

## Electrochemical properties of $\text{Sm}_{0.5}\text{Sr}_{0.5}\text{Co}_{0.8}\text{Fe}_{0.2}\text{O}_3$ as cathode material for Solid Oxide Fuel Cells

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Cathode materials consisting of  $\text{Sm}_{0.5}\text{Sr}_{0.5}\text{Co}_{0.8}\text{Fe}_{0.2}\text{O}_3$  were prepared by the glycine nitrate process for intermediate-temperature solid oxide fuel cells (IT-SOFCs). Synthesized materials were characterized by X-ray diffraction (XRD), scanning electron microscope coupled with electron dispersive X-ray analysis (SEM-EDX), electrical conductivity and electrochemical properties. The samples had an orthorhombic perovskite structure. The electrical conductivities were all higher than  $500 \text{ S cm}^{-1}$ . The highest conductivity,  $984 \text{ S cm}^{-1}$ , was found at  $300^\circ\text{C}$ . A symmetrical electrode of  $\text{Sm}_{0.5}\text{Sr}_{0.5}\text{Co}_{0.8}\text{Fe}_{0.2}\text{O}_3$  powders was deposited on electrolytes of  $\text{Sm}_{0.2}\text{Ce}_{0.8}\text{O}_2$  (SDC) ceramic pellets. The area specific resistance value for the SSCF cathode was as low as  $0.1625 \Omega\text{cm}^2$  at  $850^\circ\text{C}$ .