

HALOACETIC ACIDS

What are haloacetic acids?

Haloacetic acids (HAAs) are compounds containing chlorine and/or bromine. They form during some industrial processes and when drinking water supplies and wastewater are disinfected.

Where can HAAs be found and how are they used?

They can be found in pharmaceutical manufacturing facilities, in water that has been disinfected, and in paper mills that bleach wood pulp.

How can people be exposed to HAAs?

You could be exposed to HAAs through:

- **Drinking** water containing HAAs. Exposure can also occur by eating food prepared with such water.
- **Touching** water containing HAAs, such as while showering.
- **Eye Contact** by touching the eyes with water containing HAAs.

How do HAAs work and how can they affect my health?

Breathing HAAs can cause death by severely damaging tissues of the throat, lungs, and upper respiratory tracts. Breathing HAAs could cause a burning feeling, coughing, wheezing, sore throat, and shortness of breath. You could also have a headache or nausea.

Swallowing HAAs can be fatal because the compounds severely burn the mouth, throat, and stomach. Other harmful effects are sore throat, vomiting, or diarrhea.

The levels of HAAs in drinking water are well below levels that would be harmful. Some people who drink water containing HAAs at higher than normal levels over many years may have a higher risk of getting cancer.

Skin contact can cause redness, pain and severe burns. Eye contact can cause blurred vision, redness, pain, and severe burns.

Long-term exposure to HAAs causes liver and kidney problems. Persons with lung disease may experience more harmful effects.

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DPH 24/7 Contact Number: 1-888-295-5156

How is HAA poisoning treated?

There is no treatment just for HAA poisoning. Doctors can treat the symptoms.

What should I do if exposed to HAAs?

- **If you breathe HAAs**, move to fresh air. If breathing is difficult, give oxygen. Get medical help right away.
- **If you swallow HAAs**, DO NOT THROW UP. Take large quantities of water. Get medical help right away.
- **If you touch HAAs**, flush skin with plenty of water for at least 15 minutes. Remove clothing and shoes that contacted HAAs. Get medical help. Wash clothing before wearing again.
- **If you get HAAs in your eyes**, flush eyes right away with water for 15 minutes or more. Lift the lower and upper eyelids from time to time. Get medical help right away.

What factors limit use or exposure to HAAs?

Using proper safety procedures in workplaces will help limit exposures.

Is there a medical test to show whether I've been exposed to HAAs?

There is no test that can show exposure to HAAs; a doctor will check for symptoms.

Technical information for HAAs

CAS Number: Monochloroacetic Acid – 79-11-8

Chemical Formula: CH_2ClCOOH

Dichloroacetic Acid – 79-43-6, $\text{C}_2\text{H}_2\text{Cl}_2\text{O}_2$

Trichloroacetic Acid – 76-03-9, CCl_3COOH

Bromoacetic Acid – 79-08-3, $\text{C}_2\text{H}_3\text{BrO}_2$

Dibromoacetic Acid – 631-64-1, $\text{C}_2\text{H}_2\text{Br}_2\text{O}_2$

Carcinogenicity (EPA): Possible carcinogens.

MCL (Drinking Water): The MCL for HAAs is 0.06 mg/L

OSHA Standards: There are no OSHA standards for any of the HAAs.

NIOSH Standards: 1 ppm (7 mg/m³) time weighted average for a 10-hour day, 40-hour week.

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Resources

American Conference of Governmental Industrial Hygienists (ACGIH). 2003. *Guide to Occupational Exposure Values*. Cincinnati, OH.

NIOSH Pocket Guide to Chemical Hazards. 2003. Atlanta, GA: U.S. Department of Health and Human Services.

Environment Canada, Science and the Environment Bulletin, "Haloacetic Acids in the Environment".