



# High Salt Rejecting Composite Polyamide Reverse Osmosis (RO) Membrane for Desalination

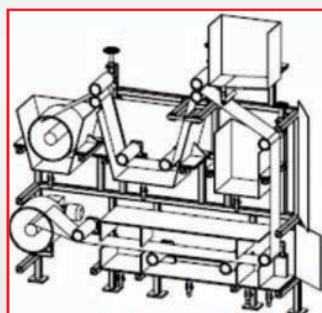
Reverse osmosis (RO) is an efficient and increasingly common solution for providing safe drinking water from saline water sources. In particular, sea water desalination is fully mature and very common to make potable water by RO. Nowadays, two stage RO process has been adopted in many places worldwide for benefit of better product water quality and longer membrane life. Membrane is the key component of the desalination process. The thin film based composite polyamide membranes with high salt rejection for higher feed salinity like sea water are capable of removing more than 98% salinity from saline water with concentration up to 35000 ppm i. e. typical sea water salinity. The commercial size flat sheet membranes can also be made by using this technology.

The entire process involves several steps like:

1. Preparation of polymeric microporous support membrane using casting machine.
2. Thin film coating of Polyamide over support membrane by in-situ polycondensation technique using appropriate reagents.
3. Assembling of TFC membranes in spiral module configuration.



Step-1



Step-2



Step-3

## Advantages & Applications

- The TFC membranes in spiral module are capable of removing more than 98% salinity from sea water.
- The TFC membranes in spiral module can be applied for desalination of highly saline water and sea water (in two stages), water reuse (in pharma /biotech, waste water, electrocoating, food and beverage industries) and radioactive waste treatment.

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- Technical know-how of this TFCP-RO membrane preparation process is being made available on nonexclusive basis.
- The entire process of membrane making involves mostly locally available commercial grade chemicals.
- The preparation of support membrane part of the process require controlled environment with proper humidity and temperature. This also involves design and fabrication of a suitable membrane casting machine for large scale production.
- The coating part of the process also requires design and fabrication of a suitable membrane coating machine for large scale production.
- We provide complete chemical process alongwith the conceptual process design but actual design and fabrication of machines for all the processes is under the scope of the licensee.



**BARC licensee developed SWRO element**

Know-how of this technology has been transferred to a private party for commercialization:

- M/s. Permionics Membranes Pvt. Ltd., Vadodara, Gujarat (Tel.No. 0265-2281563)

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