Thesis	Performance Study of Wastewater Treatment by Upflow Aerated Sand-Media Biofilters	
Author	Mr. Kanchit Deesomsak	
M. Eng.	Environmental Engineering	
Examining Committee :	Assist. Prof. Dr. Prapon Kemmadamrong	Chairman
	Assoc. Prof. Dr. Suporn Koottatep	Member
	Assist. Prof. Dr. Seni Karnchanawong	Member

Abstract

Experiments on wastewater treatment by Upflow Aerated Sand-Media Biofilters were conducted to investigate the performance on organic carbon removal. Two identical laboratory-scale reactors were made of transparent acrylic pipe with inside diameter of 150 mm .Both units were packed with 1 m height of sand as media,having size ranging from 1.2 to 1.8 mm .The units were operated up-flow with synthetic wastewater, having COD concentration about 97-103 mg/L. The performance was evaluated under organic loading rate from 0.40 to 4.57 kg COD/(cu.m-d.) and hydraulic loading rate of 4.0 to 48.0 cu.m./(sqr.m-d.)

It was found that the increasing of organic loading rate from 0.40 to 4.57 kg COD/(cu.m-d) reduced the removal efficiency from 86% to 62% on the total COD basis and from 92% to 83% on the filtered COD basis. Most of COD removal was occurred at the first quarter of media height.

The results obtained from this study have shown that Upflow Aerated Biofilters with sand media appear to be an effective process for treating filtered COD under operating conditions of organic loading rate ranging from 0.40-4.57 kgCOD/(cu.m-d.) without backwash.