عنوان مقاله:

Pervaporation Dehydration of Ethylene glycol/Water mixtures using zeolite membrane

محل انتشار:

دهمین کنگره ملی مهندسی شیمی ایران (سال: 1384)

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خلاصه مقاله:

Ethylene glycol (EG) is one of the important and high applicable solvents in chemical industries. The production process of this chemical in petrochemical industries is encountered with problems regarding separation of a large amount of water from produced EG with leads to intensive energy consumption in several evaporators and vacuum distillation columns. This work reports an experimental study on Pervaporation (PV) dehydration of EG/water mixtures using commercially NaA zeolite membrane (Mitsui- Engineering and Shipbuilding Co., Japan). Concentration range investigated (CEG > 70 wt. %) was selected according to existing industrial needs. Recirculation flow rate was kept at a value of 1.5 l/min. Fluxes and separation factors were monitored as dehydration proceeded. Effect of temperature was investigated in a range of 50 to 70>C. Obtained results showed successful performance of the membrane for dehydration of EG/water mixtures. It was observed that at 70>C and with 70 wt. % initial EG concentration, larger fluxes and separation factors could be obtained (0.94 kg.m-2.h-1) and 1177, respectively.

کلمات کلیدی:

Pervaporation, NaA Zeolite, Dehydration, Ethylene glycol, Zeolite membranes

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