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OPERATING CONDITIONS and SPECIFICATIONS

TSK-GEL® SW GUARDCOLUMN PRODUCTS

Part Numbers:	05371	7.5 mm ID x 7.5 cm L	Guardcolumn SW	10 µm
	05758	21.5 mm ID x 7.5 cm L	Guardcolumn SW	13 µm
	07427	45.0 mm ID x 7.5 cm L	Guardcolumn SW	20 µm
	08805	8.0 mm ID x 4.0 cm L	Guardcolumn SW Glass	10 µm
	14465	20.0 mm ID x 4.0 cm L	Guardcolumn SW Glass	20 µm

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

A. OPERATING CONDITIONS

1. Shipping Solvent: 0.05% NaN₃ and 0.1 M Na₂SO₄ in 0.1 M phosphate buffer, pH 6.7
2. Max.Flow Rate:

0.8 ml/min	8.0 mm ID Glass
1.2 ml/min	7.5 mm ID
8.0 ml/min	21.5 mm ID and 20.0 mm ID Glass (in series with the appropriate column)

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:

0.4 - 0.8 ml/min	8.0 mm ID Glass
0.5 - 1.0 ml/min	7.5 mm ID
3.0 - 6.0 ml/min	21.5 mm ID and 20.0 mm ID Glass
4. Max. Pressure:

8 kg/cm ² = 114 psi	20.0 mm ID Glass
20 kg/cm ² = 300 psi	8.0 mm ID Glass
30 kg/cm ² = 450 psi	21.5 mm ID
50 kg/cm ² = 700 psi	7.5mm ID
5. pH Range: 2.5 - 7.5
6. Salt Conc.: < 0.5 Molar
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. 0.5 M Na₂SO₄, pH 2.7
 - (2) methanol or acetonitrile in low conc. aqueous buffer, or, if nothing else is successful,
 - (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% NaN₃ 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. Top-Off: Occasionally, due to accident, sample, mobile phase or operational variables, a depression can develop at the guard column inlet. Use TSKgel Top-Off SW (7.5 mm and 8.0 mm ID P/N 06819) for filling in such voids.