Thesis Title	Upgrading Activated Sludge Process by Biofilm
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ABSTRACT

The purpose of this research is to study the using of biofilm process to upgrad an activated sludge wastewater treatment. The experiments were divided into 2 sets of wastewater treatment models. The first set had influent flow rate of 20 l/d and the second set had influent flow rate of 40 l/d. The wastewater samples were prepared with COD value of 500 mg/l and 750 mg/l. Four volumetric loadings were applied i.e., 19.63, 39.25 lb BOD_5/day/1000 ft^3 29.43 and 58.55 lb BOD_5/day/1000 ft^3 respectively. The last two loadings are higher than the normal loading.

The experimental results showed that when the biofilm was introduced into the process with the aeration tank, the removals of COD, BOD and SS were improved. For the volumetric loadings of 19.63 and 39.25 lb BOD_5/day/1000 ft^3, the percentage of COD removals were 95.83 % and 93.14 %, the percentage of BOD removals were 95.74 % and

92.90 %, and the percentage of SS removals were 84.54 % and 80.67 % respectively. And for the volumetric loading of 29.43 and 58.88 lb BOD_5/day/1000 ft^3, which is higher than the normal loading, the percentage of COD removals were 93.07 % and 85.59 %, the percentage of BOD removals were 93.02 and 85.48 % and the percentage of SS removals were 80.19 % and 73.39 % respectively. In conclusion the biofilm can improve both the system stability and the effluent quality in the activated sludge treatment process even in the stage of over loading.