

TOSOH BIOSCIENCE

Tosoh Bioscience is a major supplier of liquid chromatography products in the pharmaceutical and biotechnology industries, for the analysis, isolation and purification of proteins, peptides, oligonucleotides and enzymes as well as low molecular weight compounds. TSKgel® is the most popular of several ranges of columns and bulk packing materials supplied by Tosoh Bioscience. An extensive range of products is offered for size exclusion, ion-exchange, reversed-phase, HILIC, HIC and affinity separation techniques. Both silica-based and polymer-based materials are available.

Size Exclusion Chromatography Phases

TSKgel columns are available for both modes of size exclusion chromatography (SEC) – gel filtration chromatography (GFC) of water soluble polymers in aqueous eluents and gel permeation chromatography (GPC) of organic soluble polymers using non-aqueous eluents. The TSKgel SW and PW column lines are suitable for GFC, the H-type columns for GPC and the Alpha and SuperAW Series can be used for both GFC and GPC.

Silica-based Phases (SW)

- Rigid spherical porous silica
- Hydrophilic bonding (diol groups)
- Stable from pH 2.5 – 7.5
- Widely referenced
- Three different pore sizes

TSKgel SW size exclusion columns are widely used for aqueous separation of proteins, antibodies, enzymes, nucleic acids and other biological macromolecules. Columns show high resolution and sensitivity and have excellent solvent stability with up to 100% polar organic solvents. The smaller particle size of the SW_{XL} materials results in reduced analysis times. All SW-type columns are available in stainless steel hardware; SW_{XL} columns are also available in PEEK hardware. TSKgel G3000SW_{XL} is the ideal scouting column for unknown molecular weight compounds. If the protein of interest elutes near the exclusion volume, then G4000SW_{XL} is the next step. Conversely, if the protein of interest elutes near the end of the chromatogram, then G2000SW_{XL} should be considered.

The Super SW2000 and SW3000 materials (4µm) provide fast, high efficiency separations. The increased sensitivity compared with the corresponding SW_{XL} or SW phase is especially useful for limited sample quantities. Figure 1 shows the separation of a standard protein mixture on TSKgel SuperSW3000.

TSKgel® Silica SEC Phases

TSKgel SW Phase	Particle Size (µm)	Pore Size (Å)	Exclusion Limit (Da) for globular proteins
SuperSW2000	4	125	5,000 – 150,000
G2000SW _{XL}	5	125	5,000 – 150,000
G2000SW	10, 13	125	5,000 – 150,000
SuperSW3000	4	250	10,000 – 500,000
G3000SW _{XL}	5	250	10,000 – 500,000
G3000SW	10, 13	250	10,000 – 500,000
G4000SW _{XL}	8	450	20,000 – 7,000,000
G4000SW	13, 17	450	20,000 – 7,000,000

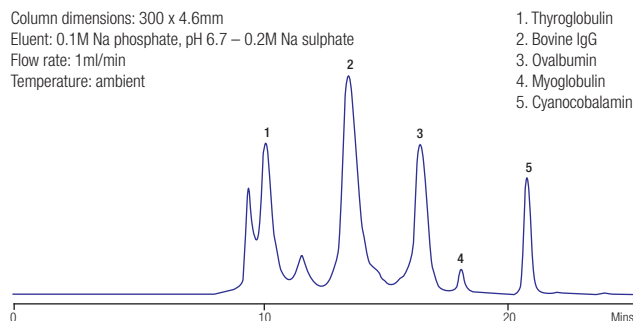


Figure 1. Standard protein mixture on TSKgel SuperSW3000

Ordering Information – Silica SEC Phases

TSKgel SW Phase	Column Dimensions (mm)				Guard Column			
	Analytical				Preparative			
	300 x 4.6	300 x 7.5	600 x 7.5	300 x 7.8	300 x 21.5	600 x 21.5	Analytical	Preparative
SuperSW2000	18674	-	-	-	-	-	18762 ¹	-
SuperSW3000	18675	-	-	-	-	-	-	-
G2000SW (10µm)	-	5788	5102	-	6727 (13µm)	5146 (13µm)	5371 ²	5758 ⁴
G3000SW	-	5789	5103	-	6728 (13µm)	5147 (13µm)	-	-
G4000SW (13µm)	-	5790	5104	-	6729 (17µm)	5148 (17µm)	-	-
G2000SW _{XL}	-	-	-	8540	-	-	8543 ³	-
G3000SW _{XL}	-	-	-	8541	-	-		-
G4000SW _{XL}	-	-	-	8542	-	-		-

¹ Dimensions 35 x 4.6mm

² 10µm. Dimensions 75 x 7.5mm

³ Dimensions 40 x 6.0mm

⁴ Dimensions 75 x 21.5mm