

عنوان مقاله:

The effect of usage of silica nanoparticle filler on increasing the adsorption and flux of CH₄ and CO₂ in nanocomposite membrane

محل انتشار:

سومین همایش ملی کاربردهای شیمی در فناوریهای نوین (سال: 1392)

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خلاصه مقاله:

Silica is one kind of surface modified non-permeable filler which is commonly used for increasing the rate of adsorption/desorption within nanocomposite membranes. According to the results, application of silica nanoparticles increased the rate of flux of gas by surface adsorption. In this article, the simulation was done by COMSOL software for evaluating the effects of filler on increasing the flux and adsorption rate. In the presence of filler in the nanocomposite membrane, the flux is much higher than the absence of nanoparticle filler because the adsorption and desorption which happen on the surface of the filler can increase the amount of flux, considerably. On the other words, incorporation of nanoparticle fillers inside polymer matrix, enhances the transport properties of gaseous penetrants and improve their transport fluxes through resulted nanocomposite membranes.

کلمات کلیدی:

Nanoparticle filler, polymer matrix, Permeation

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