

ANODIC OXIDATION OF SULPHITE IN ALKALINE MEDIA ON PLATINUM NANOPARTICLES MODIFIED NICKEL ELECTRODE

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Abstract. In this paper, anodic oxidation of sulphite ions on platinum nanoparticles modified nickel electrode (Ni–Pt NPs) in aqueous alkaline solution was investigated in order to establish the relationship between kinetic parameters and sulphite concentration. The purpose of this research is both to clarify the oxidation mechanism and to find optimal parameters for sulphite oxidation process using various electrochemical methods. Cyclic voltammetry and linear polarization have been applied to investigate the electrochemical behaviour of sulphite ions and Tafel plots method has been used in order to determine kinetic parameters. To confirm the anodic oxidation mechanism, electrochemical impedance spectroscopy studies have been performed. Furthermore, chrono-electrochemical methods (chronoamperometry, chronopotentiometry, chronocoulometry) have been used in order to obtain more information on sulphite electrooxidation process.

Keywords: sulphite anodic oxidation, smooth nickel, platinum nanoparticles, chrono-electrochemical methods.

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