Capto S resin

Product Information

Cat#No#	Ca-446C

Product Overview

Capto S is a strong cation exchanger for fast, efficient, and cost-effective capture and intermediate protein purification from large feed volumes.

Description

Capto S is strong cation, strong anion, and weak anion exchange resins for packed bed chromatography that increase speed and throughput in capture and intermediate purification. They combine high capacity with high flow velocity and low back pressure to reduce process cycle times and increase productivity.

Characteristic

Strong cation exchanger for high-productivity capture and intermediate purification when high volume throughput is essential.
High dynamic binding capacity at high flow raises productivity.
High-volume throughput cuts process times.
Cost-effective processing with smaller unit operations.
Resin fulfills industrial demands for security of supply, robust performance, and regulatory support.

Maximum operating pressure

300 kPa at 700 cm/h, 1 m diameter column.

Ligand Coupling Method

Dextran surface extenders

Metal ion capacity

0.11-0.14 mmol Na+/ml medium

Matrix

Highly cross-linked agarose with dextran surface extender.

Ionic Exchanger Type

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CREATIVE BIOMART®
Chromatography

Capto S resin

Strong cation exchanger
Average particle size
~90 μm
Ligand
Sulfonate group
Dynamic binding capacity
> 120 mg lysozyme/mL resin
Recommended column height
20 cm
Chemical stability
Commonly used aqueous buffers, 1 M acetic acid, 1 M NaOH, 8 M urea, 6 M guanidine hydrochloride, 30% isopropanol and 70% ethanol.
pH working range
4–12
CIP stability
3–14
Temperature stability
4°C to 30°C
Storage
4 to 30°C, 20% Ethanol + 0.2 M Sodium Acetate.
Evaluation of Packing
The best method of expressing the efficiency of a packed column is in terms of the height equivalent to a theoretical plate (HETP) and the asymmetry factor (As). The values are easily determined by applying a test sample such as 1% acetone solution or sodium chloride to the column.

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Equilibration

After packing, and before a chromatographic run, equilibrate with equilibration buffer by washing with at least five bed volumes for Capto S, or until the column effluent shows stable conductivity and pH values. The equilibration step can be shortened by first washing with a high concentration buffer to obtain approximately the desired pH value and then washing with equilibration buffer until the conductivity and pH values are stable.

Regeneration

After each separation, elute any reversibly bound material with a high ionic strength solution (e.g., 1 to 2 M NaCl in buffer). Regenerate the resin by washing with at least five bed volumes of equilibration buffer for Capto S, or until the column effluent shows stable conductivity and pH values.

Cleaning-in-place

Precipitated, hydrophobically bound proteins or lipoproteins: Wash with 1.0 M NaOH at 40 cm/h with reversed flow direction. Contact time 1 to 4 h, dependent on feed.
Ionically bound proteins: Wash with 0.5 to 2 column volumes (CV) of 2 M NaCl with reversed flow direction. Contact time 10 to 15 min.
Lipids and very hydrophobic proteins: Wash with 2 to 4 CV of up to 70% ethanol1 or 30% isopropanol with reversed flow direction. Contact time 1 to 2 h, dependent on feed. Alternatively, wash with 2 to 4 CV of 0.1% nonionic detergent with reversed flow direction. Contact time 1 to 2 h, dependent on feed.

Sanitization

To reduce microbial contamination in the packed column, sanitization using 0.5 to 1.0 M NaOH with a contact time of 1 h is recommended.

Scaling up

1. Select the bed volume according to required binding capacity. Keep sample concentration and gradient slope constant.
2. Select a column diameter to obtain a bed height of 10 cm to 40 cm. The high rigidity of the Capto S, Capto Q and Capto DEAE base matrix allows for bed heights well above 20 cm.
3. The larger equipment used when scaling up may cause some deviations from the method optimized at small scale. In such cases, check the buffer delivery system and monitoring system for time delays or volume

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changes. Different lengths and diameters of outlet tubing can cause zone spreading on larger systems.

Pack size
25 mL
BioProcess resin
Yes
Maximum flow velocity
700 cm/h
Functional group
SO3 -

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