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# Persefose CL-4B

## 1. Basic product information

Persefose CL-4B is a modified cross-linked (cross-linking ratio is 4%) agarose-based gel filtration chromatography resin, which separates different molecules by using their molecular weight and conformation differences. This chromatography resin can be used successfully for the separation and purification of various biological molecules, such as recombinant proteins, antibodies, nucleic acids, viruses and virus-like particles, and polysaccharides, as well as QC molecular weight determination, and is especially suitable for molecules that cannot be dissolved in aqueous solution.

## 2. Chromatography resin parameters

| | |
|---|---|
| **Resin type** | Gel filtration |
| **Matrix** | High degree cross-linking agarose 4% |
| **Median particle size** | 45~165 μm |
| **Separation range for spherical molecules** | 60~20,000kDa (spherical molecules) |
| **Maximum flow rate** | 30 cm/h |
| **Maximum working pressure** | 0.25 bar |
| **Working temperature** | 4–30°C |

## 3. Chemical resistance

| | |
|---|---|
| **pH stability*** | 3–14 |
| **Chemical stability** | All commonly used aqueous buffers, 30% isopropanol**, 75% ethanol**, 1M NaOH, 1M acetic acid, 6M guanidine hydrochloride, 8M urea |

** 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 pH3–14 for 7 days.*

*** v/v, volume ratio*

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# 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:** generally, choose a linear flow rate not higher than 30 cm/h according to the bed height of the column.
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 consistent with the equilibration buffer. This step usually requires 1–2 column bed volumes (CV).
2. **Sample loading:** the usual sample loading is 2%–5% of CV, and the sample concentration should not be too high, to avoid overpressure or affecting the resolution.
3. **Elution:** use buffer to elute, and collect components that elute from different positions, usually requiring 1~1.5 CV.
4. **Regeneration:** rinse the column with a high-salt buffer (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

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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 5 CV of 2M NaCl solution, or use a high salt buffer not lower than pH 3, such as 1M NaAc solution.
- Removal of strongly hydrophobic proteins and precipitated proteins: first wash with 5 CV of 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 should be degassed before use; the flow rate should be no more then 30 cm/h during CIP; reverse cleaning can be used when the clogging is severe.

To reduce the microbial load, it is recommended that 0.5~1M NaOH solution is used to treat the chromatography resin; treatment time is 15–30 minutes.

## 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 waste 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.

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## 9. Ordering information

Product name: Persefose CL-4B

| Product Code in Catalogue | Product Volume |
|---|---|
| 703-00025 | 25 ml |
| 703-00100 | 100 ml |
| 703-00500 | 500 ml |
| 703-01000 | 1 L |
| 703-05000 | 5 L |
| 703-10000 | 10 L |
| 703-20000 | 20 L |