Preparation of one-end closed type $Ba_{0.5}Sr_{0.5}Co_{0.8}Fe_{0.2}O_{3-\delta}$ hollow fiber membrane

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One end-closed type ceramic hollow fiber membranes were prepared to get high-purity oxygen by a phase-inversion/sintering technique using the commercial $Ba_{0.5}Sr_{0.5}Co_{0.8}Fe_{0.2}O_{3-\delta}$ (BSCF) synthesized by the solid state reaction method. The hollow fiber membrane precursor was spun from a dope solution and then one end of the membrane was closed. The precursor was sintered at a high temperature for a specific time to obtain a membrane with a gastight property. The crystal structure and microstructure of the sample were analyzed by X-ray diffraction(XRD) and scanning electron microscopy(SEM). The hollow-fiber membranes sintered show an asymmetric structure. The production of pure oxygen in one step through the one end-closed type hollow fiber membrane without inert gas is beneficial to the industry of high-purity oxygen production.

※ Keyword: Oxygen separation, Hollow fiber, Perovskite, $Ba_{0.5}Sr_{0.5}Co_{0.8}Fe_{0.2}O_{3-\delta}$

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