Removal of Rhodamine B from aqueous solution using graphite–graphite electro-Fenton system

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ABSTRACT

Removal of Rhodamine B (RhB) using graphite–graphite electro-Fenton (EF) system is investigated in the present study. The effect of various operational parameters on RhB removal was studied. Experimental results showed that RhB was removed completely by the reaction with \( \cdot \text{OH} \) generated from graphite cathode. The optimum applied voltage was determined as 8 V. Higher RhB removal efficiency values were obtained with rising electrode area and depth of electrode immersion. But, RhB removal was decreased with increase in RhB concentration. The optimal electrode spacing was obtained as 4 and 5 cm. At optimal conditions, 99.2% of RhB removal was obtained after 180 min of electrolysis. The present study shows that graphite–graphite EF system was an efficient tool for removing dyes from aqueous solutions.

Keywords: Dye removal; Electro-Fenton; Graphite; Rhodamine B; Advanced oxidation process

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