Sorbtech

Separate. Purify. Discover.

PRODUCT DATA SHEET

PDS-G1-1019V1

SorbaDex™ Gel Filtration Matrix

SorbaDex™ is a beaded composite material composed partially of cross-linked dextran. It exhibits high selectivity, high resolution and chemical stability.

SorbaDex™ is a size exclusion matrix. Molecules purified with SorbaDex™ are separated according to size. Smaller molecules pass significantly slower through the column than larger molecules. Buffer and pH effects on resolution are minimal.

The size exclusion cut-off for SorbaDex™-25 is set at 5 kD for proteins and 10 bp for nucleic acids. For SorbaDex™-50, the cut-offs are 25 kD and 20 bp. Purified biomolecules are not significantly diluted when processed using SorbaDex™.

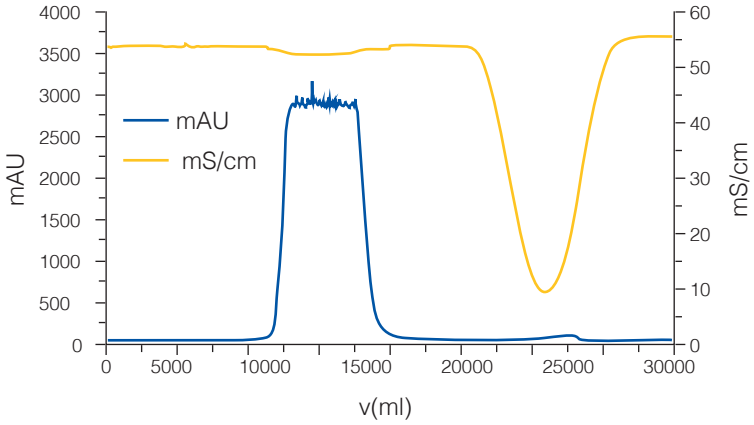
SorbaDex™ bulk powders are available in 100 g, 500 g, 1 kg, 5 kg, 10 kg, and 100 kg package sizes.

Overview of All Currently Available SorbaDex™ Grades

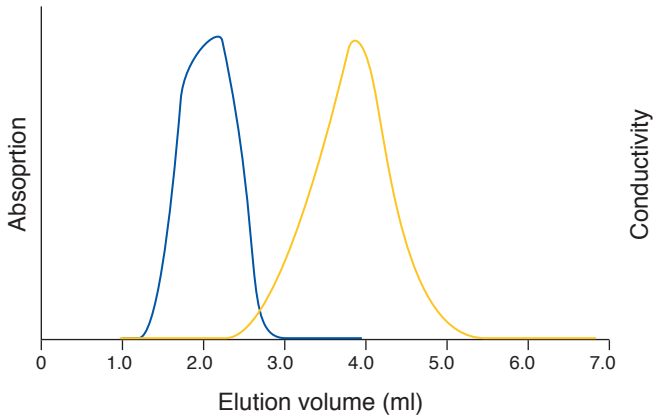
Product	Fractionation range (globular proteins) - Mr	pH stability	Bed volume ml/g dry SorbaDex™	Bead size (dry)	Cat. No.
SorbaDex™-25 superfine	1 – 5 kDa	2 to 13	4 - 6	20 – 50 µm	801001
SorbaDex™-25 fine	1 – 5 kDa	2 to 13	4 - 6	20 – 80 µm	801002
SorbaDex™-25 medium	1 – 5 kDa	2 to 13	4 - 6	50 – 150 µm	801003
SorbaDex™-50 superfine	1 – 30 kDa	2 to 13	9 - 11	20 – 50 µm	801004
SorbaDex™-50 fine	1 – 30 kDa	2 to 13	9 – 11	20 – 80 µm	801005
SorbaDex™-50 medium	1 – 30 kDa	2 to 13	9 – 11	50 – 150 µm	801006
SorbaDex™-25 fine	Hydrated in phosphate buffered saline; pH 7.4, with 0.2% sodium azide				801007
SorbaDex™-25 medium					801008

High Performance Results

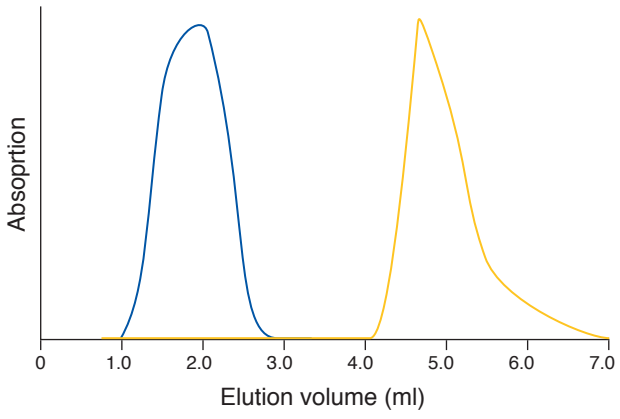
- Sample: Mouse IgG in PBS
- Conc.: 12.5 mg/ml
- Volume: 4500 ml
- Total IgG: 56.25 grams
- Buffer: 100 mM Glycine-HCl, pH 2.0 neutralised with 1 M Tris-HCl pH 8.0
- System: ÄktaPilot (GE Healthcare)
- Column: SorbaDex™-25 M in BPG 300/500
- Diameter: 30 cm
- Gel Volume: 25 Liters
- Pressure: 1.0 bar (0.1 mPa or 13 psi)
- Flow rate during sample loading: 400 ml
- Flow rate during equilibation and elution: 500 ml
- Total run time: 63 min



Items	Specifications						
Cat. No.	801001	801002	801003	801008	801004	801005	801006
Product description	SorbaDex™-25 gel filtration matrix dry beads				SorbaDex™-50 gel filtration matrix dry beads		
	Superfine	Fine	Medium	Medium - in Phosphate Buffered Saline, pH 7.4 with 0.2% sodium azide	Superfine	Fine	Medium
Fractionation range (globular proteins) - Mr	1 - 5 kD				1.5 - 30 kD		
Fractionation range (dextrans) - Mr	0.1 - 5 kD				0.5 - 10 kD		
Bead structure	Cross-linked dextran composite						
Bead size (Dry)	20-50 µm	20-80 µm	50-150 µm	50-150 µm	20-50 µm	20-80 µm	50-150 µm
Bead size (Wet)	35-90 µm	35-140 µm	85-260 µm	85-260 µm	40-100 µm	40-160 µm	100-300 µm
Obeys Darcy's Law	Obeys Darcy's Law						
Chemical stability	All commonly used buffers, including: 0.2M NaOH; 0.2M HCl; 1M acetic acid; 8M urea; 6M guanidine HCl; 1% SDS, 24% Ethanol; 30% Propanol; 30% Acetonitrile						
pH stability	2.0 to 13.0						
Autoclavable	at 121 °C, pH 7 for 30 minutes						
For laboratory use only, not for drug, household or other use							

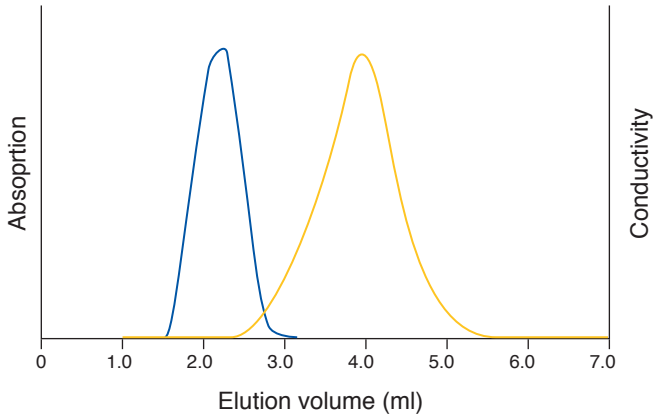


Protein Desalting from 0.8M NaCl
IgG (280nm): dark blue line
NaCl (µS): gold line
1 mg IgG anti-Rabbit in 1 mL 0.8 M sodium chloride
Water elution

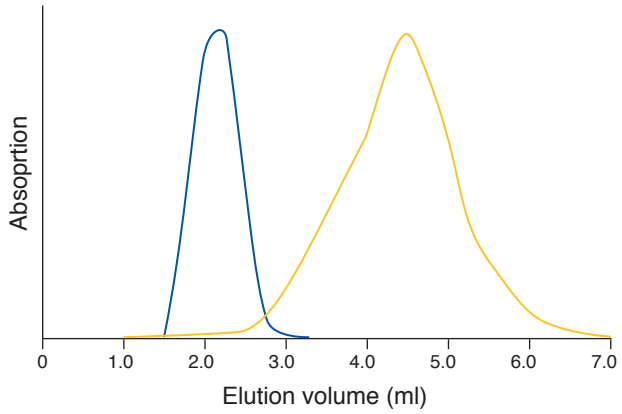


Removal of FITC from IgG
IgG (280nm): dark blue line
FITC (550nm): gold line
1 mg IgG anti-Rabbit and 0.1 µmol FITC in 1mL
DMSO/$NaHCO_3$
PBS Elution

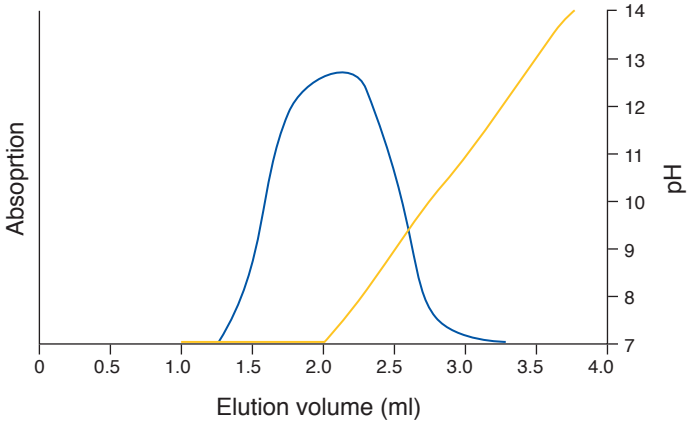
High Performance Results



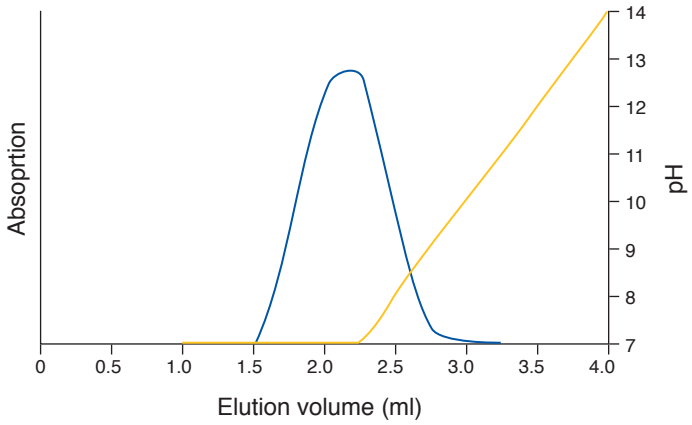
Oligo Desalting from 0.8M NaCl
Oligo (260nm): dark blue line
NaCl (µS): gold line
1 mg oligonucleotide (18-mer) in 1 mL 0.8 M NaCl



Removal of Rhodamine after labeling
Oligo (260nm): dark blue line
TAMRA (550nm): gold line
1 mg oligonucleotide (18-mer) and 0.5 µmol TAMRA in 1 mL DMSO/$NaHCO_3$



Removal of Ammonia (33%)
Dextran Blue (260nm): dark blue line
NH3 (pH): gold line
0.5 mg Dextran Blue (Mr 2,000,000) in 1 mL ammonia (33%)
Water elution



Removal of Ammonia (33%) from Oligo
Oligo (260nm): dark blue line
NH3 (pH): gold line
1 mg oligonucleotide (18-mer) in 1 mL ammonia (33%) after cleavage

Hydration, Filling, and Packing Columns
SorbaDex™ can be hydrated in aqueous media of choice containing no more than 20% alcohol. Time of hydration should be a minimum of 3 hours at room temperature or 1 hour at 90°C. Hydrated SorbaDex™ is provided in a settled gel volume to buffer volume ratio of 1:1, degassed and ready to use. Filling a column requires that the slurry be not too thick as to retain air bubbles. A settled gel volume to buffer volume ratio of 3:1 is optimal for this purpose. The remaining buffer may be used later for column packing.

To fill, pour the slurry into a tilted column. Alternatively, a funnel may be used, with the tip of the funnel touching the inside wall of the column to prevent splashing of the slurry. A gel reservoir or column extension is desirable for filling the whole column in a single operation. To finish packing the gel bed, a peristaltic pump may be employed. Use as high a flow rate as possible without deforming the beads. SorbaDex™ can be pressurized up to 3 bar.

Precautions for Safe Handling
As part of good industrial and personal hygiene and safety procedure, avoid all unnecessary exposure to the chemical substance and ensure prompt removal from skin, eyes, and clothing. Keep container tightly closed. Suitable for any general chemical storage area. Containers of this material may be hazardous when empty since they retain product residues (dust, solids); observe all warnings and precautions listed for the product.

Maximum operating pressure:

Generally obeys Darcy's Law: $U=K_o \frac{\Delta P}{L}$ where

U = linear flow rate, cm/hour
ΔP = pressure drop over gel bed, cm H_2O
L = bed ht, in cm

K_o = 9 for S-25 Superfine, 30 for S-25 Fine, 80 for S-25 Medium, 13.5 for S-50 Superfine, 36 for S-50 Fine, 145 for S-50 Medium