

TSK-GEL® CM-5PW Products

Part Numbers:	13068, 7.5mm ID X 7.5cm, 10 μ m	13069, Guardgel Kit, 10 μ m
	14021, 21.5mm ID X 15cm, 13 μ m	14024, Guardgel Kit Glass
	14010, 5.0mm ID Glass X 5cm, 10 μ m	14468, Guardcolumn (20mm ID Glass X 2cm)
	14011, 8.0mm ID Glass X 7.5cm, 10 μ m	16094, Prep Guardgel Kit for P/N 14021
	14012, 20.0mm ID Glass X 15cm, 13 μ m	
Small Ion Capacity:	> 0.1 eq/L	Counter Ion: Na ⁺

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

A. OPERATING CONDITIONS

1. Shipping Solvent: Distilled and Deionized Water
 2. Max. Flow Rate: 1.0 mL/min (5.0mm ID Glass X 5.0cm)
1.2 mL/min (7.5mm ID X 7.5cm and 8.0mm ID Glass X 7.5cm)
8.0 mL/min (21.5mm ID X 15cm and 20mm ID Glass X 15 cm)

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.
 3. Standard Flow Rate: 0.5 - 0.8 mL/min (5.0mm ID Glass X 5.0cm)
0.5 - 1.0 mL/min (7.5mm ID X 7.5cm and 8.0mm ID Glass X 7.5cm)
4.0 - 6.0 mL/min (21.5mm ID X 15cm and 20mm ID Glass X 15cm)
 4. Max. Pressure: 10 MPa (8.0mm ID Glass X 7.5cm)
15 MPa (7.5mm ID, 5.0mm ID Glass and 20.0mm ID Glass)
25 MPa (21.5mm ID X 15cm)
 5. pH Range: 2.0 - 12.0
 6. Salt Conc.: \leq 0.5 mol/L
 7. Organic Conc.: \leq 20%
 8. Temperature: 10 - 45 °C - Reduce flow rate when operating below 10°C.
 9. Cleaning Solvents: (1) 0.1 - 0.2mol/L NaOH, and, if not successful,
(2) 20 - 40% acetic acid aq., or
(3) Aqueous buffer in organic solvent, or
(4) Urea or nonionic surfactant in buffer.
- NOTE:** Clean the column regularly by injecting up to one column volume 0.1 - 0.2mol/L NaOH in 250 μ l - 2ml increments.
10. Storage: Store the column in DI water when it will not be used the next day. For overnight storage flush the column with the low salt concentration mobile phase at low 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 after every 30 - 40 sample injections, when the peaks become excessively wide, or when the peaks show splitting.

B. SPECIFICATIONS

The performance of TSK-GEL CM-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): > 700 (5mm ID Glass)
> 1,300 (7.5mm ID and 8.0mm ID Glass)
> 2,500 (21.5mm ID and 20.0mm ID Glass)
2. Asymmetry Factor (AF): 0.8 - 1.6