

Improvement of creep characteristics as an Ni-Al-Cr anode for molten carbonate fuel cell

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Molten carbonate fuel cells(MCFC) are operated at 650°C and the components are pressed at high pressure in order to reduce the contact resistance. These severe conditions cause the creep and sintering of the anode and thus, the thickness and porosity of the anode decrease with long term operation. Also, the surface area and microstructure of the anode electrode are changed. To develop an anode with creep and sintering resistance, the alloying of Al, Cr with Ni have been investigated. The Ni-Al-Cr anode powder was prepared by the addition of Cr powder into the Ni-3wt%Al and Ni-5wt%Al alloy powder. And then, the prepared powder was calcined in the reduction (H_2/N_2) atmosphere. Using the alloy powders with different compositions, anodes for MCFC were prepared by pressure and sintering process. The creep characteristics of the prepared anodes were evaluated in a high temperature creep test equipment. The detail experimental results will be presented in this poster.