## عنوان مقاله:

Pore surface fractal dimension of sol-gel derived nanoporous SiO۲-ZrO۲ membrane

## محل انتشار:

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## خلاصه مقاله:

In this work, SiO۲ –ZrO۲ mixed oxides was prepared by the polymeric sol–gel route. The characterization of pore structure, which determines the permeation process of membrane, is of great importance. So far, most investigations have focused on such pore structure as specific surface area and pore size distribution, but the surface fractal, the important parameter reflecting the roughness of pore surface. Pore surface roughness change in SiO۲-ZrO۲ unsupported membranes induced by chemical composition and heating process has been investigated by the analysis of surface fractal dimension. Fractal features are analyzed from N۲ adsorption–desorption measurements. It was found that a decrease in the surface fractal dimension occurs while zirconia content increases at the unsupported membranes with different molar ratio of zirconia to silica heating at ۵۰۰ ºC. The surface fractal dimension of membrane with ۳۰ mol% silica content slightly increases while heating from ۲۰۰ to ۵۰۰ ºC due to shrinkage and increase of mass fractal dimension of silica clusters.

## کلمات کلیدی:

Ceramic membrane, Pore structure, Surface fractal dimension, Sol– gel