Product Data Sheet

Seplife® LXPM Q706M

1. Description

Seplife® LXPM Q706M is an acrylic polymer for ion exchange chromatography characterized by higher hydrophilicity than styrene/DVB polymers for use in capture and polishing purification of medium size biomolecules.

- The surface of the polymer is modified to increase hydrophilicity followed by binding with strong base ion exchange groups.
- Uniform particle size ideal for high resolution
- The polymer has a high porosity (1000Å) for biomolecules to bind without steric hindrance but very high binding capacity even at high flow rates.
- High chemical stability to common aqueous solutions used in IEX chromatography, insoluble in most organic solvents.
- Regulatory Support File (RSF) is available

Seplife® LXPM Q706M is a polymeric resin for ion exchange chromatography based on methacrylate functionalized with quaternary amine (Q) with a uniform particle size (50-100 micron)

2. Properties

Product	Seplife® LXPM Q706M
Appearance	White to light yellow spherical beads
Type	Strong base anion - Quaternary amine
Matrix	Polymethyl methacrylate
Ion exchange capacity (mmol/ml)	0.06-0.10
pH ligand fully charged	Positively charged at pH<11
Particle size range (micron)	50-100
Typical pore size (Å)	1000
pH stability	2-12 (operational), 2-14 (CIP)
Chemical Stability	All commonly used aqueous buffers: 1 M NaOH, 1 M acetic acid, 8 M urea, 70% ethanol, 6 M guanidine hydrochloride, 2% benzyl alcohol
Flow rate* (cm/h)	500-600
10% Dynamic binding capacity (mg /ml)**	⩾110
Shipped as	Slurry in 20% ethanol solution

*Testing conditions: Column: 26x200mm, 3 MPa, water

** Report testing conditions: Sample: BSA, mobile phase: 50mM Tris-HCl, pH 8.0, column size 8x100mm

3. Instructions

3.1 Column packing

The best column packing results are obtained with the resin slurry in 0.5M NaCl at a concentration of 60%-70%.

- Mix the resins to form a homogenate and measure the desired mass or volume, about 1.2 times the column volume.
- Replace 20% ethanol with 0.5 M NaCl solution and equilibrate overnight.
- Before loading the column, adjust the slurry concentration to 65-70% with 0.5 M NaCl solution; pour the resin slurry into the chromatography column in one go, allow to sediment by gravity and mark the bed height after sedimentation.
- Load the distributor and adjust the height so that the compression coefficient is 1.05-1.10; then pump 0.5M NaCl through the column and stabilize the bed with 1.5 to 2 times the highest working flow rate. (2 - 5 bed volumes (BV).
- Efficiency and asymmetry determinations can be performed as described below.

3.2 Column Efficiency Evaluation

The test method for column efficiency of the chromatography columns is as follows:

Mobile phase: 0.5 M NaCl solution

Linear flow rate: 100 cm/h

Sample: 2 M NaCl solution

Loading volume: 0.5-1% of column volume

Detection: Conductivity detector

Acceptable column asymmetry factor is in the range 0.8-1.8.

3.3 Rinsing

The loaded columns should be rinsed with at least 5 BV of deionized water.

3.4 Equilibration

Equilibrate the column with an appropriate 5-10 column volume buffer until the conductivity and pH of the effluent remain unchanged. The specific buffer system should be screened and optimized according to the stability and isoelectric point of the target protein and the type of ion exchange medium.

3.5 Sample feeding

The solid sample can be prepared by dissolving in the equilibrium solution; the low concentration sample solution can be dialyzed in the equilibrium buffer; the high concentration sample solution can be diluted with the equilibrium solution. To avoid clogging of the column, samples should be processed by centrifugation or membrane filtration. The feed amount is calculated according to the capacity of the resin and the content of the target protein in the feed solution. Before loading, ensure that the sample buffer is as consistent as possible with the equilibration solution.

3.6 Elution

After loading the sample, continue rinsing with equilibration buffer until the baseline is stable. Typically, the molecules retained on IEX chromatographic media are eluted by increasing the salt concentration or changing the pH to ensure repulsion of the charged species.

3.7 Regeneration and CIP

After each chromatography cycle, the column can be regenerated with 5BV of 0.5-2 M NaCl to remove the protein strongly bound to the chromatography medium.

3.8 Cleaning-in-place (CIP)

In order to maintain the performance of the chromatographic column, if there are proteins or other impurities that cannot be effectively removed during the regeneration process, a CIP step should be performed. Up-flow CIP may increase the efficiency of the process. The recommended operation steps are as follows:

1) For precipitated, hydrophobically bound proteins or lipoproteins, wash with 0.2-0.5 M NaOH (contact time 1-2 h), followed by rinsing with equilibration solution (approx. 5 BV) and deionized water (approx. 3 BV);

2) For proteins retained by hydrophobic bonds, lipoproteins and lipids, wash with 50% ethanol or 30% isopropanol (approx. 5 BV, contact time 0.5-1 h), and rinse with deionized water (approx. 5 BV).

3) Other options: media can be cleaned with alkaline or acidic solutions containing non-ionic surfactants, such as 0.1-0.5% Triton X-100 in 0.1 M acetic acid for 1-2 h, and rinse with 50% ethanol (approx. 5 BV). To remove the detergent, rinse with water (approx. 5 BV). When using high-concentration organic solvents, it is recommended to gradually increase the solvent concentration in the mobile phase in order to avoid bubbling.

4. Storage

Chromatography resins that are not for immediate use should be stored in 20% ethanol at 4-30°C. The loaded column should be stored in a buffer containing 20% ethanol (pH 7.0);

5. Transportation

Avoid sunlight, rain, and heavy pressure during transportation. It is strictly forbidden to transport with toxic and hazardous materials.

6. Ordering information

Product Name	References	Pack Size
Seplife® LXPM Q706M	PM10324M2-1	25ml
	PM10324M2-2	100ml
	PM10324M2-3	500ml
	PM10324M2-4	1L
	PM10324M2-5	5L
	PM10324M2-6	10L

Production date: See label

Expiry date: 5 years, under proper storage conditions

Manufacturer: Sunresin New Materials Co. Ltd.

Add:No. 135, Jinye Rd, Xi'an Hi-tech Industrial Development Zone, Shaanxi, 710076, China

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