

### Simulation study of direct contact membrane distillation for desalination

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Membrane distillation (MD) is receiving significant interest recently as an desalination technology. Unlike other membrane processes, productivity and performance in membrane distillation have not dependence on the concentration of feed seawater. In addition, membrane fouling is less of a problem in MD than in other membrane separation processes because the membrane pore size for MD is relatively large compared to the RO or UF and pores are not easily clogged. It is also an energy saving process for desalination compared to both RO and MSF processes.

Direct contact membrane distillation (DCMD) is one type of membrane distillation configurations. In this study, the mathematical model in DCMD is presented and simulation is implemented. And analysis is also conducted in order to predict the permeate flux and its dependence on the membrane module design, membrane parameters and operating variables. Through the simulation and analysis, the optimum operating conditions and membrane parameters in DCMD for desalination is found.