NICKEL (II) REMOVAL FROM INDUSTRIAL PLATING EFFLUENT 
BY FENTON PROCESS 

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Abstract

In this study, the efficiency of Fenton’s process to remove nickel (II) from industrial plating effluent was investigated. The effect of pH, contact time, concentrations of Fe2+ and H2O2 were surveyed. Kinetic experiments were performed in order to predict the nickel (II) removal rate from wastewater. At pH 1 to 4, nickel (II) removal efficiency increased and declined at pH > 4. The maximum nickel (II) removal efficiency was 98% at 60 min contact time, pH: 4, and Fe2+ and H2O2 concentrations of 1,600 and 2,500 mg/L. First-order kinetic describes nickel (II) removal better than zero- or second-order kinetic models. The results show that Fenton’s process is effective in removing nickel (II) from industrial plating effluent below the EPA discharge limit.

Key words: advanced treatment, heavy metal, plating effluent, reaction rate 

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