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## OPERATING CONDITIONS and SPECIFICATIONS

### TSKgel® SUGAR AX Products

<b>Part Numbers:</b>	0008639	4.6 mm ID x 15.0 cm L	AXI	8 µm
	0008640	4.6 mm ID x 15.0 cm L	AXG	10 µm

**Small Ion Capacity:** > 1.2meq/gram  
**Counter Ion**  $\text{HBO}_3^-$

This sheet contains the recommended operating conditions and the specifications for **TSKgel** AXI and AXG columns. Installation instructions and column care information 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: 3 MPa Sugar AXI at 60 - 80°C  
2 MPa 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: replacing the counter ion can cause swelling and degradation of efficiency.
6. Salt Conc: 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.
7. Organic Conc.: ≤ 20% Avoid precipitation of boric acid when adding organic solvents. Also consider the effect that the has on the detector.
8. 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.
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 form entering the column!
11. Column Protection: Guard columns are not available for the **TSKgel** SUGAR AXI and AXG columns. It is therefore very important to protect the column with a frit filter, and to filter the mobile phase and samples using 0.45 micron membranes. Column life depends greatly on sample cleanliness. As a general rule, the column should be replaced when the peaks become excessively wide, or when the peaks show splitting.

#### B. SPECIFICATIONS

The performance of **TSKgel** SUGAR AXI and AXG columns is tested under the conditions described in the Data Sheet. All columns have passed the following quality control specifications

Number of Theoretical Plates (N):	≥ 3,700	Sugar AXI
	≥ 2,700	Sugar AXG
Asymmetry Factor (AF):	0.7 - 1.6	