Tips for Best Results with Reverse Phase Columns

Column ID (mm)	Flow Rate Range mL/min
4.6	0.5-1.5
7.8	1.0-2.0

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. 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. Foraqueous applications, we recommend using Jordi xStream, Anion or Cation columns.

Avoiding Tailing and/or Adsorption Phenomena

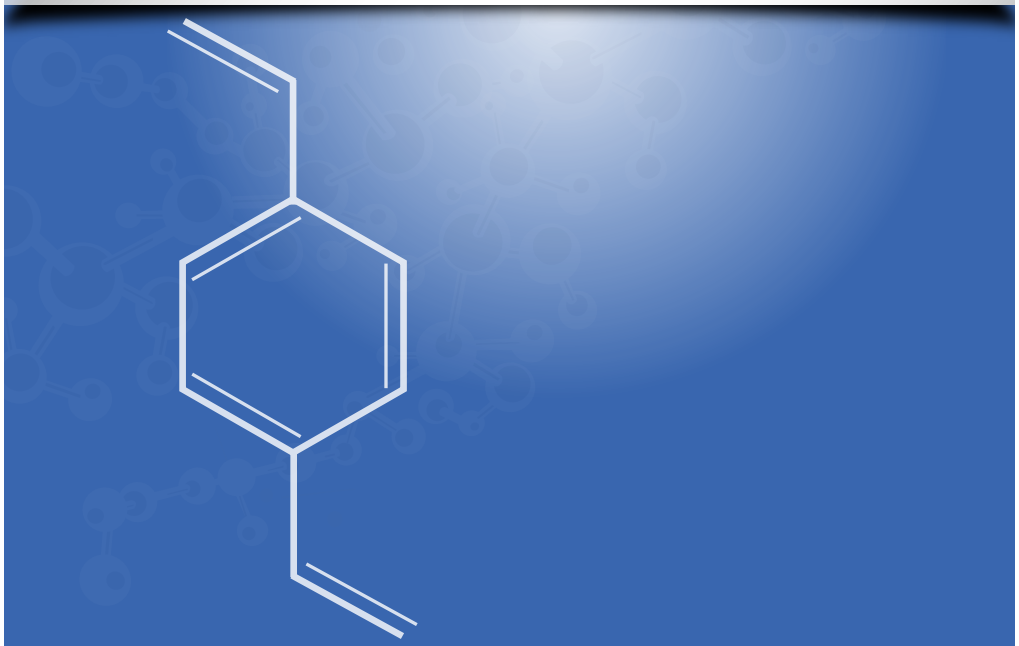
Because of the large number of aromatic rings inherent in the packing's structure, Jordi Gel columns based on divinylbenzene will give unique responses to certain types of samples.
If your samples contain aromatic rings or atoms such as O or N with unshared electron pairs, they have the potential to 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. 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 CH3CN, CH3OH, or 2-propanol. We have also found that a 50/50 V/V CH3CN/CH3OH 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 based GPC columns.

Jordi Labs

Material Solutions. Uncompromising Integrity.

HPLC Columns Tips & Tricks



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. 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 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. 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 Jordi DVB GPC Columns

Porosity	MW Range
100Å	200 - 10K
500Å	200 - 15K
10^3Å	500 - 50K
10^4Å	30K - 600K
10^5Å	70K - 3M
Mixed Bed Low	200-600K
Mixed Bed Medium	200-3M
Mixed Bed High *13 µm	500-12M

Tips for Best Results with Jordi Aqueous GPC Columns

Porosity	MW Range
500Å	200 – 15K
Mixed Bed	200 – 1M

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/H2O, 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 100Å, 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 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
2.1mm x 10cm	5ml
4.6mm x 15cm	15ml
4.6mm x 30cm	30ml

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 columns. In all cases, your Guard column(s) will be packed with the same high quality gels used in your analytical column.

We recommend the following guard colum sizes:

Analytical Column ID	Guard Column Length
2.1mm	1cm
4.6mm	1cm
7.8mm	4cm

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: techsupport@jordilabs.com
Phone: 508-966-1301

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

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

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 #	Description
PCEP2	2 PEEK Column End Plugs