HiScreen SP HP

Product Information

Cat#No#	Hi-224P

Product Overview

HiScreen SP HP columns are prepacked with SP Sepharose High Performance ion exchange chromatography resins and are part of the process development platform available. The columns are an excellent choice for method optimization and parameter screening.

Description

The small column volume of 4.7 mL and bed height of 10 cm make HiScreen columns excellent tools for method optimization, parameter screening, robustness testing, and convenient scale-up. Process fluid velocities can be applied, since the 10 cm bed height gives enough residence time and the results can then serve as basis for linear process scale-up. If necessary, two columns can easily be connected in series to give a bed height of 20 cm. resins prepacked in HiScreen IEX HP columns are also available in other formats and as bulk packs, making it possible to use the same resins for development work, pilot studies, and routine production.

Characteristic

SP Sepharose High Performance is a strong cation exchange BioProcess resin designed for intermediate and polishing steps in downstream processing.
Prepacked, ready-to-use columns for convenient process development optimization.
10 cm bed height of HiScreen columns is designed to allow method optimization and parameter screening.
Easily connected in series to achieve 20 cm bed height.
Small bed volume gives fast results and minimal sample/buffer consumption.
Reproducible results, scalable to BioProcess columns packed with the same resin using the same linear fluid velocity.

Maximum operating pressure

3 bar [0.3 MPa] (44 psi)

Sample preparation

1. Adjust the sample to the composition of the start buffer, using one of these methods: Dilute the sample with

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start buffer. Exchange buffer using a HiPrep 26/10 Desalting, HiTrap Desalting or PD-10 Desalting column.
2. Filter the sample through a 0.45 µm filter or centrifuge at 10 000 × g for 10 min immediately before loading it to the column. This prevents clogging and increases the life time of the column when loading large sample volumes.

Metal ion capacity
0.15 to 0.20 mmol H+ /mL resin
Matrix
Cross-linked agarose, spherical
Ionic Exchanger Type
Strong cation
Average particle size
~ 34 µm
Dynamic binding capacity
~ 55 mg Ribonuclease A/mL resin
Recommended flow rate
< 150 cm/h
Recommended column height
100 mm
Chemical stability
Stable to commonly used aqueous buffers, 1.0 M NaOH, 8 M urea, 6 M guanidine hydrochloride, 70% ethanol.
pH working range
4 to 13
CIP stability
3 to 14

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Storage
4 to 30ºC, 20% Ethanol, 0.2 M Sodium Acetate.
Elution buffer
50 mM sodium acetate, 1 M NaCl, pH 5.0
Cleaning-in-place
1. Wash with 2 column volumes (CV) 2 M NaCl. If detergents have been used, wash with 5 CV distilled water followed by 2 CV of 2 M NaCl. 2. Re-equilibrate the column with at least 5 CV start buffer or until the UV baseline and pH/conductivity values are stable.
Purification procedures
1. Remove the stoppers and connect the column to the system. Avoid introducing air into the column. 2. Wash with 1 column volume (CV) of distilled water. This step removes the ethanol and avoids the precipitation of buffer salts upon exposure to ethanol. The step can be omitted if precipitation is not likely to be a problem. 3. Adjust the sample to the chosen starting pH and conductivity and load on the column. 4. Wash with 5 to 10 CV start buffer or until the UV trace of the effluent returns to near baseline. 5. Linear gradient elution Elute with 0 to 100% elution buffer (up to 1 M NaCl) in 10 to 20 CV. Step elution Elute with 5 CV elution buffer including NaCl at chosen concentration. Repeat at higher NaCl concentrations until the target protein has been eluted. 6. Wash with 5 CV 1 M NaCl (100% elution buffer) to elute any remaining ionically bound material. 7. If required, perform a CIP to clean the column. 8. Re-equilibrate with 5 to 10 CV start buffer or until the UV baseline, eluent pH, and conductivity reach the required values.
Pack size
1 × 4.7 mL
Maximum flow velocity
150 cm/h (1.2 mL/min)

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Dimensions
7.7 × 100 mm
Column volume
4.7 mL
Column i.d.
7.7 mm
Column hardware pressure limit
0.8 MPa (8 bar, 116 psi)
Functional group
-CH2CH2CH2SO3 -

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