

The Effect of Particle Porosity in Mixed Matrix Membrane Permeation Models

Authors : Z. Sadeghi, M. R. Omidkhan, M. E. Masoomi

Abstract : The purpose of this paper is to examine gas transport behavior of mixed matrix membranes (MMMs) combined with porous particles. Main existing models are categorized in two main groups; two-phase (ideal contact) and three-phase (non-ideal contact). A new coefficient, J, was obtained to express equations for estimating effect of the particle porosity in two-phase and three-phase models. Modified models evaluates with existing models and experimental data using Matlab software. Comparison of gas permeability of proposed modified models with existing models in different MMMs shows a better prediction of gas permeability in MMMs.

Keywords : mixed matrix membrane, permeation models, porous particles, porosity

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