Short Communication

Electrochemical Properties of Lutetium and Zirconium co-doped SrCeO₃ Composite Electrolyte for Intermediate Temperature for Solid Oxide Fuel Cell

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doi: 10.20964/2020.04.20

Received: 16 December 2019 / Accepted: 6 February 2020 / Published: 10 March 2020

In this study, SrCe_{0.6}Zr_{0.3}Lu_{0.1}O_{3-α} was synthesized by a citric-nitrate auto-combustion (CNA) method. Subsequently, it was compounded with molten chlorides and carbonates to prepare SrCe_{0.6}Zr_{0.3}Lu_{0.1}O_{3-α}-(K/Li)₂CO₃-(Na/K)Cl. The structure, morphology and medium temperature electrical properties of SCZLu-(K/Li)₂CO₃-(Na/K)Cl were investigated. X-ray diffraction indicated that the main microstructure was SrCeO₃ phase and (K/Li)₂CO₃ mainly existed in amorphous form in the composite. The maximum conductivity of SCZLu-(K/Li)₂CO₃-(Na/K)Cl reached $2.5 \times 10^{-2} \text{ S} \cdot \text{cm}^{-1}$ at 700 °C.

Keywords: Composite; Electrolyte; Fuel cell; Conductivity

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