

عنوان مقاله:

Desalination of sodium chloride solution using membrane distillation

محل انتشار:

هفتمین کنگره ملی مهندسی شیمی (سال: 1390)

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خلاصه مقاله:

This work focuses on sweeping gas membrane distillation process using flat sheet hydrophobic PTFE membrane in a plate and frame module for desalination of sodium chloride solution. The solution with 10, 25 and 50g/L concentrations used in the experiments. The effects of operating parameters consist of feed temperature (45, 55 and 65°C), feed flow rate (200, 400 and 600mL/min), sweeping gas flow rate (4, 10 and 16SCFH) and feed concentration on the permeate flux studied. The results show that the feed temperature has major effect on the permeate flux. Increase of the feed concentration caused to reduce the permeate flux due to increase of concentration polarization effect and reduction of vapor pressure difference. Moreover, sweeping gas flow rate can increase the permeate flux due to reduction of vapor pressure in the permeate side.

کلمات کلیدی:

Sweeping gas membrane distillation, PTFE membrane, desalination, permeate flux, sodium chloride solution

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