Agilent PL HFIPgel GPC Columns

Data Sheet

Installation

1/16 in stainless steel tubing with an id of 0.010 in is recommended for column connections. Connecting tubing lengths should be minimized to avoid excessive dead volume which will diminish system performance. Connections to the column should be made using Parker compatible 1/16 in nuts and ferrules with special reference to compatibility of column connectors as illustrated in Figure 1.

The distance 'X' for the standard PL HFIPgel column end fitting is 0.090 in and a minimum male nut length of 0.210 in is required. Some fittings, e.g. Waters, Valco, Rheodyne, are not compatible. If unsure, please contact Agilent Technologies for further advice.

Connect the column in the flow direction indicated. The nut and ferrule should be tightened 1/4 in of a turn past finger tight by applying the wrenches as shown in Figure 2.

To avoid loosening the end fittings and causing leaks, wrenches must be used on the end fitting adjacent to the connecting nut and not on the column barrel or the opposite end fitting.

It is recommended that several drops of eluent have been pumped before the column outlet is connected to another column or detector to clean out the end fitting of any particulate matter which may be present.

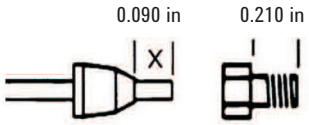

Figure 1. *Compatible connectors*

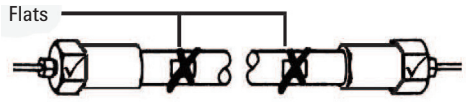

Figure 2. *Do not use wrenches on flats*

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Eluent, flow rate and temperature

The column is supplied in 1, 1, 1, 3, 3, 3, hexafluoro-2-propanol (HFIP). This solvent is relatively viscous and for optimized performance it is recommended that the column be used at elevated temperature (40 °C), with the flow rate typically 1.0 mL/min for 7.5 mm id, or 0.3 mL/min for 4.6 mm id. If elevated temperature is not employed, the operating flow rate may need to be reduced to avoid overpressuring the column.

At no time should the maximum operating pressure of the column exceed 100 bar (1450 psi).

When installing the column(s) the recommended procedure is as follows:

1. Connect the column(s) in the system
2. Set the pressure maximum on the pump to 100 bar (1450 psi) and set the flow rate of the pump to 0.2 mL/min
3. Pump solvent through the column at 0.2 mL/min whilst increasing the temperature to 40 °C
4. Increase the pump flow rate in steps of 0.1 mL/min every 10 seconds to the final flow rate required, normally 1.0 mL/min

For many applications, the HFIP eluent may need to be modified in order to avoid polyelectrolyte effects in GPC. In this case trifluoroacetic acid, sodium salt (NaTFAc) may be added to the eluent at a concentration of 5-50 mM.

After use the column can be decommissioned as follows:

1. Set the pump flow rate to 0.2 mL/min
2. Switch off the column oven
3. Continue to pump at 0.2 mL/min until the column temperature has reached ambient
4. Switch off pump

Storage

On removing the column from the system, the metal end plugs must be replaced to prevent the column drying out by evaporation since subsequent shrinkage of the gel and disruption of the packing may occur.

It is recommended that metal end plugs be used since many polymeric materials commonly used in end plug manufacture will be attacked by HFIP.

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