

Pd-Fe₃O₄/MWCNT Nanomaterials as Novel Anode Catalysts for the Formic Acid Oxidation Reaction

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ABSTRACT

In this work, novel 20% Pd-Fe₃O₄/MWCNT nanomaterials have been evaluated as anode catalysts for the Formic Acid Oxidation Reaction (FAOR) in alkaline medium. The catalysts were synthesized using NaBH₄ as a reducing agent. The Pd:Fe₃O₄ atomic ratio was 3:1, 2:1 and 1:1. For comparison purposes, a 20% Pd/MWCNT catalysts was also synthesized. The electrochemical evaluation showed high catalytic activity of the bimetallic material for the FAOR. Such performance suggests that Pd-Fe₃O₄/MWCNT may be considered as anode catalyst for alkaline DFAFCs.

Keywords: Pd-Fe₃O₄ catalysts, formic acid oxidation reaction, MWCNTs

