TSKgel® G3000HXL Products

Part Numbers: 16136, G3000HXL, 5 µm, 7.8 mm ID ✕ 30 cm   07113, HXL-L Guardcolumn, 8 µm, 6 mm ID ✕ 4 cm

This sheet contains the recommended operating conditions and the specifications for the TSKgel G3000HXL column and guard column. TSKgel H-type columns are used exclusively for Gel Permeation Chromatography. Installation instructions and column care information are described in a separate Instruction Manual.

A.   OPERATING CONDITIONS

1. Shipping Solvent: Tetrahydrofuran (THF)

2. Max./Standard Flow: 1.2 mL/min

3. Standard Flow Rate   0.5 - 1.0 mL/min

4. Max. Pressure: 3.5 MPa

5. Multiple Columns: Columns of the same or different pore size are often connected in series to improve resolution and/or to expand the linear portion of the calibration curve. Connect the columns in order of decreasing pore size to avoid overloading from the high MW components. Connect analytical columns using short pieces of 1/16" x 0.01" ID stainless steel tubing.

6. Solvents: On the following page is a list of solvents that are compatible with this column. Most TSKgel H-type columns are supplied in THF because of its high dissolving power for polymers and oligomers.

7. Temperature: It is recommended that TSKgel G3000HXL columns be used above room temperature and up to a maximum of 60 °C.

8. Sample Size: 0.001 - 0.5 mg

9. Storage: The column can be left overnight in solvent in the LC system. When it will not be used for longer periods of time, remove the column from the equipment, seal the ends with the provided protective screws, and store it at laboratory temperature. At all times, prevent air from entering the column!

10. Column Protection: The use of guard columns is recommended to prolong the life of the analytical column. Guard column life depends greatly on sample cleanliness. As a general rule, guard columns should be replaced after every 30-40 sample injections, when the peaks become excessively wide, or when the peaks show splitting.

B.   SPECIFICATIONS

The performance of TSKgel G3000HXL columns are tested under the conditions described in the Inpection Data Sheet. All columns have passed the following quality control specifications:

1. Number of Theoretical Plates (N):   > 16,000

2. Asymmetry Factor (AF):   0.7 - 1.6

C. SOLVENT COMPATIBILITY for TSKgel H$_{XL}$ COLUMNS

Standard TSKgel H$_{XL}$ columns are packed (and shipped) in tetrahydrofuran, with the exception of TSKgel GMH$_{XL}$-HT columns, which are only shipped in o-dichlorobenzene. The table below lists the solvents that may be used to replace the original shipping solvent.

Note: Only one solvent substitution can be made.

SHIPPING SOLVENT	CAN BE REPLACED BY
Tetrahydrofuran	benzene, chloroform, toluene, xylene, dichloromethane, dichloroethane
Note:	THF in TSKgel G3000H$_{XL}$ columns <u>cannot</u> be substituted with dichloromethane or dichloroethane.
Acetone	carbon tetrachloride, o-chlorophenol/chloroform, m-cresol/chloroform, o-dichlorobenzene, dimethylformamide (DMF), dimethylsulfoxide (DMSO), dioxane, ethylacetate, FC-113, hexane, hexafluoroisopropanol/chloroform, methylethylketone, N-methylpyrrolidine, methanol/chloroform (up to 60% MeOH), pyridine, quinoline.
Chloroform	m-cresol/chloroform, hexafluoroisopropanol/chloroform, 0 to 20% methanol in chloroform.
Dimethylformamide	dimethylsulfoxide, dioxane, tetrahydrofuran, toluene,
o-dichlorobenzene	1-chloronaphthalene, trichlorobenzene

<u>Important</u>:

1.   Carbon tetrachloride can corrode stainless steel parts in an HPLC system and in the column.

2.   Methanol cannot be used with TSKgel H-Type columns; use TSKgel Alpha or SuperAW columns with this solvent.

How to Change Solvents: i.   Use a linear gradient at a rate of change of 2% per minute.
ii.   Use a flow rate of $\leq$ 0.5 mL/min for 7.8 mm ID columns.