



CHEMICAL OXIDATION OF TREATED TEXTILE EFFLUENT BY HYDROGEN PEROXIDE AND FENTON PROCESS

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Abstract

In this study the possibility to apply the oxidation process for treating textile effluents, by using hydrogen peroxide and Fenton process was evaluated through determining the color and chemical oxygen demand (COD) removal. The experimental variables studied include the dosages of hydrogen peroxide and iron salts, oxidation time and pH value. The result showed that oxidation process using hydrogen peroxide alone is inefficient in COD and color removal, since only 25 % of COD removal and 21.3 % of color removal were obtained at 100 mg/L H₂O₂ dosage, pH 5 and 60 minutes contact time. Fenton process is normally used in textile wastewater treatment. However, in Malaysia, it is a new technology applied for treatment of textile effluents. Results obtained from this study showed that Fenton process is efficient in removing color. The color removal reaches a maximum of 90% at reaction time of 30 minutes under the action of the Fenton reagent. Although the COD removal is not very effective using Fenton process, in this study it still complies standard B in Environmental Quality Act, 1974. The percentage of COD removal obtained from this experiment is 67.1 % and the concentration is 85 mg/L under 125 mg/L H₂O₂ dosage, 3 mg/L Fe²⁺ dosage and pH 4. From this study one may conclude that Fenton process for the treatment of textile effluent favors rather the removal of color than of COD.

Key words: chemical oxidation, Fenton process, hydrogen peroxide, treated textile

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