Review of membrane distillation process for water purification

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ABSTRACT

Membrane distillation (MD) is a non-isothermal separation process driven on the vapor pressure difference, induced by the temperature difference across the hydrophobic membrane. This paper offers the review of the potenability of MD process for purification application and water desalination. It covers the basic fundamental of MD process, MD modules, membrane materials, heat and mass transfer phenomena, operating parameters, and performance of MD process. It also covers the review of MD processes driven by renewable energy sources and current innovations in the process. The recent research results in these different areas are presented and discussed. The multi-effect MD process is found to be a new generation MD process and attractive research area in the wastewater treatment and purification application for the commercial approach.

Keywords: Membrane distillation; Membrane configuration; Membrane material; Multi-effect membrane distillation; Water purification

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