OPERATING CONDITIONS and SPECIFICATIONS

TSK-GEL® DEAE-5PW Products

Analytical/Semi-Prep:	18757, 2mm ID x 7.5cm, 10μm	42152 Guard Cartridge, 2mm ID x 1cm, 10μm
		19308, Guard Cartridge holder for 2mm ID cartridges
	07164, 7.5mm ID x 7.5cm, 10μm	07210, Guardgel Kit, for PN 07164, 20μm
	07574, 21.5mm ID 15cm, 13μm	16092, Prep Guargel Kit for P/N 07574, 20μm
	13061, 5.0mm ID Glass x 5cm, 10μm	08806, Guardgel Kit Glass, for PN 13061 & 08802,20μm
	08802, 8.0mm ID Glass x 7.5cm, 10μm	
	14016, 20mm ID Glass x 15cm, 13μm	14466, Guardcolumn (20mm ID Glass x 2cm), 13μm
Preparative Columns:	07930, 55mm ID x 20cm, 20μm	07928, Guardcolumn (45mm ID x 5cm), 20μm
Small Ion Capacity:	> 0.1 meq/ml	14594, Pre-injector membrane filter holder, SS
Counter Ion:	Cl^-	03409, 13mm ID Nylon Membrane filter, 0.45μm, for PN 14594

This sheet contains the recommended operating conditions and the specifications for TSK-GEL DEAE-5PW columns and guard columns. Installation instructions and column care information are described in a separate Instruction Manual.

A. OPERATING CONDITIONS

1. Shipping Solvent: Distilled and Deionized Water

2. Max. Flow Rate:
   0.12 mL/min (2mm ID)
   1.0 mL/min (5.0mm ID Glass x 5.0cm)
   1.2 mL/min (7.5mm ID x 7.5cm and 8.0mm ID Glass c 7.5cm)
   8.0 mL/min (21.5mm ID x 15cm and 20mm ID Glass x 15cm)

   When changing solvents, use a flow rate equal to 50% of the maximum flow rate (20% for prep columns).

3. Standard Flow Rate:
   0.05 - 0.10 mL/min (2 mm ID)
   0.5 - 0.8 mL/min (5.0mm ID Glass x 5.0cm)
   0.5 - 1.0 mL/min (7.5mm ID x 7.5cm and 8.0mm ID Glass x 7.5cm)
   4.0 - 6.0 mL/min (21.5mm ID x 15cm and 20mm ID Glass x 15cm)

4. Max. Pressure:
   1.0 MPa (8.0mm ID Glass x 7.5cm)
   1.5 MPa (7.5mm ID & 2mm ID, 5.0mm ID Glass and 20.0mm ID Glass)
   2.5 MPa (21.5mm ID x 15cm)

5. pH Range: 2.0 - 12.0

6. Salt Conc.: $\leq$ 1.0 mol/L

7. Organic Conc.: $\leq$ 20%

8. Temperature: 10-45°C - Reduce flow rate when operating below 10°C.

9. Cleaning Solvents:
   (1) 0.1 - 0.2mol/L NaOH, and, if not successful,
   (2) 20 - 40% acetic acid aq., or
   (3) Aqueous buffer in 30% acetonitrile or methanol, or
   (4) Urea or nonionic surfactant in buffer.

   NOTE: Clean the column regularly by injecting up to one column volume 0.1 - 0.2M NaOH in 250μl increments. Use a proportionally larger flow for (semi-) prep columns.

10. Storage: Rinse the column with 3 to 5 CV of DI water. Then store it in 20% ethanol or methanol in DI water when it will not be used the next day. For overnight storage flush the column with the low salt concentration mobile phase at 10 - 20% of the maximum flow rate. Prevent air from entering the column!

11. 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 when the peaks become excessively wide, or when the peaks show splitting.

B. SPECIFICATIONS

The performance of TSK-GEL DEAE-5PW columns is tested under the conditions described in the Data Sheet. All columns have passed the following quality control specifications:

1. Number of Theoretical Plates (N):
   > 700 (5mm ID Glass)
   > 1,300 (7.5mm ID, 2mm ID and 8.0mm ID Glass)
   > 3,000 (21.5mm ID and 20.0mm ID Glass)

2. Asymmetry Factor (AF): 0.8 - 1.6 (for analytical/semi-prep columns; no spec for prep columns).