

Preparation and performance test of tubular oxygen transport membranes

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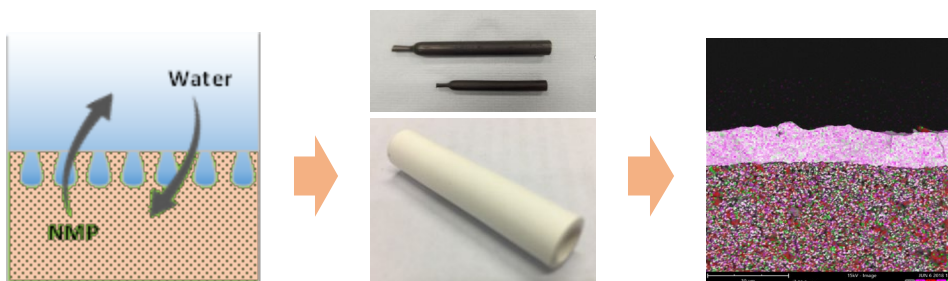


Introduction

Oxygen transport membranes made of mixed oxygen ionic and electronic conducting (MIEC) oxides have gained great interest because of their promising potential as a reliable source for oxygen production. These membranes operate at high temperatures permeating 100% pure oxygen directly from air, eliminating the need for an expensive conventional cryogenic technology.

Project summary

Phase-inversion casting method is applied for the preparation of CGO-BSCF dual-phase membranes and supported CGO single-phase membranes. Compared with single-phase membranes, dual-phase membranes are expected to show combined good oxygen permeability and high stability, while supported membranes were developed to improve oxygen permeability of the membrane by decrease the membrane thickness. After membrane fabrication, the oxygen permeability and CO₂-resistance of these membranes would be tested. SEM and XRD would be applied to investigate the micro-structure and phase change after the test.



Project goals

1. Fabrication of gas-tight oxygen transport membranes with enough mechanical stability.
2. Proper sealing with good stability and compatibility with membrane.
3. Membrane performance tests under different conditions.

Contact information

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