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Mass transfer model, preparation and applications of zeolite membranes for pervaporation dehydration: A review*

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Abstract Pervaporation (including vapor permeation) is a kind of new membrane separation technology, possessing the advantages of high efficiency, energy saving and convenient operation. It has promising application in the separation and purification of organic solvents. Dehydration is an important step in the production and recovery of organic solvents. Zeolite membranes have attracted wide attention for pervaporation dehydration due to their high separation performance and good thermal/chemical stability. So far, zeolite membranes have been preliminarily industrialized for dehydration of organic solvents. This paper reviews the recent development of zeolite membranes for pervaporation dehydration, including mass transfer models, preparation and applications of zeolite membranes. The review also discusses the current industrial applications of zeolite membranes and their future development in pervaporation.

Keywords zeolite membrane, pervaporation, organic solvent dehydration, mass transfer

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