



**FREQUENTLY ASKED QUESTIONS (FAQs)**  
**HALOACETIC ACIDS (HAAs) IN DRINKING WATER**

**What are haloacetic acids?**

Haloacetic acids (HAAs) are organic compounds containing chlorine and/or bromine. HAAs are most commonly formed when drinking water is disinfected with chlorine (chlorinated) to kill bacteria and viruses. The chemical reaction of chlorine with natural plant material found in water produces HAAs. Sometimes HAAs in drinking water reach levels that could possibly be harmful to human health. Levels of HAAs in water can vary from day to day depending on such things as the amount of acid in the water, the season, water temperature, concentration of chlorine, and the amount of plant material in the water.

**How can HAAs affect my health?**

The low levels of HAAs found in drinking water are highly unlikely to cause any human health problems. There is some evidence from animal studies that exposure to high levels of HAAs in drinking water over many years may increase a person's risk of getting cancer. In early studies, exposure to HAAs in drinking water showed a possible association with human reproductive and developmental problems. However, recent studies have not found this association.

**How might I be exposed to HAAs?**

The major route of exposure is through ingestion of chlorinated drinking water. Skin contact with chlorinated water is not a major route of exposure because HAAs are not easily absorbed through the skin.

**Are there tests that can be done to tell if a person has been exposed to HAAs?**

Yes. Special blood and urine tests can show if a person has been exposed to high levels of HAAs or HAAs metabolites (breakdown products). However, HAAs and their metabolites cannot be detected in the blood or urine when a person has been exposed to low levels of HAAs over a long period of time.

**Is there any drinking water standard to protect people from exposure to HAAs?**

Yes. To protect human health, the U.S. Environmental Protection Agency (EPA) has established an acceptable maximum HAAs level for public drinking water. This level is called the HAAs maximum contaminant level (MCL) and is measured in parts per billion (ppb). The HAAs MCL is 60 ppb for public drinking water. Public drinking water with HAAs MCL measurements below this level is considered safe to drink.

**What happens if HAAs levels are above the standard?**

The EPA requires public water systems to test drinking water for HAAs on a regular basis. If a certain number of samples exceed the acceptable maximum HAAs level, the public water system must take corrective actions to reduce the levels of HAAs.

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**Where can my physician or I get more information on HAAs?**

For more information about health effects of HAAs:

Virginia Department of Health  
Division of Public Health Toxicology  
109 Governor Street  
Richmond, VA 23219  
(804) 864-8182

<http://www.vdh.virginia.gov/epi/publichealthtoxicology/index.asp>

For advice and information about drinking water treatment methods:

Virginia Department of Health  
Office of Drinking Water  
109 Governor Street  
Richmond, VA 23219  
(804) 864-7500

<http://www.vdh.virginia.gov/drinkingwater>

**Prepared by:** Ram K. Tripathi, Ph.D.  
Toxicologist  
Division of Public Health Toxicology  
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