

##C 116566 : MAJOR SANITARY ENGINEERING

KEY WORD : RAPID MIXING/GRAVEL/PIPE

ANUSAK JIVAGANON: RAPID MIXING IN GRAVEL PACKED PIPE

THESIS ADVISOR : ASSO. PROF. THEERA KAROT, Ph.D.

188 PP. ISBN 974-581-544-6

Rapid mixing in a gravel packed pipe to be used in a water purification plant was studied using a laboratory model. The parameters studied were size and depth of gravel, velocity gradient, detention time and alum concentration varied from 4754 to 48135 sec^{-1} , 0.013 to 0.326 sec and 5 to 30 mg./l., respectively.

It was found that the efficiency of turbidity removal depended on size and depth of gravel, velocity gradient, detention time, alum concentration. The optimum size varied from 4 to 5 mm. which didn't depend on depth and alum concentration. The optimum depth varied from 2 to 8 cm. which depended on size of gravel and alum concentration. The optimum velocity gradient varied from 31823 to 38085 sec^{-1} which didn't depend on detention time and alum concentration. The optimum detention time varied from 0.028 to 0.282 sec. which depend on velocity gradient and alum concentration. The optimum alum concentration varied from 15 to 20 mg/l. which didn't depend on velocity gradient and detention time. The relationship between GT^* and C can be represented by the empirical equation as $GT^* = 16595 C^{-0.844}$ which G is velocity gradient varied from 6775 to 45679 sec^{-1} , T^* is optimum detention time, C is alum concentration varied from 15 to 20 mg./l.