

Interpretation of Chemical Analysis of Drinking Water Recommended Levels

pH	The acceptable range for drinking water is between 6.5 to 8.5. pH measures water acidity or alkalinity. Levels below 6.5 may be corrosive, while levels above 8.5 may create scaling problems and a bitter taste.
CONDUCTIVITY	Most drinking waters have conductivity measurements below 2000 uS/cm. Conductivity is used to determine the total amount of dissolved solids in the water.
SODIUM	<p>There is no apparent hazard to people in good health. Over 200 mg/L is considered high and may cause corrosion of the water supply system particularly if the water is warm and alkaline. For people on salt-restricted diets or those suffering from hypertension, congestive heart failure or heart disease, the recommended limit is 20 mg/L. If in doubt, consult your physician.</p> <p>Note: Water softening devices usually increase sodium concentration, while reverse osmosis and distillation units will reduce it.</p>
POTASSIUM	The recommended limit is 20 mg/L. Levels above 100 mg/L may cause a laxative effect, while levels above 340 mg/L may affect taste.
CALCIUM	The recommended limit is 200 mg/L. Excessive calcium may contribute to the formation of kidney or bladder stones. Calcium also contributes to the hardness of water and may cause problems with laundering, washing and bathing.
MAGNESIUM	The recommended limit is 150 mg/L. Magnesium is a salt that contributes to the hardness and taste of water. Excessive magnesium may give water a bitter taste, but is normally not a health hazard. Water softeners will reduce the level of magnesium in the water.
TOTAL HARDNESS	The most desirable range of hardness is between 80 and 100 mg/L. Water hardness results from the water accumulating calcium, magnesium, and other minerals as it moves through the earth. Total hardness less than 80 mg/L may result in corrosive water, while hardness above 100 mg/L may result in the need for more soap during bathing and laundering. Excessive hardness may also lead to scale deposits in pipes, heaters, and boilers. Water softeners will reduce hardness to acceptable levels, but will consequently increase sodium concentrations (see Sodium.) Hardness values exceeding 500 mg/L are generally unsuitable for domestic purposes without treatment.
IRON	The recommended limit is 0.3 mg/L. Excessive iron may result in staining (reddish brown) of laundry, plumbing fixtures, and even hair. It may also cause undesirable taste in beverages. High iron levels also encourage the growth of iron bacteria. Iron in drinking water is not a health concern unless at extreme levels. Iron removal units will reduce iron concentrations.

TOTAL ALKALINITY	The acceptable limit is 500 mg/L. Excessive alkalinity may cause stomach upset and encrustation of utensils, pipes, and water heaters. High levels can also give a 'flat' taste to the water and cause "itchy" skin when bathing.
CARBONATE	The recommended limit is 350 mg/L. Carbonates are associated with the level of alkalinity. Water may have a "flat" taste.
BICARBONATE	The recommended limit is 1000 mg/L. In high levels, it is often observed as "white bubbles" (sodium bicarbonate.) Excessive bicarbonates contribute to the production of scale in water heaters and kettles.
CHLORIDE	The recommended limit is 250 mg/L. Excessive chlorides give the water a "salty" taste, usually noticeable over 500 mg/L.
FLUORIDE	The recommended limit is 1.5 mg/L. Values over 1.5 mg/L may cause dental fluorosis or mottling of permanent teeth in children between the ages of birth to 13 years. Steps may be taken to reduce the risk of dental fluorosis. For more information, contact the Dental Program through your Community Health Centre.
NITRITE	The recommended limit is 1 mg/L.
NITRATE	The recommended limit is 10 mg/L.
	If these limits are exceeded, human and/or animal waste contamination should be suspected and an investigation carried out to determine the source.
	Nitrite and Nitrate concentrations above the recommended limits are dangerous to pregnant women and pose a serious health threat to infants under 3 months of age because of their ability to cause Methaemoglobinaemia or "Blue Baby Syndrome" in which the blood loses its ability to carry sufficient oxygen. Distillation and reverse osmosis units can remove nitrates and nitrites. Water softeners do not remove nitrates and nitrites. Boiling the water will not remove nitrates/nitrites. To reduce the levels, it is best to eliminate the source of high nitrates/nitrites.
SULPHATE	The recommended maximum concentration is 500 mg/L. Excess sulphate levels may have a laxative effect on new users and produce an objectionable taste. Regular users tend to become accustomed to high sulphate levels. Consult your physician if sulphate levels exceed 500 mg/L.
TOTAL DISSOLVED SOLIDS	Levels less than 500 mg/L are considered good. Total dissolved solids indicate the amount of chemical substances dissolved in the water. At increasing levels, palatability decreases. Levels in excess of 1000 mg/L may produce a bad taste.
CATION/ANION BALANCE	These numbers are laboratory quality control accuracy checks for instrumentation and process.

For more information, please contact your nearest Environmental Public Health Services office.

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