

코어-셸 구조의 지지체를 이용한 성능 향상에 대한 연구

*김 도영, 한 상범, 이 영우, 김 시진, **박 경원

Nanostructure of core-shell support for enhanced electrochemical activity in PEMFC.

*Doyoung Kim, Sangbeom Han, Youngwoo Lee, Sijin Kim, **Kyungwon Park

Nanostructures consisting of TiO_2 particles as a core and carbon as a shell ($\text{TiO}_2@C$) were prepared by heat treatment of TiO_2 nanoparticles at high temperature in a methane atmosphere. X-ray diffraction and transmission electron microscopy showed that a carbon shell layer was formed well. These structures were used as supports for platinum nanoparticles and the hybrid particles exhibit improved catalytic activity and stability toward ORR compared to Pt on a carbon black (Vulcan XC-72R). It is likely that enhanced catalytic properties of the Pt on $\text{TiO}_2@C$ could be due to the stability of the core-shell support in comparison with carbon black support.

Key words : Nanostructure(나노구조), Core-shell(코어-셸), Oxygen reduction reaction(산소환원반응), stability(안정성)

E-mail : *holyspy@nate.com, **kwpark@ssu.ac.kr