

عنوان مقاله:

Preparation of  $BaCe_{0.9}Yb_{0.1}O_{3-\delta}$  asymmetrical membrane for hydrogen separation at high temperatures

محل انتشار:

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خلاصه مقاله:

A mixed proton-electron conducting perovskite was synthesized by liquid-citrate method and the corresponding membrane was prepared by pressing followed by sintering. The hydrogen permeability of  $BaCe_{0.9}Yb_{0.1}O_{3-\delta}$  was studied as a function of temperature and hydrogen partial pressure (PH<sub>2</sub>) gradient. Using ۱۰۰% dry hydrogen at ۱۱۷۳ K, the hydrogen permeation rate of dense membranes (۱.۶۳ mm thick) for a mixture of ۶۰% H<sub>2</sub>/He was ۰.۰۰۰۲۹۳ mol/(m<sup>2</sup> s). The phase structure of powder was characterized by X-ray diffraction and thermogravimetry (TG). Scanning electron microscopy (SEM) was used to investigate the microstructure of sintered membrane. Activation energy estimated with Arrhenius equation was ۲۹ kJ/mol.

کلمات کلیدی:

Ceramic Membrane, BaCeYb, Electron/Proton Conductivity, Hydrogen Ppermeation

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