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## OPERATING CONDITIONS and SPECIFICATIONS

### TSK-GEL® Super-Phenyl Products

<b>Part Numbers:</b>	18277	4.6 mm ID x 5.0 cm L	2 µm
	18278	4.6 mm ID x 10.0 cm L	2 µm
	20017	2.0 mm ID x 5.0 cm L	2 µm
	20018	2.0 mm ID x 10.0 cm L	2 µm
	18207	4.0 mm ID x 4.0 cm L	TSK Guard filter for 4.6mm ID columns Cartridge Holder, for the Guard filter PN 18207
	18206		

This sheet contains the recommended operating conditions and the specifications for TSK-GEL Super-Phenyl columns, Guard columns and Guard filters. Installation instructions and column care information are described in a separate Instruction Manual.

#### A. OPERATING CONDITIONS

1. Shipping Solvent: 50% Acetonitrile - 50% Water
2. Max. Flow Rate: 4.00 ml/min 4.6 mm ID  
0.25 ml/min 2.0 mm ID

**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: 1.00 - 2.50 ml/min 4.6 mm ID  
0.15 - 0.20 ml/min 2.0 mm ID
4. Max. Pressure: 300 kg/cm<sup>2</sup> = 4300 psi 4.6 mm ID  
250 kg/cm<sup>2</sup> = 3600 psi 2.0 mm ID
5. pH Range: 2.0 - 7.5
6. Salt Conc.: No limitation
7. Organic Conc.: No limitation
8. Temperature: 10 - 50°C Reduce flow rate when operating below 10°C.
9. Cleaning Solvents: (1) High conc. solvent containing organic modifiers\*  
(2) Mixture of organic acids and high conc. organic modifiers\*  
  
\*Acetonitrile and methanol are recommended as a modifier.
10. Storage: Store the column in the shipping solvent if it will not be used within three days. Prevent air from entering the column. For overnight storage flush the column with mobile phase at 0.2 ml/min.
11. Column Protection: An on-line filter (0.2 - 0.5 µm) equipped between pump and injection valve is recommended. Guard filters prevent the column from a contamination of strongly adsorbed solutes. As a general rule, guard filters should be replaced after 30-40 sample injections or when peaks become excessively wide.

## B. SPECIFICATIONS

The performance of TSK-GEL Super-Phenyl 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):	≥	8,000	4.6 mm ID x 5.0 cm L
	≥	16,000	4.6 mm ID x 10.0 cm L
	≥	6,000	2.0 mm ID x 5.0 cm L
	≥	12,000	2.0 mm ID x 10.0 cm L
Asymmetry Factor (AF):		0.8 - 1.6	4.6 mm ID
		0.8 - 1.5	2.0 mm ID