

# Persecryl S-100

## 1. Basic product information

Persecryl S-100 chromatography resin has a unique chemical structure, good physical and chemical properties, high flow rate during column chromatography operation, and high resolution and recovery. It is an indispensable type of hydrophilic gel filtration chromatography resin in the separation and purification technology of biological macromolecules such as enzymes, polysaccharides, nucleic acids and proteins. This type of chromatography resin is used in the production of biological products such as interferon- $\gamma$ , interleukin 2, protein A and hepatitis B vaccine.

## 2. Chromatography resin parameters

|                                 |                                                                             |
|---------------------------------|-----------------------------------------------------------------------------|
| <b>Matrix</b>                   | Cross-linked copolymer of acrylic anhydride and NN methylenebis sulfonamide |
| <b>Particle size</b>            | 25-75 $\mu\text{m}$                                                         |
| <b>Separation range</b>         | 1~100 kDa                                                                   |
| <b>Recommended flow rate</b>    | $\geq 125$ cm/h (at 1 bar)                                                  |
| <b>Maximum working pressure</b> | 1.5 bar                                                                     |

## 3. Chemical resistance

|                           |                                                                                                                                                                           |
|---------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>pH stability*</b>      | 3~11 (working range), 2~13 (CIP)                                                                                                                                          |
| <b>Chemical stability</b> | All commonly used aqueous buffers, 0.2M NaOH; 0.1M HCl; 1M acetic acid; 8M urea; 6M guanidine hydrochloride; 1% SDS; 20% ethanol; 30% propanol; 30% acetonitrile; 2M NaCl |

*\* The physical and chemical properties and functions of the chromatographic resin have no obvious changes after being placed in an environment of 40°C and pH 3–11 for 7 days.*

## 4. Method of use

### 4.1 Chromatographic conditions

1. **Buffer selection:** the stability of the sample in the buffer should be considered; to avoid possible nonspecific adsorption, it is advisable to use a salt-containing buffer instead of ultra pure or pure water.
2. **Flow rate:** according to the height of the column bed, a linear flow rate not higher than 125 cm/h is generally selected.
3. **Sample pretreatment:** to prevent the sample from clogging the column, it needs to be filtered with a 0.45 µm microporous membrane before loading.

### 4.2 Chromatography steps

1. **Equilibration:** use the buffer to fully equilibrate the chromatography column until the pH and conductivity are stable and basically the same as the equilibration buffer. This step usually requires 2–5 column bed volumes (CV).
2. **Sample loading:** the usual loading volume is 1%–2% of the column volume, and the sample concentration should not be too high, to avoid overpressure or affecting the resolution.
3. **Elution:** use buffer elution to collect peaks at different positions, usually 1~1.5 CV.
4. **Regeneration:** rinse the column with a buffer containing high salt (such as 1M NaCl).
5. **Re-equilibration:** re-equilibrate the column with buffer.

## 5. Cleaning and regeneration

Contaminants (e.g. lipids, endotoxins and proteins) accumulate on the column as the number of uses of the chromatography resin increases. Regular cleaning-in-place (CIP) is essential to keep the column in a stable working condition. Determine the frequency of CIP according to the degree of contamination of the chromatography resin (if the contamination is considerable, CIP is recommended after each use to ensure repeatability of results and to prolong the working life of the chromatography resin).

For different types of impurities and contaminants, the recommended cleaning conditions are as follows:

- **Removal of strongly binding proteins:** wash with 1-2 CV of 2M NaCl solution.
- Removal of strongly hydrophobic proteins and precipitated proteins: first wash with 1 CV of 0,1M NaOH solution, then wash the lye with 5–10 CV of ultra pure or pure water.
- **Removal of lipoproteins and lipids:** first wash with 5 CV of 70% ethanol or 30% isopropanol, then rinse with 5–10 CV of ultra pure or pure water.

Note: 70% ethanol or 30% isopropanol 4-10 CV should be degassed before use; the flow rate should be no more than 60 cm/h during CIP; reverse cleaning can be used when the clogging is severe.

After cleaning, equilibrate the column with equilibration buffer solution at least 3 CV until the pH and conductivity remain unchanged.

## 6. Storage

Keep the unopened chromatography resin in the original container and store at 4~30°C in a well-ventilated, dry and clean place. Do not freeze. Wash the used column with 2–3 CV of 20% ethanol solution and store at 2~8°C.

## 7. Destruction and recycling

Since chromatography resin is difficult to degrade in nature, it is recommended that the discarded chromatography resin is incinerated to protect the environment. For chromatography resin that has been in contact with biologically active samples such as viruses and blood, follow the local biosafety requirements before destroying or disposing of it.

## 8. Packing method

Detailed information on resin packaging is available on request. Please contact your local distributor.

## 9. Ordering information

Product name: Persecryl S-100

| Product Code in Catalogue | Product Volume |
|---------------------------|----------------|
| 201-00025                 | 25 ml          |
| 201-00100                 | 100 ml         |
| 201-00500                 | 500 ml         |
| 201-01000                 | 1 L            |
| 201-05000                 | 5 L            |
| 201-10000                 | 10 L           |

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