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Development of Diamond Composite Electrode for Anodic Oxidation of Organic Pollutants

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Abstract

Nano-diamond composite electrode was prepared and used as anode for anodic oxidation process for organic chemicals. Electrochemical techniques such as impedance and cyclic voltammetry have been used to characterize the diamond composite electrode properties. The oxidation power of the electrode was 0.8 V vs. Ag/AgCl, the charge transfer rate was 12.1 Ohm, and the double layer capacitance was less than 1 μ F. The anodic oxidation behavior of p-benzoquinone, 2-chlorophenol, and phenol over diamond composite electrode were investigated by cyclic voltammetry in 0.1 M H₂SO₄ (pH 3) solution and 0.25 M Na₂SO₄ (pH 6.8) solution. Results marked that the electro-oxidation of p-benzoquinone was more active than phenol and 2-chlorophenol in the both solutions. The

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