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Heterogeneous catalytic ozonation of Reactive Black 5 with cobalt oxide

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Abstract: Textile wastewater needs to be treated well before the discharge as it is very harmful to environment. A well accepted technique, catalytic ozonation was applied to remove the color and recalcitrant compounds from dye solution containing Reactive Black 5 (RB5). In the study, the cobalt oxide used as a catalyst to improve degradation by ozone. The catalytic activity of cobalt oxide is studied under various experimental conditions. Results show that RB5 removal is considerably enhanced by using catalyst due to generation of hydroxyl radical as compared to ozonation alone. The influence of different variables like initial RB5 concentration, catalyst dosage, pH of the solution has been investigated at room temperature. COD removal in 80 minute can reach up to 67% while only 30% with ozonation alone.

Key Words: Wastewater, Advanced Oxidation Process, Catalytic Ozonation, Decolourization, Degradation.

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