

TSK-GEL® Phenyl-5PW Products

Part Numbers:	18759, 2.0mm ID x 7.5cm, 10µm 07573, 7.5mm ID x 7.5cm, 10µm 07656, 21.5mm ID x 15cm, 13µm 07938, 55mm ID x 20cm, 20µm 13063, 5.0mm ID Glass x 5.0cm, 10µm 08804, 8.0mm ID Glass x 7.5cm, 10µm 20023, BioAssist, 7.8mm ID PEEK x 5cm, 10µm	42155, Guard Cartridge for 2.0mm ID column, 2mm ID x 1cm 19308, Guard Cartridge Holder for 2mm ID cartridges 07652, Guardgel Kit for P/N 07573 16095, Guardgel Kit for P/N 07656 07936, Guard Column for P/N 07938
----------------------	---	--

This sheet contains the recommended operating conditions and the specifications for TSK-GEL 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:	0.12mL/min (2.0mm ID x 7.5cm) 1.0mL/min (5.0mm ID Glass x 5.0cm) 1.2mL/min (7.5mm ID x 7.5cm; 7.8mm ID PEEK x 5cm and 8.0mm ID Glass x 7.5cm) 8.0mL/min (21.5mm ID x 15cm) 50mL/min (55mm ID x 20cm) 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 – 0.1mL/min (2.0mm ID x 7.5cm) 0.5 - 0.8mL/min (5.0mm ID Glass x 5.0cm) 0.5 - 1.0mL/min (7.5mm ID x 7.5cm; 7.8mm ID PEEK x 5cm and 8.0mm ID Glass x 7.5cm) 4.0 - 6.0mL/min (21.5mm ID x 15cm and 20mm ID Glass x 15cm) 20 - 40mL/min (55mm ID x 20cm)
4. Max. Pressure:	0.8MPa (2.0mm ID x 7.5cm) 2MPa (other analytical/semi-prep columns) 0.4MPa (prep column)
5. pH Range:	2.0 - 12.0
6. Salt Conc.:	≤ 4 Molar
7. Organic Conc.:	≤ 50% (Avoid precipitating salt on the column)
8. Temperature:	10 - 50°C - Reduce flow rate when operating below 10°C.
9. Cleaning Solvents:	(1) 0.1 - 0.2M NaOH. If not successful, (2) 20 - 40% acetic acid aqueous
NOTE:	Clean the column regularly by injecting up to one column volume 0.1 - 0.2M NaOH in 250µL 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 TSK-GEL Phenyl-5PW columns is tested under the conditions described in the Data Sheet. All columns have passed the following quality control specifications:	
1. Number of Theoretical Plates (N):	≥ 600 (5.0mm ID Glass x 5.0cm) ≥ 1,000 (2.0mm ID x 7.5cm, 7.5mm ID x 7.5cm, 7.8mm ID PEEK x 5cm and 8.0mm ID Glass x 7.5cm) ≥ 1,500 (55mm ID x 20cm) ≥ 3,000 (21.5mm ID x 15cm and 20.0mm ID Glass x 15cm)
2. Asymmetry Factor (AF):	0.8 - 1.6 (21.5mm ID x 15cm and 20.0mm ID Glass x 15cm) 0.9- 1.8 (2.0mm ID x 7.5cm) 1.0 - 2.0 (other columns; no spec for prep column)