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## OPERATING CONDITIONS and SPECIFICATIONS

### TSKgel® Butyl-NPR™ Products

<b>Part Numbers:</b>	0014947	4.6 mm ID x 3.5 cm L	<b>2.5 µm</b>
	0042168	4.6 mm ID x 10.0 cm L	
	0003410		<b>2.5 µm</b>
	0003411		

Pre-Column Filter with 0.5 µm SS Frit  
 Replacement 0.5 µm Frits, for 03410, pk 10

This sheet contains the recommended operating conditions and the specifications for **TSKgel** Butyl-NPR columns. Installation instructions and column care information are described in a separate Instruction Manual.

#### A. OPERATING CONDITIONS

1. Shipping Solvent: Distilled Water
2. Max. Flow Rate: 1.2 mL/min 4.6 mm ID x 3.5 cm L  
1.0 mL/min 4.6 mm ID x 10.0 cm L

**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.

3. Standard Flow Rate: 0.5 – 1.0 mL/min
4. Max. Pressure: 20 MPa
5. pH Range: 2 - 12 pH above 12 or below 2 can only be used for a short time
6. Salt Conc.: < 4 Molar
7. Organic Conc.: ≤ 50% confirm that salt does not precipitate
8. Temperature: 0 - 60°C

9. Column Washing and Regeneration: Repeated 100 - 250 µl injections of 0.1 - 0.2 M NaOH are recommended for cleaning or regenerating the column. When this procedure is not effective, we recommend repeated injections of 100 - 250 µl of 20% aq. acetic acid.

**NOTE:** The above cleaning step using 0.1 - 0.2 M NaOH is best performed after each day of column use.

10. Storage: Store the column in shipping solvent at the end of each day of use.
11. Column Protection: No guard column is available for the **TSKgel** Butyl-NPR column. Be sure to use a filter after the injector with 0.5 micron pores to avoid frequent plugging of the one micron pore size NPR column frit. We also recommend a pre-injector membrane filter to prevent particles from pump seal wear to reach the column.

#### B. SPECIFICATIONS

The performance of **TSKgel** Butyl-NPR columns is tested under the conditions described in the Data Sheet. All columns have passed the following quality control specifications

Resolution (Rs):	≥ 3.0	4.6 mm ID x 3.5 cm L $Rs = 2(V_2 - V_1)/1.7(W_2 + W_1)$ in which $V_1$ = elution volume lysozyme $V_2$ = elution volume ovalbumin $W_1, W_2$ = widths of peaks 1 and 2 at half height
Number of theoretical Plates (N)	≥ 4000	4.6 mm ID x 10 cm L
Asymmetry Factor (AF)	1.0 – 3.0	4.6 mm ID x 10 cm L