

Mechanically Enhanced Water Desalination Process

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Problem

Depleting clean water supplies coupled with increasing water demands are driving global market towards desalination. Reverse Osmosis (RO) is the most mature process for desalination of routine waters. Membrane fouling and high energy requirement are the two main disadvantages of RO. In Forward (or direct) osmosis (FO), water from feed solution selectively passes through a membrane into draw solution due to chemical concentration (potential) difference of feed and draw solutions.

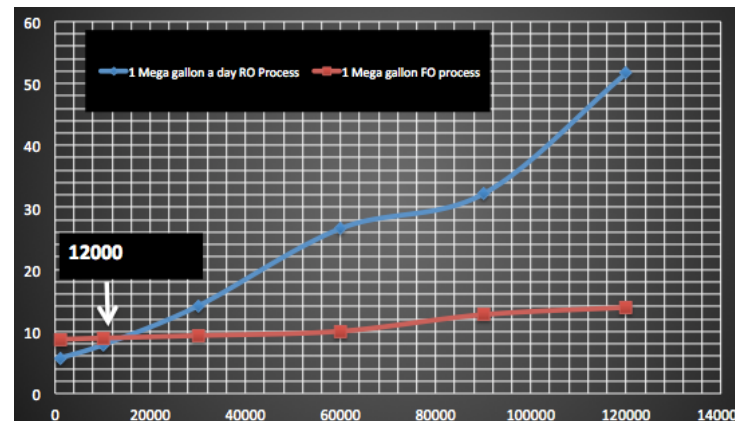
Innovation

US Patent approved configuration of NMT's mechanically enhanced circular raceway (figure right) lessens internal and external concentration polarization when paddled, resulted in fluxes ~60 times greater than Yale's (the work of Elimelech and co-workers) at similar osmotic pressure differentials.



Economics

RO vs FO Costs for a 1 Mega Gallon per Day system. Total dissolved solids in x-axis and desalination cost in \$/1000 gallons in y-axis.



Contact

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