TSK-GEL SuperMultiporeHZ Columns

Semi-micro Gel Permeation Chromatography
Columns with Superior Linearity

TSK-GEL
PRODUCT OVERVIEW

Introduction

TSK-GEL SuperMultiporeHZ gel permeation size exclusion columns represent a new strategy for the separation of polymers with a wide range of molecular weights. These columns are packed with particles of a uniform size, with each particle having a very broad pore size distribution. This innovative multi-pore approach, exclusively available from Tosoh Bioscience, essentially creates a linear calibration curve within each particle. The spherical monodisperse, 3, 4 or 6µm particles consist of cross-linked polystyrene/divinylbenzene copolymer. This base material, coupled with the semi-micro column dimensions (4.6mm ID x 15cm), offers users high speed and low solvent consumption analyses with precise results. Three columns are available within the TSK-GEL SuperMultiporeHZ series, each with a different particle size and separation range.

Prior to the development of the TSK-GEL SuperMultiporeHZ columns, the analysis of polymers with broad molecular weight distributions required either using different pore size columns in series or using columns containing a mixture of particles varying in pore sizes. These methods often result in the appearance of inflection points in the chromatogram. As shown in *Figure 1* for the analysis of phenolic resins, a TSKgel SuperMultiporeHZ-M column produced superior results without any inflection points in comparison to the results obtained on a competitor's mixed-bed type column. The lack of inflection points allows better accuracy and reproducibility when determining the molecular mass distribution of polymers. Please note that the TSKgel SuperMultiporeHZ-M column is only available in the dimensions of 4.6mm ID x 15cm; the 25cm long columns used in this experiment were produced for comparison purposes only.

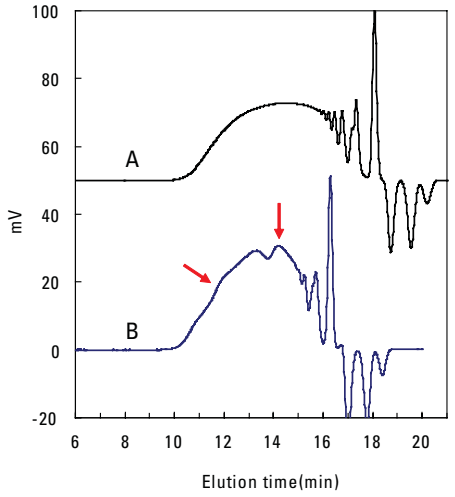
Product Highlights

- Small particle size packed in semi-micro columns: high throughput, reduced solvent consumption
- Particles synthesized with range of pore sizes: no inflection points in calibration curve
- Linear calibration curve: more precise MW measurement
- Three columns, varying in linear range, allow separation of wide MW range of polymers

Application

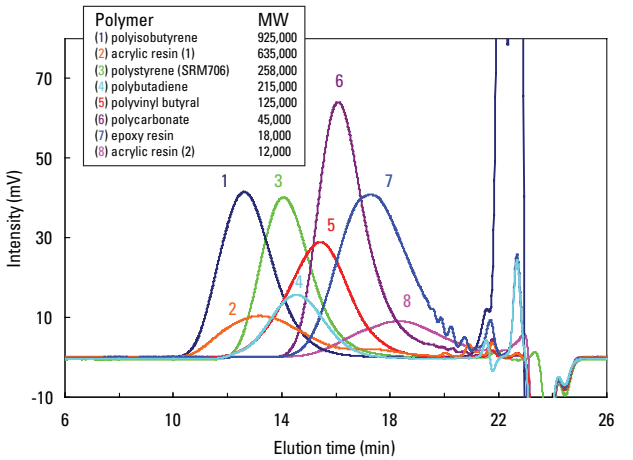
Various polymers were analyzed on four TSKgel SuperMultiporeHZ-M columns in series. The superimposed chromatograms in *Figure 2* clearly demonstrate that these new GPC columns can be utilized for the analysis of polymers with a wide MW distribution range.

Figure 1.



Columns:	(A) TSKgel SuperMultiporeHZ-M (4.6mm ID x 25cm) x 2 (B) Competitive mixed-bed type column (4.6mm ID x 25cm) x 2
Eluent:	THF
Flow rate:	0.35mL/min
Detection:	RI
Temperature:	40°C
Sample:	phenolic resin (0.5%) 10µL

Figure 2.



Column:	TSKgel SuperMultiporeHZ-M (4.6mm ID x 15cm) x 4
Eluent:	THF
Flow rate:	0.35mL/min
Temp.:	25°C
Detection:	RI
Sample conc.:	0.3%
Inj. vol.:	10µL

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Ordering Information

Part #	Description	Matrix	Housing	ID (mm)	Length (cm)
21815	TSKgel SuperMultiporeHZ-N, 3µm	Polymer	Stainless Steel	4.6	15
21488	TSKgel SuperMultiporeHZ-M, 4µm	Polymer	Stainless Steel	4.6	15
21885	TSKgel SuperMultiporeHZ-H, 6µm	Polymer	Stainless Steel	4.6	15
21816	TSKgel Guard SuperMPHZ-N	Polymer	Stainless Steel	4.6	2
21489	TSKgel Guard SuperMPHZ-M	Polymer	Stainless Steel	4.6	2
21886	TSKgel Guard SuperMPHZ-H	Polymer	Stainless Steel	4.6	2

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