Alberta Health Services

Environmental Public Health

Guide to Interpreting your Drinking Water Chemical Test Results

The laboratory report on the chemical quality of your drinking water sample is attached.

The *Guidelines for Canadian Drinking Water Quality* provide maximum limits for substances in drinking water that can be harmful to your health, such as sodium, fluoride, nitrate and nitrite. For your protection, the maximum limits are set below the levels at which any harmful health effects have actually been observed.

The other chemical quality limits provided below (e.g. total hardness, sulphate and iron) are not significant to health, but describe water quality conditions that are best for various household uses and for aesthetic reasons such as the water's taste, smell, and appearance.

The amount of a substance in your water sample is described as milligrams per Litre (mg/L), which is equivalent to parts per million (ppm).

The test results for Conductivity, Cation/Anion Sum, Ion Balance, % Difference are for laboratory work purposes only.

PARAMETER (limit)	DESCRIPTION
pH (6.5 – 8.5)	A pH above 8.5 may lead to problems with scale formation (mineral deposits) on cookware, plumbing and appliance parts. Corrosion (rusting or eating away) of plumbing and appliance parts may be a problem below pH 6.5.
Sodium (200 mg/L)	Sodium in drinking water should not exceed 20 mg/L for people on sodium-reduced diet (if your doctor told you to cut down on salt). If in doubt consult your doctor. Over 200 mg/L will give water a salty taste, but poses no significant risk to people in good health.
Potassium (No guideline)	Potassium at levels of 50 to 100 mg/L may add to corrosion and scaling problems.
Calcium (No guideline)	Calcium adds to water hardness and is essential for human health.
Magnesium (No guideline)	Magnesium adds to water hardness and is essential for human health. High levels of magnesium can cause a laxative effect (loose stools) in new users.
Total Hardness (80 to 100 mg/L**)**	Water hardness results from the calcium, magnesium, and other minerals that water collects as it moves through the ground. Water hardness is described as follows: soft = 0 to <60 mg/L; medium hard = 60 to <120 mg/L; hard = 120 to <180 mg/L; and very hard = 180 mg/L or more. Soft water can increase corrosion while hard water increases scaling on pipes, water heaters and appliances. Hard water also requires more soap during washing. Water softeners will lower hardness to acceptable levels, but will increase sodium levels (see sodium).
Iron (0.3 mg/L)	At levels above 0.3 mg/L, iron can leave a reddish-brown stain on laundry and plumbing fixtures and produce unpleasant tastes in beverages. High iron levels also cause growth of iron bacteria on parts of the well, water system, and plumbing. Shock chlorination is used to control iron bacteria (shocking your well may have to be repeated every year). In really bad cases, an iron filter may be needed.

Total Alkalinity (No guideline)	Alkalinity is formed by bicarbonate, carbonate and hydroxide. Lower levels of alkalinity can cause corrosion problems while higher levels can cause more scale formation.
Carbonate, Bicarbonate & Hydroxide (No guideline)	Carbonates, bicarbonates and hydroxides are related to water's alkalinity, salinity, and the amount of total dissolved solids. Higher levels of bicarbonates can cause more scale formation.
Chloride (250 mg/L)	Chloride over 250 mg/L may affect the taste of water and beverages. High levels of chloride may also cause either corrosion or scale formation, depending upon what else is in the water. A sudden increase in chloride levels may indicate pollution of your water supply (e.g. from road salt, irrigation drainage).
Fluoride (1.5 mg/L)	Fluoride levels over 1.5 mg/L may increase the risk of dental fluorosis (e.g. white spots on tooth enamel) in children with developing teeth (newborns to age thirteen). Contact your family dentist for information on the correct use of fluoride supplements for children in low-fluoride areas (less than 0.7 mg/L). Fluoride can be removed from drinking water by point-of-use devices such as reverse osmosis or distillation.
Nitrate (10 mg/L) **Nitrite** (1.0 mg/L)	Nitrate and nitrite levels above the limits can cause methemoglobinemia (often referred to as blue baby syndrome) in sensitive people, including pregnant women and infants less than 6 months of age. Nitrates and nitrites decrease the ability of the blood to carry oxygen, which can be life-threatening. Infants and sensitive people should not drink water or eat foods prepared with water that contains levels of nitrates or nitrites above the limit. Agricultural wastes (nitrates are a part of fertilizers) and malfunctioning or poorly designed onsite septic systems are common sources of nitrate and nitrite contamination of water wells. Nitrates and nitrites can be removed by point-of-use devices such as distillation and reverse osmosis.
Sulphate (500 mg/L)	Sulphates can occur naturally in water, or result from the decomposition of plants, animals and organic wastes. Ground water that naturally contains sulphates may also contain sulphate-reducing bacteria which change sulphates to hydrogen sulphide (a gas with a "rotten egg" odour). Sulphate-reducing bacteria can also cause corrosion problems. Aeration or chlorination followed by filtration will reduce hydrogen sulphide in well water. High levels of sulphate may have a laxative effect (loose stools) on new users. Regular users tend to become accustomed to high sulphate levels.
Total Dissolved Solids (TDS) (500 mg/L)	TDS is a measure of minerals in the water. High TDS can cause scaling and affect water's taste and smell. Low TDS can give water a flat taste.

For more information contact

- www.calgaryhealthregion.ca/envhealth
- Calgary Health Link at 403-943-LINK or 1-866-408-LINK
- or your local health centre.