Effectivity Of $\text{Al}_2(\text{SO}_4)_3$ And $\text{FeCl}_3$ In Water Treatment With Gravel Bed Flocculator Using Observed Parameter Of Color And Organic Matter

Name: Hani Yosita Putri  
NRP: 3310 100 001  
Supervisor: Prof. Ir. Wahyono Hadi, M.Sc., Ph.D.

Abstract

Surface water that used as raw water for fresh water which the conditions is still below the quality standards. Surface water still contains a lot of suspended solids and colloids. In water treatment, solid matters can be removed with coagulation and flocculation treatment unit. Coagulation and flocculation is the one of water treatment with physic-chemical process, due to coagulation process the coagulant was added to make a floc.

Gravel bed flocculator is the type of flocculator with hydraulic stirring, a power of the hydraulic stirring comes from water movement. Gravel bed flocculator can precipitated floc around the stones with shorter contact time, which is between 3-5 minutes.

In this study, variations of coagulant and variations of detention time in the media. The type of coagulant that used is $\text{Al}_2(\text{SO}_4)_3$ dan $\text{FeCl}_3$ and detention time that used is 3 minutes and 4 minutes. In this study, the most effective coagulant that used is Water treatment with gravel bed flocculator $\text{Al}_2(\text{SO}_4)_3$ and detention time in the media is 4 minutes capable to remove the color reaching 65.9 % and capable of reducing the levels of organic matters reaching 63.8 %.

Keywords: coagulation, flocculation, gravel bed flocculator
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