

Characteristics of $\text{SrNi}_{0.9}\text{Mo}_{0.1}\text{O}_{3-\delta}$ anode of solid oxide fuel cells using methane fuel condition

김준호, 장근영, 김성원, 정은영, 윤정우[†]
전남대학교

$\text{SrNi}_{0.9}\text{Mo}_{0.1}\text{O}_{3-\delta}$ (SNM) with a perovskite structure has been investigated as an alternative anode material for solid oxide fuel cells(SOFCs). The SNM synthesized by the Pechini method exhibits excellent phase stability during the cell fabrication processes. The SNM were compatible with YSZ electrolyte at the SOFC operating condition. The SNM anode, however, was not stable at high temperatures and reducing atmospheric conditions where Ni exsolved from the SNM structure to form Ni nanoparticles. To improve the cell performance, the SNM anode was modified by a Samarium doped ceria (SDC) thin film coating on the anode pore wall surface, to increase the number of reaction sites and also accelerate the electrochemical reaction kinetics of the anode.