Effect of impregnation conditions on Pt-loading onto nitrogen functional groups doped ACF

김학준[1], 이태형[2,1], 유승곤[1,*]
[1]충남대학교; [2](주)테크노세미켐
(skryu@cnu.ac.kr*)

Uniform distribution of platinum nanoparticles on porous carbons is dependant on surface functional groups of support and impregnation conditions of aqueous solution. In the study, nitrogen functional groups were doped on ACF by urea treatment, and Pt-loading was carried out by impregnation of $PtCl_6^{2-}$ and heating the $PtCl_6^{2-}$ impregnated N-ACF (nitrogen-doped ACF) up to 700 ℃. Nitrogen functional groups doped on ACF were confirmed by XPS and N_2 adsorption isotherms were measured to investigate the structural property changes. Effective impregnation of $PtCl_6^{2-}$ was controlled by changing the aqueous solution conditions. Heat treatment was progressed to decompose the $PtCl_6^{2-}$ to Pt-nanoparticles. After nitrogen functional groups were doped on ACF, BET specific surface area decreased from 1476 to 1419 and total pore volume and micropore volume decreased a little. About 30 % of Pt-loading was enhanced by doping nitrogen functional groups.