



Polymer membranes modified by fullerene C₆₀ for pervaporation of organic mixtures

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Received 16 July 2009; Accepted 15 January 2010

ABSTRACT

Modification of polymer properties by incorporation of nanoparticles is a way for the development of advanced membrane materials. New materials based on the compositions polymer–fullerene were developed for the use in pervaporation. Two polymers polyphenylene oxide (PPO) and polyphenylene isophthalamide (PA) were modified by fullerene C₆₀. Their transport properties were studied in pervaporation of two systems: the reacting mixture ethanol–acetic acid–water–ethyl acetate by fullerene-containing PPO membranes and the methanol/cyclohexane mixture with azeotropic point by fullerene-containing PA membranes. The experimental study of sorption-diffusion parameters were carried out in sorption tests to analyze transport properties of the modified membranes as a function of the fullerene content in membranes.

Keywords: Pervaporation; Fullerene-containing membranes; Poly(phenylene oxide); Poly (phenylene isophthalamide); Sorption; Selectivity

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