

Reverse Osmosis Thin Film Composite Membranes with Enhanced Flux and Rejection

MARKET OPPORTUNITY

Thin film composite (TFC) membranes are commonly used in the reverse osmosis (RO) and nanofiltration (NF) applications, with potential to be used pressure retarded osmosis (PRO) too. Based on a market report by Orian Research, the global RO membrane market is estimated to grow at CAGR of 10.1 % to reach USD 14.06 Billion in 2023. The latest trend gaining momentum in the reverse osmosis (RO) membrane market is intensifying R&D expenditure. The demand for high-grade quality and technically advanced membrane systems with enhanced flux, rejection and anti-fouling properties is increasing the market competition.

TECHNOLOGY

This technology relates to a simple method by adding specific additives during the membrane fabrication process to enhance flux and salt rejection in a TFC membrane. The enhanced properties of the TFC membrane of this technology have been shown in the RO and PRO applications.

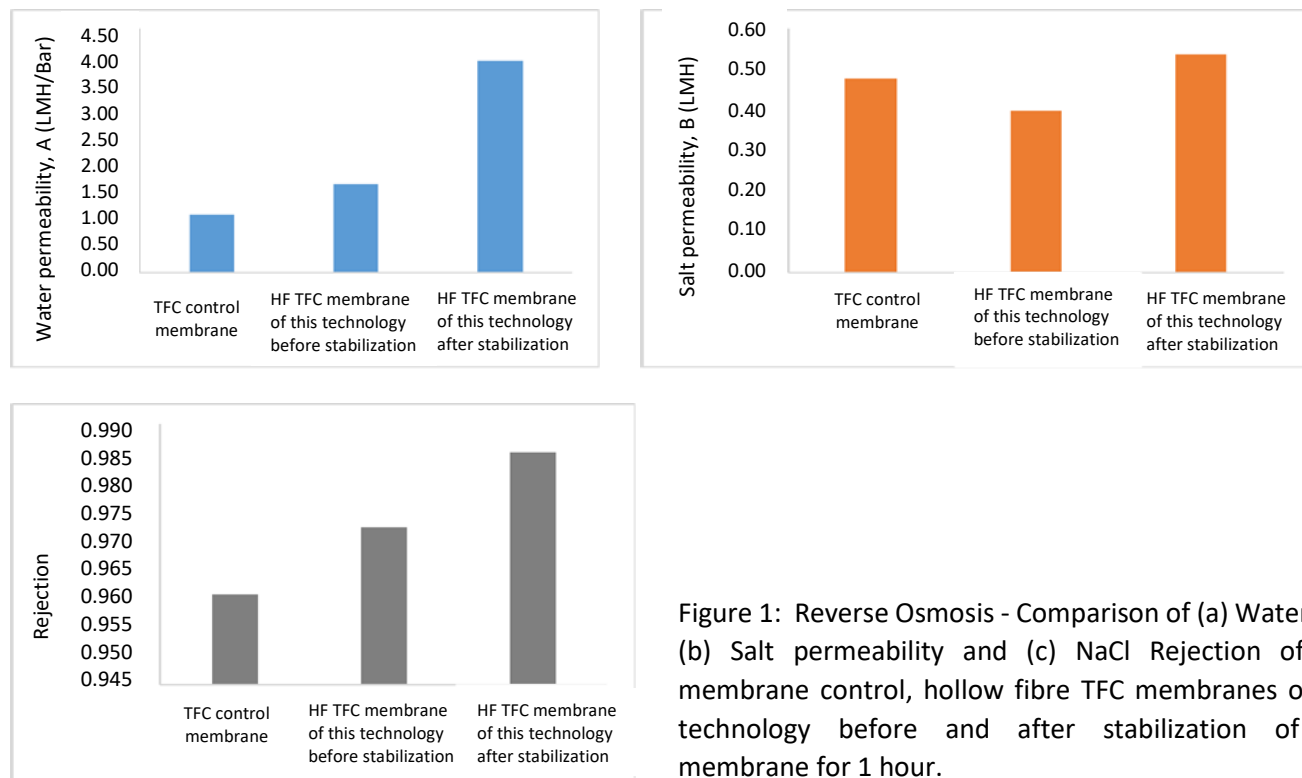


Figure 1: Reverse Osmosis - Comparison of (a) Water flux, (b) Salt permeability and (c) NaCl Rejection of TFC membrane control, hollow fibre TFC membranes of this technology before and after stabilization of the membrane for 1 hour.

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CATEGORY

Clean tech; Membranes

STAGE OF DEVELOPMENT

Small lab scale module (few strands of fibers) have been fabricated and tested.

APPLICATIONS

- Reverse Osmosis
- Nanofiltration
- Pressure Retarded Osmosis
- Any application requiring a thin film composite membrane

ADVANTAGES

1. Low cost additive.
2. Does not require major change to existing TFC membrane fabrication processes

STATUS

Patent pending. Available for licensing.

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