

Kamala Kamalasing 2015: Comparison of Treatment Efficiency for Wastewater Treatment of Modified Starch Factory Fixed Film Activated Sludge and Conventional Activated Sludge for High Strength Wastewater. Master of Engineering (Environmental Engineering), Major Field: Environmental Engineering, Department of Environmental Engineering. Thesis Advisor: Assistant Professor Mongkol Damrongsri, Dr.Ing. 108 pages.

The research work was studied in order to compare the efficiency between the activated sludge process with media and without media. The synthesis wastewater was the modified starch from Siam Modified Starch Co., Ltd. average 9,045 mg BOD /l. The main parameters to control the system were F/M ratio between 0.2-0.8 kg BOD/kg MLSS.day.

To compare the efficiency between the activated sludge process with media and without media at 0.2, 0.4, 0.6 and 0.8 kg BOD/kg MLSS.day. The results of the efficiency of activated sludge process with without media were 90.48, 80.80, 68.50 and 55.80% BOD and 81.45, 72.13, 59.83 and 44.37% COD, respectively and the efficiency of activated sludge process with media were 93.44, 88.00, 78.60 and 66.70% BOD and 85.77, 80.90, 72.20 and 57.65% COD, respectively. At 0.2, 0.4, 0.6 and 0.8 F/M ratio, the efficiency of activated sludge process with media were higher than the activated sludge process without media equal to 2.96, 7.2, 10.10 and 10.90 in term of BOD and 4.32, 8.77, 12.37 and 13.28 in term of COD, respectively. It is indicated that the water treatment system of activated sludge process with media was better than the activated sludge process without media at each F/M ratio.

In addition, the kinetic coefficient of activated sludge process with media and without media was studied. It was found that the coefficients were 0.192 and 0.293 mg MLSS/mg BOD, respectively. The values of k_d were 0.007 and 0.025 per day, respectively. The values of K_s were 5789.40 and 3961.46 mg/l, respectively. Finally, the values of μ_{max} were 0.39 and 0.30 per day, respectively.

Student's signature

Thesis Advisor's signature