



Formation of Disinfection By-products (DBPs) and Strategies to Reduce Their Concentration in the Water Treatment Plant in Përlepnica – Gjilan, Kosovo

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Abstract Chlorine is the most widely used disinfection agent in drinking water industry in the world. Chlorine is a strong oxidant, and has the ability to kill or inactivate most pathogenic micro organisms commonly found in water. As such, chlorine used for disinfection of drinking water reacts with natural organic matter (NOM) contained in raw water, and forms the so called disinfection by-products (DBPs), of which trihalomethanes (THMs) and halo acetic acids (HAAs) are the two main groups of DBPs. It is confirmed that the exposure to aforementioned DBPs has various negative health effects in humans, therefore agencies dealing with public health have set rules for maximum concentration levels (MCL) for the THMs and for the HAAs, which are enforceable for each public water supply company. It has been documented that concentrations of THMs and HAAs and other halogenated substances can be reduced at the treatment plant, by utilizing following available alternatives such are: using an alternate disinfection agent, reduce the free-chlorine contact time, reduce the concentration of total organic carbon (TOC) from the water before chlorine is added, remove bromide before chlorine addition and change the pH of the water during chlorination. In this paper are presented the dependencies of concentration of total organic carbon (TOC), concentration of residual chlorine and bromine ion in water vs. level of concentration of DBPs in the drinking water.

Key words: *chlorine, chlorinated disinfection by-products, trihalomethanes, halo acetic acids and natural organic matter.*

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