SHIMADZU
Excellence in Science

HPLC Columns

Thank you for purchasing an HPLC column from Shimadzu Scientific Instruments, Inc. Each column is individually packed and tested to ensure superior performance. The enclosed chromatogram is specific to your column and contains important information such as the column serial number and the lot number of the packing material. Retain this information as it may prove invaluable in troubleshooting.

Column hardware

All column hardware is 316 stainless steel. The end-fittings are compatible with fittings from Valco®, Upchurch, Parker, Swagelok®, and others. However, all connecting fittings should be assembled in your new column to ensure a proper fit.

The 1.8µm column has a 0.5µm frit and the 5µm column has a 2µm frit.

Connecting your column to your HPLC system

Each column is shipped with PEEK™ end plugs; simply loosen the plugs and remove before installation.

The column is shipped containing the mobile phase indicated on the enclosed test sheet. Be sure that your mobile phase is compatible with this. If not, you must flush with an interme-di ate solvent that is compatible with the storage solvent and your mobile phase. Be especially careful if you are using a buf-fer because most columns are shipped with more than 50% organic solvent, which could cause precipitation of the buffer and plugging of the column.

Flow direction →→→

The arrows on the column label indicate the flow direction. Begin by connecting the inlet end of the column to the injec-tor or autosampler and gradually increasing the flow rate to its optimum value. Allow the mobile phase to flow from the outlet end of the column into a beaker for 10–15 minutes and then connect the column to your detector.

Optimum Flow Rate

Column ID	Flow Rate
5.0um, 3.0 mm	400 µL/min.
1.8um, 2.1 mm	550 uL/min.

Record your operating pressure!

Continuous monitoring of system pressure will alert you to changes that may require you to perform preventative maintenance such as column washing, replacement of a guard column or filter, or cleaning of an inlet frit.

Column lifetime

Shimadzu columns are packed with silica particles. The normal pH limitations are from pH 2 to pH 8. Extended use at either extreme of pH may shorten the lifetime of the column.

We strongly recommend the use of solvents designed specifically for HPLC that have been thoroughly filtered and degassed. Residue and chemical contaminants in non-HPLC Grade solvents can cause alteration of selectivity and/or a significant increase in system pressure due to plugging of the inlet frit.

An upper temperature limit of 80 °C is recommended. Elevated temperatures may improve efficiency by lowering solvent viscosity, but again, column life may be compromised.

Most 5.0 µm columns can operate at pressures up to 5800 psi, but it may indicate a problem if pressure approaches this value. Most 1.8 µm columns can operate at pressures up to 15,000 psi, but it may indicate a problem if pressure approaches this value. For maximum lifetime of 12,000 psi is recommended.

Column clean-up

Column lifetime can be extended considerably with routine column washes and proper storage.

Columns should be flushed when not in use to remove buffers, acids or bases. The ideal flushing solvent is a solution identical in composition to your mobile phase minus the acid, base, and buffer.

If system pressure begins to rise, backflushing the column may reverse pressure by removing particle buildup on the inlet of the column. This is accomplished by connecting the outlet end of the column to the pump and allowing solvent exiting the inlet end of the column to flow into a beaker. Be sure to disconnect the column from the detector to prevent forcing contaminants into your detector. This practice is not recommended for 1.8um columns

Column storage

Reversed phase columns should be stored in 50% organic sol-vent (i.e., acetonitrile or methanol) and 50% water. Normal phase columns should be stored in a non-polar solvent such as hexane. All columns should be stored with their end-plugs securely fastened. Because every HPLC system is unique, especially in the gradiant mode, your results may differ slightly from those obtained in our laboratory.

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