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## OPERATING CONDITIONS and SPECIFICATIONS

### TSK-GEL® DEAE-5PW Products

<b>Analytical/Semi-Prep:</b>	18757	2.0 mm ID x 7.5 cm L	10 µm
	07164	7.5 mm ID x 7.5 cm L	10 µm
	07210	Guardgel Kit	20 µm
	07574	21.5 mm ID x 15.0 cm L	13 µm
	16092	Prep Guardgel Kit for P/N 07574	20 µm
	13061	5.0 mm ID x 5.0 cm L	10 µm
	08802	8.0 mm ID x 7.5 cm L	10 µm
	08806	Guardgel Kit Glass	20 µm
	14016	20.0 mm ID x 15.0 cm L	13 µm
	14466	20.0 mm ID x 2.0 cm L	13 µm
<b>Preparative Columns:</b>	07930	55.0 mm ID x 20.0 cm L	20 µm
	07928	45.0 mm ID x 5.0 cm L	20 µm
	07930	55.0 mm ID x 20.0 cm L	20 µm

**Small Ion Capacity:** > 0.1 meq/ml **Counter Ion:** Cl<sup>-</sup>

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

#### A. OPERATING CONDITIONS

- Shipping Solvent: Distilled and Deionized Water
- Max. Flow Rate:
 

0.12 ml/min	2.0 mm ID
1.0 ml/min	5.0 mm ID x 5.0 cm L
1.2 ml/min	7.5 mm ID x 7.5 cm L and 8.0 mm ID x 7.5 cm L Glass
8.0 ml/min	21.5 mm ID x 15.0 cm L and 20.0 mm ID x 15.0 cm L Glass
50.0 and 150.0 ml/min	for 55.0 mm ID respectively

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

- Standard Flow Rate:
 

0.05 - 0.10 ml/min	2.0 mm ID
0.50 - 0.80 ml/min	5.0 mm ID x 5.0 cm L
0.50 - 1.00 ml/min	7.5 mm ID x 7.5 cm L and 8.0 mm ID x 7.5 cm L Glass
4.00 - 6.00 ml/min	21.5 mm ID x 15.0 cm L and 20.0 mm ID x 15.0 cm L Glass
20.00 - 40.00 ml/min	
and 70.00 - 120.00 ml/min	for 55.0 mm ID respectively
- Max. Pressure:
 

10 kg/cm <sup>2</sup> = 150 psi	8.0 mm ID x 7.5 cm L
15 kg/cm <sup>2</sup> = 215 psi	2.0 mm ID x 7.5 cm L, 5.0 mm ID Glass and 20.0 mm ID Glass
25 kg/cm <sup>2</sup> = 350 psi	21.5 mm ID x 15.0 cm L
4 kg/cm <sup>2</sup> = 57 psi	55.0 mm ID
- pH Range: 2.0 - 12.0
- Salt Conc.: ≤ 0.5 Molar
- Organic Conc.: ≤ 20%

8. Temperature: 10-45°C Reduce flow rate when operating below 10°C.
9. Cleaning Solvents: (1) 0.1 - 0.2 M NaOH, and, if not successful,  
(2) 20 - 40% acetic acid aq., or  
(3) Aqueous buffer in 30% acetonitrile or methanol, or, if nothing else is successful  
(4) Urea or nonionic surfactant in buffer.
- NOTE:** Clean the column regularly by injecting up to one column volume 0.1 - 0.2 M 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

Number of Theoretical Plates (N):	≥ 700	5.0 mm ID Glass
	≥ 1,300	7.5 mm ID, .2.0 mm ID and 8.0 mm ID Glass
	≥ 3,000	21.5 mm ID and 20.0 mm ID Glass
	≥ 1,500	55.0 mm ID x 20.0 cm L
Asymmetry Factor (AF):	0.8 - 1.6	for analytical/semi-prep columns; no spec for prep columns