

### Enhancement of cell performance using GSC coated cathode for MCFC

송신애<sup>1</sup>, 한종희<sup>1,\*</sup>, 김휘경<sup>2</sup>, 강민구<sup>1,3</sup>, 장성철<sup>1</sup>

<sup>1</sup>한국과학기술연구원; <sup>2</sup>Chimie Paristech; <sup>3</sup>고려대학교

(jhan@kist.re.kr\*)

Molten carbonate fuel cell (MCFC) operated at high temperature (650 oC) has been developed due to high efficiency and various section of fuel and entered into initial stage of commercialization. However, the problem of electrolyte loss have to be solved for MCFC commercialization. The most easy and fast method for depressing electrolyte loss is to operate the MCFC stack at low temperature about 600~620 oC. However, MCFC operated at low temperature shows low stack performance mainly due to lowering ionic conductivity in electrolyte and slowing electrode reaction kinetics. So, in this study, in order to enhance cell performance at low temperature, mixed ionic and electronic conductor (MIEC) material based on gadolinium strontium cobaltite ( $Gd_{0.6}Sr_{0.4}O_3$ , GSC) which has high electronic conductivity and high catalytic activity at relative low temperature was coated on a porous Ni plate by a vacuum suction method for using as cathode in MCFC. And the electrode performance of the GSC coated cathode was examined by various methods, such as single cell operation, electrochemical impedance spectroscopy (EIS), and so on.