SLURRY DEGRADATION ANALYSIS VIA FENTON AND PHOTO-FENTON BY STOCHASTIC DIFFERENTIAL EQUATIONS

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ABSTRACT

Advanced oxidation processes are based on the generation of free radicals OH, which have high oxidative potential, degrading several components that pollute the environment. These processes attract lots of attention due to the increase of complexity and difficulty in the treatment of the effluent, resulting in the search for new technologies that may solve the problem of the waste. This study aimed to investigate the slurry treatment by means of Fenton process and photo-Fenton and to evaluate the reaction duration with TOC and DQO stochastic modeling. According to the results, stochastic model allowed the evaluation of the rationale kinetics of Fenton and photo-Fenton reactions, identifying maximum degradation in TOC and DQO, besides optimizing H_2O_2 levels and pH in the experimental design, enabling the reduction of costs in the reaction process.

KEYWORDS: Slurry, Fenton, Photo-Fenton, Stochastic model, advanced oxidative process