

## عنوان مقاله:

Gas permeation properties of poly (amide-6-b-ethylene oxide)–silica hybrid nanocomposites membrane by sol-gel technique

## محل انتشار:

یازدهمین سمینار بین المللی علوم و تکنولوژی پلیمر (سال: 1393)

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## خلاصه مقاله:

Polymer-based membrane separation processes have been intensively studied and optimized for laboratory and even large scale industrial applications. The use of membranes in gas separations has grown at a very rapid pace in recent times. In the present work, the effect of silica nanoparticles on the permeability of CO<sub>2</sub> and CH<sub>4</sub> gases in poly (amide-6-b-ethylene oxide) (PEBAX 1657) membranes has been studied. Silica nanoparticles prepared by hydrolysis of tetraethylorthosilicate (TEOS), through the sol–gel mechanism. The nanodispersed inorganic network produced in the organic matrix was characterized by scanning electron microphotography (SEM). Gas permeation measurements were accomplished at various pressures with CO<sub>2</sub> and CH<sub>4</sub>. For PEBAX-TEOS (10 wt%) nanocomposite membrane, CO<sub>2</sub> permeability increased to 84.58% in compare with pure PEBAX. Enhancement in CO<sub>2</sub> / CH<sub>4</sub> selectivity was observed by increasing the content of silica in hybrid membranes

## کلمات کلیدی:

Nano-composite membrane, Gas separation, PEBAX, TEOS, Sol-Gel

## لینک ثابت مقاله در پایگاه سیویلیکا:

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