

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, Agriculture and Agri-Food Canada – PFRA and Saskatchewan Environment.

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Government of
Saskatchewan

Total Dissolved Solids

(For Private Water and Health Regulated Public Water Supplies)

What Is Total Dissolved Solids?

Total Dissolved Solids (TDS) usually refers to the mineral content of water, although it can also include dissolved organic material. In essence, TDS is the total amount of material remaining after evaporation of the water. TDS include common salts such as sodium, chloride, calcium, magnesium, potassium, sulphates and bicarbonates.

How Does Total Dissolved Solids Get Into Water?

The most common source of dissolved solids in water is from the weathering of sedimentary rocks and the erosion of the earth's surface. Since many minerals are water soluble, high concentrations can accumulate over time through the constantly reoccurring process of precipitation and evaporation. Groundwater usually has higher levels of TDS than surface water, since it has a longer contact time with the underlying rocks and sediments. In addition to the main inorganic components of total dissolved solids, TDS can come from organic sources such as decaying organisms (plants and animals), urban and agricultural runoff and municipal and industrial effluent discharges. The minerals (salts, such as sodium and calcium bonded to chloride and carbonate) and small amounts of soluble minerals are deposited by the weathering of sedimentary rocks and erosion of the earth's surface. They are water soluble, and may accumulate to high concentrations over time through precipitation and evaporation.

How Does Total Dissolved Solids Affect My Health?

TDS does not directly pose a health risk. However, certain specific ions (e.g. nitrate), that are present in water can pose a direct health risk. High levels of major ions, such as sodium, magnesium, and sulphate, may cause transient diarrhea. Generally, it is aesthetic problems such as taste, odor, and appearance that arise from high concentrations of TDS. These aesthetic problems are often an indicator of corrosiveness, scaling, and ineffectiveness of detergents

Other Considerations

Some laboratories will report "Conductivity" or the sum of ions as an indirect measure of TDS. Conductivity meters are often used in the field to provide an approximate TDS value. The conductivity of the water is a measure of its ability to carry an electrical charge. This is related directly to the concentration of ions in the water, and thereby provides an estimate of the TDS.

How Can I Remove Total Dissolved Solids From My Drinking Water?

In-house water treatment devices are available to remove or reduce TDS. Reverse Osmosis units will remove some, but not all TDS, while water distillation units will remove all TDS. These types of treatment systems must be properly designed, installed and maintained specific to your situation. Home treatment systems should carry the National Sanitation Foundation certification for TDS removal (1-877-867-3435 or info@nsf.org).

What Is The Standard For Total Dissolved Solids In Drinking Water?

The Saskatchewan Ministry Environment's Drinking Water Quality Standards establish an aesthetic objective of 1500 mg/L. For the purposes of Saskatchewan's Drinking Water Quality Standards and Objectives, TDS is based on the summation of the mineral ions $Cl + SO_4 + Ca + Mg + K + Na + NO_3 + CO_3 + HCO_3$.

How Can I Find Out If There Is Total Dissolved Solids In My Water?

Most water quality testing laboratories can determine how much TDS 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 TDS impacts on human health contact your local health region office. For information on how TDS impacts agricultural operations contact Saskatchewan Ministry of Agriculture through your Regional Office or the Agricultural Knowledge Centre at 1-866-457-2377 or on the internet (<http://www.agriculture.gov.sk.ca/AKC>).

<p>Government of Saskatchewan Water Information website www.SaskH2O.ca</p>	<p>Water Inquiry Line Questions about water? Call 1-866-SASK H2O (1-866-727-5420) to be referred to proper agency.</p>
<p>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</p>	<p>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</p> <p>Sask Water Corporation Head Office, Moose Jaw Customer Service 1-888-230-1111 Website: http://www.saskwater.com</p> <p>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</p>
<p>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</p>	<p>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</p>
<p>Health Canada First Nation and Inuit Health Branch, Regina (306) 780-5434 Website: http://www.hc-sc.gc.ca</p>	<p>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</p>