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# Separation of water from mixtures containing formaldehyde, water, methanol, methylal, and poly(oxymethylene) dimethyl ethers by pervaporation

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## Abstract

In this work, pervaporation experiments were carried out, in which water was separated from mixtures containing formaldehyde, water, methanol, methylal, and poly(oxymethylene) dimethyl ethers (OME). This separation is interesting for new production processes for the synthetic fuel OME. Five commercial membranes were studied: two zeolite membranes (Type NaA and Type T from Mitsui & Co.) and three PVA-based polymer membranes (PERVAP 4100, PERVAP 4101, and PERVAP 4102 from DeltaMem AG). The membrane flux and the composition of the permeate have been measured. The zeolite membranes were tested at 343 K and 7 mbar permeate pressure and the polymer membranes were tested at 353 K and 2 mbar permeate pressure. The investigated mixtures are inherently reactive, as formaldehyde reacts both with water and methanol. The zeolite membranes could

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