

# EconoPure™ Water Systems



*Treatment. Simplified.*



**EconoPure™**  
Water Systems

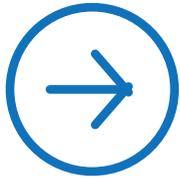
Patented US technology ...



... now available in India.

# LFNano™ System

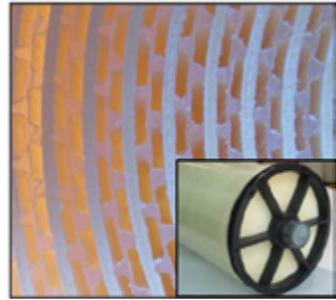
The LFNano™ is a patented\* membrane system that uses a combination of “Low-Fouling” techniques and nanofiltration (“NF”) membrane (a low-pressure form of an RO membrane). EconoPure™ founders have devised a way to mitigate the greatest limiting factor for membrane water treatment: fouling. Three factors contribute to the low-fouling nature of the LFNano™ system:



- 1) Proprietary open architecture NF membrane element
- 2) Anti-fouling particulate coating/injection
- 3) Feedwater circulation to increase crossflow velocity

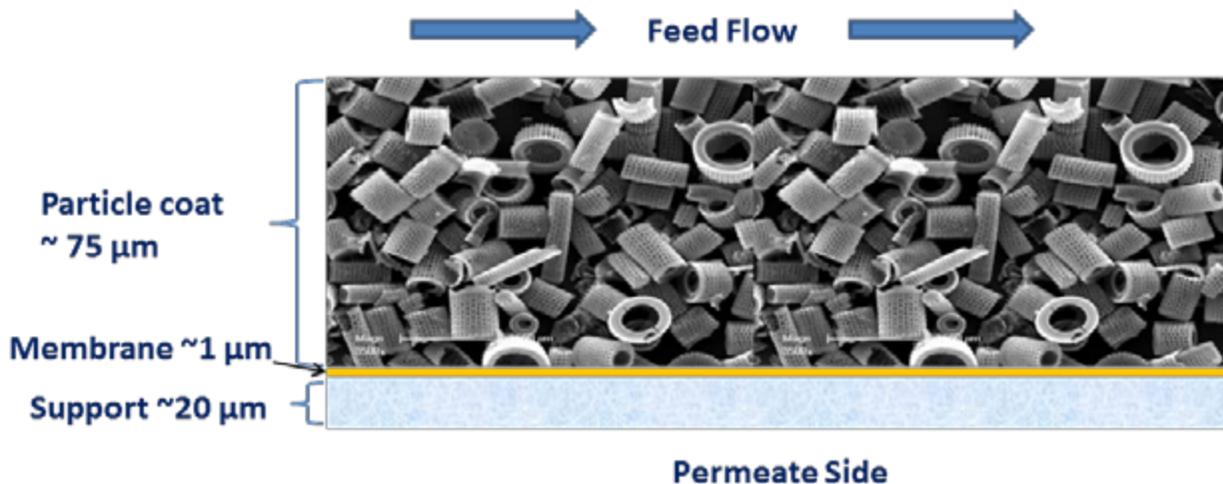
These factors dramatically reduce the effects of fouling and make membrane cleaning simple and infrequent. The unique membrane element imparts very little headloss allowing low energy circulation of the water to eliminate the velocity-recovery limitation of once through systems. This also allows high concentrations of suspended matter in the feedwater eliminating expensive pre-treatment systems.

An anti-fouling particle coating on the membrane consisting of high surface area particles provides 500 to 1,000 times the surface area of the membrane below it. This vast area grabs the foulant particles from the water and keeps them away from the membrane making cleanup simple.



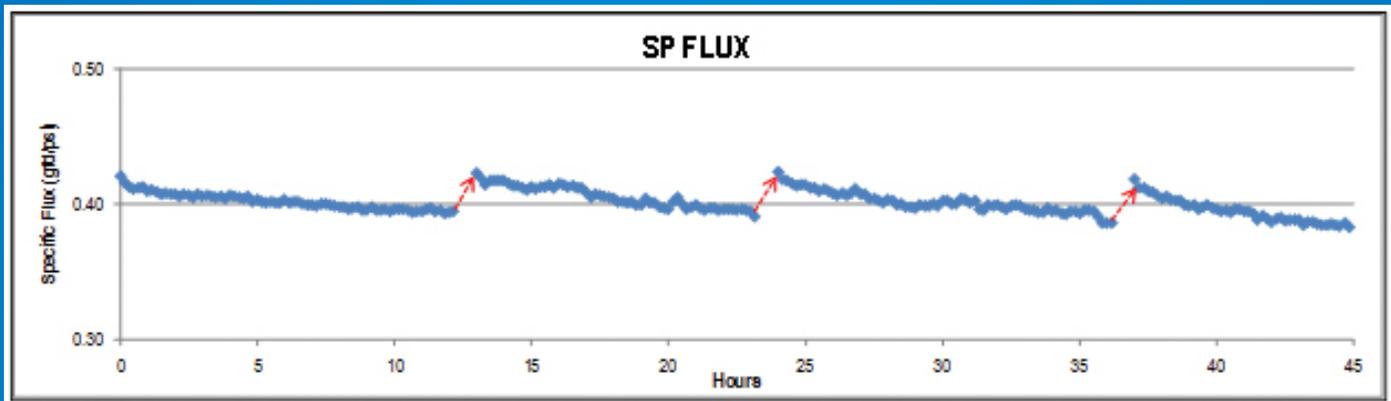
The photo above shows the unique cross section of the LFNano™ membrane element. This element comes in six (6) different grades of NF membrane from ‘tight’ (almost a brackish water RO membrane) to ‘loose’ (removing very little salts but virtually all organics, bacteria and viruses).

Anti-fouling particulate – below is a microscopic view of the coating of particles on the membrane. This particular image is of diatomaceous earth based particulate but there are other high-surface area particles that can form this coating. The vast surface area can be seen as this cake of particulates forms above the membrane.



\* United States Patent 8,685,252 Vuong , et al. April 1, 2014

Rest cycle – the coating of particulate does eventually compress and fill up with contaminants and slow the flow of water to the membrane. The proprietary EconoPure™ rest cycle is used to reset the flux in this case. A brief period of no pressure differential allows the coating to decompress, opening up cracks that allow the water to flow to the membrane. This infrequent rest (1 to 4 times per day) simply resets the flux as seen in the figure below.



This particular rest cycle was every 12 hours on the same water that a microfiltration (MF) system was backwashing every 22 minutes. The backwash cycle of low-pressure membranes also requires far more valves and moving parts.

## APPLICATIONS

The LFNano™ can be used in myriad applications where NF membranes are not economical today. Reverse osmosis (RO) is used today for many applications for which it is considered overkill, unnecessarily taking too many minerals out of the water.

Drinking water – most rivers and lakes do not require desalting and NF membranes achieve virtually the same microbial removal as RO membranes at far less pressure.

Oil & gas – membranes are comprised of a highly engineered plastic and therefore are particularly susceptible to fouling by hydrocarbons. However, the LFNano™ can keep the residual oils in produced water or refinery wastewater off the plastic of the membrane and therefore provide a low-cost solution for cleaning up waters used in oil & gas operations.

Water reuse (Zero Liquid Discharge) – wastewater can be cleaned with the LFNano™ for reuse in industrial applications, agriculture, or even for aquifer recharge. The simple biology free treatment of the water allows clean reuse water with far less complexity than is used today.

## EconoPure™ Worldwide

P.O. Box 4090

Tustin, CA 92781

USA

Phone: +1 (619) 987-1818

Email: [info@econopure.com](mailto:info@econopure.com)

## EconoPure™ India

102 Shripad Apartment

Opp Dena Bank, VIP Road,

Vadodara-390018 INDIA

Phone: +91-8141918447

Email: [mdrana@econopure.com](mailto:mdrana@econopure.com)



EconoPure™ Water Systems was formed in 2007 as an R&D company (DXV Water Technologies) to commercialize the water treatment inventions of Diem Vuong, a 40-year water treatment industry veteran and world-renowned membrane expert. The first product introduced by EconoPure™ was DEMWAX™ (depth-exposed membrane for water extraction), an ultra-low energy, natural pressure seawater desalination system. The engineers at EconoPure™ employed the experience of the DEMWAX™ membrane system to develop the “Low-Fouling Nanofiltration System” or LFNano™.

In 2009 the company successfully introduced the first LFNano™ and has since established itself as a global leader in nanofiltration technology. Subsequent technological advances have made the LFNano™ the professionals' choice for enhanced performance and decrease cost - both capital and operating.

**Please contact us with your water treatment challenges, large or small.**

### **DISTRIBUTED BY:**

P. No. 31, Sec-5 (Pkt-1), Mujessar Railway Crossing,  
Faridabad - 121006, Haryana, INDIA

Ph/Fax: +91 129 228 6268/226 1852, Mob: +91 98 110 836 84

Email: [info@anantudyog.com](mailto:info@anantudyog.com), [nirmal.mehendale@gmail.com](mailto:nirmal.mehendale@gmail.com)



**WWW.ECONOPURE.COM**