

Aqueous Size Exclusion (SEC)/Gel Filtration (GFC) for Protein and Peptide Analysis

Gel Filtration Chromatography is used to analyze and/or characterize proteins, peptides, and other biomolecules; including antibodies, immunoglobulins, protein complexes, protein aggregates, and desalting. BioSep GFC columns offer many important benefits for your separation needs.

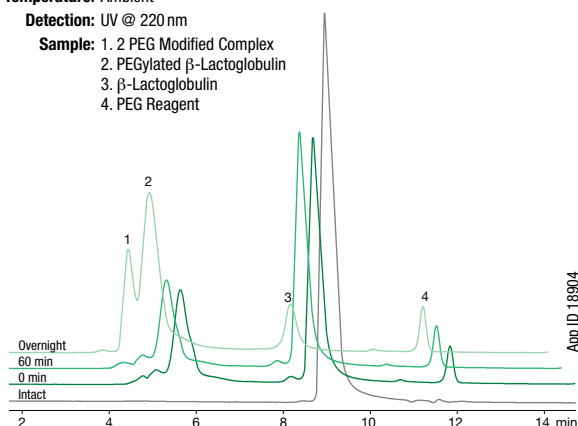
If BioSep analytical columns do not provide you with at least an equivalent separation as any other GFC column of similar porosity, type and dimensions, send in your comparative data within 45 days and keep the BioSep column for FREE.

Low MW Proteins and Peptides on BioSep-SEC-s2000

BioSep-SEC-s2000 columns are used for peptide therapeutics, small proteins, PEGylated peptides, and small PEGylated proteins, as well as biogenic aggregate applications.

PEGylated β -Lactoglobulin A (N-Terminal PEG 20 kDa)

Column: BioSep-SEC-s2000
Dimensions: 300 x 7.8 mm
Part No.: 00H-2145-K0
Mobile Phase: 100 mM Sodium Phosphate pH 6.8
Flow Rate: 1 mL/min
Temperature: Ambient
Detection: UV @ 220 nm
Sample: 1. 2 PEG Modified Complex
 2. PEGylated β -Lactoglobulin
 3. β -Lactoglobulin
 4. PEG Reagent

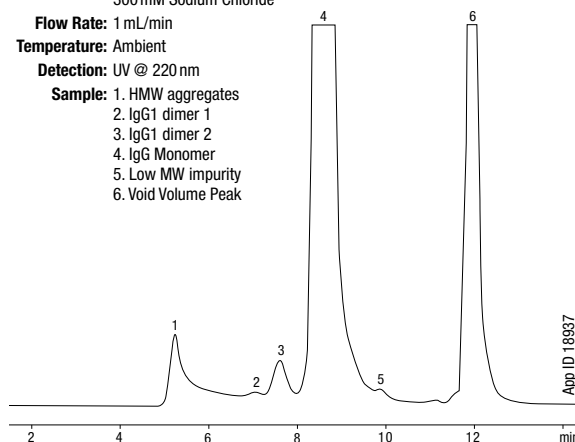


Medium MW Proteins on BioSep-SEC-s3000

BioSep-SEC-s3000 columns are great for medium to large MW proteins, serum proteins, immunoglobulins, and aggregate applications.

Murine IgG1 Aggregates

Column: BioSep-SEC-s3000
Dimensions: 300 x 7.8 mm
Part No.: 00H-2146-K0
Mobile Phase: 50 mM Sodium Phosphate pH 6.8, 300 mM Sodium Chloride
Flow Rate: 1 mL/min
Temperature: Ambient
Detection: UV @ 220 nm
Sample: 1. HMW aggregates
 2. IgG1 dimer 1
 3. IgG1 dimer 2
 4. IgG Monomer
 5. Low MW impurity
 6. Void Volume Peak

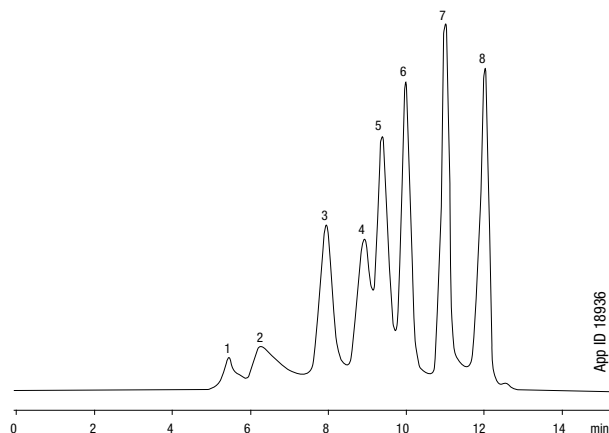


Large MW Proteins on BioSep-SEC-s4000

BioSep-SEC-s4000 is capable of resolving large MW proteins and PEGylated IgG applications.

High MW Protein Mixture

Column: BioSep-SEC-s4000
Dimensions: 300 x 7.8 mm
Part No.: 00H-2147-K0
Mobile Phase: 100 mM Sodium Phosphate pH 7.0, 300 mM Sodium Chloride
Flow Rate: 1 mL/min
Temperature: Ambient
Detection: UV @ 214 nm
Sample: 1. HMW impurity
 2. IgM 900 kDa
 3. Thyroglobulin 669 kDa
 4. IgA 380 kDa
 5. β -Amylase 200 kDa
 6. BSA 66 kDa
 7. Ribonuclease A 13.7 kDa
 8. Uridine 244 Da



- Global support and availability in over 65 countries
- 3 batches available for validation
- Large inventory for immediate shipment
- For increased GFC performance try Yarra SEC Columns

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Technical Data and Specifications

	BioSep SEC-s2000	BioSep SEC-s3000	BioSep SEC-s4000
Resin Type	Silica	Silica	Silica
Particle Size (µm)	5	5	5
Pore Size (Å)	145	290	500
Exclusion Range in Daltons for Proteins:			
Native	1,000 - 300,000	5,000 - 700,000	15,000 - 1,500,000
0.5 % SDS	200 - 75,000	5,000 - 100,000	15,000 - 500,000
6 M GnHCl	500 - 100,000	1,000 - 150,000	5,000 - 700,000
pH Range	2.5 - 7.5	2.5 - 7.5	2.5 - 7.5
Maximum Backpressure (psi)	1,500	1,500	1,500
Typical Backpressure (psi)	800	800	700
Efficiency (minimum number theoretical plates 300 x 7.8 mm)	30,000	30,000	25,000
Maximum Flow Rate	This is a function of pressure. Columns can withstand up to 1,500 psi, but avoid sudden pressure changes.		
Column Hardware	Standard: 316 stainless steel column with stainless steel frits. Titanium frits available.		
Maximum Temp.	50 °C		
Maximum Salt Conc.	1 M		
Denaturants	0.5 % SDS, 6 M Guanidine HCl, or 8 M urea		
Regeneration	After exposure to denaturants, wash with water overnight.		
Max. Organic Modifier	Up to 100 % CH ₃ CN, 10 % DMSO or 500 mM β-mercaptoethanol.		
Cleaning Procedure	General protein removal: wash with 30 mL of 0.1 M NaH ₂ PO ₄ , pH 3.0. Hydrophobic protein removal: use acetonitrile gradient. Strongly adsorbed proteins: wash with 30 mL of 6 M Guanidine thiocyanate or 10 % DMSO.		
Storage	Overnight storage: run mobile phase at 0.2 mL/minute. Prolonged storage: use 0.05 % NaN ₃ in H ₂ O or 20 % methanol in H ₂ O.		
Column Protection	Use of a SecurityGuard is recommended to prolong column lifetime.		

Cross Reference Chart

Phenomenex BioSep Phases	TSKgel®	Shodex®	Sepax	Bio-Rad®	Waters® BioSuite™	ZORBAX®
SEC-s2000	G2000SW G2000SW _{XL}	PROTEIN KW-802.5	SRT®-100* SRT®-150	Bio-Sil® SEC 125	BioSuite™ 125	GF-250
SEC-s3000	G3000SW G3000SW _{XL}	PROTEIN KW-803	SRT®-300	Bio-Sil® SEC 250	BioSuite™ 250	GF-450
SEC-s4000	G4000SW G4000SW _{XL}	PROTEIN KW-804	SRT®-500**	Bio-Sil® SEC 400	BioSuite™ 450**	

** Only up to 1,500,000 MW

* Only above 1,000 MW

Ordering Information

Stainless Steel Columns (mm)	Narrow Bore	Analytical		SecurityGuard™ Cartridges (mm)
Phases	300 x 4.6	300 x 7.8	600 x 7.8	4 x 3.0*
BioSep-SEC-s2000	00H-2145-E0	00H-2145-K0	00K-2145-K0	AJ0-4487
BioSep-SEC-s3000	00H-2146-E0	00H-2146-K0	00K-2146-K0	AJ0-4488
BioSep-SEC-s4000	00H-2147-E0	00H-2147-K0	00K-2147-K0	AJ0-4489

*SecurityGuard Analytical cartridges require holder, Part No.: KJ0-4282

for ID: 4.6-7.8 mm



Stainless Steel Guard Columns (mm)	Narrow Bore	Express	Analytical
Phases	30 x 4.6	35 x 7.8	75 x 7.8
BioSep-SEC-s2000	03A-2145-E0	03Q-2145-K0	03C-2145-K0
BioSep-SEC-s3000	03A-2146-E0	03Q-2146-K0	03C-2146-K0
BioSep-SEC-s4000	03A-2147-E0	03Q-2147-K0	03C-2147-K0



For ultra-high resolution aqueous SEC, see Yarra on p. 309.



For Column Heaters, see p. 366.



Other column dimensions available upon request.

Aqueous SEC 1 Column Check Standard

(for BioSep-SEC-S and other protein SEC columns)

Part No.: AL0-3042

Price:

Unit quantity: Dry; reconstituted to 2 mL

Contains: Bovine thyroglobulin; Human gamma globulin (contains IgA and IgG); Ovalbumin; Myoglobin; Uridine (reconstitute with 1 mL of 100 mM Sodium phosphate pH 6.8)

Diluent: 100 mM Sodium phosphate pH 6.8

Storage: Add 0.1 % NaN₃ to the solution and refrigerate

Test Conditions

Mobile phase: 100 mM Sodium phosphate, pH 6.8

Flow rate: 1.0 mL/min for a 300 x 7.8 mm column

Injection volume: 10 µL

Detection: UV @ 280 nm