

REMOVAL OF REMAZOL ROSSO RB DYE FROM AQUEOUS EFFLUENTS BY HOMOGENOUS FENTON OXIDATION PROCESSES

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Abstract. The paper presents some data from our laboratory-setup experiments of homogenous oxidative processes with hydrogen peroxide (*i.e.* advanced Fenton oxidation processes) applied for Remazol Rosso RB dye-containing aqueous systems, especially textile effluents. Therefore, some different operating parameters (including pH, concentration of dye, H₂O₂ and ferrous ions, oxidation time, temperature, stirring regime, among its) were tested for determination of the best performance in effluent discoloration and dye removal, meaning the optimal values of each studied parameters for highest discoloration or dye removal. For an effluent loaded with 50 mg/L Remazol Rosso RB dye, there were applied these optimal values that correspond to > 97 % discoloration efficiency performed with 88.24 mM H₂O₂, 0.18 mM FeSO₄, at pH (5.16), temperature of 19-20°C, continuous stirring regime (30 rpm) and minimum 25-30 minutes of homogenous advanced oxidation treatment. If there are not used additional chemical reagents for pH adjustment (minimization reason of treatment operating cost), the performance of this oxidative treatment is closed to above mentioned efficiency by after a higher oxidation time (> 90 min). These results are encouraging and sustain this oxidative process application and optimization for reducing the environmental impact of effluent discharging directly in different natural aquatic receptors and compliance with admissible limits imposed by environmental legislation as well.

Keywords: discoloration, Fenton reagent, homogenous advanced oxidation process, optimal operating parameter, Remazol Rosso RB dye, textile effluent treatment.