केन्द्रीय नमक व समुद्री रसायन अनुसंधान संस्थान
CENTRAL SALT & MARINE CHEMICALS RESEARCH INSTITUTE
वैज्ञानिक तथा औद्योगिक अनुसंधान परिषद
COUNCIL OF SCIENTIFIC & INDUSTRIAL RESEARCH

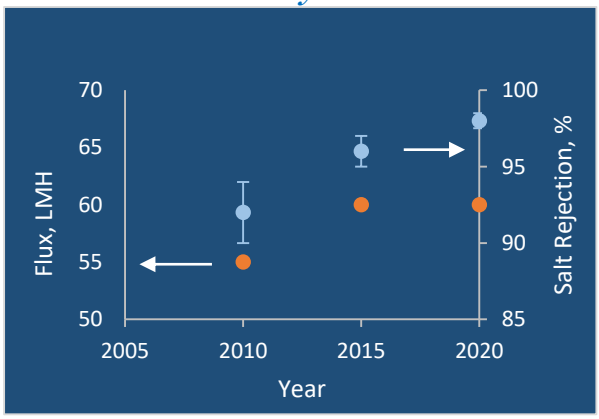
CSMCRI Water Desalination Technology for Licensing

Technology Profile

Indigenous Reverse Osmosis Membranes for Brackish water and Seawater Desalination

CSIR-Central Salt & Marine Chemicals Research Institute initiated its research program in the area of membrane in 1969 to meet the fresh water demand of the country through desalination and water purification. Powered by continuous R&D, CSMCRI has developed Thin Film Composite (TFC) Reverse Osmosis (RO) membranes. The technology is known for long but only to few in the World. The commercialized product is sold from the basket of Uniqflux Membranes.

Development of Brackish water RO membranes over the years



Data is normalized to the following conditions: 1500 ppm NaCl, 250 psi (1.7 MPa), 25°C

Salient Features

- High flux
- High salt rejection
- Anti-fouling in nature
- Indigenous technology
- Commercially proven
- Supported by Patent and publications
- **TRL 9, (Transfer)**
- **Patent: EP2922617A1.**

The technology for Seawater (SW) RO membrane is also proven at the membrane level in the institute. CSMCRI-SWRO membranes are specially hydrophilized to maintain better productivity. The main challenge is to compare membrane performance data with commercial data since commercially membrane performance data is hardly available. Currently institute is working for development of SWRO membrane elements.

Performance of SWRO membranes

Feed water TDS, mg/L	Salt rejection, % (st.dev.)	Flux, LMH
28000-30000	97.86 (0.62)	49
31000-38000	97.38 (0.9)	48

Data is normalized to the following conditions: feed prepared with sea salt, 800 psi (5.5MPa), 25°C

For enquiries please contact Dr. S. Kannan, Director, CSIR-CSMCRI, e-mail:director@csmcri.res.in, https://www.csmcri.res.in/

केन्द्रीय नमक व समुद्री रसायन अनुसंधान संस्थान
CENTRAL SALT & MARINE CHEMICALS RESEARCH INSTITUTE
वैज्ञानिक तथा औद्योगिक अनुसंधान परिषद
COUNCIL OF SCIENTIFIC & INDUSTRIAL RESEARCH

CSMCRI wastewater purification technology for scale up and demonstration

Technology Profile

Treatment of Wastewater generated at Membrane Fabrication Industries

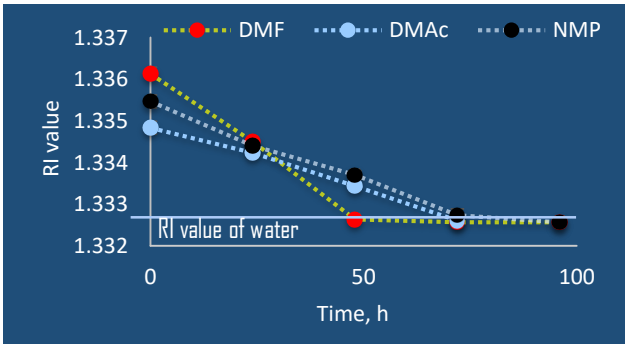
Huge volume of wastewater is generated at industries during membrane fabrication, which is mainly contaminated with organic solvents like DMF, DMAc, NMP. Due to high miscibility of these solvents in water, wastewater treatment becomes challenging. Worldwide, huge volume of these solvents released to the environment is sourced from membrane fabrication industries.

CSMCRI has developed a bio-based technology, which is highly efficient in degrading these solvents, especially DMF.

Salient Features

- High efficiency
- Can treat wastewater containing DMF at 30000 ppm level
- Effective against multiple solvents
- Minimum time
- Continuous process
- Simple process
- Low maintenance
- Supported by Patent and publications (demonstration)

Efficiency of biodegradation process



Scope of working together

CSIR-CSMCRI always welcomes your participation if you are interested to become our licensee or interested to validate our technology for scaling up. We also welcome your proposal for co-development.

Our clients and technology licensees

TATA STEEL
UNIQFLUX
rinzai Hydratech Pvt. Ltd.
BSF
ओएनजीसी ONGC
विज्ञान एवं प्रौद्योगिकी विभाग राजस्थान

For enquiries please contact Dr. S. Kannan, Director, CSIR-CSMCRI, e-mail:director@csmcri.res.in, https://www.csmcri.res.in/