

分离工程

新型中空纤维膜接触器用于乙醇/水体系分离的探索

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摘要

关键词

[中空纤维](#) [膜接触器](#) [填料](#) [乙醇/水](#) [分离](#)

分类号

Ethanol-water separation in hollow fiber membrane contactor

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Abstract

Non-porous polyether sulfone hollow fibers (with a 5 μm poly (dimethylsiloxane) coating) were used as structured packing in the distillation of ethanol-water solutions. In this novel membrane contactor, liquid flowed through the lumens of the fibers, and vapor flowed countercurrently outside the fibers. The results showed that the new membrane contactor gave better, more productive separations than traditional packing in distillation. The minimal HETP of hollow fibers could reach as low as 5.8 cm, and the contactor worked well above the limit where flooding normally occurs in conventional cases. The overall mass-transfer coefficient and individual mass-transfer coefficients based on the gas side and liquid side were calculated respectively. The theoretical analysis indicated that the resistance in the liquid was responsible for more than half of the total resistance.

Key words

[hollow fiber](#) [membrane contactor](#) [packing](#) [ethanol-water](#) [separation](#)

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