Eltron Water Systems

Science for the Blue Planet™

Tech Brief

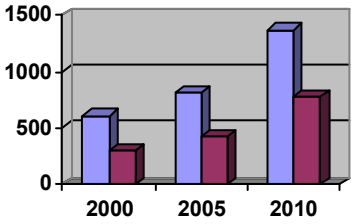
DuraFlux Membranes Reduce Costs for Reverse Osmosis and Nanofiltration

Unprecedented combination of stability, salt rejection, water permeability

DuraFlux™ membranes:

- Reduce costs for reverse osmosis and nanofiltration
- Are 10-20 times more tolerant to oxidizers than current technology
- Demonstrate exceptional durability under pressure
- Allow for as much as 50% greater filtered water production at low pressures
- Lower energy costs by reducing power consumption of the RO feed pump
- Lower maintenance requirements

Drinking water quality mandates and the increased need for ultrapure water in manufacturing processes are driving demand for more reverse osmosis and nanofiltration solutions. Utilities and manufacturers, who are always striving to reduce operating costs and be more productive, would welcome solutions that include membranes which need to be replaced less often while elevating the amount of treated water they can deliver.



Global Value of RO System Components for U.S. and Asia Pacific regions ($ millions).

BCC Research 2007

Reducing costs for membrane filtration processes depends on decreasing water pre-treatment requirements, improving membrane durability and increasing process throughput. Between 30 and 60% of reverse osmosis (RO) filtration cost is related to treating water before it reaches the membrane filter plant. Pre-treatment minimizes fouling, bio-fouling, and oxidative degradation of membrane performance, which are the most common causes of membrane failure. Increasing water throughput at lower pressures increases the overall efficiency of filtration.

Increased performance, reduced maintenance

DuraFlux™ membranes from Eltron Water Systems are based on a new family of polymers. They are 10 to 20 times more tolerant than available technology to oxidizers such as chlorine, hydrogen peroxide or ozone and are stable to continuous contact with metals and catalysts. DuraFlux membranes are exceptionally stable and allow for as much as 50% greater filtered water production at low pressures. Yet, they can be made using the same production methods and at the same cost as membranes that are currently available.

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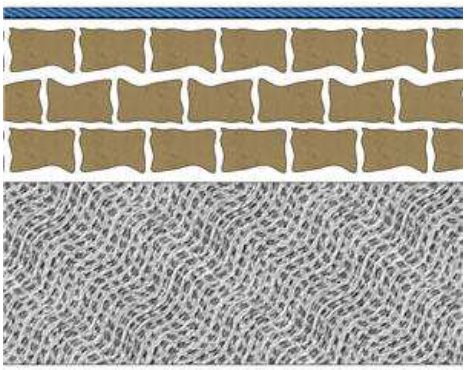
Eltron's polymer systems are unique in that they allow for modifications of the polymer's structure without significantly impacting pore functionality. Separating the polymer structure from the pore formation has enabled Eltron scientists to manipulate electron density for oxidative stability, the charge density for ion rejection and to alter pore size. The new polymerization reaction mechanisms enable consistent production of membranes with increased permeability. Plus, the smooth surface morphology of Eltron's polymer membranes increases fouling resistance.

DuraFlux membranes help reduce power consumption of the RO feed pump and lower maintenance requirements. Their increased durability cuts pre-treatment requirements and downtime, extends the life of the filter (in use and in storage) and results in a better overall return on investment in reverse osmosis and nanofiltration solutions.



DuraFlux membranes incorporate a 0.3 - 1.5µm thick semi-permeable polymer barrier (a) on top of microporous support (b) and reinforcing fabric (c) layers.

Contact us

To learn more about DuraFlux and innovative water treatment systems from Eltron Water, visit www.eltronwater.com.

To discuss the possibility of entering into a business relationship with Eltron, contact the Business Development Group at business@eltronresearch.com.

Eltron Water Systems LLC
Eltron Water invents, develops and commercializes innovative, cost-effective water treatment systems that are valuable to industries, utilities, and government organizations.

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