CelloPure^{+} Q

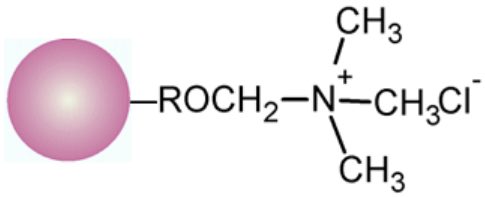
Ion Exchange Chromatography Media

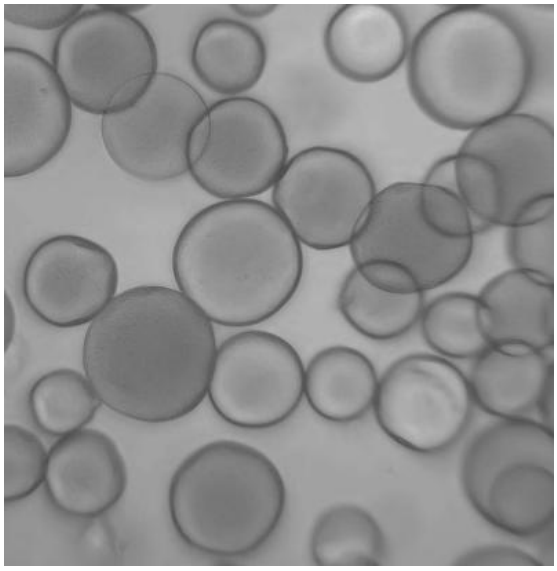
Technical Datasheet

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

CelloPure⁺ Q

CelloPure⁺ Q strong anion exchanger is a surface-modified, highly cross-linked medium with dextran scaffold structure. It delivers high dynamic binding capabilities and maintains stability even at elevated flow rates. The optimized media's excellent performance presents a substantial chance to boost the throughput of downstream purification. In this ion exchange resin, the Quaternary amine functional group is attached to the cellulose beads, which remains charged and maintains consistently high capacity over the entire working range, pH 2 to 12.





CelloPure⁺ Q 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⁺ Q, made from crosslinked cellulose and scaffold with Dextran, 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 even with high flow rates.

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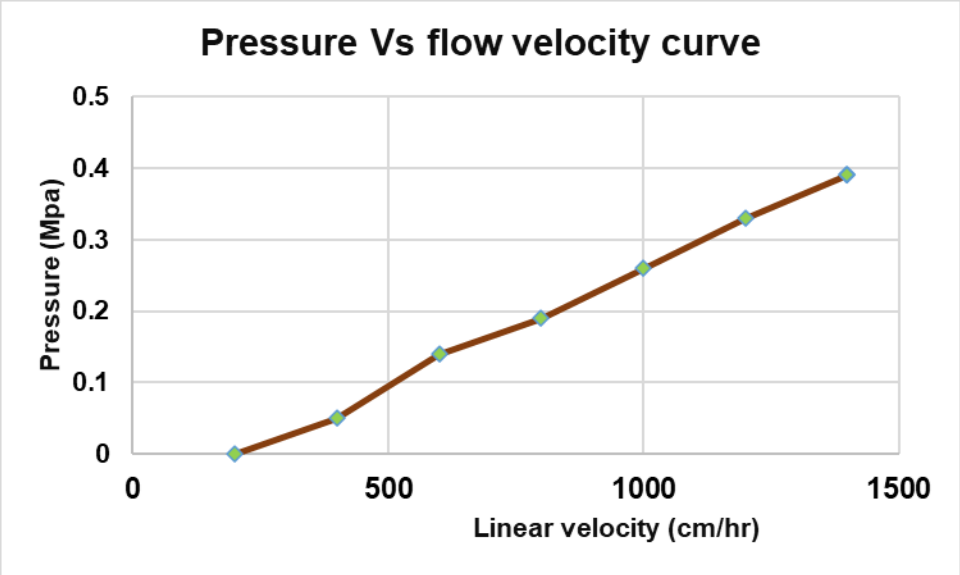

Pressure-flow and Characteristics of CelloPure⁺ Q

CelloPure⁺ Q media consists of highly cross-linked cellulose beads with an average diameter of 90 µm, which are surface modified with dextran to enhance their performance. It gives high binding capacities even in high flowrates. It allows flow rates of 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+ Q strong anion exchange chromatography media are shown in Table 1.

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Type		Strong anion
Functional Group		Quaternary amine
Base Matrix		Spherical, Highly Cross-linked Cellulose Beads with Dextran Scaffold
Particle Size (µm)		40-130 µm
pH Working Range		2 to 11
Operating Pressure		Up to 2 bar(0.2 Mpa)
Ion Exchange Capacity (meq / ml-gel)		0.09-0.18
Chemical Stability		0.5N NaOH
Dynamic Binding Capacity (mg/ml)	HSA	>100
	Human IgG	55
Supplied		Suspension in 20% Ethanol

Table 1. Basic characteristics of CelloPure⁺ Q strong anion exchange chromatography media

Dynamic Binding Capacities of CelloPure⁺ Q

CelloPure+ Q have high efficiency in mass transfer and excellent Dynamic Binding Capacities, particularly for HSA, Lysozyme, and large biomolecules like Immunoglobulins (IgG).

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

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 human IgG

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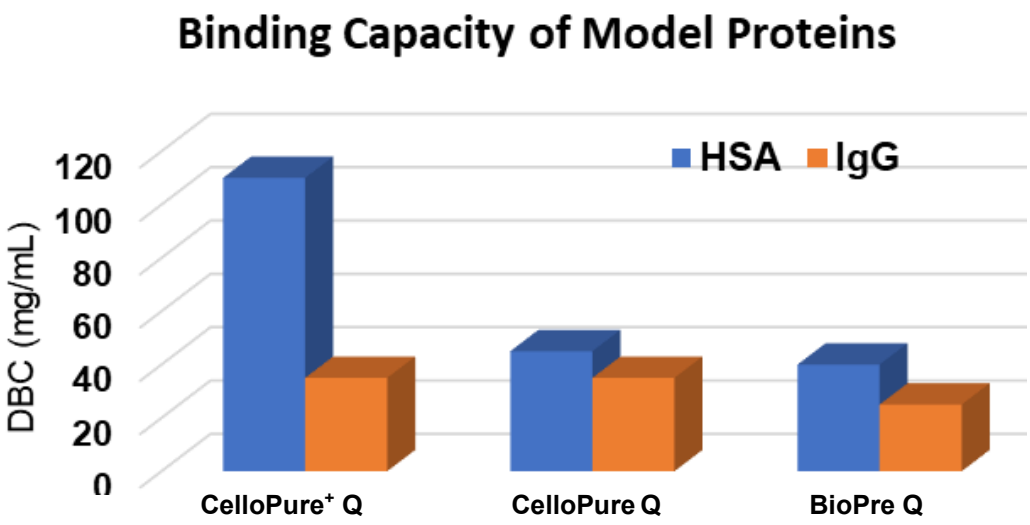

Chemical Stability and Cleaning-In-Place

CelloPure+ Q 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+ Q 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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