



Effect of module configuration on the overall mass recovery in membrane distillation

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ABSTRACT

In spite of dramatic improvements in membrane properties, the overall mass recovery in membrane distillation (MD) remains quite low, and is a major drawback. In this paper, we present a comparative study on the effect of various module configurations on the overall mass recovery in MD. Experimental data with two modules with a heating stage show a water recovery enhancement of 38% and 96% compared with equivalent modules in series and parallel, respectively. A simulation with seawater and five modules in series with heating in between shows an increase in water recovery of 320% and brine concentration increases from 34,000 to 53,600 ppm.

Keywords: Membrane distillation; Water vapor flux; Water recovery; Module configuration

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