

# Jordi-Gel™ Organic GPC Columns

## Jordi-Gel DVB Columns

- **Rugged** – 100% Divinylbenzene packing for use at high temperatures and most solvents
- **Powerful** – High pore volume for greater resolution on a single column
- **Efficient** – High plate counts for sharp, symmetrical peaks
- **Versatile** – Multiple surface chemistries for organic and water-soluble polymers

Jordi Associates is the only company that makes GPC packings from 100% polydivinylbenzene (DVB) for compatibility with high temperatures, high pressures and the widest range of solvents. Competitors make their packings from fragile polystyrene-divinylbenzene copolymers, (PS-DVB). Changes in solvent, temperature and pressure cause shrinkage and swelling to a greater degree in their columns vs. Jordi.

Jordi Gel DVB columns are constructed with Type 316 Stainless Steel. All tubing connections are 1/16" female. Columns are shipped in chloroform.

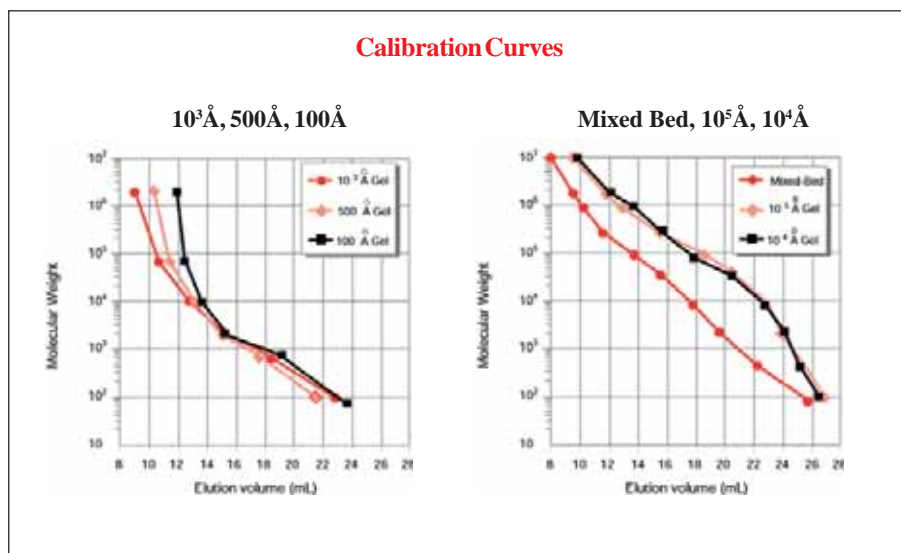
### Specifications for Jordi Columns:

Pore Size	Pressure Limit	MW Range
100Å	8,000 psig	<100-5,000
500Å	8,000 psig	<100-10,000
10 <sup>3</sup> Å	8,000 psig	<100-50,000
10 <sup>4</sup> Å	2,000 psig	100-100,000
10 <sup>5</sup> Å	2,000 psig	10,000->10,000,000
GPC Mixed Bed	2,000 psig	100->10,000,000

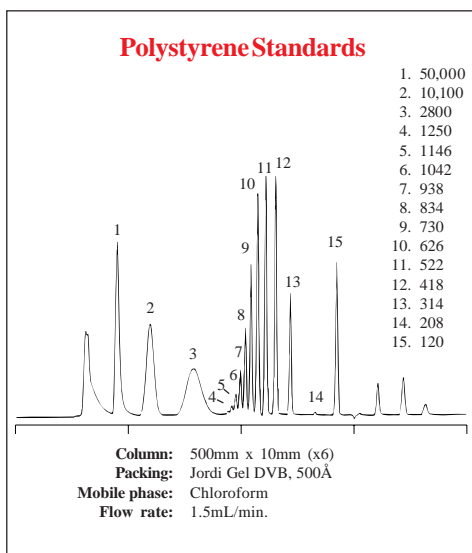
### New! Jordi Fluorinated DVB GPC Column

Jordi's recent innovation in HPLC packings are packings derivatized with fluorinated reagents which allow for many improvements. The fluorinated beads are able to decrease a typical analysis from 30 minutes to 7 minutes using a 50cm column without sacrificing significant resolution. Operational pressures are reduced by a factor of 4 or more!

### Calibration Curves



### Polystyrene Standards

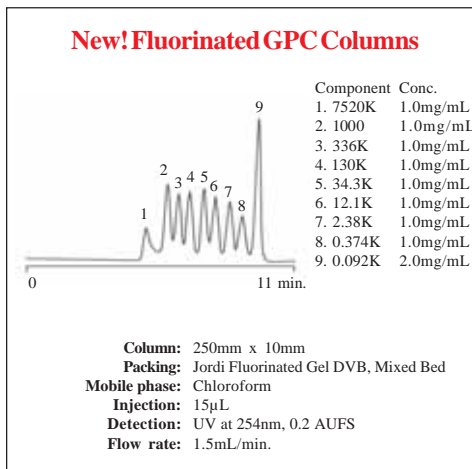


### Jordi Organic GPC Columns

Pore Size	Particle			Fluorinated DVB	
	Size	ID	Length	DVB	DVB
100Å	5µm	10mm	250mm	J15020	J90010
100Å	5µm	10mm	500mm	J15000	J90000
500Å	5µm	10mm	250mm	J15021	J90011
500Å	5µm	10mm	500mm	J15001	J90001
10 <sup>3</sup> Å	5µm	10mm	250mm	J15022	J90012
10 <sup>3</sup> Å	5µm	10mm	500mm	J15002	J90002
10 <sup>4</sup> Å	5µm	10mm	250mm	J15023	J90013
10 <sup>4</sup> Å	5µm	10mm	500mm	J15003	J90003
10 <sup>5</sup> Å	5µm	10mm	250mm	J15024	J90014
10 <sup>5</sup> Å	5µm	10mm	500mm	J15004	J90004
Mixed Bed Linear	5µm	10mm	250mm	J15025	J90015
Mixed Bed Linear	5µm	10mm	500mm	J15005	J90005
Mixed Bed Linear*	5µm	10mm	250mm	J15027	J90017
Mixed Bed Linear*	5µm	10mm	500mm	J15007	J90007

\*for light scattering detectors

### New! Fluorinated GPC Columns



# Jordi-Gel™ Aqueous GPC Columns

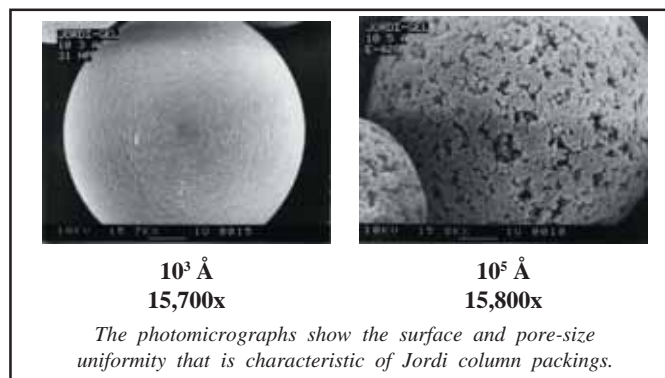
- Rugged DVB backbone
- Hydrophilic GBR for neutral polymers
- Hydroxylated DVB for small molecules
- Sulfonated-DVB for anionic polymers
- Polar Pac WAX for cationic polymers

Jordi Aqueous GPC columns are based on the same polymerized divinylbenzene (DVB) packing material used in other Jordi columns. Hydrophilic groups attached to the DVB backbone make these columns ideal for separation of water soluble polymers. The DVB backbone provides strength, resiliency and chemical stability which permit the column to operate up to 8000 psi. Any pH from 1 to 14 can be used without harming the packing. This material is very wettable and does not shrink and swell like polystyrene-divinylbenzene base GPC materials.

The ruggedness of the packing allows column clean-up with solvents which other packings can't tolerate. Strong bases, acids or organic solvents can be used to remove contamination without damaging the packing material. Four different DVB based packings are available for neutral (GBR), small molecules (Hydroxylated-DVB), anionic (Sulfonated-DVB), and cationic (Polar Pac WAX) polymers.

*Jordi Aqueous GPC columns are constructed from Type 316 Stainless Steel with industry standard female endfittings.*

*Columns are shipped with 50:50 Methanol:Water.*



## Jordi GBR

Jordi GBR is a rugged, versatile, highly efficient material for separation of polar samples based on their effective size in solution. Typical samples include polysaccharides, polyacrylic acids, carboxymethyl cellulose, polyacrylamides, carrageenins, starches, hyaluronic acid, and lignins. Use buffer salts, strong or weak acids, or organic solvents as mobile phase modifiers.

## Jordi Hydroxylated DVB

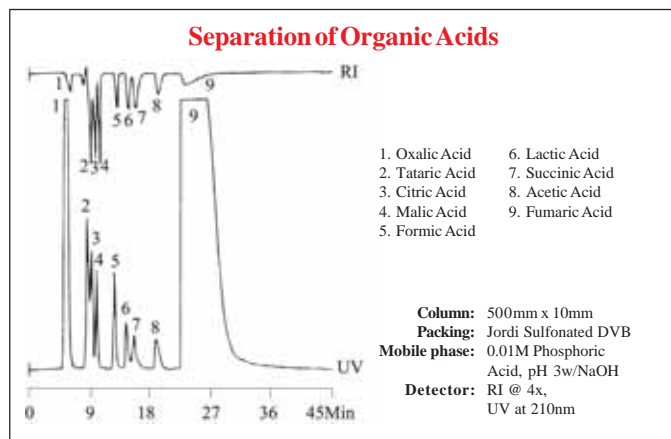
Jordi Hydroxylated DVB is similar to the GBR and best suited for small molecules due to the small size of the bonded phase (fully hydroxylated backbone gel). Suitable for aqueous solutions in acids, bases, and salts; not suitable for proteins.

## Jordi Sulfonated DVB

Jordi Sulfonated DVB's anionic surface separates samples by ion exclusion and size exclusion. Use these columns to analyze organic acids, polysaccharides, starches, cellulose, and other water soluble polymers with a negatively charged surface. The sulfonated-DVB material provides the ion-exclusion mechanism used to separate organic acids and polyhydroxylated compounds and it is more durable and efficient than others on the market.

## Jordi Polar Pac WAX

Jordi Polar Pac WAX columns are optimized for the separation of cationic polymers. Acetic acid mobile phases work well with the Polar Pack WAX column. Samples run on this column include Chitosan and water-soluble Flocculants.



## Jordi Aqueous GPC Columns

Pore Size	Particle			GBR	Hydroxylated DVB	Sulfonated DVB	Polar Pac WAX
	Size	ID	Length				
100Å	5µm	10mm	250mm	J15060	J20000	J15040	J15090
100Å	5µm	10mm	500mm	J15050	J19000	J15030	J15080
500Å	5µm	10mm	250mm	J15061	J20001	J15041	J15091
500Å	5µm	10mm	500mm	J15051	J19001	J15031	J15081
10 <sup>3</sup> Å	5µm	10mm	250mm	J15062	J20002	J15042	J15092
10 <sup>3</sup> Å	5µm	10mm	500mm	J15052	J19002	J15032	J15082
10 <sup>4</sup> Å	5µm	10mm	250mm	J15063	J20003	J15043	J15093
10 <sup>4</sup> Å	5µm	10mm	500mm	J15053	J19003	J15033	J15083
10 <sup>5</sup> Å	5µm	10mm	250mm	J15064	J20004	J15044	J15094
10 <sup>5</sup> Å	5µm	10mm	500mm	J15054	J19004	J15034	J15084
Mixed Bed Linear	5µm	10mm	250mm	J15065	J20005	J15045	J15095
Mixed Bed Linear	5µm	10mm	500mm	J15055	J19005	J15035	J15085

# Jordi Reverse Phase Columns

## Reversed Phase-DVB

The Jordi Reversed Phase - DVB liquid chromatography columns use a highly cross-linked divinylbenzene polymer packing material. This material is extremely stable and permits use of solvents from pH 1 to 14.

Solvent systems utilizing either 0.1N HNO<sub>3</sub> or 0.1N NaOH are compatible with the column. No column degradation has been seen with use of these solvents over weeks of use. This high stability also allows use of NaOH to flush pyrogens from the column and for column clean-up.

Jordi Reversed Phase columns are extremely rugged with pressure limits of the packing material above 8,000 psi. The packing is very hydrophobic because of its chemical makeup and large surface area; it will retain highly polar samples not ordinarily retained and separated on C18-bonded packings, e.g. carbohydrates.

Because of the high surface area of the packing material, addition of an organic compound to the solvent system is required to elute most materials from the column. The highly cross-linked packing material does not restrict the choice of organic compounds; acetic acid, formic acid, pyridine, dimethyl sulfoxide, tetrahydrofuran, and acetone have all been used successfully.

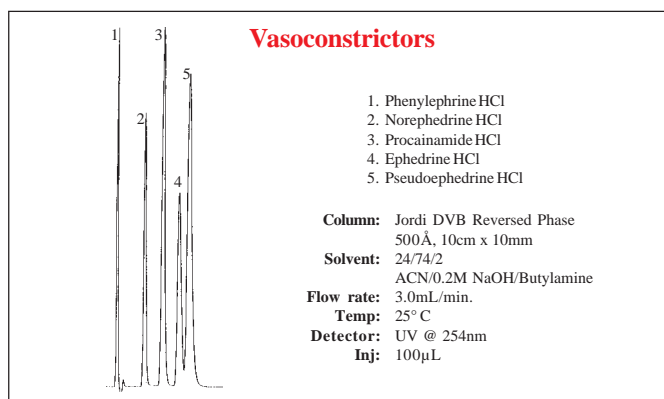
Jordi Reversed Phase columns work extremely well with paired ion techniques used to separate both organic and inorganic ions based on hydrophobicity of the packing material.

Cat. No.	Description
J16501	300Å, 5µm, 4.6mm x 15cm
J16506	300Å, 5µm, 4.6mm x 25cm
J16001	300Å, 5µm, 10mm x 10cm
J16502	500Å, 5µm, 4.6mm x 15cm
J16507	500Å, 5µm, 4.6mm x 25cm
J16002	500Å, 5µm, 10mm x 10cm
J16503	1000Å, 5µm, 4.6mm x 15cm
J16508	1000Å, 5µm, 4.6mm x 25cm
J16003	1000Å, 5µm, 10mm x 10cm

## RP Hydroxylated DVB

- For polar compounds
- Unique selectivity
- Able to run with pure water

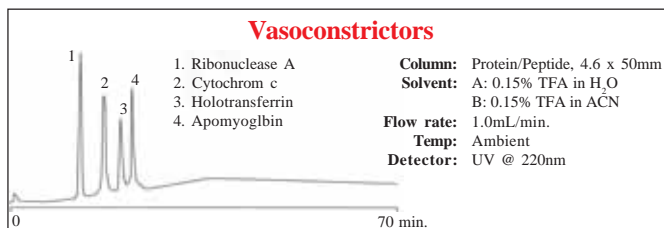
Cat. No.	Description
J21000	500Å, 5µm, 4.6mm x 15cm
J21001	500Å, 5µm, 4.6mm x 25cm
J21002	500Å, 5µm, 10mm x 10cm



## Reversed Phase C18-DVB

The Jordi C18-DVB is recommended for applications that require C18 columns. The C18 chains are bonded to the DVB backbone in such a way that they are not cleaved by harsh mobile phases. This allows column cleaning and regeneration with strong acids, strong bases, and organic solvents. C18-DVB columns are more hydrophobic than silica-based C18 columns and have different selectivities for polar compounds due to the absence of silanols on the underlying DVB. Jordi C18-DVB has a 500Å pore size and 5µm particle size.

Cat. No.	Description
J18500	500Å, 5µm, 4.6mm x 15cm
J18501	500Å, 5µm, 4.6mm x 25cm
J18502	500Å, 5µm, 10mm x 10cm
J18010	500Å, 5µm, 10mm x 25cm
J18020	500Å, 5µm, 22mm x 10cm
J18021	500Å, 5µm, 22mm x 25cm

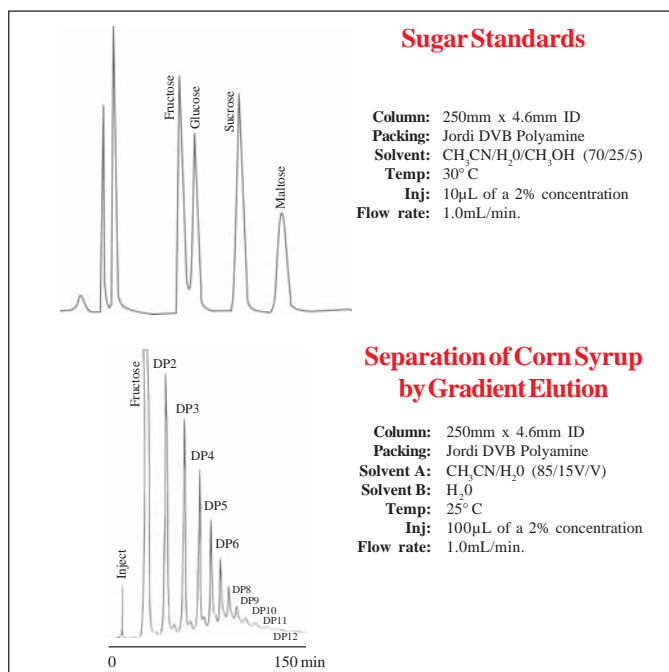


## Protein/Peptide Column

The new polyamide copolymer gel maintains virtually all the benefits of polydivinylbenzene resins such as wide pH range stability, high temp stability and high pressure stability. In addition the polyamide adds hydrophilicity which in turn allows complex molecules such as proteins and peptides to elute easily. The new polyamide gel can be used with virtually any organic and/or buffer system such as TRIS, phosphate, glacial acetic acid, water, acetonitrile, methanol, THF, etc. With the polyamide gel it does not appear necessary to use trifluoroacetic acid to achieve elution of proteins and peptides. Both proteins and peptides seem to elute just as readily with anywhere from 1% to 4% acetic acid used in gradients of water to acetonitrile.

### Jordi Protein/Peptide Column

Length	4.6mm ID	7.8mm ID	10mm ID
5cm	J10001	J10101	J10201
10cm	J10002	J10102	J10202
15cm	J10003	J10103	J10203
20cm	J10004	J10104	J10204



## Anion SAX Column

- Durable packing – Extends column life
- Universal selectivity – Suppressor-based or single column
- Improved FI quantification
- Tolerates vigorous clean-up

The Jordi Anion SAX column separates anions by both suppressor-based and single column IC methods. It separates fluoride, chloride, nitrite, bromide, nitrate, phosphate and sulfate in less than twenty minutes. Fluoride elutes well away from the water dip for easy quantification.

Carbonate/bicarbonate or sodium hydroxide mobile phases are used for suppressor-based methods. Dilute p-hydroxybenzoic acid mobile phase is suitable for single-column applications.

Jordi Anion SAX's rugged polydivinylbenzene backbone tolerates pressures, solvents and pH's that destroy standard anion columns. Use the column at any pH between 1 and 14, at pressures up to 6000 psi and with up to 100% organic mobile phases. This resilient column degrades less during use and tolerates vigorous clean-up when contaminated. The result? They last longer than any other anion column.

With universal selectivity, high resolution, and extreme durability, Jordi Anion SAX is the first choice for single-column and suppressor-based anion analysis.

### Cat.No. Description

**J18701** Anion column, 4.6mm 10cm

## Polyamine-DVB

- Simple sugars and polysaccharides

Jordi Polyamine-DVB packing provides a non-reactive amine surface and produces columns that last longer and equilibrate faster than silica-based amine columns. Aqueous mobile phases do not degrade the amine bonded phase as with silica-based columns. In fact, the column can be cleaned with 1M NaOH. The Polyamine-DVB columns can be used with normal-phase gradients to sharpen peaks and reduce analysis times. Polyamine-DVB packings have a 5µm particle size and 500Å pore size.

### Cat. No. Description

**J17010** Polyamine-DVB, 4.6mm x 25cm

**J17011** Polyamine-DVB, 10mm x 25cm

## Normal Phase GBR-DVB

- For polar compounds

Jordi GBR-DVB packings are rugged, hydrophilic packings for separating polar compounds. They equilibrate more quickly than silica based columns which is especially important when used for normal-phase gradients. This can decrease analysis time significantly. Like all Jordi columns they have a pH range of 0 to 14 and are compatible with all organic solvents. Mobile phases consisting of aqueous buffers, 1M NaOH, 0.1M HNO<sub>3</sub>, alcohols, acetonitrile, THF, and DMSO have been used with this column. GBR-DVB columns have a 5µm particle size and 500Å pore size.

### Cat. No. Description

**J18600** 500Å, 5µm, 4.6mm x 15cm

**J18601** 500Å, 5µm, 4.6mm x 25cm

**J18602** 500Å, 5µm, 10mm x 10cm

**J18610** 500Å, 5µm, 10mm x 25cm

**J18620** 500Å, 5µm, 22mm x 10cm

**J18621** 500Å, 5µm, 22mm x 25cm

## Pesticide Cleanup Column

- For EPA method 3640A

Jordi offers the standard EPA steel low pressure GPC column for cleanup of soil extracts, etc. for subsequent GC/MS pesticide analysis. With your column you receive an original chromatogram run of your column with the EPA standards specified in method 3640A and meeting or exceeding the resolution criteria specified in the method.

### Cat. No. Description

**J14000** Pesticide cleanup SS GPC column  
 Small bore bio beads, 22 x 680mm