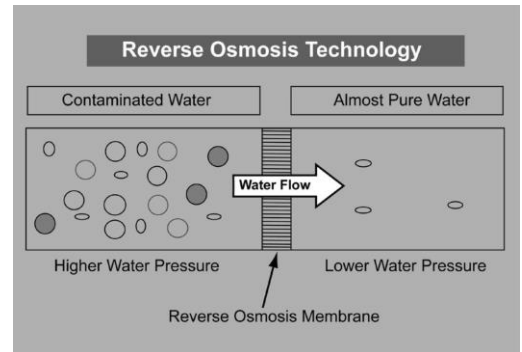


Improved Cellulose Acetate Membrane (Draft)

Technology Overview

Current Cellulose Acetate (CA) membranes used in Reverse Osmosis (RO) water desalination plants have poorer salt rejection as compared to polyamide membranes due to the presence of polymer impurities in the membrane from existing manufacturing processes. Researchers at the Bureau of Reclamation have developed a new generation of CA membranes that demonstrate higher rejection of salts than current CA membranes. These new membranes require lower operating pressures that consume less energy, reducing the operational cost of the RO treatment process.



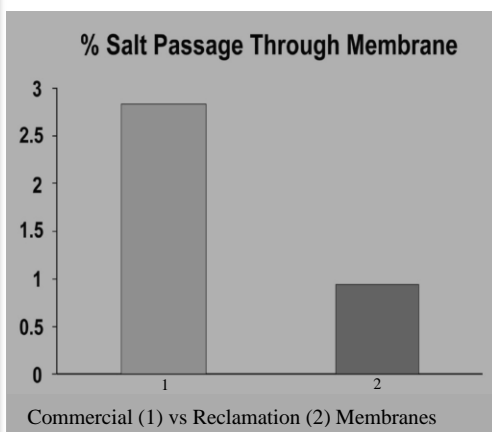
Potential Applications

Improved CA membranes can be used in RO processes employed at food and beverage, pharmaceutical, medical, chemical and gas separations in addition to water treatment plants. Using the new CA membranes, new and existing RO facilities can treat increased quantities of water and other liquids while operating at lower energy.

Features & Benefits

Reclamation's patented manufacturing process involves a solvent processing step that purifies the actual bulk polymer from which the membrane is made. The subsequent membrane has lower impurities than previous CA membranes resulting in improved flux, salt rejection and mechanical strength. Pilot tests using the newer membrane showed a three-fold reduction in salt passage across the membrane.

- Salt rejection increased to 99% compared to 97% in existing commercial membranes
- Lower operating pressures due to increased salt rejection and improved flux
- Requires no changes to current membrane manufacturing equipment
- Designed to be a drop-in replacement for existing CA membranes



Development Status: Proof-of-concept bench tests conducted followed by scaling up for pilot testing at Reclamation's Water Quality Improvement Center (WQIC).

Demonstration/Validation: Pilot test results for water treatment applications demonstrated salt rejection increased to 99% compared to the 97% rejection of existing commercial membranes.

Intellectual Property: U.S. Patent No. 8,123,945.

Opportunity: Reclamation is seeking an industry partner(s) to improve and commercialize this patented technology through cooperative research, material transfer, and/or license agreements.

Contact Us for Additional Information:

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