

PtU/C ELECTROCATALYSTS FOR DIRECT ETHANOL FUEL CELL

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ABSTRACT

PtU/C catalyst was synthesized by the colloid method and experiments of X-ray Diffraction (XRD) and Energy Dispersive Analysis by X-rays (EDX) were carried out to check the structure and stoichiometry of the nanocrystals. The electrochemical activity and surface evaluation were obtained by Cyclic Voltammetry (CV) using the Porous Thin Layer Electrode Technique. The electrocatalyst was evaluated and compared to the ETEK PtRu catalyst operating with H₂/O₂, H₂+CO/O₂ in PEMFC and for Ethanol oxidation in DEFC. The results of anodic sweep voltammetry for CO oxidation showed that PtU/C was able to start the CO oxidation at 5mV vs. RHE and with a maximum current peak for CO oxidation at 330 mV vs. RHE. The Polarization curves indicate that Pt₆₅U₃₅/C did not show degradation after ethanol oxidation when operating with H₂/O₂ again. These results indicate that PtU/C catalyst could play an important role in PEMFC/DEFC with further improvements of the catalyst composition.