

## عنوان مقاله:

Investigating gas permeation behavior and morphology of PC membranes

## محل انتشار:

ششمین کنگره بین المللی مهندسی شیمی (سال: 1388)

تعداد صفحات اصل مقاله: 5

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## خلاصه مقاله:

The gas separation properties of polycarbonate membranes were investigated in this study. PC membranes were prepared via dry phase inversion technique. The effects of membrane preparation conditions, including solvent type, non-solvent type, non-solvent/solvent (vol/vol %), polymer weight fraction, and drying temperature on the gas separation properties of PC membranes were investigated using Taguchi experimental design. The permeation of pure O<sub>2</sub>, N<sub>2</sub>, and CO<sub>2</sub> gases were examined. The results indicated that the CO<sub>2</sub> permeability was evidently higher than those of the other gases. To get the maximum selectivity and optimum condition for selectivity and permeability, Taguchi analysis was used. Polymer weight fraction showed the most important effect on the separation characteristics of the prepared PC membranes. Membranes prepared with n-propanol as non-solvent indicated improved gas separation behavior. To get the highest permselectivities of CO<sub>2</sub>/N<sub>2</sub> or O<sub>2</sub>/N<sub>2</sub>, the amount of added n-propanol to the casting solution should be zero. While, optimum point for high selectivity and permeability of CO<sub>2</sub>/N<sub>2</sub> or O<sub>2</sub>/N<sub>2</sub> separation can be reached with 5% of n-propanol as non-solvent. Trade-off evaluation also showed that certain types of the prepared PC membranes in this study have potential for commercialization.

## کلمات کلیدی:

polycarbonate, membrane, Taguchi experimental design, phase inversion

## لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/77341>



