



CARBON NANOTUBES-CONTAINING NAFION COMPOSITE MEMBRANES FOR FUEL CELL APPLICATIONS

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Carbon nanotubes (CNTs) containing Nafion composite membranes were prepared via melt-blending at 250 °C. Using three different types of CNTs such as pure CNTs (pCNTs), oxidised CNTs (oCNTs), and amine functionalised CNTs (fCNTs); the effect of CNTs surface oxidation as well as functionalization in composite membranes was investigated by focusing on three aspects: thermomechanical stability, thermal degradation, and proton conductivity. The oCNTs containing Nafion composite membrane exhibited concurrent improvement in most of the properties as compared to that of pure Nafion or other CNTs containing Nafion composite membranes.