



POTABLE WATER – RECOMMENDED LIMITS

Bicarbonate-Carbonate ($\text{HCO}_3\text{-CO}_3$) - The parameters are commonly reported collectively as causing alkalinity – the capacity to neutralize acid, sometimes to the consumer's benefit. Excessive bicarbonates and carbonates add to the salinity and total solids content of water. They may form scale in heated waters.

Chloride (Cl) – Chloride imparts an undesirable salty taste; a maximum acceptable concentration of 250 mg/L has been established.

Colour - The aesthetic objective limit is 15 true color units (TCU). Colour may be caused by organic matter from plant material (tannins and lignins) or from high levels of iron or other metals.

Electrical Conductivity (EC) - The specific electrical conductance of the water, which is a function of the total dissolved solids (TDS). Conductivity is generally relevant as a laboratory test only.

Fluoride (F) - Fluorides occur naturally in water. Concentration in excess of 1.5 mg/L may cause enamel fluorosis (white or black mottling) on the teeth.

Nitrite and Nitrate Nitrogen ($\text{NO}_2\text{-N}$, $\text{NO}_3\text{-N}$) - Nitrate and nitrite expressed as Nitrogen are the end product of the aerobic stabilization of organic nitrogen. The guideline limit for $\text{NO}_3\text{-N}$ is 10 mg/L. High nitrate concentrations (45 mg/L as Nitrate) have been linked to disease called methemoglobinemia (most commonly found in children), characterized by blood changes and cyanosis (blue babies). $\text{NO}_2\text{-N}$ should not exceed 3.2 mg/L.

pH - A measure of the hydrogen ion concentration in the water. Values between 6.5 and 8.5 are generally acceptable. Corrosion effects may become significant below 6.5 and the frequency of encrustation and scaling problems may be increased above 8.5.

Total Alkalinity - The combined effect of several substances and conditions, primarily the presence of carbonates, bicarbonates and hydroxides. See Bicarbonates-Carbonates. A limit of 500 mg/L generally ensures chemical balance so the water is neither corrosive nor encrusting.

Total Dissolved Solids (TDS) - The total concentration of inorganic or mineral constituents dissolved in the water. Good waters generally have less than 500 mg/L TDS. Palatability decreases with increasing concentrations.

Turbidity - The guideline limit is 1 NTU. High turbidity may reduce efficiency of disinfection process or be an indication of other contamination.

Hardness (expressed as CaCO₃) – Calcium, sodium and magnesium contribute to water hardness, which causes encrustation and excessive soap consumption. Heating and evaporating hard water tends to cause scale deposits. Soft water may result in corrosion. Levels around 100 mg/L (moderately hard) generally provide a proper balance. Waters with hardness greater than 200 mg/L (very hard) are poor and greater than 500 mg/L may be unusable.

Iron (Fe) - At levels above 0.3 mg/L iron stains laundry and plumbing fixtures and causes undesirable tastes in beverages. The precipitation of excessive iron imparts an objectionable reddish-brown colour to the water.

Magnesium (Mg) - Contributes to water hardness.

Manganese (Mn) - Has characteristics similar to iron, the guideline limit is 0.05 mg/L.

Potassium (K) – Causes no adverse effects; concentrations are typically less than 25 mg/L.

Sodium (Na) - A recommended limit for sodium in drinking water is 200 mg/L. Persons suffering from hypertension or congestive heart failure should consult their physicians concerning sodium-restricted diets when concentrations exceed 20 mg/L.

Sulfate (SO₄) - Sulfate occurs naturally in water as a result of leaching from gypsum and other common minerals. Concentrations in excess of 500 mg/L have been known to cause gastrointestinal irritation, catharsis (laxative effect) and objectionable taste.

Total Coliforms – Total coliforms should not be detected (<1 CFU per 100 mL). No consecutive samples from the same site should show presence of total coliform organisms. If total coliforms are detected, it is recommended the sample be retested. All samples should be collected in a sterile container.

E.coli - There should be no *E.coli* detected (i.e. <1 CFU per 100 mL).

Metals – The metals listed below are those commonly analyzed in potable water. Not all metals analyzed have a maximum allowable concentration specified in the Guidelines for Canadian Drinking Water Quality.

Aluminum	0.1 mg/L
Antimony	0.006 mg/L
Arsenic	0.010 mg/L
Barium	1.0 mg/L
Beryllium	Not specified
Bismuth	Not specified
Boron	5.0 mg/L
Cadmium	0.005 mg/L
Chromium	0.05 mg/L
Cobalt	Not specified
Copper	1.0 mg/L
Lead	0.01 mg/L
Lithium	Not specified
Mercury	0.001 mg/L
Molybdenum	Not specified
Nickel	Not specified
Phosphorus	Not specified
Selenium	0.01 mg/L
Silver	Not specified
Strontium	Not specified
Thallium	Not specified
Tin	Not specified
Titanium	Not specified
Uranium	0.02 mg/L
Vanadium	Not specified
Zinc	5.0 mg/L

Published guideline values as per the *Summary Tables of Guidelines for Canadian Drinking Water Quality*, posted March 2007. The summary is updated regularly, and published on Health Canada's website:

http://www.hc-sc.gc.ca/ewh-semt/alt_formats/hecs-sesc/pdf/pubs/water-eau/sum_guide-res_recom/summary-sommaire_e.pdf