

IMPACT OF THE FEED FRACTION OF AN SBR-SYSTEM IN THE NITRIFICATION-DENITRIFICATION PROCESS

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EXTENDED ABSTRACT

A great number of alternative nitrification and denitrification schemes have been proposed and most of them are already in use. Recently, though, a periodic system, the Sequencing Batch Reactor (SBR), has received considerable attention. In this work a lab-scale SBR-type reactor (working volume 1L) was used for the study of the impact of the feed fraction in the nitrification-denitrification process. The typical feed fraction was 66.6% of the total working volume. The total cycle time was 12 hours and the aerobic/anoxic phase duration ratio was 1:1. The composition of the synthetic wastewater used in this study was of high organic load and high concentration of ammonium nitrogen (COD = 1000 mg/l and $\text{NH}_4^+\text{-N}$ 120 mg/l). The effect of four different feed fractions to the nitrogen removal efficiency of the system was studied: 80%, 60%, 40% and 20% of total working volume. The experimental results obtained during the SBR operation were compared with the theoretical results obtained from a previously proposed kinetic model.

Key words: Sequencing batch reactor (SBR); feed fraction; nitrification; denitrification; mathematical modelling.