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## OPERATING CONDITIONS and SPECIFICATIONS

### TSK-GEL® DEAE-NPR Products

<b>Part Numbers:</b>	13075	4.6 mm ID x 3.5 cm L <b>Counter Ion:</b> SO <sub>4</sub> <sup>2-</sup>	<b>2.5 µm</b>
	17088	4.6 mm ID x 0.5 cm L <b>Counter Ion:</b> SO <sub>4</sub> <sup>2-</sup>	<b>5.0 µm</b>
		<b>Small Ion Capacity:</b>	> 0.15 meq/ml

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

#### A. OPERATING CONDITIONS

- Shipping Solvent: The columns are shipped in water.
- Max. Flow Rate: 1.6 ml/min  
**NOTE:** When a buffer with high viscosity is used, the maximum flow rate may have to be reduced so as not to exceed the maximum pressure drop. When changing solvents, use a flow rate equal to 25% of the maximum flow rate.
- Standard Flow Rate: 1.0 - 1.5 ml/min
- Max. Pressure: 200 kg/cm<sup>2</sup> = 2900 psi
- pH Range: 2 - 12 pH above 12 can only be used for a short time
- Salt Conc.: ≤ 1 Molar
- Organic Conc.: ≤ 20%
- Temperature: 0 - 60°C
- Cleaning Solvents:  
(1) 0.1 - 0.2 M NaOH, or  
(2) 20 - 40% acetic acid aq., or  
(3) 30% acetonitrile or methanol in water or buffer, or, if nothing else was 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 100 - 250µl increments.
- Storage: Store the column in 20% acetonitrile in water when it will not be used the next day. Avoid letting air enter the column!
- Column Protection: The use of guard columns is recommended to prolong the life of the analytical column. Guard column life depends greatly on the sample cleanliness. As a general rule, guard columns should be replaced when the peaks become excessively wide, or when the peaks show splitting. We also recommend a pre-injector membrane filter to prevent particles from pump seal wear to reach the column.  
**NOTE:** Use high quality reagents, water and solvents for preparing buffers. Fouling of the resin, leading to a loss in retention and/or efficiency, occurs faster due to the small surface area of non-porous resin particles.

## B. SPECIFICATIONS

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

Resolution (Rs):

$$\geq 6.0 \quad R_s = 2(V_2 - V_1)/1.7(W_2 + W_1) \text{ in which,}$$

$V_1$  = elution volume ovalbumin  
 $V_2$  = elution volume trypsin inhibitor  
 $W_1, W_2$  = widths of peaks 1 and 2 at half-height