



Investigation of color and COD removal by Fenton reagent from aqueous solutions containing acid and reactive dyestuffs

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ABSTRACT

Textile industry is one of the most important industrial activity areas for our country. Because this industry has various production processes, it contains high pollution load and wastewater volume, dissolved substance concentration and different structure dyestuffs. If not treated by appropriate methods, this wastewater with excessive amounts of color and toxicity properties causes serious environmental problems. Compared with other advanced oxidation processes, Fenton process, one of the advanced oxidation processes, has many advantages as being simple, economical and requiring short reaction time. In this study, it was aimed to determine color and chemical oxygen demand (COD) removal efficiencies using Fenton's reagent from aqueous solutions of reactive and acid dyestuffs prepared as synthetic and commercial names CI Reactive Yellow 176 and CI Acid Red 266, respectively. Color and COD removals were investigated for two different dyestuffs by using variable values for five basic factors such as pH, concentration of Fe^{+2} , concentration of H_2O_2 , temperature and slow mixing times affecting the efficiency of Fenton process. Optimum values were determined and decolorization efficiency above 98% and COD removal above 89% for CI Acid Red 266 and decolorization efficiency above 95% and COD removal above 81% for CI Reactive Yellow 176 were reached.

Keywords: Fenton; Decolorization; COD removal; CI Reactive Yellow 176; CI Acid Red 266

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