

Fabrication of nano NiO powder made by Pulsed wire evaporation (PWE) method for the anode functional layer of SOFC

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In present work, NiO/YSZ anode functional layer was prepared by nano NiO powder and 8YSZ powder. The nano NiO powders were made by Pulsed wire evaporation (PWE) method. Nano NiO- YSZ functional layer was sintered at the temperature of 900-1400°C. The prepared functional layer was characterized by scanning electron microscopy(SEM) and electrochemical impedance spectroscopy. The nano NiO- YSZ anode functional layer sintered at 1300°C shows the lowest polarization resistance. Nano NiO- YSZ anode functional layer shows about two times smaller polarization resistance than the anode functional layer made by commercial NiO-YSZ powders. Based on these experimental results, it is concluded that the nano NiO-YSZ cermet is suitable as a anode functional layer operated at 800°C.