

عنوان مقاله:

The effect of Ni doped ZnO in carbon substrate of platinum electrodepositedelectrode for methanol oxidation reaction in low temperature methanol fuelcell system

محل انتشار:

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خلاصه مقاله:

nowadays, methanol fuel cell systems has been attracted research activities to investigate forfacilitating methanol oxidation reaction. One of activities is concentrated on improvingelectrocatalysts. ZnO and its derivatives can be used as additive in electrode substrate. In thiswork, a simple low temperature hydrothermal method has been used for synthesis of differentmorphologies of ZnOand 1-20% molNi doped ZnOnanostructures.After preparation additive itwas inserted electrode substrate as paste. Then platinum was electrodeposited by cyclicvoltammetry on substrate of electrode. Prepared electrodes was investigated for methanoloxidation reaction in three electrode half-cell system.The electrochemical methods like as linearsweep voltammetry was used for studying of the content of Ni/ZnO in substrate of electrodeeffect on methanol oxidation reaction. According our results, by increasing the Ni concentrationin electrode, the current density is increased. Studies of cyclic voltammetry usingprovidedmodified electrodes showed a significant reduction in anodic over voltage compared tobare electrodeas observed. Best response was obtained in terms of the current enhancement,overvoltage reduction, and reversibility improvement of the methanol .oxidationreaction underexperimental conditions by modified electrode with 20% Ni doped ZnOnanoparticles

کلمات کلیدی:

Methanol fuel cell, Platinum electrodeposited electrocatalyst, Ni/ZnO nano particles,Methanol oxidation reaction

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