

عنوان مقاله:

Polyurethane-ZnO nanocomposite membranes for gas separation

محل انتشار:

کنفرانس بین المللی فرآورش پلیمرها (سال: 1390)

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خلاصه مقاله:

The effect of zinc oxide nanoparticles on the gas separation properties of polyurethane membrane has been investigated. The polyurethane (PU) was synthesized via two step polymerization method based on polytetramethylene glycol (PTMG), isophoronediiisocyanate (IPDI) and 1, 4-butanediol (BDO) at the mole ratio of 1:3:2. The nanocomposite membranes were prepared via thermal phase inversion. The prepared polyurethane-ZnO nanocomposite membranes were characterized using FT-IR, SEM and X-Ray analyses. FT-IR and SEM results indicated good dispersion of ZnO particles in polymer matrix. Gas permeation properties of polyurethane-ZnO nanocomposite membrane with ZnO content up to 20 Wt% were studied for pure CO₂, CH₄, N₂ and O₂ gases. The obtained results indicated decreasing in permeability of all gases and increasing in CO₂/N₂ and CO₂/CH₄ gas selectivities upon increasing the ZnO content

کلمات کلیدی:

membrane, gas separation, polyurethane, ZnO nanocomposite

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