

## Abstract

Aluminium and natural organic compounds are common components of surface water in our country. Removal of these substance represents one of basic problems of water treatment.

Chemical treatment process is based on particles destabilisation and aggregation. The efficiency of treatment is influenced by many chemical and physical factors (the reaction conditions, type and dosage of destabilisation reagens, reactive pH, the mean velocity gradient and the period of its duration).

Common water treatment technologies are based on the reagent doses optimisation. Properties of formed aggregates (namely their size, shape and density) and their separation capabilities are influenced by the magnitude of the velocity gradient and the period of its application.

This thesis is focused on the optimisation of doses of alum -  $\text{Al}_2(\text{SO}_4)_3 \cdot 18 \text{H}_2\text{O}$  and the properties of aggregation. For increasing of alkalinity the lime water was used as an alkalisation reagent. Laboratory tests were conducted by jar test using the variable speed paddle gang stirrer.

The result shows that  $\text{Al}_2(\text{SO}_4)_3 \cdot 18 \text{H}_2\text{O}$  is suitable destabilisation reagens, but salts of the  $\text{Fe}^{3+}$  ions are better.