

### **Acknowledgement:**

This Fact Sheet is one of a series developed by an Interagency Committee with representatives from Saskatchewan Ministry of Health, Regional Health Authorities, Saskatchewan Watershed Authority, Saskatchewan Ministry of Environment, Saskatchewan Ministry of Agriculture, Agriculture and Agri-Food Canada – PFRA and Health Canada.

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# **Trihalomethanes (THMs)**

(For Private Water and Health Regulated Public Water Supplies)

## **What Are Trihalomethanes?**

Trihalomethanes are chlorinated organic compounds. The four most common THM compounds typically found in water are chloroform (CHCl<sub>3</sub>), bromoform (CHBr<sub>3</sub>), bromodichloromethane (CHBrCl<sub>2</sub>) and dibromochloromethane (CHBr<sub>2</sub>Cl). THM compounds are also manufactured synthetically and primarily are used as solvents.

## **How Do Trihalomethanes Get Into Water?**

Chlorine, which is added to drinking water to remove bacteria, can react with dissolved organic matter that exists in most natural waters to produce THM compounds. Since this occurs as a result of the disinfection process, THMs are referred to as disinfection by-products.

Chloroform has the highest solubility in water of the four THMs and is usually present in the highest concentration in drinking water. Increases in temperature, pH or free chlorine all contribute to an increased likelihood for THM formation. The presence of bromide in a water supply can influence the type of THM formed.

## **How Do Trihalomethanes Affect My Health?**

Prolonged consumption of drinking water containing high levels of trihalomethanes has been linked with diseases of the liver, kidneys, bladder, or central nervous system, and may result in an increased likelihood of cancer. A small risk exists for THM exposure via inhalation while showering, bathing or washing clothes and dishes.

## **How Can I Remove Trihalomethanes From My Drinking Water?**

The most effective method of removing THMs is to reduce their formation by removing the organic compounds prior to disinfection. Organic material can be removed by coagulation and filtration. Professional advice should be sought for other treatment methods.

To remove THMs after formation, use aeration or at the point of use specialized membrane contact technology. Certain types of activated carbon filters can also be used to reduce but not eliminate THM compounds.

## **What Is The Standard For Trihalomethanes In Drinking Water?**

Saskatchewan's Drinking Water Quality Standards and Objectives and Health Canada's Guidelines for Canadian Drinking Water Quality both establish an interim maximum acceptable concentration (IMAC) of 100 µg/L for total THMs in drinking water, based on the annual average from 4 seasonal samples. This standard refers to the total concentration of the 4 most common THM compounds identified earlier.

## **How Can I Find Out If There Are Trihalomethanes In My Water?**

Sample collection for THM analysis requires specialized collection bottles available from most water quality testing laboratories. The testing methods used to detect THM levels have to be extremely sensitive and are relatively complex, consequently testing charges for a THM analysis are high in comparison with other commonly tested water contaminants.

Contact the laboratory office for information regarding sample submission. If using the Saskatchewan Disease Control Laboratory, sample containers are available from the laboratory, local Health Regions, or rural municipalities.

## Need More Information?

### Health Regulated Public Water Supply

For more information on this fact sheet and/or other water quality issues relating to health regulated public water supplies contact your local health region public health inspector.

### Private Water Supply

For more information on how trihalomethanes impact on human health contact your local health region office. For information on how trihalomethanes impact agricultural operations contact Saskatchewan Ministry of Agriculture through your Agricultural Business Centre or the Agricultural Knowledge Centre at 1-866-457-2377 or on the internet (<http://www.agriculture.gov.sk.ca/AKC>).

<p><b>Government of Saskatchewan</b> Water Information website <a href="http://www.SaskH2O.ca">www.SaskH2O.ca</a></p>	<p><b>Water Inquiry Line</b> Questions about water? Call 1-866-SASK H2O (1-866-727-5420) to be referred to proper agency.</p>
<p><b>Saskatchewan Ministry of Health</b> <a href="http://www.health.gov.sk.ca/environmental-health">http://www.health.gov.sk.ca/environmental-health</a></p> <p><b>Regional Health Offices</b> Saskatoon: Saskatoon (306) 655-4605 Sunrise: Yorkton (306) 786-0600 Kelsey Trail: Melfort (306) 752-6310 Five Hills: Moose Jaw (306) 691-1500 Sun Country: Weyburn (306) 842-8618 Heartland: Rosetown (306) 882-6413 Prairie North: North Battleford (306) 446-6400 Prince Albert Parkland: Prince Albert (306) 765-6600 Cypress: Swift Current (306) 778-5280 Regina Qu'Appelle: Regina (306) 766-7755 Mamawetan Churchill River: La Ronge (306) 425-8512 Keewatin Yatthe: Buffalo Narrows (306) 235-5811</p>	<p><b>Health Canada</b> Website: <a href="http://www.hc-sc.gc.ca">http://www.hc-sc.gc.ca</a> <b>First Nation and Inuit Health – Saskatchewan</b> Phone: (306) 780-6561//FAX (306) 780-7733</p> <p><b>First Nations Environmental Health Providers</b> <i>BTC Indian Health Services Inc.</i> Phone: (306) 937-6700 <i>File Hills Qu'Appelle Tribal Council Health Services</i> Phone: (306) 332-8241 <i>Meadow Lake Tribal Council, Health and Social Development</i> Phone: (306) 236-8261 <i>Northern Inter-Tribal Health Authority</i> Phone: (306) 765-2421 <i>Prince Albert Grand Council, Health and Social Development</i> Phone: (306) 953-7248 <i>Saskatoon Tribal Council, Health, and Family Services Inc.</i> Phone: (306) 956-6100</p>
<p><b>Saskatchewan Ministry of Health</b> <b>Saskatchewan Disease Control Laboratory, Regina</b> General Inquiry 1-866-450-0000 Phone: (306) 798-2125 // Fax (306) 798-0071 Website: <a href="http://www.health.gov.sk.ca/lab">http://www.health.gov.sk.ca/lab</a></p>	<p><b>Saskatchewan Ministry of Agriculture</b> General Inquiry 1-866-457-2377 Agricultural Operations Regina (306) 787-4680 Irrigation Development Outlook (306) 867-5500 Website: <a href="http://www.agriculture.gov.sk.ca">www.agriculture.gov.sk.ca</a></p>
<p><b>Saskatchewan Watershed Authority,</b> Head Office, Moose Jaw (306) 694-3900 Website: <a href="http://www.swa.ca">www.swa.ca</a> <i>Regional Offices:</i> <a href="http://www.swa.ca/AboutUs/Contact.asp?type=Offices">http://www.swa.ca/AboutUs/Contact.asp?type=Offices</a></p>	<p><b>Prairie Farm Rehabilitation Administration (PFRA)</b> - Agriculture and Agri-Food Canada Website <a href="http://www.agr.gc.ca/pfra/water/intro_e.htm">http://www.agr.gc.ca/pfra/water/intro_e.htm</a> <i>Regional Offices:</i> <a href="http://www.agr.gc.ca/pfra/sask_e.htm">http://www.agr.gc.ca/pfra/sask_e.htm</a></p>
<p><b>Sask Water Corporation</b> Head Office, Moose Jaw Customer Service 1-888-230-1111 Website: <a href="http://www.saskwater.com">http://www.saskwater.com</a></p>	<p><b>Saskatchewan Ministry of Environment</b> Toll-Free 1-800-567-4224 or (306) 953-3750 Spill Emergency Toll-Free 1-800-667-7525 Website: <a href="http://www.environment.gov.sk.ca">http://www.environment.gov.sk.ca</a></p>