

Effects of zinc nitrate as a sintering aid on the electrochemical characteristics of Effects of zinc nitrate as a sintering aid on the electrochemical characteristics of $\text{Sr}_{0.92}\text{Y}_{0.08}\text{TiO}_{3-\delta}$, and $\text{Sr}_{0.92}\text{Y}_{0.08}\text{Ti}_{0.6}\text{Fe}_{0.4}\text{O}_{3-\delta}$ anodes

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Although $\text{Sr}_{0.92}\text{Y}_{0.08}\text{TiO}_{3-\delta}$ (SYT) and $\text{Sr}_{0.92}\text{Y}_{0.08}\text{Ti}_{0.6}\text{Fe}_{0.4}\text{O}_{3-\delta}$ (SYTF) have been widely considered as promising materials for solid oxide fuel cell anodes, the poor densification restricts their commercial applications. As a sintering aid, zinc nitrate successfully stimulates the sintering process and improves densification. A linear shrinkage investigation and scanning electron microscopy images have indicated that the sinterability of SYT and SYTF materials is effectively improved by impregnating the green body with 5 mol% Zn. Zinc modification lowers the activation energy of the electrical conduction process and significantly improves the electrical conductivities of SYT and SYTF at all atmospheric conditions.

Keywords: zinc nitrate, sintering aid, $\text{Sr}_{0.92}\text{Y}_{0.08}\text{TiO}_{3-\delta}$, $\text{Sr}_{0.92}\text{Y}_{0.08}\text{Ti}_{0.6}\text{Fe}_{0.4}\text{O}_{3-\delta}$, alternative anode