

Frequently Asked Questions about Trihalomethanes (THMs) in Drinking Water

What are THMs?

THM stands for trihalomethanes, which are chemical compounds that can be formed when water is disinfected with chlorine. THMs are created when chlorine reacts with organic matter such as decaying vegetation in water, and for this reason are more common in surface water supplies.

Is there a drinking water guideline set for THMs in drinking water?

The acceptable level, or guideline, for THMs in drinking water in Canada is set by Health Canada. The new Canadian drinking water guideline for total THMs is 100 micrograms of THMs per litre of water ($\mu\text{g/L}$). Total THM's include chemical compounds such as chloroform, bromodichloromethane (BDCM), dibromochloromethane (DBCM) and bromoform.

What are the potential problems of having high THMs in drinking water?

There is concern among experts in Canada that THMs, including BDCM, may pose a risk in the development of bladder and other types of cancer. While some research has also suggested that THM's could cause adverse birth outcomes, the most recent and complete research shows that low levels of trihalomethanes in drinking water do not cause reproductive effects in people.

How are you exposed to THMs in drinking water?

Exposure to THMs occurs when drinking tap water contains these chemical compounds. Showering, bathing and other water use activities can also contribute to an individual's total exposure. For example, THMs can evaporate from the tap and be inhaled during showering, or they can be absorbed through the skin during bathing. These routes of exposure have been considered in the guideline setting process. Water that meets the total THMs and BDCM guidelines is considered safe for all domestic uses, including drinking, bathing, showering and food preparation.

Should pregnant women take special precautions?

While THMs may be a contributing factor to birth outcomes, the evidence is inconsistent, so considering risk from THMs is done on a precautionary basis. In contrast, there are several other risk factors such as smoking or alcohol consumption where the evidence is compelling and controlling those exposures must be a priority. However, Environmental Public Health still recommends that pregnant women be aware of the THM levels in their water, and take reasonable steps to reduce their THM intake.

If I'm worried about THM levels in my water supply, what can I do?

The easiest way to reduce or eliminate THMs in drinking water is to use a water pitcher with a carbon filter, install a tap-mounted carbon filter, or to use bottled water. When using a filter, check to verify that it is certified to remove THMs and follow replacement instructions recommended by the manufacturer. Individuals may also want to keep the length of time spent in showers or baths to a minimum in areas with elevated levels of THMs and BDCM in drinking water.

Why don't we simply stop chlorinating our drinking water?

Without adequate disinfection of our water supplies, the health risks from micro-organisms would be certain and unacceptable, as the continuing death toll in the developing world proves. The possible risks from THMs are very uncertain and they are regulated primarily as a precautionary measure. Drinking water is disinfected with chlorine to kill bacteria and viruses that can cause serious illnesses and deaths. In fact, chlorination of drinking water has virtually eliminated typhoid fever, cholera and many other diseases; it represents one of the greatest achievements of public health protection.

Can THMs be eliminated at the source?

The province is working with municipalities to develop strategies for reducing THMs, including further treatment at the source. Research continues on new treatment methods that will reduce the levels of by-products while maintaining sufficient levels of disinfection to kill micro-organisms.

What level does our community have?

Levels normally vary within a single water supply depending on the season, water temperature, amount of natural organic matter in the water, pH, amount of chlorine used, time in the distribution system and other factors. For information regarding the most recent THM and BDCM levels in your community's tap water, you can contact Alberta Environment by dialing 780-427-2700 (toll free by first dialing 310-0000). You can also contact your local water utility or municipality regarding levels of these chemicals.

How do I test for THMs in my drinking water?

Individuals on municipal water supplies do not need to have their water supply tested. Alberta Environment requires municipalities to regularly monitor water quality. If you have a private well that does not mix chlorine with the water, there should be no need to test for THMs. However, if you wish to have your water tested, please contact laboratories offering chemical analyses to find out what kind of bottle to use and how to properly collect a water sample.

Where can I find more information on THMs or other DBPs?

- American Water Works Association. 2006. Disinfection by-products. <http://www.drinktap.org/consumerdnn/Default.aspx?tabid=68>
- Health Canada. Aug 2005. It's Your Health - Drinking Water Chlorination. http://www.hc-sc.gc.ca/iyh-vsv/environ/chlor_e.html
- Health Canada. May 2006. Guidelines for Canadian Drinking Water Quality: Guideline Technical Document - *Trihalomethanes*. http://www.hc-sc.gc.ca/ewh-semt/pubs/water-eau/doc_sup-appui/trihalomethanes/index_e.html

For more information contact Alberta Health Link at 1-866-408-LINK, or your local community health centre at one of the locations listed below.

Airdrie

Airdrie Public Health Centre
604 Main Street South
Airdrie, AB T4B 3K7
Phone: 403-912-8400
Fax: 403-912-8432

Banff

Banff Health Centre
303 Lynx Street
PO Box 1266
Banff, AB T1L 1B3
Phone: 403-762-2990
Fax: 403-762-5570

Calgary/Mountain View/Rocky View

Calgary Health Region, *Southport*
10101 Southport Rd SW
Calgary, AB T2W 3N2
Phone: 403-943-2288
Fax: 403-943-8056

Canmore

Canmore Public Health
#104, 800 Railway Avenue
Canmore, AB T1W 1P1
Phone: 403-678-5656
Fax: 403-678-5068

Claresholm

Claresholm Public Health
5221 2nd Street W
PO Box 1391
Claresholm, AB T0L 0T0
Phone: 403-625-4061
Fax: 403-625-4062

Didsbury

Didsbury Health Unit
PO Box 130
1210 -20th Avenue
Didsbury, AB T0M 0W0
Phone: 403-335-7292
Fax: 403-335-7610

Okotoks

Okotoks Public Health Centre
11 Cimarron Commons
Okotoks, AB T1S 2E9
Phone: 403-995-2600
Fax: 403-995-2639

Strathmore

Public Health Building
650 Westchester Road
Strathmore, AB T1P 1H8
Phone: 403-361-7200
Fax: 403-361-7244