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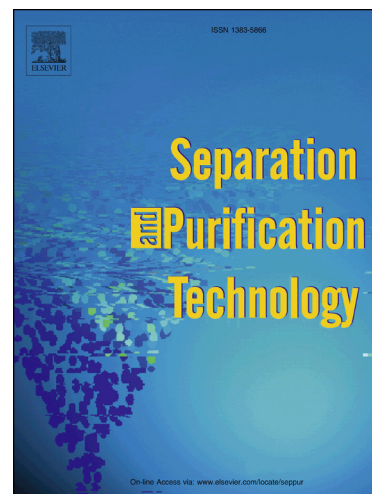
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Blend membranes of poly(amide-6-*b*-ethylene oxide)/[Emim][PF₆] for CO₂ separation

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ABSTRACT

1-ethyl-3-methylimidazolium hexafluorophosphate ([Emim][PF₆]) was incorporated into poly(amide-6-*b*-ethylene oxide) (Pebax1657) to prepare blend membranes. The physical properties of Pebax1657/[Emim][PF₆] blend membranes were characterized by fourier transform infrared spectroscopy (FTIR), differential scanning calorimetry (DSC) and scanning electron microscopy (SEM). For Pebax1657/[Emim][PF₆] blend membranes, the melting peak of polyether (PE) segment disappeared when [Emim][PF₆] content reached 10 wt%, and the melting peak of [Emim][PF₆] appeared until [Emim][PF₆] content came up to 60 wt%, indicating the homogeneous mixing of [Emim][PF₆] and Pebax1657 for the prepared Pebax1657/[Emim][PF₆] blend membranes. According to FTIR, some interactions were formed between [Emim][PF₆] and PE segment. The gas transport properties of CO₂, N₂, CH₄ and H₂ for Pebax1657/[Emim][PF₆] blend membranes were also investigated. The incorporation of [Emim][PF₆] increased the gas solubility coefficients of CO₂, N₂, CH₄ and H₂,

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