

Instruction of TSKgel Sugar AXI and AXG

TSKgel Sugar AXI and AXG are high performance anion exchange columns for the analysis of saccharides, mainly consisted of mono and di-saccharides.

The packing materials in these columns are $8\ \mu\text{m}$ and $10\ \mu\text{m}$ of a strong anion exchange resin.

It is well known that saccharides and borate ion easily form certain complexes in the aqueous solution. The complexes are separated on TSKgel Sugar AX columns by ion exchange chromatography.

TSKgel Sugar AXG is compatible with both of the isocratic and gradient elution.

On the other hand TSKgel Sugar AXI is able to be used in the isocratic elution only, and show better resolution of saccharides than that on TSKgel Sugar AXG due to particle size effect.

Support

| | |
|-----------------------|---|
| Base material | : polymer gel |
| Functional group | : quaternary ammonium group |
| Ion exchange capacity | : more than 1.2 eq/L |
| Counter ion | : borate |
| Particle size | : TSKgel Sugar AXI $8\ \mu\text{m}$ TSKgel Sugar AXG $10\ \mu\text{m}$ |

Column

| | |
|-----------|---|
| Dimension | : 4.6 mm(i.d.) \times 15 cm(L) |
| Solvent | : 0.5 mol/L borate buffer pH 8.5 (Na ⁺) |

Working range

Pressure limit (pressure drop from top to end of the column)

TSKgel Sugar AXI : less than 3.0 MPa(420psi)

TSKgel Sugar AXG : less than 2.0 MPa(280psi)

pH range : 7.0 - 10.0

Although the supports are chemically stable in the pH range within 0 - 14, we recommend the pH range as described above. Because we observed the gradual increase of the back-pressure in proportion to the increase of pH value and could not use these columns under the adequate flow rate within the maximum pressure limit. At pH below 7 the buffer capacity of borate is very small.

Salt concentration range : 0.15 - 1.0 mol/L borate buffer

By the use of borate buffer of low concentration and pure water the remarkable increase of the back-pressure was observed, too.

Counter ion : borate or tetraborate

Organic solvent in eluent : less than 20%

Temperature : 25 - 80°C(for use)

10 - 40°C(for storage)

Quality test

Theoretical plate numbers of each column of TSKgel Sugar AXI and AXG are confirmed by the quality test.

Guaranteed theoretical plate number and asymmetry factor.

| | TP/column | asymmetry factor |
|------------------|-----------------|------------------|
| TSKgel Sugar AXI | more than 3,700 | 0.7 - 1.6 |
| TSKgel Sugar AXG | more than 2,700 | 0.7 - 1.6 |

Test condition

| | | |
|-------------|---------------------------------|------------------|
| Sample | : 0.1% benzyl alcohol | 20 μL |
| Eluent | : 0.5mol/L borate buffer pH 8.5 | |
| Flow rate | : 0.4 ml/min | |
| Temperature | : 60 °C | |
| Detector | : UV abs.(254 nm) | |