CelloPure DEAE

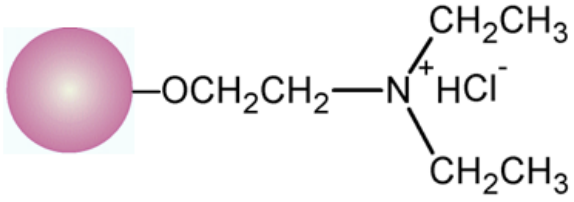
Ion Exchange Chromatography Media

Technical Data Sheet

2464 Norwood street SW,
Lenoir, North Carolina – 28645.USA

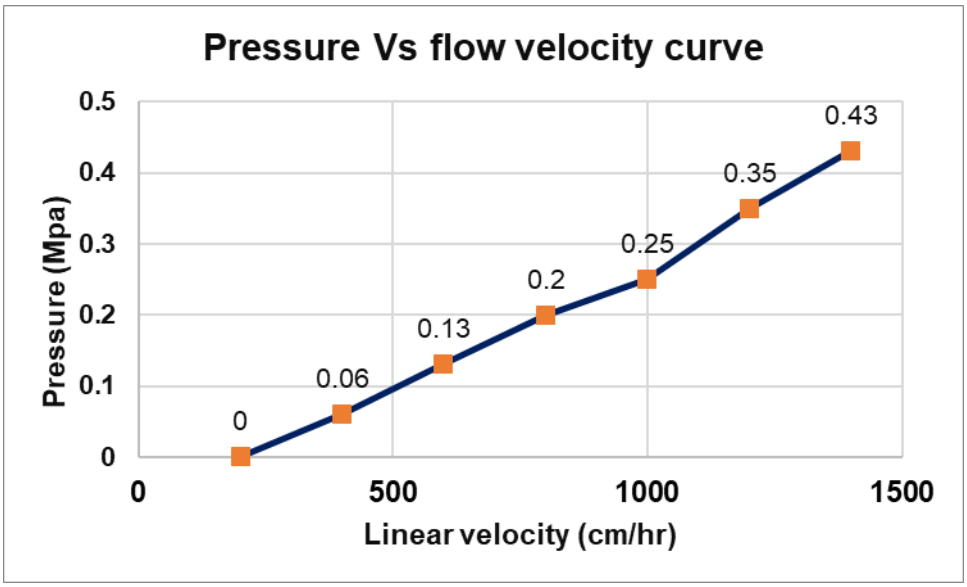
CelloPure DEAE

CelloPure DEAE is a weak anion exchanger chromatography media based on spherical particles manufactured from highly cross-linked cellulose. Each offers excellent flow properties, mechanical stability and chemical resistance. The ion exchange group is diethylaminoethyl, which remains charged and maintains consistently high capacity over the entire working range, pH 2 to 12. These ion exchangers are ideally suited for both laboratory and process scale chromatography of proteins, peptides and other biomolecules.



CelloPure DEAE base resin

Cellulose is a natural polysaccharide with a unique crystalline structure, unlike non-crystalline polysaccharides like agarose. This gives cellulose a special pore structure, which plays an important role in chromatography. CelloPure DEAE, made from crosslinked cellulose, benefits from this structure by offering good mechanical strength and efficient flow of large biomolecules. This helps improve performance when purifying large proteins and other biological substances.



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Pressure-flow and Characteristics of CelloPure DEAE

CelloPure DEAE is made from strong, cross-linked spherical cellulose with excellent flow characteristics and high binding capacity. It allows flow rates of 300 to 500 cm/h at 1 bar (14.5 psi, 0.1 MPa), enabling quick separation steps—especially useful in the early stages of purification when fast processing is important. During washing and equilibration, the flow rate can be increased up to 750 cm/h for even faster operation**.** The basic characteristics of CelloPure DEAE weak anion exchange chromatography media are shown in Table 1.

Ion Exchange Type		Weak anion exchange
Functional Group		DEAE (di-ethylaminoethyl)
Base Matrix		Cross-linked Cellulose Beads
Exclusion Limit (Da)		360,000
Particle Size (µm)		40-130 µm
pH Working Range		2 to 12
Operating Pressure		Up to 2 bar (0.2 Mpa)
Ion Exchange Capacity (meq /ml-gel)		0.08 to 0.20
Dynamic Binding Capacity (mg/ml)	BSA	>45
	Human IgG	20
Supplied		Suspension in 20% Ethanol

Table. Basic characteristics of CelloPure DEAE weak anion exchange chromatography media

Dynamic Binding Capacities of CelloPure DEAE

CelloPure DEAE have high efficiency in mass transfer and excellent Dynamic Binding Capacities, particularly for HSA (Human Normal Albumin), and large biomolecules like Immunoglobulins (IgG).

Because of these special qualities, CelloPure DEAE media can be used in downstream processes in the purification of biopharmaceuticals. With good reliability, protein separation has been scaled up using CelloPure DEAE from laboratory size and no discernible variations were seen in the purity of single peak at the time of protein separation.

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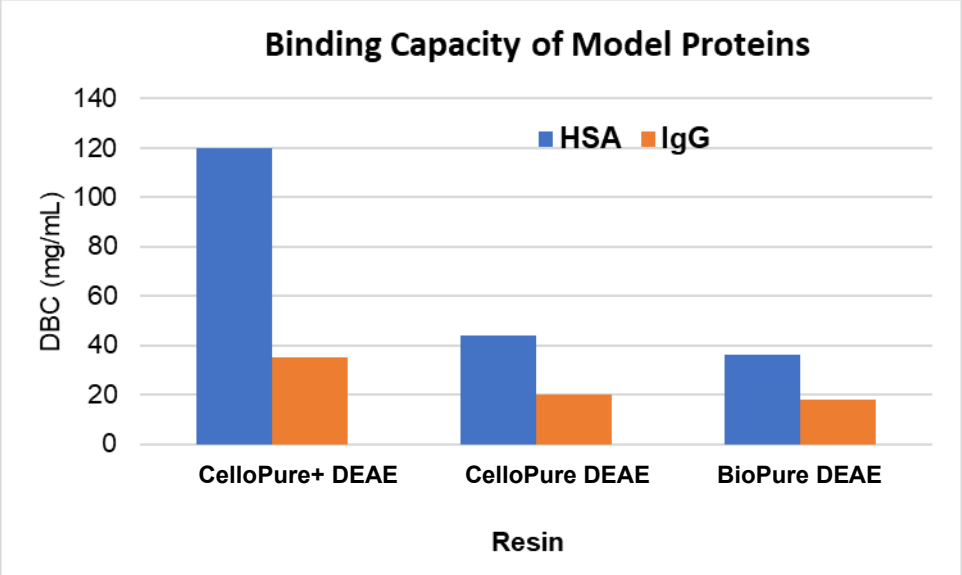

Column : HiScale 16/20, 5 cm bed height, 10 ml bed volume

Flow rate : 1ml/min

Sample: 20mg/ml

Start Buffer: 30mM Phosphate buffer (pH 7.8-8.2) for HSA

50mM Tris-HCL (pH 9.5) for IgG

Elution Buffer: 30mM Sodium Acetate (pH 4.6) for HSA

50mM Tris-HCL+1M Nacl (pH 9.5) for IgG

Chemical Stability and Cleaning-In-Place

CelloPure DEAE, a cross-linked spherical cellulose beads, offer strong chemical and physical stability, enabling effective clean-in-place (CIP) and sanitization protocols. This ensures high protein recovery over multiple cycles, prevents microbial growth, and supports hygienic, cost-effective purification which is the key considerations for preparative applications.

Cleaning-In-Place of CelloPure DEAE done with 0.5N NaOH and sometimes with Orthophosphoric acid. Most of the contaminated material should be removed from CIP with routine washing with 5 CV of 0.25N to 0.5N sodium hydroxide; however, extremely hydrophobic molecules may bind so firmly that they must be eluted using powerful detergents or organic solvents, such as 70% ethanol or 30% isopropyl alcohol.

After use of chromatographic media, it should be stored in 20% ethanol at room temperature.

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