

SP Sepharose High Performance

Product Information

Cat#No# SP-463C

Product Overview

SP Sepharose High Performance is a strong cation exchange BioProcess resin with high resolution designed for intermediate and polishing steps in downstream processing.

Description

SP Sepharose High Performance is composed of crosslinked agarose beads with a mean diameter of 34 μm , modified with sulphopropyl (SP) strong cation exchange groups. It is designed for intermediate purification and polishing applications and to be used when resolution and capacity have priority. SP Sepharose High Performance has high chemical stability and withstands effective CIP/sanitization protocols using sodium hydroxide.

Characteristic

Strong cation exchanger for intermediate and final polishing steps.

High resolution, high capacity separation with high recovery.

High chemical stability for effective CIP/sanitization.

BioProcess resin supported for industrial applications and well-established in approved processes.

Maximum operating pressure

150 cm/h (at < 3 bar, 25°C, 10 cm bed height)

Ligand Coupling Method

Ether linkages

Metal ion capacity

0.15-0.20 mmol H⁺/ml

Matrix

6% cross-linked agarose

Ionic Exchanger Type

SP Sepharose High Performance

Strong cation exchanger

Particle Size

24 µm-44 µm

Average particle size

~34 µm

Ligand

Sulphopropyl

Dynamic binding capacity

~ 55 ribonuclease A/mL resin

Recommended column height

10 cm

Chemical stability

Stable in commonly used buffers: 8 M urea, 6 M guanidine HCl, 70% ethanol, 1 M NaOH,* 1 M acetic acid, 30% isopropanol, 30% acetonitrile, 2% SDS.

pH working range

4–13

CIP stability

3–14

Storage

4 to 30°C, 20% Ethanol + 0.2 M Sodium Acetate.

Binding

The most common procedure is to let the molecules of interest bind to the ion exchanger and allow the others to pass through. However, in some cases it may be more useful to bind “contaminants” and let the molecules of interest remain in the flow through. For adsorption, it is critical to choose a buffer with an appropriate pH. The ionic strength of the buffer should be kept low so as not to interfere with sample binding. Recommended

SP Sepharose High Performance

operating pH is within 0.5 pH units of the buffer's pKa and at least one pH unit below the isoelectric point (pI) of the molecule of interest.

Equilibration

Before starting a run, the ion exchanger has to be charged with counter ions and then equilibrated. This is done by pumping one column volume of a high ionic strength buffer followed by 5 to 10 column volumes of start buffer through the column until the conductivity and/or pH of the effluent is the same as for that of incoming solution.

Elution

Desorption may be done using either an increasing salt gradient (linear or step) or an increasing pH gradient (linear or step).

Regeneration

Depending on the nature of the sample, regeneration is normally performed by washing with a high ionic strength buffer (e.g. 1 to 2 M NaCl) and/or increasing pH, followed by reequilibration in start buffer.

Cleaning-in-place

Remove ionically bound proteins by washing the column with 0.5 bed volumes of a 2 M NaCl solution, contact time 10 to 15 minutes, reversed flow direction.

Remove precipitated proteins, hydrophobically bound proteins and lipoproteins by washing the column with 1 M NaOH solution at a linear flow rate of approximately 40 cm/h, contact time 1 to 2 hours, reversed flow direction.

Remove strongly hydrophobically bound proteins, lipoproteins and lipids by washing the column with four bed volumes of 70% ethanol or 30% isopropanol at 10 cm/h, reversed flow direction. Apply increasing gradients to avoid air bubble formation when using high concentrations of organic solvents.

Sanitization

Wash the column with 0.5 to 1 M NaOH at a flow rate of approximately 40 cm/h, contact time 30 to 60 minutes, reversed flow direction.

Pack size

75 mL

SP Sepharose High Performance

BioProcess resin

Yes

Maximum flow velocity

90 cm/h

Functional group

-CH₂ CH₂ CH₂ SO₃⁻, sulphopropyl (SP)
