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ChromaNik
ChromaNik Technologies Inc.

HPLC column

SunSec



GFC Diol Column

Aqueous SEC (GFC) Diol Binding Silica Column

Column Features

★4µm Diol Silica Silica High packed column is 1.5 times higher theoretical plate number (32,000 plate number).

★In comparison with a conventional ID 7.8 mm column, the Chromanik ID 4.6mm Length 300 mm Semi-micron sized packed column, has 3 times the sensitivity and uses 1/3 less solvent.

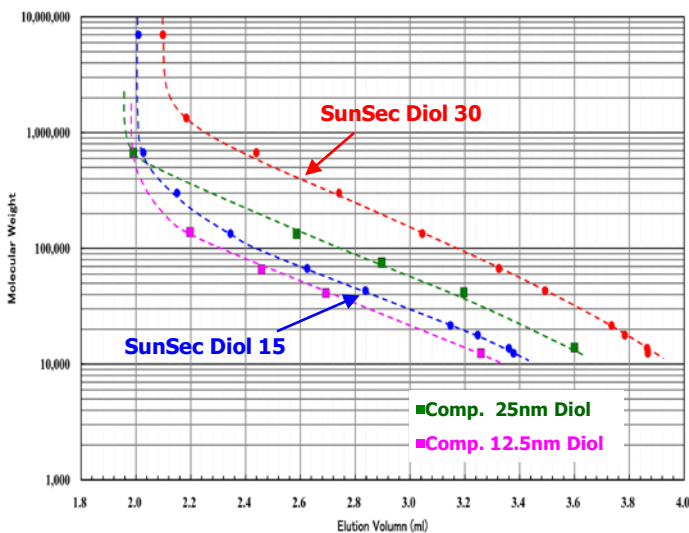
★High durability allowing for at least 500 sample injections

★Employs 2 types of Silica Gel pore sizes of 30nm and 15 nm.

Applications: Proteins, enzymes, peptides, sugars, and nucleic acids

Name	Particle Size (µm)	MW Exclusion Limit (Protein)	Pore Size (nm)	Column Size I.D. x L (mm)	Theoretical Plate Number	Catalog Number
SunSec Diol 15	4	200,000	15	4.6 x 300	32,000 Above	DA4491
SunSec Diol 30	4	1,000,000	30	4.6 x 300	32,000 Above	DB4491
Guard Column SunSec Diol-G	4	-----	----	4.6 x 30	----	DG4431

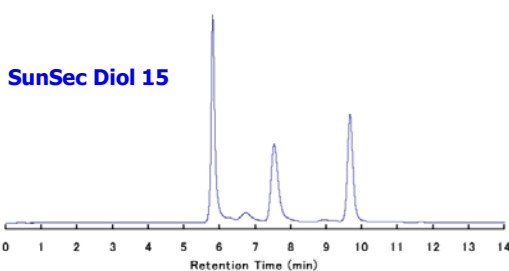
Protein Calibration Curves



Eluent: 50 mM phosphate buffer (pH 6.8) + 0.3 M NaCl
 Flow rate: 0.35 mL/min
 Temperature: 25 °C
 Detection: UV at 220 nm
 Sample: thyroglobulin, IgG, BSA, ovalbumin, trypsin inhibitor, myoglobin, ribonuclease A and cytochrome C (0.03 %, 5 µL)

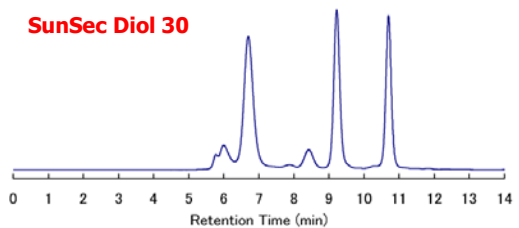
● SunSec Diol 30 has a pore diameter of 30nm. Compared to other company's 25 nm pore diameter SunSec Diol 30 has double the molecular weight exclusion limit. This has advantages for separation of dimer/trimer monoclonal antibodies.

Protein Retention Time and Resolution



Sample	Retention Time (min)	Resolution
Thyroglobulin	5.82	
Bovine serum albumin	7.54	
Ribonuclease A	9.67	6.66

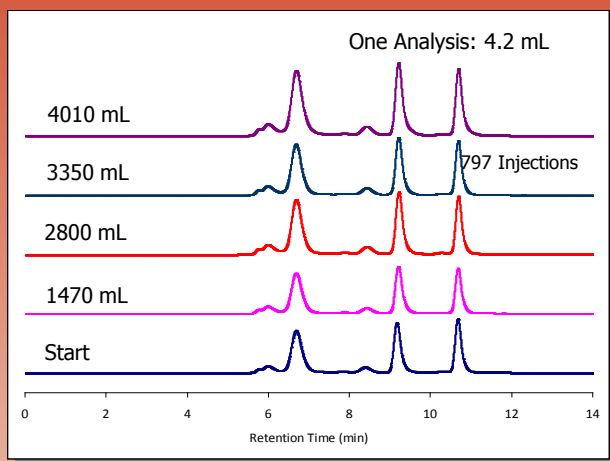
Eluent: 50 mM phosphate buffer (pH 6.8) + 0.3 M NaCl
 Flow rate: 0.35 mL/min
 Temperature: 25 °C
 Detection: UV at 220 nm
 Sample: 5 ml of a mixture of thyroglobulin, BSA and ribonuclease A (0.03 % each)



Sample	Retention Time (min)	Resolution
Thyroglobulin	6.70	
Bovine serum albumin	9.22	6.25
Ribonuclease A	10.70	4.89

SunSec Diol 30, SunSec Diol 15

Column Durability

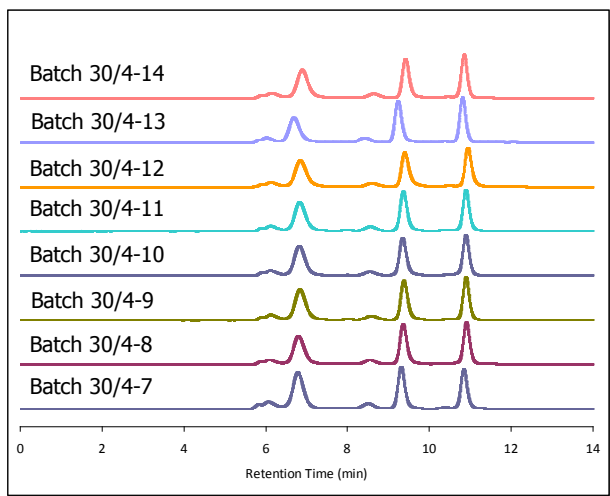


Column: SunSec Diol 30 4.6 x 300 mm
 Injection volume : 5 μ L
 Eluent : 50 mM phosphate buffer (pH 6.8) + 0.3 M NaCl
 Flow rate : 0.35 ml/min
 Temperature : 25 $^{\circ}$ C
 Detection : UV at 220 nm
 Sample : a mixture of thyroglobulin, bovine serum albumin and ribonuclease A (0.03% each)

- One analysis. 4.2 mL of Eluent. Up to 797 times of analysis (3,350mL) maintains above 90% of effectiveness.

Eluent volume (mL)	UMP			Thyroglobulin			BSA Dimer		BSA Monomer			Ribonuclease A			Resolution		
	R.Time (min)	TP	As	R.Time (min)	TP	As	R.Time (min)	TP	R.Time (min)	TP	As	R.Time (min)	TP	As	Thy/BSA-D	BSA-D/M	BSA/Rib o.
Start	11.370	38,441	1.34	6.690	2,950	1.25	8.387	3,873	9.177	13,016	1.41	10.680	21,167	1.38	3.29	1.84	4.89
950	11.373	38,382	1.32	6.690	2,909	1.22	8.427	3,912	9.210	12,532	1.47	10.680	21,046	1.44	3.36	1.81	4.72
1,470	11.383	38,318	1.32	6.687	2,944	1.21	8.420	3,982	9.213	12,755	1.41	10.683	21,334	1.39	3.38	1.85	4.76
1,900	11.433	37,101	1.39	6.720	2,982	1.18	8.470	4,130	9.260	12,977	1.41	10.737	21,667	1.37	3.44	1.86	4.79
2,300	11.380	37,293	1.41	6.683	2,922	1.17	8.423	4,125	9.217	13,001	1.35	10.680	21,886	1.32	3.42	1.87	4.80
2,800	11.383	36,320	1.43	6.690	3,022	1.20	8.430	4,257	9.223	13,391	1.40	10.693	22,105	1.39	3.47	1.90	4.85
3,350	11.377	36,095	1.43	6.683	2,983	1.18	8.427	4,207	9.217	13,164	1.40	10.687	21,848	1.39	3.46	1.88	4.82
4,010	11.513	32,765	1.59	6.693	2,732	1.28	8.423	3,739	9.217	12,198	1.63	10.693	19,706	1.61	3.26	1.79	4.63

Batch to Batch Reproducibility



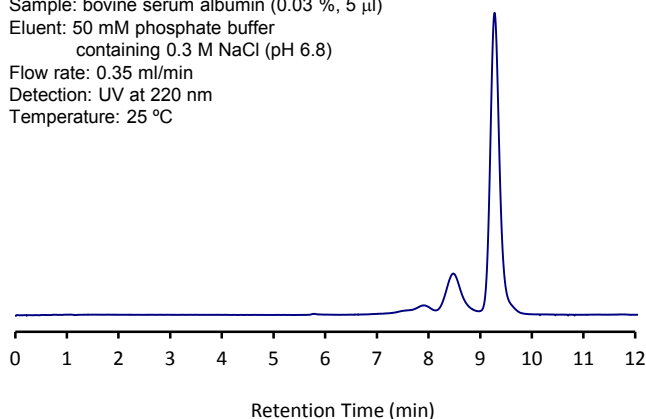
Column: SunSec Diol 30 4.6 x 300 mm
 Injection volume : 5 μ L
 Eluent : 50 mM phosphate buffer (pH 6.8) + 0.3 M NaCl
 Flow rate : 0.35 ml/min
 Temperature : 25 $^{\circ}$ C
 Detection : UV at 220 nm
 Sample : a mixture of thyroglobulin, bovine serum albumin and ribonuclease A (0.03% each)

- The left graph chromatogram shows excellent batch to batch reproducibility.

BSA, Separation of monoclonal antibody

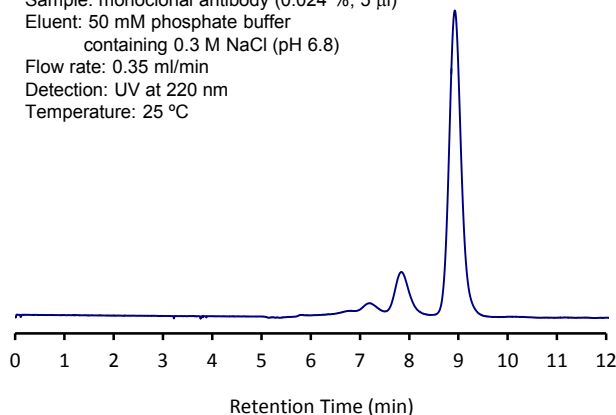
Analysis of bovine serum albumin on SunSec Diol 30

Column size: 4.6 x 300 mm
 Sample: bovine serum albumin (0.03 %, 5 μ l)
 Eluent: 50 mM phosphate buffer containing 0.3 M NaCl (pH 6.8)
 Flow rate: 0.35 ml/min
 Detection: UV at 220 nm
 Temperature: 25 $^{\circ}$ C



Analysis of monoclonal antibody on SunSec Diol 30

Column size: 4.6 x 300 mm
 Sample: monoclonal antibody (0.024 %, 5 μ l)
 Eluent: 50 mM phosphate buffer containing 0.3 M NaCl (pH 6.8)
 Flow rate: 0.35 ml/min
 Detection: UV at 220 nm
 Temperature: 25 $^{\circ}$ C



Product Summary

- Application: SEC rapid analysis of proteins
- Filler - substrate: the surface of porous silica coated with a hydrophilic compound containing a hydroxyl group
- Particle size: 4 μ m
- Pore Diameter: 15 nm, 30 nm
- Globular protein fractionation range: 3,000 - 200,000 (15 nm), 10,000 – 1,000,000 (30 nm)
- Column Material: Stainless Steel
- Column Dimension: 300 X 4.6 mm I.D.
- Usage (Analyzing General Proteins)
- Device for Liquid Chromatography: Minimize Sample Injection and Detector piping and detector cell volume HPLC System.
- Eluent: 0.1 - 0.3 M 20 containing salts of - 100 mM buffer (pH 6.0 - 7.5) (pH of less than 7.5)
Cases) 50 mM phosphate buffer (pH 6.8) + 0.3 M NaCl
- Purification of eluent: 0.2 - 0.5 μ m membrane filter or inline filter is preferable to work with liquid chromatography system.
- Flow Rate: 0.20 - 0.35 mL/min (less than 0.5 mL/min)
- Sample Injection Volume: Less Than 10 μ L (Solution Volume), Less Than 100 μ g (Total Weight of Protein)
- Detection: UV at 210 - 220 nm or 280 nm
- Temperature: 25 ° C (less than 30 ° C)

SunSec Diol 15, SunSec Diol 30 Order Details :

Name	Pore Size(nm)	MW (μ m)	Column Size I.D. x L(mm)	Catalog Number
SunSec Diol 15	15	4	4.6 x 300	DA4491
SunSec Diol 30	30	4	4.6 x 300	DB4491
Guard SunSec Diol-G	----	4	4.6 x 30	DG4431

※ Chromanik can potentially produce other column sizes.

Manufacturer

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