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DIRECT AND DELAYED DEGRADATION OF AZORUBIN (E122) BY GLIDING ARC DISCHARGES

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Abstract

The goal of this paper is to investigate the decomposition of aqueous solutions of Azorubin (E122), i.e., an azo dye used in food industry, in a pulsed gliding arc discharge reactor (direct treatment). Air and Argon as carrier gases with solution spray has been considered, as a first approach. The bleaching of the aqueous solution was observed immediately after direct plasma treatment and the decreasing of the dye concentration have been emphasized. Further more, the dye concentration in solution still decreases after plasma treatment in so called Temporal Post-Discharge Reactions (TPDR) conditions. Samples of the treated solution by plasma was analyzed after 1h, 2h, 4h, 8h, 24h, 98h and 120 h after the discharge was switched off, which confirms that the influence of the reactive species (e.g., •OH, •NO and their derivatives) formed in active plasma on dye destruction are still active after the solution treatment.

Key words: Azorubin dye, direct degradation, glidarc, quenched non-thermal plasma, Temporal Post-Discharge Reactions

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