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## OPERATING CONDITIONS and SPECIFICATIONS

### TSKgel® Phenyl-5PW Products

<b>Analytical / Semi-Prep:</b>	0018759	2.0 mm ID x 7.5 cm L		<b>10 µm</b>
	0007573	7.5 mm ID x 7.5 cm L		<b>10 µm</b>
	0007652	Guardgel Kit for PN 07573		
	0020023	7.8 mm ID x 5.0 cm L	Peek	<b>10 µm</b>
	0013063	5.0 mm ID x 5.0 cm L	Glass	<b>10 µm</b>
	0008804	8.0 mm ID x 7.5 cm L	Glass	<b>10 µm</b>
	0007656	21.5 mm ID x 15.0 cm L		<b>13 µm</b>
	0016095	Phenyl-5PW Prep Guardgel Kit for P/N 07656		

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

#### A. OPERATING CONDITIONS

1. Shipping solvent: Water
2. Max. Flow Rate:
 

0.12 mL/min	2.0 mm ID x 7.5 cm L
1.00 mL/min	5.0 mm ID x 5.0 cm L Glass
1.20 mL/min	7.5 mm ID x 7.5 cm L, 8.0 mm ID x 7.5 cm L Glass and 7.8 mm ID x 5.0 cm L Peek.
8.00 mL/min	21.5 mm ID x 15.0 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 50% of the maximum flow rate (20% for prep columns).
3. Standard Flow Rate:
 

0.05 - 0.1 mL/min	2.0 mm ID x 7.5 cm L
0.50 - 0.8 mL/min	5.0 mm ID x 5.0 cm L Glass
0.50 - 1.0 mL/min	7.5 mm ID x 7.5 cm L, 8.0 mm ID x 7.5 cm L Glass and 7.8 mm ID x 5.0 cm L Peek.
4.00 - 6.0 mL/min	21.5 mm ID x 15.0 cm L
4. Max. Pressure
 

0.8 MPa	2.0 mm ID
2.0 MPa	analytical/semi-prep columns
4.0 MPa	prep columns
5. pH Range: 2.0 - 12.0
6. Salt conc.: ≤ 4 Molar
7. Organic Conc.: ≤ 50% Avoid precipitating salt on the column
8. Temperatur: 10 - 50°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.

Clean the column regularly by injecting up to one column volume 0.1 - 0.2 M NaOH in 250 µl increments. Use proportionately larger volumes for (semi-) prep columns.
10. Storage: Store the column in DI water when it will not be used the next day or 20% ethanol or methanol for longer term storage. Rinse with distilled water before switching to organic to avoid salt precipitation. For overnight storage flush the column with the low salt concentration mobile phase at 10 - 20% of the max. 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 **TSKgel** Phenyl-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):	≥ 600	5.0 mm ID x 5.0 cm L Glass
	≥ 1,000	2.0 mm ID, 7.5 mm ID and 8.0 mm ID x 7.5 cm L Glass
	≥ 3,000	21.5 mm ID x 15.0 cm L
Asymmetry Factor (AF):	0.8 - 1.6	21.5 mm ID x 15.0 cm L
	0.9 - 1.8	2.0 mm ID
	1.0 - 2.0	other columns;