

CHAPTER 9

CONCLUSION AND RECOMMENDATION

In coagulation process, this research uses jar test for finding the optimum value of the three coagulants, which are Alum, Lime and Ferric Chloride, the dosage use are mostly 20 - 200 mg/l, 75 - 450 mg/l, and 50 - 300 mg/l respectively.

The above alum dosage, the BOD, COD and Suspended Solids are removed 65 - 85 % , 73 - 92 % , and 87 - 99 % respectively at pH 6.05 - 7.10 .

For the Lime dosage, the BOD, COD and Suspended Solids are removed 73 - 89 % , 73 - 92 % and 88 - 99 % respectively at pH 8.6 - 11.55 . While the 50 - 300 mg/l Ferric Chloride dosage, the BOD, COD and Suspended Solids are also removed 77 - 89 % , 79 - 92 % and 95 - 99 % respectively at pH 3.9 - 6.75 .

The results of using the optimum coagulants dosages of the three are following : For Alum 140 mg/l .

BOD removal	84 - 85 %
COD removal	87 - 92 %
SS removal	98 - 99 %
pH range	6.75 - 6.95

For Lime 300 mg/l

BOD removal 84 - 87 %
COD removal 79 - 93 %
SS removal 94 - 99 %
pH range 11.00 - 11.35

For FeCl_3 150 mg/l

BOD removal 83 - 88 %
COD removal 84 - 92 %
SS removal 95 - 99 %
pH range 5.64 - 5.99

Comparing these three coagulants, Lime was too high in pH value and large dosage requirement. Ferric Chloride showed the better results comparing with the Alum but it caused color and is difficult in handling. So, the alum was chosen in this experiment.

It appeared that the coagulant with aid gave better result than the coagulant alone, and alum with aid was the best. In considering the cost and operation, alum alone is preferable, and gives the effluent of acceptable quality for discharging into the stream.

SUGGESTION FOR FURTHER STUDY

1. Trying biological treatment method in order to clearly compare with the chemical coagulation treatment method.

 2. Mixing the wastewater with domestic sewage and treatment by chemical method. Most of the experimental work was performed on a 50 : 50 wastewater (50 percent sewage and 50 percent paper board mill wastewater).
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