

Modelling of Pervaporation Separation of Butanol from Aqueous Solutions Using Polydimethylsiloxane Mixed Matrix Membranes

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Abstract : In this study, a modification of Hennepe model for pervaporation separation of butanol from aqueous solutions using Polydimethylsiloxane (PDMS) mixed matrix membranes has been introduced and validated by experimental data. The model was compared to the original Hennepe model and few other models which are applicable for membrane gas separation processes such as Maxwell, Lewis Nielson and Pal. Theoretical modifications for non-ideal interface morphology have been offered to predict the permeability in case of interface void, interface rigidification and pore-blockage. The model was in a good agreement with experimental data.

Keywords : butanol, PDMS, modeling, pervaporation, mixed matrix membranes

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