

**TSK-GEL® Sugar AX Products**

**Part Numbers:** 08639, Sugar AXI 4.6mm ID x 15cm, 8µm  
08640, Sugar AXG 4.6 mm ID x 15cm, 10µm

**Small Ion Capacity:** > 1.2meq/mL

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

**A. OPERATING CONDITIONS**

1. Shipping Solvent: 0.5 M boric acid buffer, pH 8.7
2. Standard Flow Rate: 0.2 - 0.4 mL/min (Sugar AXI)  
0.2 - 0.5 mL/min (Sugar AXG)
3. Max Pressure: 30 kg/cm<sup>2</sup> = 450 psi (Sugar AXI at 60 - 80°C)  
20 kg/cm<sup>2</sup> = 300 psi (Sugar AXG at 60 - 80°C)
4. pH Range: 7 - 10; above pH 10, the pressure drop becomes a limiting factor, while the capacity of boric acid buffer insufficient below pH 7.
5. Counter Ion & Salt Conc: HBO<sub>3</sub>; replacing the counter ion can cause swelling and degradation of efficiency. 0.15 - 1.0 M boric acid may be used. The flow rate may not exceed 0.2 mL/min. at the highest buffer concentrations.
6. Organic Conc.: ≤ 20%; Avoid precipitation of boric acid when adding organic solvents. Also consider the effect that the has on the detector.
7. Temperature: 25 - 80°C.  
  
Note: column efficiency improves with temperature, however, the optimum temperature for most saccharides is in the range of 55 - 70°C.
8. Sample Considerations: If possible, dissolve the sample in eluent or pure water. High concentrations of salts, acidic, and basic compounds may adversely affect reproducibility of retention and efficiency. Pretreatment of such sample with an ion exchange resin is recommended; this should also be helpful to eliminate hydrophobic contaminants.
9. Cleaning Solvents: (1) To eliminate ionic substances; 0.8 M boric acid buffer at 0.2 mL/min for 16 hrs.  
(2) To eliminate hydrophobic adsorption; 0.8 M boric acid buffer containing 20% acetonitrile at 0.2 mL/min for 16 hrs.
10. Storage: Overnight the column can be stored in mobile phase in the LC system. For long term storage, remove the column from the system and seal both ends with protective screws. At all times, 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 SUGAR AXI and AXG 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): ≥ 3,700 (Sugar AXI)  
≥ 2,700 (Sugar AXG)
2. Asymmetry Factor (AF): 0.7 - 1.6