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Pervaporation of methanol from methylacetate mixture using polyamide-6 membrane

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ABSTRACT

This article presents the results concerning the preparation of asymmetric polyamide-6 (PA-6) membrane using the wet phase inversion technique. The membrane was prepared from a casting dope containing 20 wt.% of PA-6 in formic acid at 18˚C. The membrane was then characterized by scanning electron microscopy and further tested for the separation of methanol/methyl acetate solutions by pervaporation. The effects of feed methanol concentration, operating temperature and the feed liquid flow rate on the membrane performance were investigated. The permeation flux increased with increasing feed methanol concentration, feed temperature, and feed flow rate. Some typical data of separation factor were: at the operating temperature of 40˚C, feed 80% methanol/20% methyl acetate and the feed liquid flow rate of 16.5, 20.6 mL/s, the separation factor was 50 and 83 respectively.

Keywords: Polyamide-6 (PA-6); Casting; Phase inversion; Asymmetric membrane; Pervaporation

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