. In all cases, your Guard column(s) will be packed with the same high quality gels used in your analytical column.

Jordi Guard Columns come in two porosities. Jordi 500Å guard columns protect porosities of 100Å, 500Å, and 10^3Å. Our Mixed-bed guard columns protect porosities of 10^4Å, 10^5Å, and Mixed-bed. For example, if you are purchasing P/N 15001 Jordi 500Å DVB Column, you can protect it with P/N 15001G5 Jordi 500Å DVB Guard Column. If you are purchasing P/N 15063 Jordi 10^4Å Glucose Column, you can protect it with P/N 15065G5 Jordi MB Glucose Guard Column. Jordi guard columns come in 10mm x 50mm and 7.8mm x 40mm sizes. Customized solutions are available if larger sizes are desired. If you need assistance choosing the correct guard column, please contact customer service or use our Guard Column Finder at: www.jordilabs.com/guard.php

Guard Column Guide

Gel Type	Part Number	Columns Guarded	Porosity Guarded	Sizes Guarded
DVB	15001G5	15000,15001, 15002, 15020, 15021, 15022	100Å, 500Å, 103Å	10mm x 250mm 10mm x 500mm
	15005G5	15003, 15004, 15005, 15023, 15024, 15025	104Å, 105Å, Mixed-bed	10mm x 250mm 10mm x 500mm
	15071G5	15070, 15071, 15072	100Å, 500Å, 103Å	7.8mm x 300mm
	15075G5	15073, 15074, 15075	104Å, 105Å, Mixed-bed	7.8mm x 300mm
Fluorinated	90011G5	90000, 90001, 90002, 90010, 90011, 90012	100Å, 500Å, 103Å	10mm x 250mm 10mm x 500mm
	90015G5	90003, 90004, 90005, 90013, 90014, 90015	104Å, 105Å, Mixed-bed	10mm x 250mm 10mm x 500mm
	90061G5	90060, 90061, 90062	100Å, 500Å, 103Å	7.8mm x 300mm
	90065G5	90063, 90064, 90065	104Å, 105Å, Mixed-bed	7.8mm x 300mm
Glucose	15061G5	15050, 15051, 15052, 15060, 15061, 15062	100Å, 500Å, 103Å	10mm x 250mm 10mm x 500mm
	15065G5	15053, 15054, 15055, 15063, 15064, 15065	104Å, 105Å, Mixed-bed	10mm x 250mm 10mm x 500mm
	30061G5	30060, 30061, 30062	100Å, 500Å	7.8mm x 300mm
	30065G5	30063, 30064, 30065	104Å, 105Å, Mixed-bed	7.8mm x 300mm
Hydroxylated	20001G5	19000, 19001, 19002, 20000, 20001, 20002	100Å, 500Å, 103Å	10mm x 250mm 10mm x 500mm
	20005G5	19003, 19004, 19005, 20003, 20004, 20005	104Å, 105Å, Mixed-bed	10mm x 250mm 10mm x 500mm
	20011G5	20010, 20011, 20012	100Å, 500Å, 103Å	7.8mm x 300mm
	20015G5	20013, 20014, 20015	104Å, 105Å, Mixed-bed	7.8mm x 300mm
Sulfonated	15041G5	15030, 15031, 15032, 15040, 15041, 15042	100Å, 500Å, 103Å	10mm x 250mm 10mm x 500mm
	15045G5	15033, 15034, 15035, 15043, 15044, 15045	104Å, 105Å, Mixed-bed	10mm x 250mm 10mm x 500mm
Polar Pack Wax	15091G5	15080, 15081, 15082, 15090, 15091, 15092	100Å, 500Å, 103Å	10mm x 250mm 10mm x 500mm
	15095G5	15083, 15084, 15085, 15093, 15094, 15095	104Å, 105Å, Mixed-bed	10mm x 250mm 10mm x 500mm

Column Accessories

Jordi columns boast some of the longest column lifetimes in the industry. To help extend the life of your column, we offer a full line of replacement parts.

Column Care Kit

The Column Care Kit provides all the items you will need when correcting high-pressure problems. The kits come with 2 inlet frits, 2 outlet frits and a Frit Puller. The Frit Puller tool allows you to remove blocked frits without damaging the column. The items in these kits are also sold separately.

Catalog #	Description
CCK21	2.1mm ID Column Care Kit: *includes the following*
SHIF21	2 – 2.1mm Inlet Frits
SHOF21	2 – 2.1mm Outlet Frits
SHFP2146	Small Frit Puller
CCK46	4.6mm ID Column Care Kit: *includes the following*
SHIF46	2 – 4.6mm Inlet Frits
SHOF46	2 – 4.6mm Outlet frits
SHFP2146	Small Frit Puller
CCK78	7.8mm ID Column Care Kit: *includes the following*
SHIF78	2 – 7.8mm Inlet Frits
SHOF78	2 – 7.8mm Outlet Frits
SHFP7810	Large Frit Puller
CCK10	10mm ID Column Care Kit: *includes the following*
SHIF10	2 – 10mm Inlet Frits
SHOF10	2 – 10mm Outlet Frits
SHFP7810	Large Frit Puller

End Fittings

If an end fitting becomes damaged during frit removal, you can order a replacement by selecting the item of choice below. It's been our experience that when the end fitting has been damaged, so has the frit. Therefore all replacement end fittings come with the appropriate frit.

Catalog No.	Description
SHEF21	2.1mm End Fitting with frit
SHEF46	4.6mm End Fitting with frit
SHEF78	7.8mm End Fitting with frit
SHEF10	10mm End Fitting with frit
SHEF22	22mm End Fitting with frit

Torque Wrench

To remove end fittings, Jordi offers a specialized Torque Wrench. The Torque Wrench is available in two sizes, small which will fit our 2.1mm & 4.6mm ID columns, and large which will fit our 7.8mm & 10mm ID columns.

Catalog No.	Description
SHTW2146	Small Torque Wrench
SHTW7810	Large Torque Wrench

Column Connectors

Jordi Column Connectors allow you to run multiple columns in a series. Our column connectors come in three convenient lengths, 5cm, 10cm and 20cm, and two ID's 0.01" and 0.02". These connectors come assembled and are ready to use; just remove the protective end caps and connect them to your columns.

Catalog #	Length	ID
BCC0105	5.0cm	0.01"
BCC0110	10cm	0.01"
BCC0120	20cm	0.01"
GCC0205	5.0cm	0.02"
GCC0210	10cm	0.02"
GCC0220	20cm	0.02"

Column End Plugs

Have you lost one of your column end plugs? Not to worry, we have replacements available! Our PEEK end plugs are sold in pairs.

Catalog No.	Description
PCEP2	2 PEEK Column End Plugs

Jordi Columns

Normal- and Reversed-Phase

- **Rugged**—use at high temperatures, from pH 0–14, with any solvent
- **Silanol Free**—analyze polar compounds without silanol effects

Jordi normal-phase and reversed-phase columns are made from highly pure 5µm DVB, for extremely durable and efficient phases.

Jordi Specifications			
Phase	**Particle Size**	**Pore Size**	**Description**
RP-DVB	5µm	500Å, 1000Å	Reversed-phase, not bonded
C18-DVB	5µm	500Å	Reversed-phase, C18 bonded
Polyamine-DVB	5µm	500Å	Normal-phase

RP-DVB

RP-DVB is a reversed-phase non-polar packing with a high degree of aromatic character. SM-500, with a 500Å pore, is recommended for most applications. LM-1000, with a 1000Å pore, is ideal for molecules 100,000 Daltons or larger.

C18-DVB

C18-DVB has C18 chains bonded to the DVB base. These columns are more hydrophobic than traditional C18 columns and have different selectivities due to the absence of silanols.

Polyamine-DVB

Polyamine-DVB is a normal-phase column for simple sugar and polysaccharide applications. The DVB-based packing provides a non-reactive amine surface that lasts longer and equilibrates faster than traditional silica-based amine columns. Polyamine-DVB columns can be used with aqueous mobile phases, even 1M NaOH. Ideal for carbohydrate analyses requiring sharp peaks and short run times.

Jordi HPLC Columns

Packing	Format	i.d. x Length	Part No.
RP-DVB (SM-500Å), 5µm	Analytical	4.6 x 150mm	**1005500**
	Analytical	4.6 x 250mm	**1005520**
RP-DVB (LM-1000Å), 5µm	Analytical	4.6 x 150mm	**1005580**
	Analytical	4.6 x 250mm	**1005585**
C18-DVB (500Å), 5µm	Analytical	4.6 x 150mm	**18500**
	Analytical	4.6 x 250mm	**18501**
Polyamine-DVB (500Å), 5µm	Analytical	4.6 x 250mm	**1005900**

Jordi All-Guard™ Cartridges*

Packing	i.d. x Length	Qty.	Part No.
RP-DVB (SM-500Å), 5µm	4.6 x 7.5mm	3	**1005595**
RP-DVB (LM-1000Å), 5µm	4.6 x 7.5mm	3	**1005596**
C18-DVB (500Å), 5µm	4.6 x 7.5mm	3	**1005601**
Polyamine-DVB (500Å), 5µm	4.6 x 7.5mm	3	**1005615**
All-Guard™ Cartridge Holder (Includes Direct-Connect Column Coupler)		ea	**80101**

*All-Guard™ holder required. Other particle sizes available.

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related product

Looking for column heaters?

See pages 16 and 17.

GPC Columns

Organic GPC

- **Rugged**—highly crosslinked DVB for broad temperature stability and solvent compatibility
- **Powerful**—high pore volume for greater resolution from a single column

Jordi Organic and Aqueous GPC Specifications		
Pore Size	**Pressure Limit**	**MW Range (Daltons)**
100Å	8000psig	100–5000
500Å	8000psig	100–10,000
103Å	8000psig	100–25,000
104Å	2000psig	100–2,000,000
105Å	2000psig	10,000–10,000,000
Mixed Bed	2000psig	100–>10,000,000

Jordi HPLC columns, offer unparalleled resistance to shrinking and swelling, as well as better temperature and solvent compatibility than traditional ps-DVB phases.

The high pore volume speeds up your analyses. A single 10 x 500mm Jordi column replaces three 7.8 x 300mm ps-DVB columns and separates the same sample in 40% less time.

Aqueous GPC

Glucose-DVB packings are rugged, hydrophilic packings for separating polar compounds. Glucose units are bonded to the DVB base to yield a hydrophilic surface. Glucose-DVB columns equilibrate faster than silica-based columns.

Jordi Organic GPC Columns*

Pore Size	Format	i.d. x Length	Part. No.
100Å, 5µm	Semi Prep	7.8 x 300mm	**10510**
	Prep	10 x 250mm	**100561**
500Å, 5µm	Semi Prep	7.8 x 300mm	**10511**
	Prep	10 x 250mm	**100565**
	Prep	10 x 500mm	**100567**
103Å, 5µm	Semi Prep	7.8 x 300mm	**10512**
	Prep	10 x 250mm	**100569**
104Å, 5µm	Semi Prep	7.8 x 300mm	**10513**
	Prep	10 x 250mm	**100573**
105Å, 5µm	Semi Prep	7.8 x 300mm	**10514**
	Prep	10 x 250mm	**100577**
Mixed-Bed Linear, 5µm	Semi Prep	7.8 x 300mm	**10515**
	Prep	10 x 250mm	**100581**
	Prep	10 x 500mm	**100583**

*Jordi GPC columns are constructed from Type 316 stainless steel. All tubing connections are 1/16" female. Columns are shipped in Chloroform unless otherwise requested when placing order.

Jordi Aqueous GPC Columns

Pore Size	Format	i.d. x Length	Part No.
100Å, 5µm	Semi Prep	7.8 x 300mm	**10517**
	Prep	10 x 250mm	**100761**
500Å, 5µm	Semi Prep	7.8 x 300mm	**10518**
	Prep	10 x 250mm	**100765**
103Å, 5µm	Semi Prep	7.8 x 300mm	**10519**
	Prep	10 x 250mm	**100769**
104Å, 5µm	Semi Prep	7.8 x 300mm	**10520**
	Prep	10 x 250mm	**100773**
105Å, 5µm	Semi Prep	7.8 x 300mm	**10521**
	Prep	10 x 250mm	**100777**
Mixed-Bed Linear, 5µm	Semi Prep	7.8 x 300mm	**10522**
	Prep	10 x 250mm	**100781**
	Prep	10 x 500mm	**100783**