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UNIQUE N-REMOVAL IN THE WASTEWATER TREATMENT

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Abstract

A unique nitrogen removal is in operation in one of the Hungarian two sludge (two-stage) activated sludge wastewater treatment plant with an ordinary Hungarian municipal wastewater. The first stage is a high loaded (9 kg BOD/m³d) aeration basin and clarifier for maximal removal of the organic contamination and only 7-8% of the influent BOD overflows to the second stage. The COD removal of the plant is around 96%, while the nitrification is around 95% in the second stage. The nitrification capacity of the second stage is far higher than in the conventional A2/O AS systems. Moreover the total N-removal is around 65%. The heterotrophic nitrate reduction would require 900 kg, the similar reduction via nitrite would require 580 kg, but only 450 kg BOD/day is consumed in the second AS basin. So the N-reduction has to go partially via nitrite with autotrophic microorganisms in the continuously aerated second basin.

Keywords: wastewater, autotrophic N-removal, two-sludge stage

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