I-P-9. CONSIDERATIONS REGARDING THE PRESENCE OF INORGANIC DISINFECTION BY-PRODUCTS IN TREATED WATER INTENDED TO HUMAN CONSUMPTION

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Abstract

The undesirable inorganic forms of disinfection by-products are representing by chlorite (ClO_2^-) and chlorate (ClO_3^-) ions. The main sources of inorganic by-products are the chemical agents like chlorine dioxide (ClO_2) and sodium hypochlorite (NaClO) used for iron and manganese removal, taste, odor, algae control and primary disinfection.
The chlorite/chlorate ions, which are not limited in the treated water by European legislation, are suspected to cause hemolytic anemia. As results, the control of residual ClO_2^-/ClO_3^- and the mitigation of by-products concentration are compulsory.

The main directions of performed research study were, as follows:

- ClO_2 using in order to reduce natural organic matter (NOM/DOC, algae) from surface water;
- Fe^{2+}/Mn^{2+} oxidation in the presence of ClO_2 from groundwater.

The influence of oxidation doses, reaction time on the treatment efficiencies and residual ClO_2^-/ClO_3^- concentrations were investigated.

Keywords: *chlorite, chlorate, inorganic by-products, water treatment*