Short Communication

Low Melting Point Glass Powder (glass) used as an Additive to $\text{Zr}_{0.88}\text{Y}_{0.08}\text{Eu}_{0.04}\text{O}_{2-\alpha}$ (ZYE) Electrolyte for Intermediate Temperature SOFCs

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doi: 10.20964/2018.11.62

Received: 31 July 2018 / Accepted: 5 September 2018 / Published: 1 October 2018

In this study, Eu^{3+} and Y^{3+} double doped ZrO_2 , that is $\text{Zr}_{0.88}\text{Y}_{0.08}\text{Eu}_{0.04}\text{O}_{2-\alpha}$ (ZYE) electrolyte was synthesized by the chemical precipitation method. The low melting point glass powder (glass) was used as an additive to ZYE electrolyte for intermediate temperature SOFC after heated at 700 °C for 2 h. The phase composition and microstructure of the $\text{Zr}_{0.88}\text{Y}_{0.08}\text{Eu}_{0.04}\text{O}_{2-\alpha}$ -low melting point glass powder (ZYE-glass) composite electrolyte were observed by XRD and SEM. The effects of gas atmosphere, operating temperature, time and the partial pressure of oxygen on the ionic conductivity of the ZYE-glass composite electrolyte were also studied at 400–800 °C.

Keywords: Additive; Composite; Fuel cell; Thermogravimetric analysis (TGA)

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