130e Durability Investigation of Carbon Nanotube as Catalyst Support for Proton Exchange Membrane Fuel Cell Electrode

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Electrochemical surface oxidation of Vulcan XC-72 and multiwalled carbon nanotube (MWNT) was compared following potentiostatic treatments up to 168 hrs under condition simulating PEMFC cathode environment. The subsequent electrochemical characterization at different time intervals suggests that MWNT is electrochemically more stable than Vulcan XC-72 with less surface oxide formation and 30% lower corrosion current under the investigated condition. As a result of high corrosion resistance, MWNT shows smaller loss of Pt surface area and catalytic activity when used as fuel cell catalyst support.