



WSA 511- Haloacetic Acids (HAAs)

What are Haloacetic Acids (HAAs) and how they are getting into my water?

Haloacetic acids (HAAs) are a group of organic compounds that are commonly formed when chlorine used to disinfect drinking water reacts with naturally occurring organic matter (e.g., decaying leaves and vegetation) present in the source water. HAAs and another group of compounds known as 'Trihalomethanes (THMs)' are the major disinfection by-products (DBPs) that have been detected in chlorinated water supplies throughout the world. The haloacetic acids most commonly found in drinking water are monochloroacetic acid (MCA), dichloroacetic acid (DCA), trichloroacetic acid (TCA), monobromoacetic acid (MBA) and dibromoacetic acid (DBA), and these compounds are collectively known as HAA5.

What is the standard for HAAs in drinking water?

The new drinking water standard for HAAs is 80 micrograms/L (parts per billion) and is based on a locational running average of a minimum of quarterly samples collected from the water mains within the distribution system.

What are the health effects of high HAAs in my drinking water?

The health effects associated with exposure to haloacetic acids will vary with the specific compound of HAAs. Animal studies have shown that there is an evidence of carcinogenicity and the prolonged exposure of DCA and TCA in drinking water resulted in cancer. Both DCA and TCA may cause severe skin and eye irritation in humans at high concentrations.

How can I control or remove HAAs from my drinking water?

The removal of HAAs after their formation in drinking water supplies may not be considered to be the best approach to reduce exposure to HAAs. The most efficient and practical way to reduce HAA concentrations in finished waters is to prevent their formation, primarily through the removal of organic precursors. Process optimization and pH adjustments may help to reduce HAAs formation, however sometimes they may cause a corresponding increase in the formation of other DBPs, including THMs. The other options to control the levels of HAAs in drinking water include choosing a different water source that has less of organic precursors, by using alternative disinfectants or adopting appropriate cost-effective treatment technologies to remove HAAs after formation.

My community experiences high levels of HAAs in drinking water, Is there any timeline given by the WSA to meet this new standard for HAAs?

Yes, the WSA specified a timeline in *The Waterworks and Sewage Works Regulations* to meet the new drinking water standard for HAAs. Communities that are experiencing high levels of HAAs in drinking water are required to comply with the new standard by July 1, 2020.

Where can water samples for HAAs be tested?

Testing of HAAs needs specialised laboratory-based testing procedures and equipment. HAA testing can be performed at a few laboratories in Saskatchewan. For information on sampling instructions and sample containers, please contact an accredited laboratory.

How often are HAAs to be monitored in drinking water?

Communities that are regulated by the WSA and that depend on surface water supplies, mixed surface and ground water supplies, groundwater under direct influence of surface water (GUDI supplies) and those true groundwater systems with elevated Total Organic Carbon concentrations in their raw water supplies are requested to monitor HAA concentrations at the most relevant location and where anticipated peak concentrations can be anticipated in the distribution system. For more information on monitoring requirements and frequency of water quality monitoring for your community please refer section 2.14 of "EPB 202- Municipal Drinking Water Quality Monitoring Guidelines, Edition 4, March 2016" (See: <http://www.saskh2o.ca/pdf/epb202.pdf>).

Additional information on HAAs is available from the WSA's Environmental Project Officers and Approvals Engineers. To speak to an Environmental Project Officer or an Approvals Engineer please call 306-787-0726.