Short Communication

Synthesis of 5 mol% Ga³⁺-doped SnP₂O₇/KPO₃ composite electrolyte for intermediate temperature fuel cells

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doi: 10.20964/2020.06.01

Received: 7 February 2020 / Accepted: 23 March 2020 / Published: 10 May 2020

In this study, 5 mol% Ga³⁺-doped SnP₂O₇ / corresponding metaphosphate composite electrolyte was prepared. Synthesis and intermediate temperature electrical properties of Sn_{0.95}Ga_{0.05}P₂O₇/KPO₃ were investigated. The X-ray diffraction result showed that the composite electrolyte had a pyrophosphate structure. Conductivities of the composite electrolyte indicated that it had a good linear Arrhenius relationship in the whole test temperature range. The highest conductivity of Sn_{0.95}Ga_{0.05}P₂O₇/KPO₃ was 3.4×10⁻² S·cm⁻¹ at 700 °C.

Keywords: Composite; X-ray diffraction; Conductivity; Electrolyte; Fuel cell

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