

Composite Membrane for Membrane Distillation Desalination Process

Sai Reddy Pinappu with Shuguang Deng (advisor)

Chemical Engineering, New Mexico State University

Purpose of Study

Membrane distillation (MD) is an emerging membrane technology for pure water production from saline water, solution concentration, recovery of volatile compounds from aqueous solution, and other separation and purification processes. This study will use composite membranes to improve the thermal stability and curtail the conduction of conventional polymer membranes, while maintaining low mass transfer resistance, high porosity, high liquid entry pressure, and chemical resistance.

Study Underway

Using a spin coating method, phase inversion, or Sol-Gel process, the composite membranes will be prepared such that a top hydrophobic layer will be responsible for the mass transport and the hydrophilic sub-layer will prevent conductive heat loss.

Benefits

After proper characterization of the membranes, they can be used in the membrane distillation stage of brackish water desalination.



Sai is working on a master's degree in chemical engineering at NMSU. He is from India and received a bachelor's degree from Jawaharlal Technological University in Hyderabad, India.