

# TSK-GEL® G4000SW Products

<b>Part Numbers:</b>	05790, 7.5mm ID x 30cm 05104, 7.5mm ID x 60cm 06729, 21.5mm ID x 30cm 05148, 21.5mm ID x 60cm 08801, 8.0mm ID Glass x 30cm	05371, Guard Column for P/Ns 05790 & 05104, 7.5mm ID X 7.5cm 05758, Guard Column for P/Ns 06729 & 05148, 21.5mm ID X 7.5cm 08805, Guard Column for P/N 08801, 8mm ID X 4cm 06819, TSKtop-off gel SW, 1g wet gel
----------------------	--	--

This sheet contains the recommended operating conditions and the specifications for TSK-GEL G4000SW columns. Installation instructions and column care information are described in a separate Instruction Manual.

## A. OPERATING CONDITIONS

1. Shipping Solvent: 0.05% NaN<sub>3</sub> and 0.1mol/L Na<sub>2</sub>SO<sub>4</sub> in 0.1mol/L phosphate buffer, pH 6.7
2. Max. Flow Rate: 0.8 mL/min (8.0mm ID Glass)  
1.2 mL/min (7.5mm ID)  
8.0 mL/min (21.5mm ID)  
  
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: 0.4 - 0.8 mL/min (8.0mm ID Glass)  
0.5 - 1.0 mL/min (7.5mm ID)  
3.0 - 6.0 mL/min (21.5mm ID)
4. Max. Pressure: 1.0MPa (21.5mm ID x 30cm)  
1.5MPa (7.5mm ID x 30cm)  
2.0MPa (21.5mm x 60cm, 8mm Glass)  
3.0MPa (7.5mm ID x 60cm)
5. pH Range: 2.5 - 7.5
6. Salt Conc.: < 0.5 mol/L
7. Organic Conc.: 0 - 100% for aqueous soluble organic solvents. Make gradual solvent changes using a shallow gradient at low flow rate.
8. Temperature: 10 - 30°C, Reduce flow rate when operating below 10°C.
9. Cleaning Solvents: (1) conc. salt solution at low pH, e.g. 0.5mol/L Na<sub>2</sub>SO<sub>4</sub>, pH 2.7  
(2) methanol or acetonitrile in low conc. aqueous buffer  
(3) buffered solution of urea or guanidine  
  
**NOTE:** Choose a cleaning solvent based on sample properties, e.g. use (1) to remove basic proteins, and (2) to remove hydrophobic proteins. Chaotropic agents can solvate strongly adsorbed proteins, e.g. via hydrogen bonding.
10. Storage: Store the column in mobile phase containing 0.05% NaN<sub>3</sub> or 20% ethanol when it will not be used the next day. For overnight storage flush the column with 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.
12. TSKtop-off gel: Occasionally, due to accident, sample, mobile phase or operational variables, a depression can develop at the column or guard column inlet. Use TSKtop-off gel SW or G3SW for filling in such voids.

## B. SPECIFICATIONS

The performance of TSK-GEL G4000SW 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): ≥ 8,000 (30cm columns)  
≥ 16,000 (60cm columns)
2. Asymmetry Factor (AF): 0.7 - 1.6