

Pd-Ni/YSZ as SOFC anode for internal dry reforming of methane

정지훈, 윤창원*, 남석우

KIST

(cwoyon@kist.re.kr*)

Dry reforming of methane (CH₄) and carbon dioxide (CO₂) mainly produces hydrogen (H₂) and carbon monoxide (CO) that are suitable for solid oxide fuel cell (SOFC) because of its fuel flexibility. Nickel supported on yttria-stabilized zirconia (Ni/YSZ) has widely been used for a SOFC anode. However, this catalyst has known to be deactivated by carbon formation that causes degradation of overall cell performance. In order to improve the stability and performance of Ni/YSZ, carbon deposition should be prevented and reforming activity is necessary to increase. In this study, nano-sized palladium (Pd) is promoted on Ni/YSZ anode using a wet impregnation method, and experimental results between conventional Ni/YSZ and Pd modified Ni/YSZ are compared. The results suggest the promotion effect of Pd on Ni/YSZ on improving the performance of SOFC anode, specifically for internal reforming of CH₄ and CO₂.