

Preparation of Platinum on KOH-Treated Multi-Walled CNT for Fuel-Cell Applications

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Potassium hydroxide (KOH) activation is effective route to improve the specific surface area of the graphite structure of carbonaceous materials, such as CNT, graphene, etc. In the present investigation, we studied KOH activation with various heat treatment temperatures. Multi-walled carbon nanotube (MWCNT) thermally treated at different temperatures (700, 800 and 900 °c) by KOH to adopt as the platinum(Pt) supporting material with high surface area. After surface modification, Pt decoration process was conducted using colloidal method. Thermogravimetric analysis showed that all Pt-MWCNT had about 40 wt% Pt loading. X-ray diffraction (XRD) analysis was performed and average Pt particle size on MWCNT was measured by using XRD peak. After that, cyclic voltammetry was performed in order to measure the electrochemical surface area. Acknowledgment: This work is the outcome of a Manpower Development Program for Energy supported by the Ministry of Knowledge and Economy. This work was supported by “The development of a residential green-home SOFC m-CHIP and its field test ” under the Korea Ministry of Knowledge Economy (MKE).