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High-flux CHA zeolite membranes for H₂ separations

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Abstract:

Two types of CHA zeolite membranes (SAPO-34 and SSZ-13) were used for the separations of CO₂/H₂ and H₂/CH₄ binary mixtures at pressures up to 2.8 MPa. Separation performances of both membranes were improved after synthesis modifications. The SAPO-34 membranes had higher permeances than the SSZ-13 membranes because less SAPO-34 crystals were grown into the support pores. The best SAPO-34 membrane showed CO₂/H₂ separation selectivity of 17.6 and CO₂ permeance of 40.3×10^{-7} mol/(m² s Pa) (CO₂ permeability of 72220 barrers); this

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