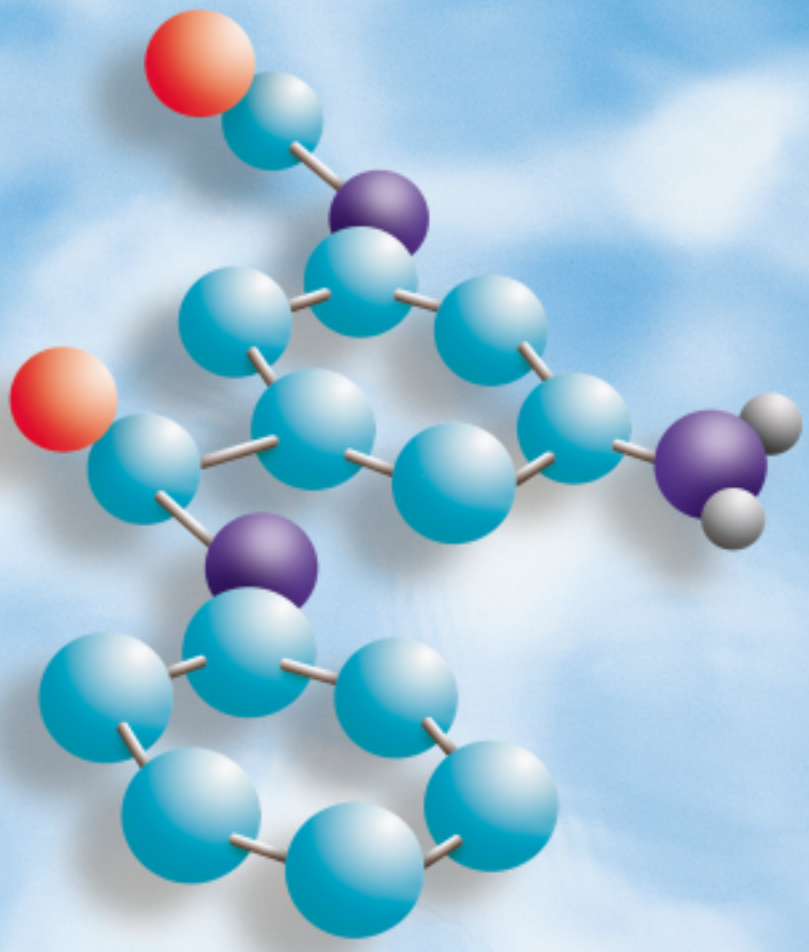
LENNTECH

TriSep X-20™

The Proven
Low Fouling
RO Membrane



X-20™ FoulGard™ TECHNOLOGY

TRISEP™ CORPORATION

A Leading Manufacturer of Advanced
Membrane Separation & Chemical Products

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TriSep X-20™... A New & Proven Membrane Chemistry

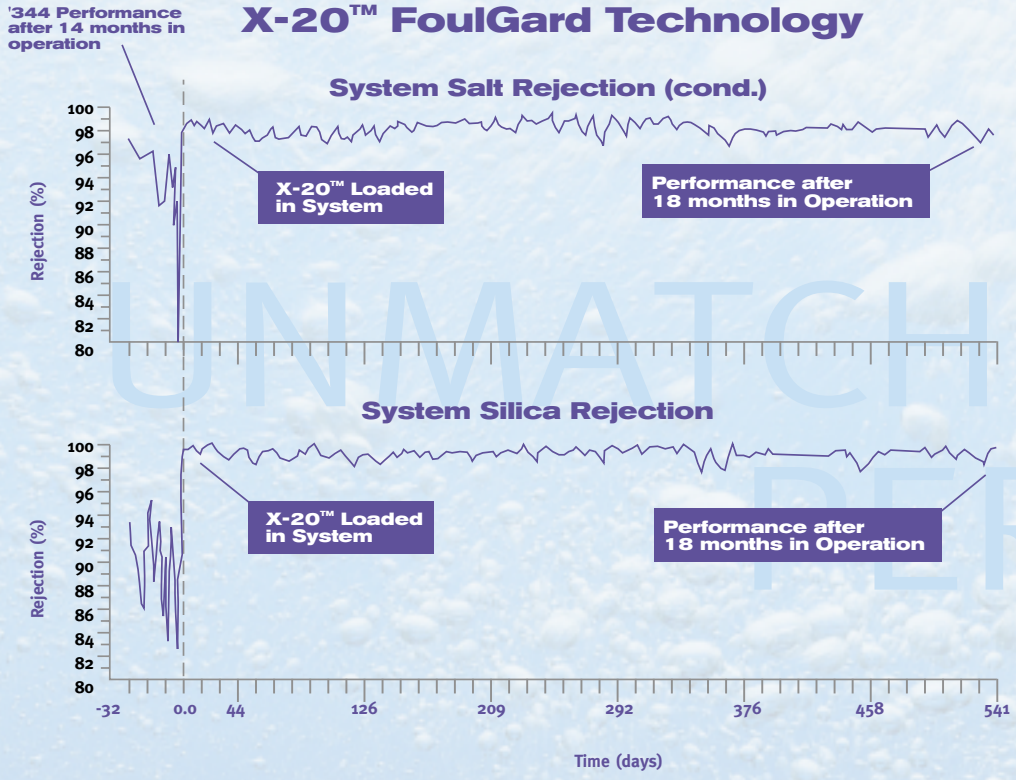
The TriSep X-20 is a new generation, highly durable, RO membrane specifically designed for high fouling feed waters. Invented by DuPont and developed by TriSep, the X-20 is based on a new and unique membrane chemistry.

X-20 is a thin film composite membrane, featuring a new polyamide-urea copolymer barrier layer. Standard composite RO membranes ('344) are based on a traditional polyamide polymer, which has a negative surface charge at most operating pH's. The surface of the X-20 membrane has residual amino groups while the traditional '344 polyamide membranes have residual carboxylic acid groups. This difference in surface chemistry creates the unique membrane properties that produce improved performance in a wide variety of feed waters.

TriSep X-20™ Membrane Resists Fouling and Saves a Texas Power Plant $192,000 per Year.

TriSep X-20™ Membrane Resists Fouling and Reduces DI Regeneration Rates Over 500%.

Enhanced System Performance
X-20™ FoulGard Technology

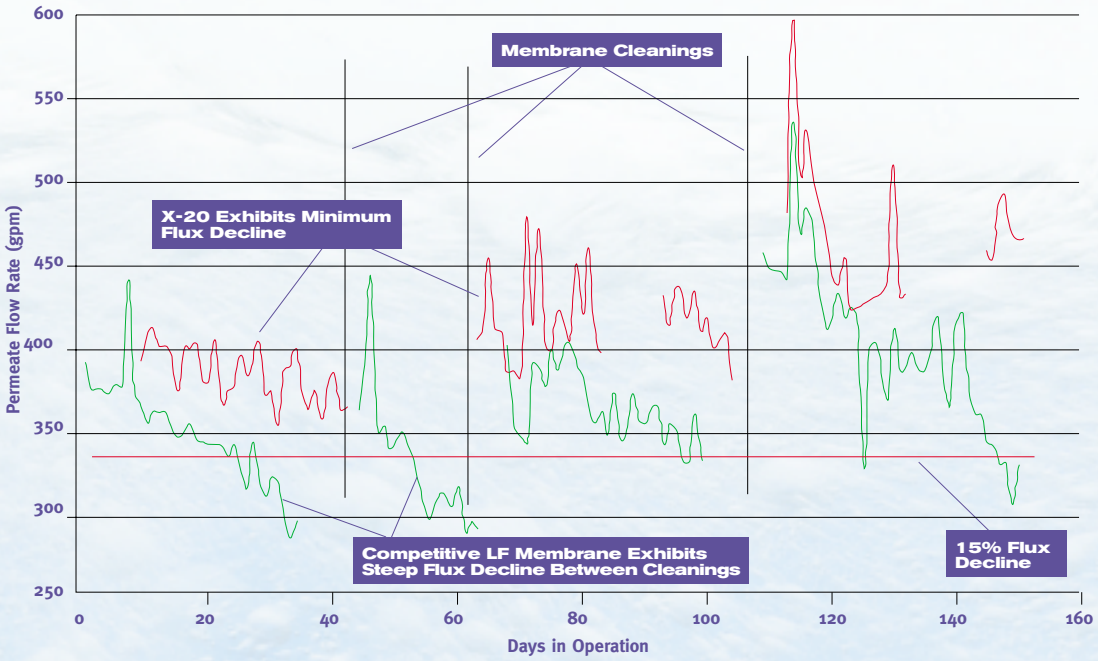


Application: Zero-Discharge Cogeneration Plant

Engineered Membrane™

Solutions

Normalized Product Flow Rate
West Coast Petroleum Refinery



The success of the X-20 has caused our competitors to market so-called low fouling membranes to compete against the X-20. These membranes are the same old polyamide chemistry, with surface coatings that attempt to alter their fouling characteristics. Side by side tests with the X-20 indicate very different performance characteristics (see graph insert).

- **Low Fouling**
- **Easy to Clean**
- **Improved Silica Rejection**
- **Resists up to 3 ppm of chloramine**
- **Proven performance with over seven years of field experience**
- **Over 50,000,000 gallons per day of installed capacity**

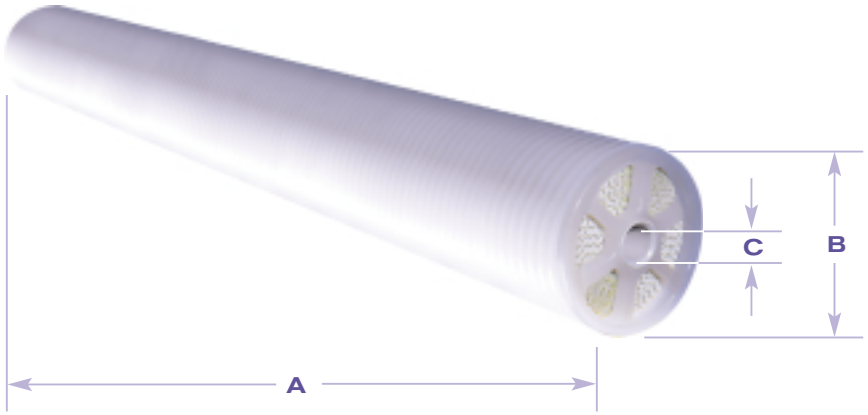
X-20™ FoulGard™ TECHNOLOGY

TriSep Corporation

PRODUCT SPECIFICATIONS

TriSep X-20™

SPECIFICATIONS	4040-X201-TSF	8040-X201-TSA
Permeate Flow GPD (m3/day)	2,000 (7.6)	9,000 (34)
Average Salt Rejection (%)	99.5	99.5
Minimum Salt Rejection (%)	98.5	98.5
Membrane Type	X-20™ Polyamide-urea Thin Film Composite	
Configuration	Spiral Wound, Fiberglass Outer Wrap	
Recommended Operating Pressure	100 - 300 psi (0.7 - 2.1 MPa)	
Maximum Applied Pressure	600 psi (4.1 MPa)	
Feedwater pH Range	4- 11 Continuous	
Chlorine Tolerance	<0.1 ppm	
Chloramine Tolerance	Up to 3 ppm continuous	
Minimum Brine/Permeate Flow Ratio	5:1	
Maximum SDI (15 minutes)	5.0	
Maximum Turbidity	2 NTU	
Maximum Feed Flow GPM (m^3/hr)	20 (4.5)	80 (18)
Length **(A)**, in. (mm.)	40.0 (1016)	40.0 (1016)
Diameter **(B)**, in. (mm.)	4.0 (102)	7.9 (202)
Permeate Tube **(C)**, in. (mm)	O.D. 0.75 (19.1)	I.D. 1.5 (38.1)
Weight lbs. (Kg.)	15 (7)	45 (20)
Standard Test Conditions Used	2000 ppm NaCl, 225 psi, 25°C, 15% recovery, pH 8, and 30 minutes operation	



TurboClean Element Shown

X-20 FoulGard TECHNOLOGY

Other element sizes and configurations are available upon request.
X-20 membrane elements are manufactured under license from DuPont.

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