عنوان مقاله:

Oxygen permeation study of synthetic mixed-conducting ceramic membranes

محل انتشار:

ششمین کنگره بین المللی مهندسی شیمی (سال: 1388)

تعداد صفحات اصل مقاله: 7

نویسندگان:

Ensieh Ganji Babakhani - *Gas Department, Research Institute of Petroleum Industry (RIPI) Chemical Engineering ,Department, Engineering Faculty, University of Tarbiat Modares, Tehran, Iran*

Jafar Towfighi - *Chemical Engineering Department, Engineering Faculty, University of Tarbiat Modares, Tehran, Iran*

Khodadad Nazari - *Chemical and Petrochemical Department, Research Institute of Petroleum Industry (RIPI),Tehran , Iran*

Reza Ahmadi - *Gas Department, Research Institute of Petroleum Industry (RIPI),*

خلاصه مقاله:

Perovskite-type Ba0.5Sr0.5Co0.2Fe0.8O3-δ oxide membranes were synthesized successfully using EDTNAD complexing method. The structure of Ba0.5Sr0.5Co0.2Fe0.8O3-δ was determined by XRD which showed a cubic perovskite structure. Oxygen permeation through these membranes was studied by the GC method using a high-temperature permeation cell. High permeation fluxes were observed. The permeation flux of Ba0.5Sr0.5Co0.2Fe0.8O3-δ membrane reached about 1.8 mlmin−1 cm−2 under air/He gradients at 950oC. The oxygen permeation flux was determined at different oxygen partial pressures of upstream and different temperatures between 750 and 950oC. The effects of air flow rate and sweeping helium flow rate on the oxygen permeation were also investigated. XRD pattern after O2 -TPD showed that Ba0.5Sr0.5Co0.2Fe0.8O3-δ possess a very stable structure.

کلمات کلیدی:

ceramic membrane, perovskite, oxygen separation, permeation