عنوان مقاله:

Investigation of affecting operational parameters in photocatalytic degradation of Reactive Red 198 with TiO2: optimization through response surface methodology

محل انتشار:

فصلنامه پیشرفت ها در فناوری محیط زیست, دوره 2, شماره 4 (سال: 1395)

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خلاصه مقاله:

This research investigated the photocatalytic decolorization and degradation of an azo dye, reactive red 198 (RR198), in an aqueous solution with TiO2-P25 (Degussa) as the photocatalyst in a slurry form using UV light. There was a significant difference in the adsorption of the dye on the TiO2 surface with the change in the solution pH. The effect of various parameters such as catalyst loading, pH and the initial concentration of the dye on decolorization and degradation were determined. The optimum conditions of the reactor were acquired at a dye concentration of 62 mg/L, a pH of 3.7, and a catalyst concentration of 2.25 g/L; the dye removal efficiency was 98%. According to the ANOVA equation, the catalyst loading relevant coefficient = 19.25 and the pH relevant coefficient = −2.62 were .determined to be the most and least effective parameters on the dye removal, respectively

کلمات کلیدی:

Adsorption ،Azo dyes،Photocatalytic degradation،Reactive red 198،TiO2; UV-light