

## **Morphology and Electrical Conductivity of a Non-Symmetrical NiO-SDC/SDC Anode through a Microwave-Assisted Route**

**Authors :** Mohadeseh Seyednezhad, Armin Rajabi, Andanastui Muchtar, Mahendra Rao Somalu

**Abstract :** This work investigates the electrical properties of NiO-SDC/SDC anode sintered at about 1200 °C for 1h through a relatively new approach, namely the microwave method. Nano powders Sm<sub>0.2</sub>Ce<sub>0.8</sub>O<sub>1.9</sub> (SDC) and NiO were mixed by using a high-energy ball-mill and subsequent co-pressed at three different compaction pressures 200, 300 and 400 MPa. The novelty of this study consists in the effect of compaction pressure on the electrochemical performance of Ni-SDC/SDC anode, with no binder used between layers. The electrical behavior of the prepared anode has been studied by electrochemical impedance spectra (EIS) in controlled atmospheres, operating at high temperatures (600-800 °C).

**Keywords :** sintering, fuel cell, electrical conductivity, nanostructures, impedance spectroscopy, ceramics

**Conference Title :** ICSR 2020 : International Conference on Scientific Research and Development

**Conference Location :** Chicago, United States

**Conference Dates :** December 12-13, 2020