Cellulose DE-52

V02

Cat: C8930
Specification: 100g
Storage: Long-term storage in 20% ethanol at 4℃.

Introduction

DEAE-cellulose, which uses a particle-type hydrophilic polymer with an average particle size of 50μm, and is surface-modified with macromolecular sugar linkages, provides higher specific surface area and better biocompatibility. It maintains higher loading capacity under high water flow, while also providing better resolution. Due to the large specific surface area, the equilibrium and elution time are also shorter. It can be used to graft even purified viruses, plasmids and other large molecular substances, with the load capacity remaining basically unchanged. This product has good physical and chemical stability, long service life, and easy operation.

Characteristics of filler material

Characteristics	High capacity, good resolution, high flow rate, and ease of use.
Matrix	Highly cross-linked cellulose
Ligand	Diethylaminoethyl (DEAE)
Ligand Density	40μmol /ml
Adsorption Capacity	180mg HSA/ml
Particle Size	50μm
Maximum Flow Rate	300cm/h
pH Range	3-10, CIP (Clean-In-Place) up to 2-11
Chemical Stability	Various buffers and salts, 0.1M NaOH, acetic acid, 8M urea, 6M guanidine hydrochloride, ethanol, isopropanol, etc.
Physical Stability	0.1M neutral buffer, 120℃ for 30 minutes
Storage Temperature	+4~30℃
Storage	Dry powder, 1g = 3-4ml

Instructions for use:

1) Chromatographic column loading

1. The temperature of the materials required should be the same as the temperature of the chromatography operation, and it is best to degas the liquid. The packing material can be directly weighed to the required amount, then soaked in purified water for one hour before being loaded into the column. If it doesn't swell well, it can be appropriately swollen with hot water. After swelling, wash off the alcohol in the gel.

2. Add 20% ethanol at the lower end of the column to remove air from the column, close the column outlet, and leave a small amount of 20% ethanol inside the column. 20% ethanol is prone to

generating bubbles, and 1% Tween can be added to prevent this. You can also replace the column with pure water, but you need to replace 20% ethanol in the packing with pure water. The specific method is to take the required volume of packing and place it on a suction funnel. Alternatively, you can carefully pour off the 20% ethanol on the packing and replace it with 5 times the volume of pure water. Repeat the precipitation process to remove the supernatant, and after about 5 times, you can use it to fill the column.

3. This packing material is relatively fine, so it is important to choose a suitable sieve for the column without any leaks. You can also try adding some packing material to the sieve. If there are no problems, when pouring the packing material into the column continuously, use a glass rod to drain the liquid close to the inner wall of the column to reduce the generation of bubbles. Let the packing material settle naturally until the volume of the packing material does not change anymore, and the packing material and the liquid above are well stratified, with the upper solution completely clarified. Then you can turn on the pump and press the column with a suitable flow rate. After the volume of the packing material does not change anymore, place the conversion head tightly on the packing material to balance the use of the column. The flow rate used should be less than that of the column.

4. Before installing the column, the packing material should be taken out of the refrigerator and left at room temperature for at least 2-3 hours to avoid bubbles in the column due to temperature changes during installation.

2)Protein Binding

The salt concentration and pH of the sample should be as consistent as possible with the buffer solution used to equilibrate the column. High salt concentration or low pH may prevent proper binding, so adjustments should be made based on the specific sample.

3)Protein Elution

When using this packing material for linear gradient elution, it is recommended that the ratio of the column diameter to height be greater than 10, as a higher ratio facilitates better separation. It's also best to avoid overloading the column, with a sample loading concentration of approximately 10mg/ml recommended. If a step elution method is used, a shorter and thicker column can be used, and there is no limit to the sample loading volume. Step elution is easy to scale up and has good reproducibility. With good elution conditions, it can achieve the same or even better results as linear gradient elution. The choice of method depends entirely on your specific needs.

Regeneration and Cleaning:

1. After each use, it is recommended to wash with 0.1M NaOH containing 2M NaCl for 5 bed volumes, followed by rinsing with water for 5 bed volumes. Then, preserve the column with 20% ethanol. After using the column 3-5 times, wash with 70% ethanol or 30% isopropanol, both

containing 1% Tween, for 5 bed volumes after water rinsing. Finally, flush with 20% ethanol for 5 bed volumes.

2. Mixing organic solvents with water can easily generate bubbles. To avoid this, allow the prepared organic solvent to stand overnight at room temperature before use. This can prevent bubbles from entering the column and causing malfunctions.

Note

1. **Before loading samples, they must be filtered through a membrane and decolorized, as impurities and pigments can be adsorbed onto the packing material, affecting its normal use.**
2. **Avoid using high concentrations of strong acids or bases during operation. The concentration of acids and bases should be less than 0.15M. Alkaline solutions can slow down the flow rate.**
3. **When selecting chromatography columns for ion exchange media, avoid using slender columns as they can increase operational pressure.**
4. **Different samples may require different adsorption and elution methods. You can refer to references for guidance.**

References:

[1] Yuqing Chen,Dan Liu,Dingyi Wang,et al. Hypoglycemic activity and gut microbiota regulation of a novel polysaccharide from Grifola frondosa in type 2 diabetic mice. Food and Chemical Toxicology. April 2019;295-302. (IF 3.977)

[2] Adelijiang Wusiman,Jin He,Tianyu Zhu,et al. Macrophage immunomodulatory activity of the cationic polymer modified PLGA nanoparticles encapsulating Alhagi honey polysaccharide. International Journal of Biological Macromolecules. August 2019;134:730-739. (IF 4.784)

Note: For more documents using this product, please refer to the www.solarbio.com.