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711

A PRELIMINARY OPTIMIZATION STUDY APPLIED FOR A HOMOGENOUS OXIDATION WITH HYDROGEN PEROXIDE OF AN INDUSTRIAL WASTEWATER

Carmen Zaharia[1]

[1]Technical University "Gheorghe Asachi" of Iasi-Romania, Department of Environmental Engineering and Management

Corresponding author: Carmen Zaharia, czah@ch.tuiasi.ro

Abstract: The paper presents a preliminary laboratory study of homogenous oxidation with hydrogen peroxide of some industrial wastewaters containing the organic Procion Gelb H-E4R dye into different operational conditions. It was elaborated an empirical model (i.e. experimental planning by a second order central rotatable design 2^2 type) for the oxidation process, considering as independent variables: X_1- hydrogen peroxide concentration (C_{H2O2}, mol L^{-1}) and X_2- operational time (t, min) while total colour removal and dye removal efficiencies (Y, %) were chosen as optimization criteria. The mathematical model was found adequate for the wastewater chemical treatment and lead to the finding of optimal operational conditions for efficient wastewater decolourization.

Key words: optimization, two independent variables, empirical model, industrial wastewater, Fenton oxidation.