

## A study of methanol steam reforming over Cu-based catalyst in a microreactor

정현도\*, 김권일, 김동식  
한국에너지기술연구원  
(hdjung@kier.re.kr\*)

Proton exchange membrane (PEM) fuel cell system has attracted much attention as an alternative power source for mobile devices. The PEM fuel cells require hydrogen as fuel, and thus the development of PEM fuel cell system including fuel reformer for hydrogen production has been widely investigated for the past several years. Methanol is readily available as a hydrogen source and can be catalytic converted into hydrogen-rich gas at moderate temperatures (250–300°C). Methanol has a high H/C ratio and no C–C bond. When using methanol as a hydrogen source, therefore, the risk of coke formation can be minimized. Cu/ZnO/ZrO<sub>2</sub>/Al<sub>2</sub>O<sub>3</sub> catalyst prepared by co-precipitation method showed higher methanol conversion and lower CO concentration in the outlet gas than the commercial Cu/ZnO/Al<sub>2</sub>O<sub>3</sub> catalyst. The undercoated buffer layer enhanced adhesion between catalyst and micro-channel wall, and at the same time, it improved the methanol conversion compared to the case of non-buffer layer.