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## AEROBIC SEQUENCING BATCH REACTOR SYSTEM WITH GRANULAR ACTIVATED CARBON FOR THE TREATMENT OF WASTEWATER CONTAINING A REACTIVE DYE

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### Abstract

In this study, the effect of adding granular activated carbon (GAC) to aerobic sequencing batch reactor (SBR) on possibility to treat a wastewater containing a reactive dye (Brill Blue KN-R) was investigated. Experiments were performed in four cylindrical Plexiglas reactors for 68 days (5 days for acclimatization of sludge and 63 days for normal operation in two separate phases). Initial dye concentrations were adjusted to 20, 25, 30 and 40 mg/L in the reactors R1, R2, R3 and R4, respectively. Constant concentration of GAC (1000 mg/L) was added to SBRs after 36 days of normal operation. According to the obtained data, dye removal efficiencies were increased significantly by adding GAC to SBRs. The average dye removal efficiencies of R1, R2, R3 and R4 were increased 23, 23.6, 18.7 and 18 percent, respectively, after adding GAC to SBR reactors. Additionally, no significant changes on average COD removal efficiencies were observed. Average SVI of all reactors was slightly decreased by adding GAC. The average SVI of all reactors, before and after adding GAC, was in the range of 37- 49 mL/g and 27- 43 mL/g, respectively.

*Key words:* aerobic sequencing batch reactor, Brill Blue KN-R, granular activated carbon reactive dyes

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