

Thesis Title Organic Compound and Nitrogen Removal in the
 Anoxic-Aerobic Activated Sludge System

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- ABSTRACT

This research was to study the efficiency of the anoxic - aerobic activated sludge system in removing organic compound and nitrogen from wastewater. A laboratory scale anoxic-aerobic tank was made of plastic PVC with a total length of 45 cm., width of 30 cm. , and height of 26 cm. , the first portion of the tank was anoxic tank had a capacity of 10 litres and the second portion of the tank was aerobic tank had a capacity of 20 litres, The system was fed a synthetic wastewater at the chemical oxygen demand (COD) value of 500 mg/l and nitrogen compound concentration value of 50 mg/l for the ratio 100:10

The experiments were run on 3 set of anoxic-aerobic activated sludge wastewater treatment model for 3 different flow 30 ,60 and 90 litres/day, these made the volumetric loading of 31.17 , 62.34 , and 93.51 lb BOD₅/day/1000ft³ respectively.

The experimental results showed that for the volume loading of 31.17 lb BOD₅/day/1000ft³ the COD removal efficiency was 95.02 % , the SS

removal efficiency was 92.13 % and the TKN removal efficiency was 94.70 %, when the volumetric loading was increased to 62.34 lb BOD₅/day/1000ft³, the COD removal efficiency was 92.59 %, the SS removal efficiency was 88.23 % and the TKN removal efficiency was 91.14 %. And for the volumetric loading 93.51 lb BOD₅/day/1000ft³, the COD removal efficiency was 81.09 %, the SS removal efficiency was 79.19 %, and the TKN removal efficiency was 77.19 % respectively.

In conclusion, the anoxic - aerobic activated sludge system can remove both organic compound and nitrogen from wastewater better than conventional activated sludge system. And the system can reduce bulking sludge problem too.