

Size Exclusion Chromatography Phases (continued)

Polymer-based Phases (Alpha and SuperAW)

- Unique hydrophilic polyvinyl resin
- Wide solvent compatibility, from 100% water to 100% non-polar organic solvents
- Strong mechanical stability

The TSKgel® Alpha and SuperAW series columns are based on a hydrophilic, highly cross-linked vinyl polymer resin. These materials are mechanically stable and exhibit minimal swelling and shrinkage. They are compatible with solvents from pure aqueous to 100% organic (except chloroform, toluene and hexane), making them suitable for both GFC and GPC. They have applications in the analysis of polar synthetic oligomers, polysaccharides and detergents. The TSKgel Alpha series consists of 6 columns with different pore sizes and 3 particle sizes for a wide molecular weight separation range. The TSKgel SuperAW series offers the benefit of smaller particle sizes and smaller column dimensions, making them ideal for high throughput applications. For samples with big differences in molecular weights, the mixed bed columns TSKgel Alpha-M and TSKgel SuperAWM-H show linear calibration curves over the whole range.

Ordering Information – TSKgel® Alpha and SuperAW Phases

TSKgel Phase	Particle Size (µm)	Exclusion Limit (PEO/H ₂ O)	Column Dimensions (mm)	Cat. No.	Price
Alpha-2500 ¹	7	5,000	300 x 7.8	18339	
Alpha-3000 ¹	7	90,000	300 x 7.8	18340	
Alpha-4000 ¹	10	400,000	300 x 7.8	18341	
Alpha-5000 ¹	10	1,000,000	300 x 7.8	18342	
Alpha-6000 ¹	13	>10,000,000	300 x 7.8	18343	
Alpha-M (mixed bed) ¹	13	>10,000,000	300 x 7.8	18344	
SuperAW2500 ²	4	5,000	150 x 6.0	19315	
SuperAW3000 ²	4	90,000	150 x 6.0	19316	
SuperAW4000 ²	6	1,000,000	150 x 6.0	19317	
SuperAW5000 ³	7	1,000,000 approx.	150 x 6.0	19318	
SuperAW6000 ³	9	10,000,000 approx.	150 x 6.0	19319	
SuperAWM-H ³	9	10,000,000 approx.	150 x 6.0	19320	

¹ Use with Alpha guard column 18345

13µm, 40 x 6.0mm

³ Use with SuperAW-H guard column 19322

13µm, 35 x 4.6mm

² Use with SuperAW-L guard column 19321

7µm, 35 x 4.6mm

PEO = polyethylene oxide

Polymer-based Phases (TSKgel H Series)

- Porous, cross-linked polystyrene-divinylbenzene
- Chemically and thermally stable
- Wide range of pore sizes, mixed bed columns and multipore phases

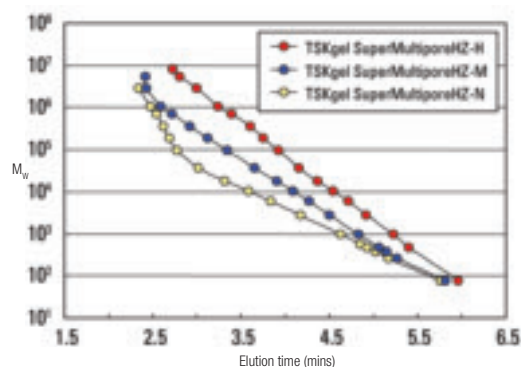
The TSKgel H type columns are based on porous, highly cross-linked, spherical polystyrene-divinylbenzene (PS-DVB) resin. These materials are available in 8 pore sizes and various particle sizes, and are compatible with non-polar organic solvents. They are suitable for the GPC analysis of oligomers, polymers and polymer additives. For polymer samples with a broad molecular weight range, mixed-bed columns are available.

TSKgel SuperMultiporeHZ Series

The SuperMultiporeHZ series comprises high performance organic SEC columns featuring a multipore gel with a wide distribution of pore diameters in each particle. Conventional SEC packing materials have a comparatively narrow pore size distribution, so for analyses of polymers of wide molecular weight distribution several columns may be connected in series or a single mixed-bed column used which contains several materials of different pore diameters (see Figure 4 on page 245). The TSKgel SuperMultiporeHZ columns produce calibration curves with excellent linearity (see Figure 6) and no inflection points, enabling more accurate determination of molecular weight.

Ordering Information – SuperMultiporeHZ Series

TSKgel Phase	Particle Size (µm)	Exclusion Limit (polystyrene)	Analytical Column (150 x 4.6mm)	Guard Column (20 x 4.6mm)
SuperMultiporeHZ-H	6	40,000,000	21885	21886
SuperMultiporeHZ-M	4	2,000,000	21488	21489
SuperMultiporeHZ-N	3	1,200,000	21815	21816



Column dimensions: 150 x 4.6mm

Eluent: THF

Flow rate: 0.35ml/min

Detection: UV, 254nm

Sample: Polystyrene

Figure 6. TSKgel SuperMultiporeHZ Series: Calibration curves