TSK-GEL® VMpak-25 Products

Part Numbers:
20011, TSKgel VMpak-25, 2.0mm ID x 5cm, 7μm
20012, TSKgel VMpak-25, 2.0mm ID x 15cm, 7μm

This sheet contains the recommended operating conditions and the specifications for TSK-GEL VMpak-25 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: 0.25mL/min

   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: 0.10 – 0.20 mL/min
4. Max. Pressure: 20 kg/cm^2 = 285 psi (2.0mm ID x 5cm), 60 kg/cm^2 = 853 psi (2.0mm ID x 15cm),
5. pH Range: 2.0 - 12.0
6. Salt Conc.: ≤ 0.5 Molar
7. Organic Conc.: Up to 100%. The solvent change should be made very gradually using a shallow gradient at low flow rate.
8. Temperature: 10 - 80°C. Reduce flow rate when operating below 10°C.
9. Cleaning Solvents: Clean the column in reverse at half the standard flow rate (monitor pressure) with 3 to 5 columns volumes(CV) of:
   (1) High neutral salt concentration buffer (0.5 - 1.0M), or
   (2) pH 2 - 3 or pH 9 - 12 buffer, or
   (3) up to 100% organic
   (4) Buffer with 6M urea or 0.1% SDS

   NOTE:
   Rinse with 3 to 5 CV of DI water between the cleaning solutions. Choose a cleaning solvent based on sample properties, e.g. use (1) to remove basic polymers, (3) to remove hydrophobic proteins etc.
10. Storage: Store the column in a 0.05% NaN_3 solution or 20% ethanol in DI water when it will not be used the next day. For overnight storage flush the column at low flow rate with the mobile phase. 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 VMpak-25 columns are tested under the conditions described in the Data Sheet. All columns have passed the following quality control specifications:

1. Number of Theoretical Plates (N): ≥ 1,000 (2.0mm ID x 5cm)
   ≥ 3,000 (2.0mm ID x 15cm)
2. Asymmetry Factor (AF): 0.7 – 1.6

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