

Decolourization of textile wastewater containing green cationic dye by AOPs

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Abstract. One of the main problems in the treatment of textile dyeing wastewater and dye manufacture wastewater is the removal of the dye colour. The colour of wastewater from today's new cationic dyes for polyacrylic fibres is much more difficult to treat by physical techniques such as adsorption and chemical coagulation to archive complete decolourization, because these dyes are very highly soluble in water.

The aim of the present work is to study the factors affecting the rate of decolourization of a textile wastewater witch contain water-soluble green cationic dyes derivatives of compact condensed system 2-aminopyridine. The investigated organic dyes have been treated by advanced oxidative process (AOPs). The following AOPs have been studied: $\text{Fe}^{2+}/\text{H}_2\text{O}_2$, O_3 and $\text{O}_3/\text{H}_2\text{O}_2$. The chemical treatability of cationic dyes from wastewater resulted from dyeing process by single ozonation and ozonation enhanced by ferrous iron salt ($\text{FeSO}_4 \cdot 7\text{H}_2\text{O}$) has been reported. The investigated processes followed the model of pseudo-first order reaction kinetic. Also, the VIS and HPLC methods were used, to demonstrate the degradation process of green cationic dyes derivatives from 2-aminothiazolo [4,5-b] pyridine.

Keywords: cationic dye, decolourization, AOPs, Fenton process, ozonation, $\text{O}_3/\text{H}_2\text{O}_2$, HPLC
