

O 10. CARBON NANOTUBE SUPPORTED PT, BI AND RU; SYNTHESIS AND ETHANOL ELECTROOXIDATION PERFORMANCE

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ABSTRACT: A fuel cell is an electrochemical cell that converts the chemical energy from a fuel into electricity through an electrochemical reaction. Direct ethanol fuel cell (DEFC) is a direct liquid feed fuel cell in which liquid ethanol feeds into the anode. In this work, carbon nanotube supported Pt, Bi and Ru monometallic catalysts were synthesized by NaBH₄ reduction method. The ethanol electrooxidation activity of as-prepared catalysts were investigated in alkaline environment. The performance of carbon nanotube supported Pt, Bi, and Ru catalysts was determined using cyclic voltammetry (CV). In addition, ratio of forward peak to backward peaks was calculated in order to determine catalyst that show the highest electrocatalytic activity. These results indicate that Pt/CNT has the highest electrocatalytic activity and CO tolerance.

Keywords: electrocatalyst; fuel cell; etanol; NaBH₄ reduction method