

عنوان مقاله:

Application of Nickel modified ionic liquid/carbon paste electrode for highly efficient electrocatalytic oxidation of methanol

محل انتشار:

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خلاصه مقاله:

In this work, the electrocatalytic oxidation of methanol in alkaline medium at nickel modified ionic liquid/carbon paste electrode (Ni/IL/CPE) was investigated. The ionic liquid, 1-butyl-3-methylimidazolium bis(trifluoromethylsulfonyl)imide, was incorporated in the electrode as a binder. Ni(II) ions were incorporated into the electrode by immersion of this electrode in 1 M nickel sulphate solution. Cyclic voltammetry and chronoamperometry techniques were used for the electrochemical study of this modified electrode in the absence and presence of methanol. Results show that this electrode exhibits a superior electrocatalytic activity towards the oxidation of methanol and a high density electrocatalytic current was achieved. The rate constant for the chemical reaction between the methanol and redox sites of electrode was calculated. This new proposed electrode is simple and efficient enough and it can be widely used as anode in direct methanol fuel cell.

کلمات کلیدی:

Ionic liquid, Carbon paste electrode, Nickel ions, Methanol, Cyclic voltammetry

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