Degradation behavior and kinetics of dinitrotoluene in simulated wastewater by iron–carbon micro-electrolysis

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ABSTRACT

Dinitrotoluene (DNT) removal strategies suffer from high costs or slow conversion rates. The effects of initial pH, mass ratio of iron–carbon, mass concentration of anhydrous sodium sulfate, and residence time on DNT removal rate were investigated. Results showed that the degradation efficiency of DNT reached 55.98% under the optimum conditions: an initial value of pH 3, an iron dosage of 10 g/L, a mass ratio of iron–carbon of 1, and a Na2SO4 concentration of 200 mg/L. The degradation kinetics of DNT by iron–carbon micro-electrolysis in the studied temperature range was a pseudo-first-order reaction.

Keywords: Dinitrotoluene; Wastewater; Iron–carbon micro-electrolysis; Kinetics; Pseudo-first-order reaction