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ENVIRONMENTAL ENGINEERING

MAJOR

KEY WORD: ACTIVATED SLUDGE / FILTRATION / PORE SIZE / GEOTEXTILE

JAROENSAK PORNKUNANUPAP : FILTRATION FROM ACTIVATED SLUDGE BY
GEOTEXTILE . THESIS ADVISOR : ASSIST.PROF. SUTTIRUK SUTJARITTANONTA,

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This research was aimed to study filtration of wastewater from activated sludge by using geotextile with different pore sizes . Three pore sizes were studied including 230 microns (U26P) , 180 microns (U40P) and 140 microns (U60P) . Synthetic wastewater having 500 mg/l COD was fed to the process at the rate of 45 liter/day . The tank was separated by baffle between aeration tank and settling tank . Total hydraulic retention time was 12 hours . The variables controlled were wastewater flow rate , temperature , pH and sludge age . The sludge age studied was 3 days , 5 days , 10 days and 15 days . Geotextile was used in sedimentation tank and in aeration tank . The results of the experiment can be concluded as follows :

Suspended solids (SS) in effluent both used geotextile in sedimentation tank and in aeration tank were very low . The SS value was not exceed 10 mg/l and was not different between the experiment with 3 pore sizes of geotextile . Geotextile with these different pore sizes can be used interchangeably .

COD removal efficiency was nearly the same for all experiments yielding 95 % COD removal efficiency .

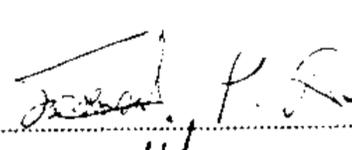
Y_{max} and b in each experiment was not much different in which $Y_{max} = 0.58$ and $b = 0.3 \text{ day}^{-1}$

Based upon the study it is possible to use geotextile to prevent suspended solids leaving the process . Geotextile can be used to improve the quality of treated wastewater for the wastewater treatment process having poor settling characteristics or it can be used in wastewater treatment process without sedimentation tank if clogging problems of the geotextile can be solved .

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