

TSK-GEL SuperSW2000 and TSK-GEL SuperSW3000

High Performance Columns for Improved Separation of Biological Macromolecules

TSK-GEL
PRODUCT OVERVIEW

Introduction

TSK-GEL SW-type size exclusion chromatography (SEC) columns are the most widely used SEC columns for aqueous separation of biological macromolecules today. Included in this series are the TSK-GEL SuperSW2000 and SuperSW3000 columns. The high selectivity of these columns, in combination with the increase in theoretical plates, expands the protein separation application area to include those proteins in the 5,000 to 500,000 MW size range.

Product Highlights

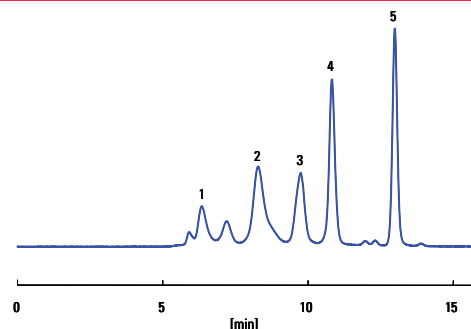
- 4µm particle size silica packing
- Minimum efficiencies of 30,000 theoretical plates per 30cm column
- Increased resolution, higher sensitivity and excellent recovery down to the nanogram level
- Micro-analysis of samples when quantities are limited
- Reduced mobile phase reagents
- Fast run times

Applications

The TSK-GEL SuperSW-type columns consist of 4µm silica particles. This is the same rigid spherical silica gel chemically bonded with hydrophilic compounds that is found in our other TSK-GEL SW-series columns. It offers low adsorption and well-defined pore sizes necessary for high performance SEC. The 4µm particle size of the TSK-GEL SuperSW columns is valuable for applications where sample quantity is limited and both increased resolution and high sensitivity are needed. Additionally, the smaller particle size results in 50% more plates per column. This benefit can be used to either shorten run times or provide better resolution. These narrower bore column diameters, along with the 4µm particle size, allow for considerably less mobile phase to be consumed.

Both the TSK-GEL SuperSW2000 and SuperSW3000 columns are available in a 4.6mm ID. Recently, Tosoh Corporation introduced TSK-GEL SuperSW3000 microbore columns (1mm ID and 2mm ID). These new SEC columns with increased resolution, excellent sensitivity and high recovery were developed to analyze trace amounts of proteins, a critical need in proteomics. *Figure 1* clearly shows that the TSK-GEL SuperSW3000 microbore columns are an excellent choice for the rapid separation of proteins and enzymes at micro scale.

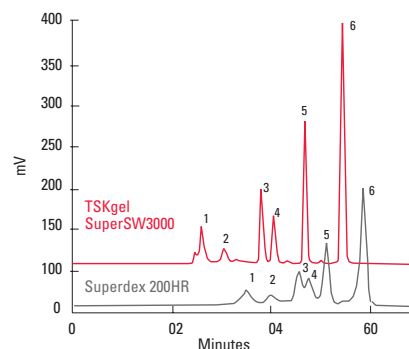
Figure 1. Separation of Standard Proteins on a 1mm ID TSKgel SuperSW3000 Column



Column: TSKgel SuperSW3000, 1mm ID x 30cm
Eluent: 0.1mol/L phosphate buffer + 0.1mol/L Na₂SO₄ + 0.05% NaN₃ (pH 6.7)
Flow rate: 16µL/min
Detection: UV@280nm
Temp.: 25°C
Inj. volume: 0.2µL
Samples: thyroglobulin (1.0mg/mL)
α-globulin (2.0mg/mL)
ovalbumin (2.0mg/mL)
ribonuclease A (3.0mg/mL)
p-aminobenzoic acid (0.02mg/mL)

How does TSK-GEL SuperSW columns compare to the competition? *Figure 2* presents a protein separation comparison against a leading GFC material showing the improved peak shape and superior resolution that makes the TSK-GEL SW-type columns the market leader in HPLC-SEC.

Figure 2. Comparison of Protein Elution on TSKgel SuperSW3000 and Superdex® 200HR



Columns: TSKgel SuperSW3000, 4.6mm ID x 30cm;
Superdex 200HR, 10mm ID x 30cm
Sample: 1. thyroglobulin, 3.0mg/mL; 2. ferritin, 0.7mg/mL;
3. transferrin, 3.0mg/mL; 4. ovalbumin, 3.0mg/mL;
5. myoglobin, 3.0mg/mL; 6. vitamin B12, 0.5mg/mL
Inj. Vol.: TSKgel SuperSW3000: 5µL Superdex 200HR: 25µL
Elution: 50mM phosphate buffer (pH 7.0) + 0.15M NaCl
Flow rate: TSKgel SuperSW3000: 27cm/hr;
Superdex 200HR: 27cm/hr
Detection: UV @ 280nm



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Ordering Information

Part #	Description	Matrix	Housing	ID (mm)	Length (cm)
18674	TSKgel SuperSW2000, 4µm, 125Å	Silica	Stainless Steel	4.6	30
21845	TSKgel SuperSW3000, 4µm, 250Å	Silica	Stainless Steel	1	30
21485	TSKgel SuperSW3000, 4µm, 250Å	Silica	Stainless Steel	2	30
18675	TSKgel SuperSW3000, 4µm, 250Å	Silica	Stainless Steel	4.6	30
18762	Guard column for 4.6mm ID columns	Silica	Stainless Steel	4.6	3.5

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Superdex is a registered trademark of GE Healthcare.



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