LT BIOTECH UAB
Mokslininkų g. 6A,
LT-08412 Vilnius,
Lithuania
www.ltbiotech.lt

CM Persefose XL

1. Basic product information

CM Persefose XL is a new type of highly cross-linked agarose chromatography resin. It is a weak cation-exchange resin formed by bonding carboxymethyl groups to agarose gel. It has high flow rate, low back pressure, high dynamic capacity, good chemical stability and mechanical properties, low non-specific adsorption, high recovery rate and convenient scale-up, shortening production time and improving production efficiency. It is widely used in ion exchange chromatography purification of downstream proteins, nucleic acids and polypeptides in biopharmaceutical and bioengineering.

2. Chromatography resin parameters

Resin type	Weak cation exchange
Functional group	Carboxymethyl
Matrix	Highly cross-linked agarose with dextran extension arms
Median particle size	90 μm
Total ionic capacity	0.10–0.14 mmol H^+/ ml
Dynamic binding capacity	>85 mg lysozyme /ml
Maximum flow rate	750 cm/h
Maximum working pressure	3 bar
Working temperature	4–30°C

3. Chemical resistance

pH stability*	4~13 (long term), 2~14 (CIP)
Chemical stability	All commonly used aqueous buffers, 1M NaOH, 8M urea, 8M guanidine HCl, 70% ethanol
Avoid	Oxidising agents, anionic detergents

** The physical and chemical properties and functions of the chromatographic resin have no obvious change after being placed in an environment of 40°C and pH 4–13 for 7 days.*
*** v/v, volume ratio*

4. Method of use

4.1 Column packing
Column packing is performed according to standard operating procedures. It is important to ensure that each material is at working temperature, and the gel needs to be degassed before packing.
4.2 Equilibration
Equilibrate the column with 2–5 column bed volumes (CV), and make sure that the conductivity and pH of the eluent are exactly the same as the conductivity and pH of the loading buffer. The equilibration solution is a low-concentration buffer solution, such as Tris or PBS.
4.3 Sample loading

LT BIOTECH UAB
Mokslininkų g. 6A,
LT-08412 Vilnius,
Lithuania
www.ltbiotech.lt

(1) The sample is prepared with an equilibration buffer, and the turbid sample should be centrifuged and filtered before loading. Samples with too high a salt concentration should be prepared after treatment.
(2) In general, let the target product bind to the column, wash off the impurities with the equilibration buffer, then choose an eluent to wash off the target product.
(3) The extent to which the resin adsorbs sample components depends on the charged properties of the sample, the ionic strength and the pH of the mobile phase. The lower the salt concentration, the stronger the adsorption of the sample components by the resin. When using CM chromatography resin, the recommended pH value is 1 unit less than the isoelectric point of the target product.

4.4 Elution

It can be eluted by increasing the salt concentration or increasing the pH value; the method of increasing the salt concentration is often used for elution.

4.5 Regeneration

Generally, wash with high salt concentration buffer (containing 1~2 M NaCl) or reduce the pH to wash more than 10 CV, and then wash with the equilibration buffer until the equilibrium is reached.
If there are inactivated proteins or lipids that cannot be washed away during regeneration, they can be removed by cleaning-in-place (CIP).

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. 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 5 CV of 2M NaCl solution, or use a high salt buffer not lower than pH 2, 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 30–60 cm/h during CIP. Reverse cleaning should 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 chromatographic 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.

LT BIOTECH UAB
Mokslininkų g. 6A,
LT-08412 Vilnius,
Lithuania
www.ltbiotech.lt

8. Packing method

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

9. Ordering information

Product name: CM Persefose XL

Product Cat. No	Package
299-00025	25 ml
299-00100	100 ml
299-00500	500 ml
299-01000	1 L
299-05000	5 L
299-10000	10 L