Nanofilm – Size Exclusion Phases for Low Salt and Organic Buffer Separations

Innovative Surface Chemistry

Column Characteristics

Utilizing proprietary surface technologies, Nanofilm SEC phases are made of the uniform, hydrophilic, neutral, and polymeric thin films chemically bonded on the high purity and enhanced mechanical stability silica. Nanofilm SEC phases have been innovatively and specially designed to ensure highest resolution and maximum recovery for the separation of biological molecule at low salt concentration or organic buffers. The narrow dispersed, spherical silica particles of the Nanofilm packings for SEC-150, SEC-250, SEC-500, and SEC-1000 have nominal pore sizes at 150 Å, 250 Å, 500 Å, and 1,000 Å, respectively.

Compared to Nanofilm SEC products, SRT SEC products offer higher separation capacity and higher resolution, as well as more pore size selections which enable broader separation applications. *Nanofilm* SEC phases are more stable and more suitable for the separation of highly positively charged biological molecules, multi-dimensional separation and LC/MS applications. *Nanofilm* SEC phases and *SRT* SEC phases have different selectivity. *The combination of SRT SEC and Nanofilm SEC phases provide a total solution for the size exclusion separation of biological molecules, water soluble polymers and nanomaterials.*

Elution of positively proteins at low salt buffers

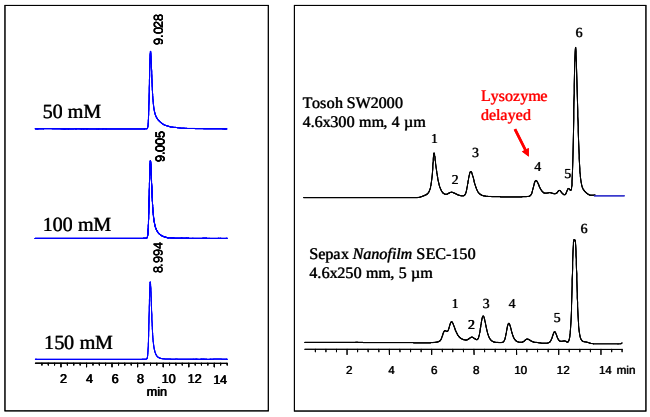

Fig. 1 (left). Column: Nanofilm SEC-250 (5 µm, 4.6x300 mm); Phosphate buffer at pH 7; 0.35 mL/min; UV 214 nm; Ambient (20 °C); cytochrome C (**pI = 9.6**) (1.0 mg/mL); Injection: 5 µL.

Fig. 2 (right). Separation conditions: 0.15 M phosphate buffer at pH 7; 0.35 mL/min; UV214 nm; Ambient (20 °C); Injection: 5µL; Sample: 1. Thyroglobulin, 670 kD, 2. BSA dimer, 132 kD, 3. BSA, 66 kD, 4. Lysozyme, 14.3 kD, 5. A peptide, 1.5 kD, 6. Uracil, 120.

Separation of horse serum in low salt buffer

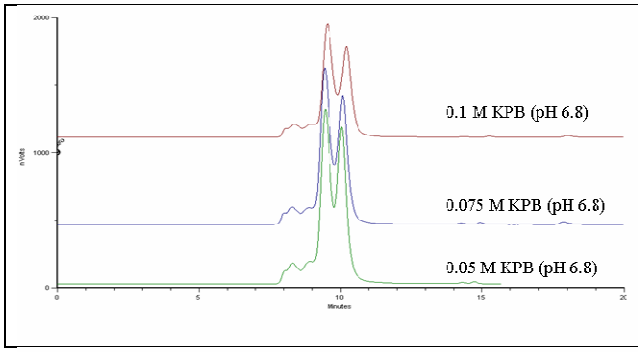

Fig. 3. Separation of a horse serum (2x diluted) from BioWhittaker, a Cambrex company (Walkersville, MD) with buffers at various salt concentrations. Nanofilm SEC-150 (5 µ, 4.6x300 mm); Phosphate buffer at pH 6.8; 0.25 mL/min; Injection volume: 5.0 µL; Detection: 280 nm. (Courtesy of Miyako Kawakatsu, M&S Instruments, Inc.)

Separation of Proteins in volatile buffer

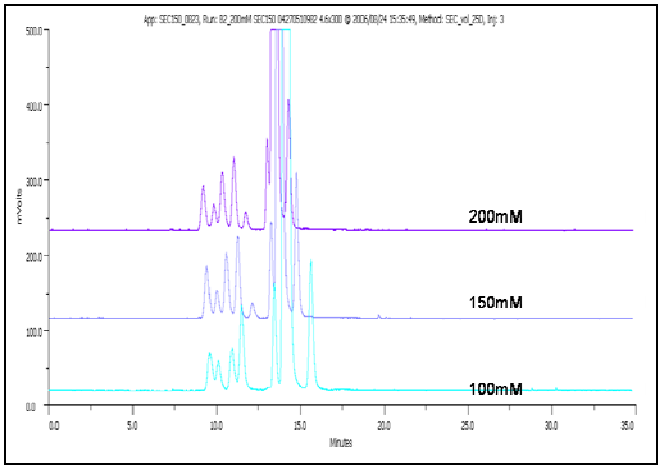

Fig. 4. Nanofilm SEC-250 (5 µm, 4.6x300 mm); Mobile phase: 100 – 200 mM CH_3COONH_4/CH_3CN (pH 6.3); Flow rate: 0.25 mL/min; Sample: molecular weight marker proteins and horse serum; Injection: 5 µL; Detection; SofTA ELSD. (Courtesy of Miyako Kawakatsu, M&S Instruments, Inc.)

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