TSK-GEL® SAX and SCX (Na^+) Products

Part Numbers:	07157, SAX 6.0mm ID X 15cm, 5μm	07156, SCX 15cm x 6.0mm, 5μm
Functional Group:	$-N(CH_3)_3^+$	$-SO_3^-$
Counterion:	Cl^- (chloride)	Na+ (sodium)
Small Ion Capacity:	> 1.0 meq/mL	> 1.5meq/mL

This sheet contains the recommended operating conditions and the specifications for TSK-GEL SAX and SCX (Na^+) columns. Both column types contain porous, spherical, polystyrene particles based on TSKgel G2000H packing material. SAX columns are typically used for the separation of carboxylic acids, while SCX (Na^+) columns are mainly applied to the analysis of amino acids, nucleic acids and organic acids. Installation instructions and column care information for TSK-GEL are described in a separate Instruction Manual.

A. OPERATING CONDITIONS

1. Shipping Solvent: Distilled deionized water
2. Max. Flow Rate: 1.2 mL/min (all columns)

   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 50% of the maximum flow rate.
3. Standard Flow Rate: 0.5 - 1.0 mL/min
4. Max. Pressure: 150 kg/cm^2 = 2250 psi
5. pH Range: 1 - 14
6. Counter Ions: SAX: citrate > SO_4^{2} > PO_4^{3} > Cl > formate > acetate > OH
   SCX: K > NH_4 > Na > Li > G

   Note: if possible, avoid the use of the corrosive chloride ion.
7. Organic Conc.: < 20% Solvent changes can result in swelling of the polymer backbone.
8. Temperature: 10 - 45°C. Reduce flow rate when operating below 10°C.
9. Cleaning Solvents: (1) Buffer with 0.5 - 1.0M salt, or
   (2) Low or HIgh pH buffer
   (3) Buffer containing 5-10% methanol

   NOTE: Choose a cleaning buffer based on sample properties, e.g. use (1) to remove strongly adsorbed proteins, (2) to reduce the negative or positive charges on the contaminating species, and (3) to decrease hydrophobic adsorption.
10. Storage: Store the column in distilled and deionized water at ambient temperature when it will not be used the next day. Overnight the column can be stored in mobile phase, except when corrosive ions such as halides are present. At all times, prevent air from entering the column!
11. Column Protection: Guard columns are not available for the TSK-GEL SAX and SCX 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 TSK-GEL SAX and SCX 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): > 2,000
2. Asymmetry Factor (AF): 0.8 - 1.6

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