

Fabrication of tubular segmented-in-series solid oxide fuel cell (SOFC) unit bundle

임택형*, 윤의진, 이승복, 박석주, 송락현, 신동열
한국에너지기술연구원, 연료전지연구단
(ddak@kier.re.kr*)

A novel design of tubular segmented-in-series solid oxide fuel cell (SOFC) unit bundle is presented in this paper. The tubular ceramic supports are fabricated by the extrusion technique. The anode functional layer and the yttria-stabilized zirconia (YSZ) electrolyte are deposited onto the ceramic support by dip coating method. After co-sintering at 1350 °C for 5 h, a dense and crack-free YSZ film with a thickness of about 10 μm successfully obtained. Also, the multi-layered cathode composed of LSM/8YSZ composite, LSM and LSCF were coated onto the co-sintered ceramic support by dip coating method and sintered at 1150 °C. The porosity, mechanical property, gas permeability of ceramic support was measured and the cross section and surface morphology of ceramic support was analyzed by using SEM image. In present, we are continuing to test the optimized performance and durability of tubular segmented-in-series SOFC unit bundle.