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Embedding hydrophobic MoS₂ nanosheets within hydrophilic sodium alginate membrane for enhanced ethanol dehydration

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Abstract

Molybdenum disulfide (MoS₂), as an emerging kind of two-dimensional (2D) materials with large hydrophobic surface and superior mechanical property, holds great promise in preparing high-performance hybrid membranes. In this study, MoS₂ nanosheets were embedded within sodium alginate (SA) for ethanol/water separation. Morphology, structure, mechanical and thermal properties of the membranes were characterized. The incorporation of MoS₂ nanosheets affected the microstructure of the membranes. The Young's modulus of the as-fabricated hybrid membrane was

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