



Pervaporation membranes based on composites of polyimide with polyaniline or its copolymer

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ABSTRACT

Sorption and pervaporation properties of homogeneous membranes based on composites containing polyaniline (PANI) and copolymer of aniline with anthranilic acid (coPANI) involved in matrix of aromatic polyimide (PI) were investigated for binary organic mixtures with azeotropic points. It was established that PI membrane exhibited the highest selectivity to methanol during separation of methanol/toluene mixture due to the higher degree of equilibrium sorption and lower Flory–Huggins polymer-solvent interaction parameter with respect to methanol as compared with PI/PANI composites. Addition of coPANI in PI matrix leads to increasing of hydrophilic properties and consequently equilibrium sorption of water during separation of water/isopropanol mixture. PI/coPANI exhibits higher transport properties (flux and selectivity) as compared with that of PI membrane.

Keywords: Membranes; Aromatic polyimide; Polyaniline; Sorption; Diffusion; Pervaporation

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