

Fabrication of anode supported PEN for solid oxide fuel cell

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Abstract: Fabrication process for anode supported planar PEN of intermediate temperature solid oxide fuel cell (SOFC) was introduced, in which tape casting and screen printing methods were used. Gd_2O_3 doped CeO_2 (GDC) powders were prepared by solid reaction method. Anode tape was produced by tape casting. Electrolyte and cathode were produced by screen printing. The GDC powder's component, thermal expand coefficient, the porosity, density and microstructure of anode and electrolyte were investigated. It was shown that a bi-layer with dense thin electrolyte film and porous anode support and with good coherency of the electrolyte film to the anode could be realized after co-sintering the green tape at 1350 °C by optimizing the power characteristics of the starting materials in the slurry.

Key words: intermediate temperature SOFC; Gd_2O_3 doped CeO_2 (GDC); planar PEN; tape casting; screen printing

中图分类号: TM911.47

文献标识码: A

文章编号: 1001-1579(2004)03-0209-03

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