

Aqueous SEC (GFC) Columns : Polymer-based

Features

- SB-800 HQ**
 - Polymer-based packed columns for aqueous SEC (GFC) analysis
 - Supports a wide range of molecular weight sample analysis
 - The eluent can be replaced with DMF (except SB-802 HQ and SB-807 HQ), enabling the analysis of polar polymers
 - Method using SB-804 HQ or SB-805 HQ for gelatin's mean molecular weight determination is comparable with PAGI method (Ver. 10, Japan)



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- SB-807 HQ**
 - Column for the analysis of water-soluble ultra high molecular weight polymers
 - Large particle size gel is packed to prevent shear degradation of polymers

Standard columns

| Product Code | Product Name | Plate Number (TP/column) | Exclusion Limit (Pullulan) | Particle Size (μm) | Maximum Pore Size (Å) | Column Size (mm) I.D. x Length | Shipping Solvent |
|--------------|-------------------|--------------------------|----------------------------|--------------------|-----------------------|--------------------------------|----------------------------|
| F6429100 | OHpak SB-802 HQ | ≥ 12,000 | 4,000 | 8 | 100 | 8.0 × 300 | 0.02% NaN ₃ aq. |
| F6429101 | OHpak SB-802.5 HQ | ≥ 16,000 | 10,000 | 6 | 200 | 8.0 × 300 | 0.02% NaN ₃ aq. |
| F6429102 | OHpak SB-803 HQ | ≥ 16,000 | 100,000 | 6 | 800 | 8.0 × 300 | 0.02% NaN ₃ aq. |
| F6429103 | OHpak SB-804 HQ | ≥ 16,000 | (1,000,000) | 10 | 2,000 | 8.0 × 300 | 0.02% NaN ₃ aq. |
| F6429104 | OHpak SB-805 HQ | ≥ 12,000 | (4,000,000)* | 13 | 7,000 | 8.0 × 300 | 0.02% NaN ₃ aq. |
| F6429105 | OHpak SB-806 HQ | ≥ 12,000 | (20,000,000)* | 13 | 15,000 | 8.0 × 300 | 0.02% NaN ₃ aq. |
| F6429106 | OHpak SB-806M HQ | ≥ 12,000 | (20,000,000)* | 13 | 15,000 | 8.0 × 300 | 0.02% NaN ₃ aq. |
| F6709430 | OHpak SB-G | (guard column) | – | 10 | – | 6.0 × 50 | 0.02% NaN ₃ aq. |

SB-806M HQ is a mixed-gel column capable of analyzing samples over a wide range of molecular weight distribution.

Base Material : Polyhydroxymethacrylate

Usable pH range : pH3-10

() * Estimated value

For water-soluble ultra high molecular weight polymers

| Product Code | Product Name | Plate Number (TP/column) | Exclusion Limit (Pullulan) | Particle Size (μm) | Maximum Pore Size (Å) | Column Size (mm) I.D. x Length | Shipping Solvent |
|--------------|-----------------|--------------------------|----------------------------|--------------------|-----------------------|--------------------------------|------------------|
| F6429108 | OHpak SB-807 HQ | ≥ 1,500 | (500,000,000)* | 35 | 30,000 | 8.0 × 300 | H ₂ O |
| F6709431 | OHpak SB-807G | (guard column) | – | 35 | – | 8.0 × 50 | H ₂ O |

Base Material : Polyhydroxymethacrylate

Usable pH range : pH3-10

() * Estimated value

Usable concentration of organic solvents

| Product Name | The maximum usable concentration (%) | | |
|------------------------|--------------------------------------|--------------|-----|
| | Methanol | Acetonitrile | DMF |
| SB-802 HQ | 0 | 0 | 0 |
| SB-802.5 HQ, SB-803 HQ | 100 | 75 | 100 |
| SB-804 HQ~SB-806M HQ | 75 | 75 | 100 |
| SB-G | 75 | 75 | 100 |
| SB-807 HQ, SB-807G | 30 | 30 | 0 |

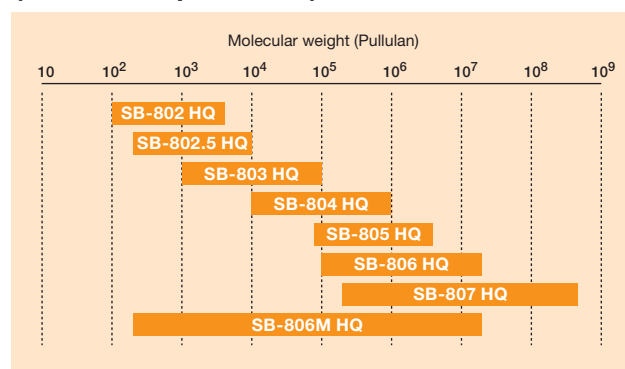
(Note)

The maximum solvent tolerance of preparative type SB-800 HQ, SB-2000 series, is 50% of methanol, acetonitrile, and DMF (SB-2002 is not tolerant of organic solvents, similar to SB-802 HQ).

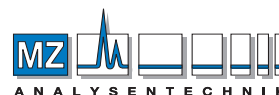
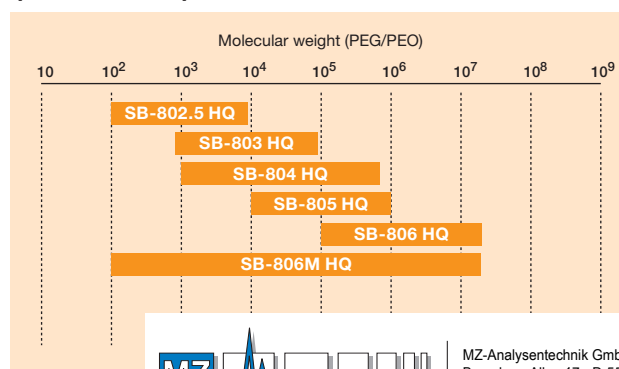


See page 51 for Calibration Standards

Molecular weight range with pullulan (eluent : ultrapure water)



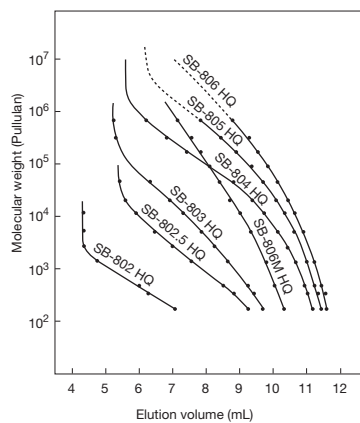
Molecular weight range with PEG/PEO (eluent : DMF)



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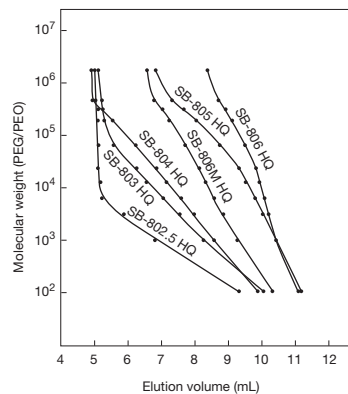
AUTHORIZED DISTRIBUTOR

*Contact Shodex or our distributors near you for customized columns.

Calibration curves for SB-800 HQ series using pullulan (eluent:H₂O)

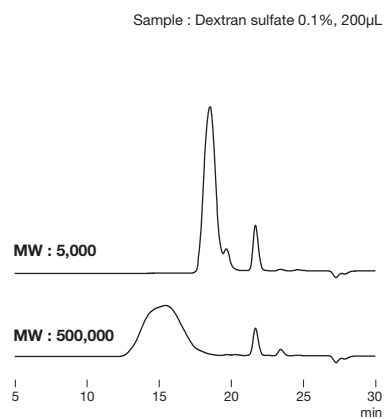
Column : Shodex OHpak SB-800 HQ series
Eluent : H₂O
Flow rate : 1.0mL/min
Detector : RI
Column temp. : Room temp.

Calibration curves for SB-800 HQ series using PEG/PEO (eluent:DMF)



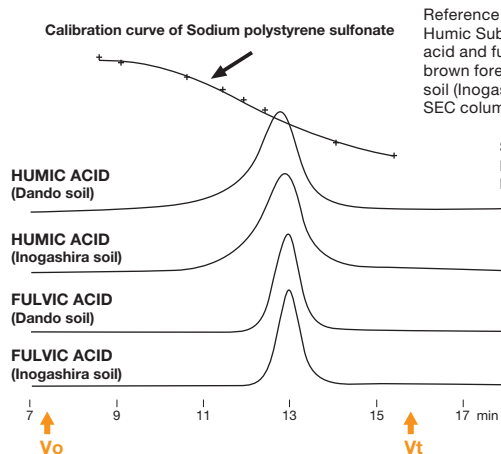
Column : Shodex OHpak SB-800 HQ series
Eluent : 20mM LiBr in DMF
Flow rate : 0.8mL/min
Detector : RI
Column temp. : 40°C

Dextran sulfate



Column : Shodex OHpak SB-806M HQ x 2
Eluent : 0.1M NaCl aq.
Flow rate : 1.0mL/min
Detector : RI
Column temp. : 40°C

SEC analysis of humic substance



Reference materials (from the Japanese Humic Substances Society) for humic acid and fulvic acid, prepared from brown forest soil (Dando) and kuroboku soil (Inogashira), were analyzed using SEC columns.

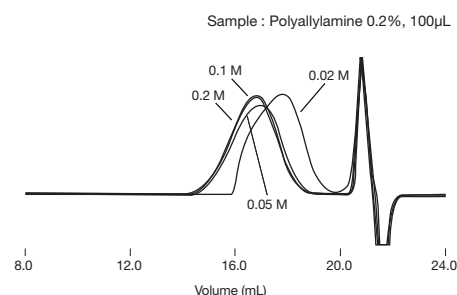
Sample : Humic substances, 30µL
 Humic acid 0.02mg/mL
 Fulvic acid 0.02mg/mL

Column : Shodex OHpak SB-G + SB-805 HQ
Eluent : 10mM NaH₂PO₄ + 10mM Na₂HPO₄(pH7.0) + 25% CH₃CN
Flow rate : 0.8mL/min
Detector : UV(260nm)
Column temp. : 40°C

Data courtesy of Associate Professor Nobuhide Fujitake,
 Student Affairs Section, Graduate School of Agricultural Science,
 Kobe University

Effects of sodium nitrate concentration in eluent on the analysis of polyallylamine

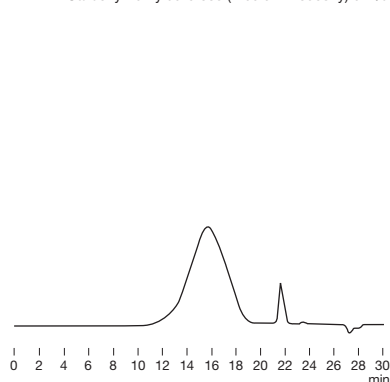
For the analysis of cationic polymers, such as polyallylamine, undesired adsorption of the polymer is observed when low (0.02M) sodium nitrate eluent was used. By using higher concentration (>0.1M) salt, it suppresses the sample adsorption and enables to obtain accurate chromatograms.



Column : Shodex OHpak SB-806M HQ x 2
Eluent : 0.5M Acetic acid + NaNO₃ aq.
Flow rate : 1.0mL/min
Detector : RI
Column temp. : 40°C

Carboxymethylcellulose

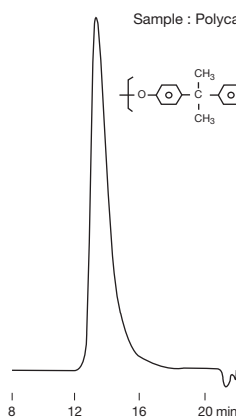
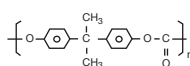
Sample : 200µL
 Carboxymethylcellulose (Medium viscosity) 0.1%



Column : Shodex OHpak SB-806M HQ x 2
Eluent : 0.1M NaCl aq.
Flow rate : 1.0mL/min
Detector : RI
Column temp. : 40°C

Polycarbonate

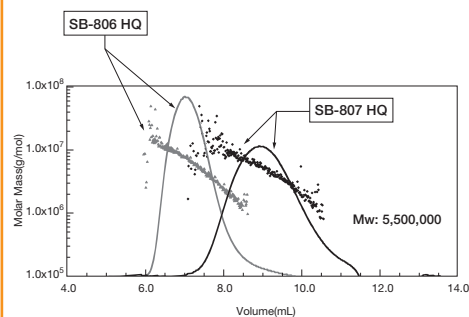
Sample : Polycarbonate



Column : Shodex OHpak SB-805 HQ + SB-802.5 HQ
Eluent : 5mM LiBr in DMF
Flow rate : 1.0mL/min
Detector : RI
Column temp. : 40°C

Polyacrylamide

Sample : Polyacrylamide, 100µL



Column : Shodex OHpak SB-807 HQ, SB-806 HQ
Eluent : 0.2M NaCl aq.
Flow rate : 0.5mL/min
Detector : RI
 MALS(Multi angle laser light scattering)
Column temp. : 30°C