

Acknowledgement:

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

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Government of
Saskatchewan

Arsenic

(For Private Water and Health Regulated Public Water Supplies)

What Is Arsenic?

Arsenic is a natural element widely found in soil, bedrock and water. Pure arsenic is a silver-gray or white brittle metal, has no odour and is almost tasteless. Arsenic may be used commercially and industrially – e.g. as alloying agents, in processing of glass and pigment, in pesticides and in wood preservatives.

How Does Arsenic Get Into Water?

Rocks and soil release arsenic into the groundwater, which can be drawn into water wells. Sometimes natural erosion can also introduce large quantities of arsenic into a local water source. Arsenic may enter water supplies through discharge of industrial wastewater and agricultural pollution, or the dissolution of natural arsenic particles in rain, snow or groundwater. Arsenic is also released into the environment through the manufacturing of pesticides and the burning of fossil fuels. It is also a by-product of copper smelting, mining and coal burning.

How Does Arsenic Affect My Health?

Arsenic has been recognized as a human poison since ancient times. A long-term exposure to levels of arsenic above the water quality standard in drinking water increase the risk of bladder, lung, skin, kidney and liver cancer. It can also harm the central and peripheral nervous systems, affect heart functions, damage bloods vessels, and can cause tremors, headaches, numbness, serious skin problems, birth defects and reproductive problems.

Other problems linked to long-term exposure to high levels of arsenic in drinking water include thickening and discoloration of the skin, nausea and diarrhea, decreased production of blood cells, keratosis and peripheral vascular diseases. Arsenic poisoning associated with short term (days/weeks) ingestion of water with high levels of arsenic includes abdominal pain, vomiting, and pain to the extremities and muscles.

How Can I Remove Arsenic From My Drinking Water?

In-house water treatment devices that are capable of reducing arsenic levels in water include reverse osmosis and water distillation units. Other devices, such as Manganese Greensand filters (dioxide-coated) may also be effective, but users should be aware that treatment effectiveness varies with demand and that constant monitoring and maintenance is required. Manganese Greensand filters and reverse osmosis units will remove some, but not all of the arsenic in the raw water. These types of treatment systems must be properly designed and installed, and tests of the concentration of arsenic in the treated water must be conducted on a regular basis. Distillation units will remove all of the arsenic in the raw water. Home treatment systems should carry the National Sanitation Foundation certification for arsenic removal (NSF Standard 58 for reverse osmosis units, NSF Standard 62 for distillation units).

Possible solutions for groundwater users include extending the well casing into a deeper aquifer or drilling a new well into another aquifer. If possible, connection to a public water distribution system should be considered.

What Is The Standard For Arsenic In Drinking Water?

The Health Canada's Guidelines for Canadian Drinking Water Quality has established a maximum acceptable concentration (MAC) of 0.010 mg/L.

How Can I Find Out If There Is Arsenic In My Water?

Most water quality testing laboratories can determine how much arsenic is present in a water supply. For information on sampling instructions and containers, you should contact an accredited laboratory. 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 arsenic impacts on human health contact your local health region office. For information on how arsenic impacts 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>).

Government of Saskatchewan Water Information website www.SaskH2O.ca	Water Inquiry Line Questions about water? Call 1-866-SASK H2O (1-866-727-5420) to be referred to proper agency.
Saskatchewan Ministry of Health http://www.health.gov.sk.ca/environmental-health Regional Health Offices 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	Saskatchewan Watershed Authority, Head Office, Moose Jaw (306) 694-3900 Website: www.swa.ca <i>Regional Offices:</i> http://www.swa.ca/AboutUs/Contact.asp?type=Offices
Saskatchewan Ministry of Health Saskatchewan Disease Control Laboratory, Regina General Inquiry 1-866-450-0000 Phone: (306) 798-2125 // Fax (306) 798-0071 Website: http://www.health.gov.sk.ca/lab	Sask Water Corporation Head Office, Moose Jaw Customer Service 1-888-230-1111 Website: http://www.saskwater.com Prairie Farm Rehabilitation Administration (PFRA) - Agriculture and Agri-Food Canada Website http://www.agr.gc.ca/pfra/water/intro_e.htm <i>Regional Offices:</i> http://www.agr.gc.ca/pfra/sask_e.htm
Health Canada First Nation and Inuit Health Branch, Regina (306) 780-5434 Website: http://www.hc-sc.gc.ca	Saskatchewan Ministry of Agriculture General Inquiry 1-866-457-2377 Agricultural Operations Regina (306) 787-4680 Irrigation Development Outlook (306) 867-5500 Website: www.agriculture.gov.sk.ca Saskatchewan Ministry of Environment Toll-Free 1-800-567-4224 Spill Emergency Toll-Free 1-800-667-7525 Website: http://www.environment.gov.sk.ca