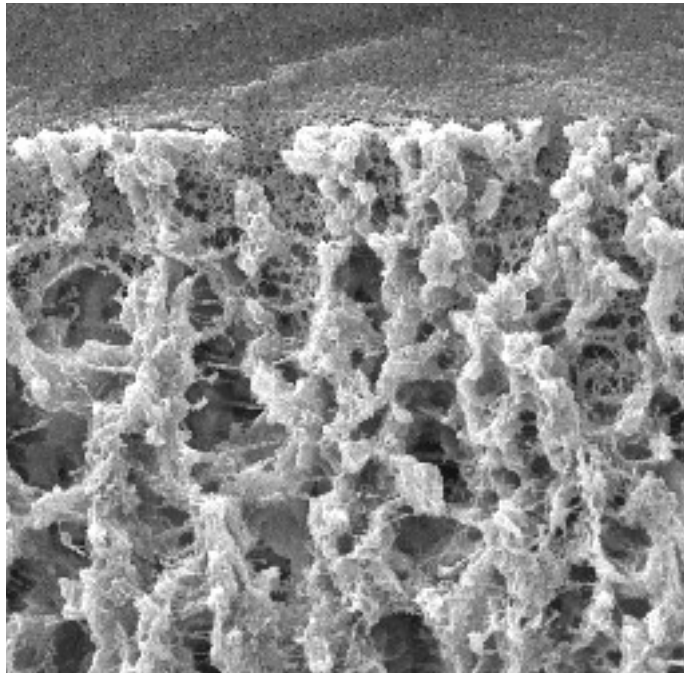


Ultracel™ PLC Membranes

- The membrane of choice for ultra-low protein binding and robust process performance



Ultracel PLC. Composite regenerated cellulose with void-free structure.

Ultracel PLC membranes are the membranes of choice for purifying therapeutic protein products when the use of harsh chemicals for cleaning and sanitization is not required.

Typical Applications

- Require maximum recovery from dilute protein solutions
- Use organic solvents or antifoaming agents

Ultracel PLC membranes are strongly recommended for applications with highly fouling process streams such as lipids, DNA, and RNA.

Ultracel PLC void-free composite membranes combine ultra-low protein binding, low fouling, and solvent resistance with superb mechanical strength. Casting the regenerated cellulose membrane onto a micro-porous polyethylene substrate creates a uniform, robust structure, with high integrity and greater resistance to back pressure.

Advantages of Choosing Ultracel PLC Membranes

- Void-free structure results in excellent retention and improved integrity
- Regenerated cellulose membrane provides ultra-low protein binding and low fouling during use
- Composite structure gives the membrane improved back pressure resistance
- Ultracel PLC membranes are available in a wide range of molecular weight cut-offs to meet all of your application needs

Improved Integrity

The void-free structure of Ultracel PLC membranes gives them virtually undetectable downstream air flow compared to conventional UF membranes (Figure 1).

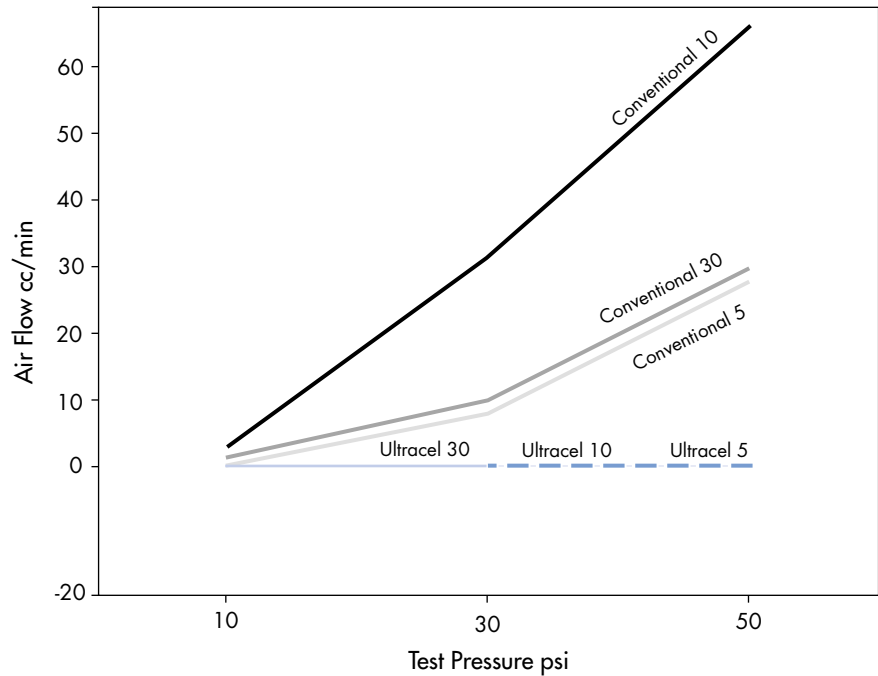


Figure 1. Air flow integrity testing of Ultracel PLC membranes versus conventional UF membranes

Improved Back Pressure Resistance

Ultracel PLC Membrane has great resistance to reverse pressure pulses (back pressure) compared to conventional UF membranes (Figure 2).

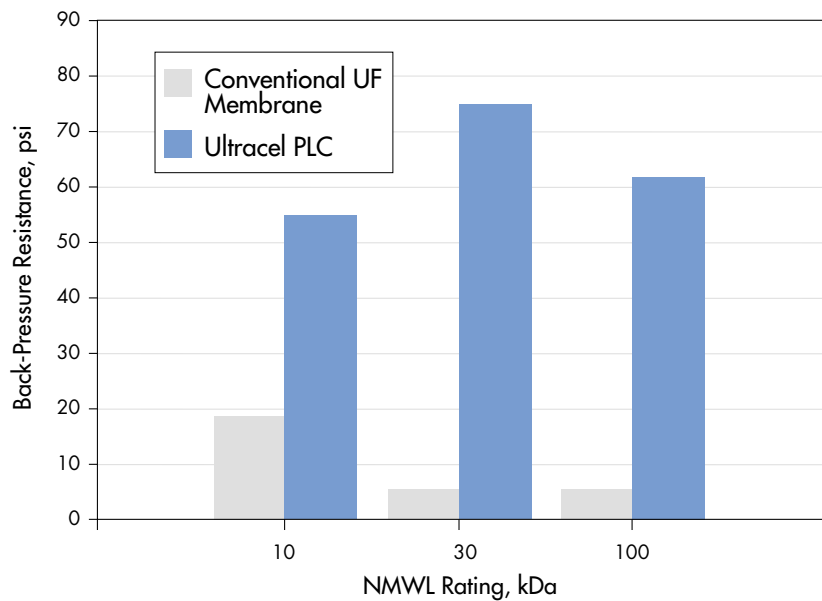


Figure 2. Back pressure resistance of Ultracel PLC membrane versus conventional UF membrane

Low Protein Binding

Ultrasel PLC, a naturally hydrophilic regenerated cellulose membrane, exhibits the lowest non-specific protein binding of any UF membrane. As a result, the low protein-binding Ultrasel PLC membrane exhibits low fouling characteristics, and is easily cleaned.

Polyethersulfone and cellulose acetate used in conventional UF membranes bind proteins at much higher levels than regenerated cellulose (Figure 3).

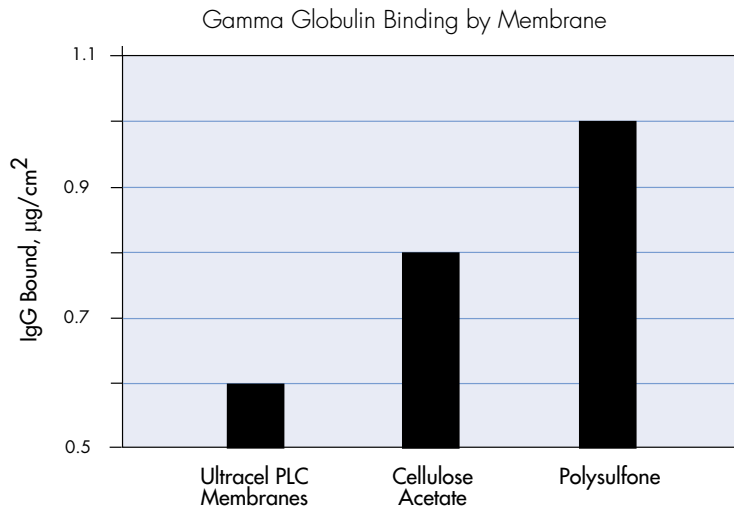


Figure 3. Protein binding of Ultrasel PLC membrane versus conventional UF membrane

Consistent Process Performance

Even when used with high concentrations of protein, Ultrasel PLC maintains its flux through multiple cleaning cycles, demonstrating the low fouling nature of the membrane (Figure 4).

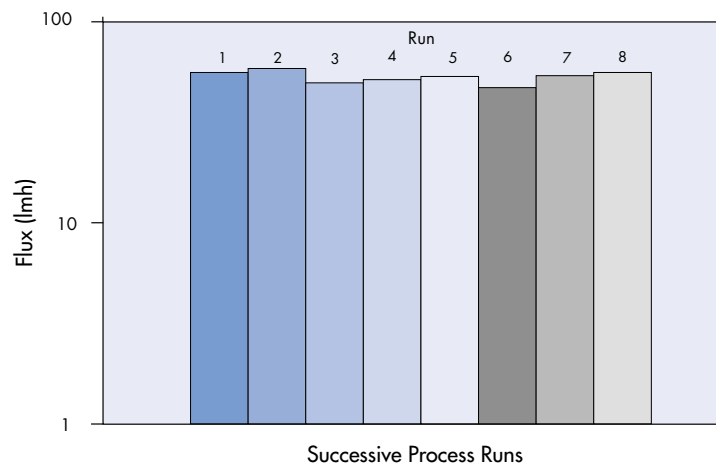


Figure 4. Low fouling characteristics of Ultrasel PLC membranes in human serum albumin

Improved Cleanability

A simple caustic cleaning regimen restores normalized water permeability (NWP) to near initial levels following sequential process runs (Figure 5).

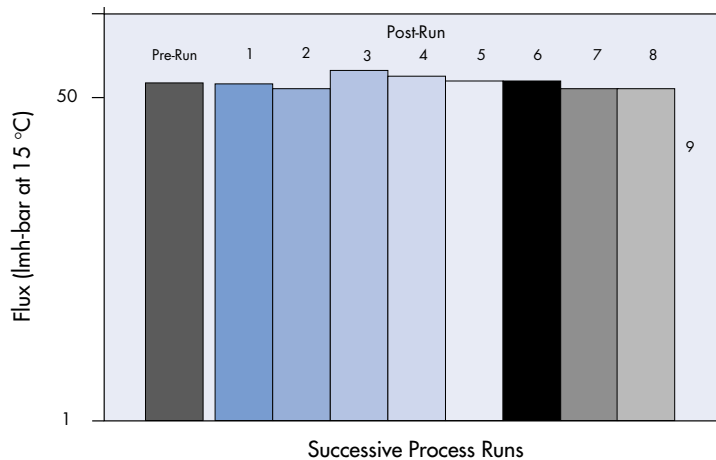


Figure 5. Consistent return of water permeability after cleaning

Ultracel Membrane Dextran Rejection

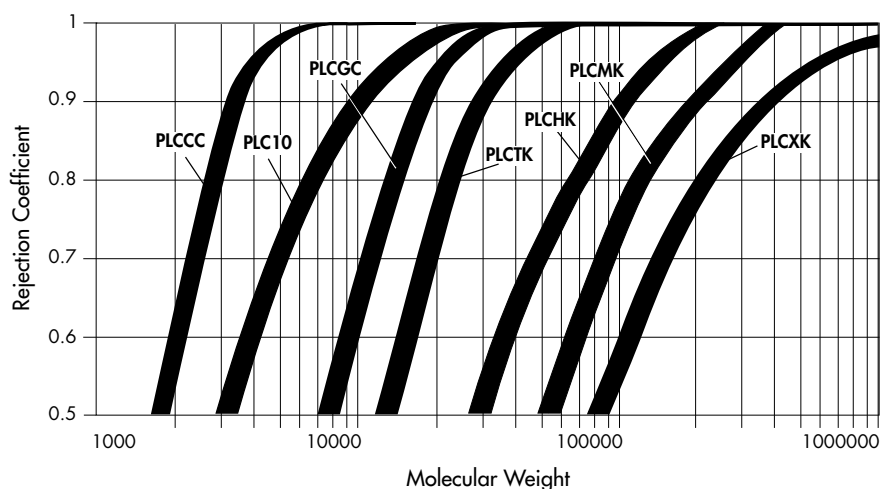


Figure 6. UF membrane Dextran retention profile

To Place an Order or Receive Technical Assistance

For additional information call your nearest Millipore office:

In the U.S. and Canada, call toll-free **1-800-MILLIPORE (1-800-645-5476)**

In the U.S., Canada and Puerto Rico, fax orders to **1-800-MILLIFX (1-800-645-5439)**

Internet: www.millipore.com

Tech Service:

www.millipore.com/techservice

Specifications

Membrane

Composite regenerated cellulose with void-free structure, compatible with solutions having a pH between 2 and 13.

Relative protein binding

Ultra low for use with dilute protein solutions (less than 0.1 mg/mL).

Ultracel PLC Applications

Ultracel PLC Membrane	NMWL* (kDa)	Typical Application
PLCCC	5	Proinsulin, hematopoietic factors
PLC10	10**	Hemoglobin enzymes
PLCGC	10	Hemoglobin, enzymes
PLCTK	30	Monoclonal IgGs
PLCHK	100	Small viruses, viral antigens
PLCMK	300	Large viruses, IgMs
PLCXK	1000	Large viruses, cells, colloids, particulates

* Nominal Molecular Weight Limit

** Tighter retention and specification than PLGC

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Product Usage

Ultracel PLC membranes are found in Pellicon® XL devices and Pellicon 2 Cassettes from Millipore.