TSKgel SuperMultiporeHZ Columns

Semi-micro Gel Permeation Chromatography
Columns with Superior Linearity

Introduction

TSKgel 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 TSKgel SuperMultiporeHZ series, each with a different particle size and separation range.

Prior to the development of the TSKgel 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.

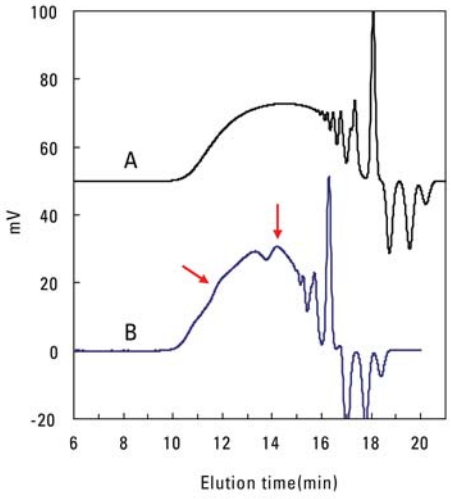
Product Highlights

- **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

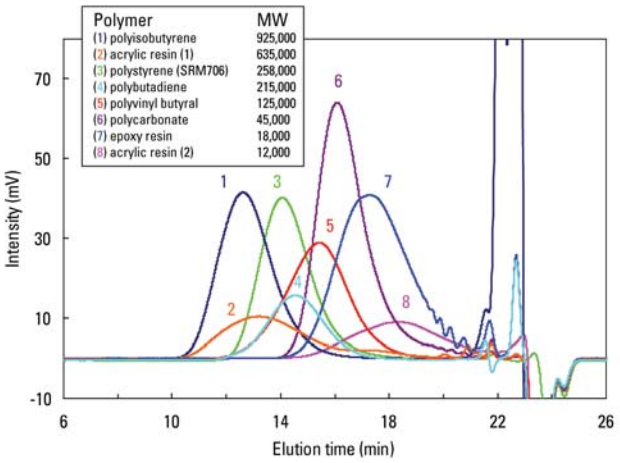
Various polymers were analyzed on four TSKgel SuperMultiporeHZ-M columns in series. The superimposed chromatograms in *Figure 2* clearly demonstrate that these new GPC columns can be utilized for the analysis of polymers with a wide MW distribution range.

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

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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TOSOH Bioscience LLC
3604 Horizon Drive, Suite 100
King of Prussia, PA 19406
Orders & Service: (800) 366-4875
Fax: (610) 272-3028
www.separations.us.tosohbioscience.com
email: info.tbl@tosoh.com