

عنوان مقاله:

Polyimide nanocomposite membranes preparation and characterization using nanosized 4A zeolite for CO₂/CH₄ separation

محل انتشار:

دومین همایش ملی غشا و فرایندهای غشایی (سال: 1394)

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خلاصه مقاله:

CO₂ removal and / or capturing is one of the most important tasks in many industries. Some nanocomposite membranes were fabricated in order to improve membrane separation performance of CO₂ selective permeation using polyimide of Matrimid 5218 as backbone and filler of nanosized 4A zeolite were used. Scanning Electron Microscopy (SEM) analysis showed acceptable connections between the two phases and the prepared membranes performed higher performances compared with that of neat polymeric membranes up to 50 %. Although glassy polyimides were used, thermal treatment at temperatures around glass transition temperatures (T_g) of the polyimides repaired probable defects and there were no voids around the fillers, as gas permeation tests revealed. Gas separation tests showed improvement of both separation factor and permeabilities of the prepared nanocomposite membranes compared with those of the pristine polymers

کلمات کلیدی:

Nanocomposite Membrane, Polyimides, Nanosized 4A Zeolites, CO₂ Permeation, Separation Performance, Improvement

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