

Dehydration characteristics by pervaporation using a polymeric/ceramic composite membrane for quaternary acetic acid-ethanol-ethyl acetate-water mixtures

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A polyetherimide/alumina composite membrane has been prepared by dipping method. Dehydration characteristics by pervaporation using the composite membrane for quaternary equilibrium mixtures of acetic acid-ethanol-ethyl acetate-water have been measured in various temperature and space time at a fixed permeate-side pressure of 2.67×10^{-3} bar (2 mmHg). Fluxes for the all four components increase as temperature increase tentatively due to the increase of free volume within polymer chains. Apparent activation energies have been obtained for the four components. The flux change for acetic acid is the most sensitive on the temperature change. The composite membrane shows a good dehydration capability.