

COAGULANT COST OPTIMIZATION FOR SURFACE WATER COAGULATION PROCESS

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Received: 15.07.2017; Revised: 25.06.18; Accepted: 27.06.18

Abstract

This paper presents the results of a study concerning application of different coagulants used in surface water coagulation process. Even though the use of this process is quite wide-spread and several different coagulants are used it would be vital to identify which coagulants are the most effective from the economical point of view. The choice of parameter, such as doses, contact time, speed of mixing are important for cost optimization while maintaining satisfactory results for WTP. Four of the most effective coagulants were taken to the second stage. Three of the four coagulants chosen for the second stage of the study were the same for both tests regardless at water quality parameters. The cost of the process depended above all on raw water contamination, and therefore the coagulant dosage.

An analysis of the results has shown that only the non pre-hydrolyzed coagulant allowed for high process effectiveness at low process costs. This coagulant was also the only one to require a pH correction after coagulation. However, this did not significantly increase the coagulation cost.

Keywords: Coagulation; Costs; Hydrolysis; Optimization; Organic substance; pH correction.