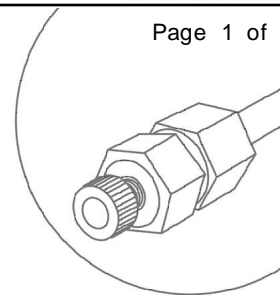


Mfr. Name: Phenomenex
Technique: HPLC
Care ID: 30
Care Group: Phenogel
Information Source: Phenomenex
pH Range: Neutral
Guard Column: Use the specified Phenomenex matching Guard column (see catalog)
Update: 08-05-2014



Applies To

Phenogel GPC Columns (7.8mm ID, 4.6mmID);
Also Envirosep ABC and Buckysep GPC

Introduction

Each column manufactured by Phenomenex is individually prepared and tested. Every column is supplied with a Test Chromatogram and Specification Sheet, which indicates testing conditions, operating parameters, and column identity details. The Column Details, including specifications and performance test results should be entered into an appropriate information management system for easy tracking and reference should a problem arise.

Inspection

Upon Receipt of the Column:
Verify the column you received is the one you ordered
Check the column for physical damage caused by shipping
Test the column IMMEDIATELY to verify performance.
Record the result of your test in your Column Information Management system

Installation

Flush your HPLC pump and line with the filtered and degassed mobile phase advised in column test procedure. Ensure no air bubbles are trapped in the system. Set the flow rate to 0.1mL/min and connect to the column inlet, ensuring that flow is in the direction indicated by the arrow on the column. Tighten the end fitting going into the column and increase flow to normal flow rate over 5 minutes. Stop flow and wipe outlet end of column to remove any particulates prior to connecting to the flow cell. Connect column outlet to flow cell and pass approximately 10-20 column volumes through the system at normal flow rate while observing the back pressure. A steady back pressure indicates constant flow - while fluctuations may indicate air in the system. Wide fluctuations may shock and damage the column. When a steady pressure has been attained within the prescribed limits, the column is ready for use. New columns should be tested with the manufacturers recommended test mix, and previously used columns should be tested with the same or a suitable test mix for the analysis. Remember to re-equilibrate the system when changing solvents. Never change from one solvent to another which is immiscible, without going through an intermediate solvent which is miscible with both. This will damage the column. Never change to (or from) a buffer/salt solution where the buffer/salt is not soluble in the second solvent. Again this will damage the column. Never attempt to remove the column end fittings. This will void the warranty.

Flow Rate

1.0mL/min (7.8mm id), 0.35mL/min (4.6mm id)

Pressure

Maximum pressure - 1500 psi (103 bar).

Temperature

Maximum temperature : 140°C

Avoid

Water >1% must be avoided. Temperature >140°C Pressure >1500 psi (103 bar).

Mobile Phase

Water can be tolerated up to 1%. Low molecular weight amines can be tolerated up to 0.5%. Glacial acetic acid can be tolerated up to 1%. Do not exceed a maximum temperature of 140°C and maximum pressure of 650psi. Some solvents can cause shrinking of the packing (see Solvent Switching Chart below).

SOLVENT SWITCHING FOR PHENOGEL GPC COLUMNS

70-80% SWELL

Toluene, Tetrahydrofuran (THF), Chloroform, benzene, o-dichlorobenzene (ODCB), trichlorobenzene (TCB), p-xylene, cyclopentane, pyridine

60% SWELL

Ethyl ether, methylene chloride, methyl ethyl ketone, cycloheptane, ethyl acetate

50% SWELL

Acetone, m-cresol, o-chlorophenol, dimethylformamide (DMF), dimethylacetamide (DMAC), n-methylpyrrolidone (NMP), dimethylsulfoxide (DMSO)

30% SWELL

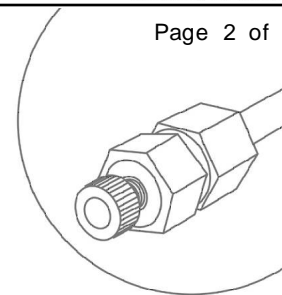
Acetonitrile, cyclohexane, n-hexane, Freon 113, hexafluoroisopropanol (HFIP), isopropanol, n-butyl alcohol, methanol

When switching solvents:

- 1) Make sure solvents are miscible by checking in a beaker. Use a mutually miscible solvent when solvents prove immiscible (see Miscibility in Reference Menu).
- 2) Note that All Phenogel columns are shipped in THF unless otherwise requested.
- 3) If a solvent(s) of 60% swell is/are chosen, a direct switch to the new solvent is permitted.
- 4) If a solvent(s) of 50% swell is/are chosen, flush through a solvent in the 60% swell category first before introducing the new (50% SWELL) solvent.
- 5) If a solvent(s) of 30% swell is/are chosen, at least flush through a solvent in the 60% swell category first before introducing the new (30% SWELL) solvent. For best results, flush first with a 60% swell solvent then a 50% swell solvent prior to introduction of the new (30% SWELL) solvent.

If the above precautions are not followed, voiding may occur.

Column life can be maximized by dedicating certain columns to certain solvents.



Sample Prep

Check for sample solubility in mobile phase.

Use mobile phase as diluent where possible.

Trace impurities can dramatically degrade column life.

Filter all samples using a 0.45u or 0.2u porosity filter prior to injection.

Column Conditioning

Be sure the system is first thermally and electronically stable, especially the electronic (background) noise from the detector. Condition the column at the operating flow rate until a stable baseline is observed.

Column Cleaning

Clean column by reverse flushing with the mobile phase.

Regeneration

Clean column by reverse flushing with the mobile phase.

Storage

Solvents such as stabilized THF, Chloroform, Methylene chloride and Toluene are commonly used for column storage. Storage solvents which remain liquefied at ambient temperatures and are not oxidizing, can be used for storage. Be sure column ends are capped tightly to prevent solvent evaporation from column. Column desiccation is the most common source of column failure.

Mechanical Shock

Handle columns with care. Do not drop or create physical shock. Do not start pump at high flow rates- instead ramp up gradually over a few minutes. Set your pump pressure limit to protect the column.

Testing Column

Test column using following conditions:

Sample: Acetone

Mobile phase: THF

Flow rate: 2mL/min for 10u Phenogel columns

1mL/min for 5u Phenogel columns

Injection: 1.0uL

Detection: UV@254nm

Warranty

Phenomenex HPLC columns are warranted to meet the stated performance and quality and to be free of defects in material and workmanship. If you are unsatisfied for any reason, please give your Phenomenex Technical Representative a call. We'll do our best to solve the problem to your satisfaction. Should it become necessary to return the column, a Return Authorization Number must be obtained from Phenomenex first.

