

WATER CONTAMINANTS

Bacteria: One third of all wells are estimated to contain bacteria. Some are not harmful, however it is recommended that homeowners have their wells tested every six months. Bacteria can be effectively treated by an ultraviolet disinfection system. "Shocking the well", adding chlorine directly to the well, is often just a temporary solution and must be done properly to be effective.

Coliform Bacteria and E. Coli: Coliform bacteria are a group of thirty bacterial species that are sometimes found in drinking water. E. Coli are a specific type of Coliform that strongly suggest the presence of human or animal waste. In North America, E. Coli (0157:H7), an extremely dangerous strain of E. Coli bacteria, infects more than 80,000 people annually. The acceptable limit for Coliform and E. Coli is zero (or absent), Coliform and E. Coli bacteria can be treated with a chlorine chemi feed system or ultraviolet disinfection.

Hardness: Hardness is dissolved rock and/or metals in water. It is often largely comprised of calcium and magnesium in an ionized form, but can be any one of several rocks or metals. There is no health risk or benefit associated with hardness. Hard water is expensive water in the sense that the harder the water the more soap, detergents, and cleaning products need to be used; hot water costs more to heat; and scale builds up and eventually ruins plumbing, appliances and fixtures. There is no limit set for hardness but you can use the following hardness classification table to determine the degree of hardness present in your water supply. Whatever your level a water softener or conditioner is the method of treatment to remove hardness.

0 to 1 grains per gallon soft, conditioned water
1 to 3.5 grains per gallon slightly hard water
3.5 to 7 grains per gallon medium hard water
7 to 10.5 grains per gallon hard water
over 10.5 grains per gallon extremely hard water

Iron: There is no limit set for iron but as little as .3 mg/L (milligrams per liter) can cause brown staining on fixtures and laundry. Iron can be in several forms in water. Two common forms are dissolved (ferrous) and precipitated (ferric). Precipitated iron can be mechanically filtered out. More commonly it is in the ferrous state and can be removed by a water softener or iron filter.

Lead: Lead is a heavy metal and a cumulative toxin. It accumulates in the body and does not break down. Oftentimes, it is linked to lead solder joints used to connect copper pipes or a lead pipe service connection from the main water supply to the home. The limit for lead is 15 ug/L (micrograms per liter). Lead can be removed using a reverse osmosis drinking water system, certified lead filter, or an exchange system, or a combination of the three. In either case look for a certified listing such as NSF (National Sanitation Foundation) to ensure safety and performance.

pH: pH is the measure of acidity or alkalinity of water. Water has a neutral pH of 7.2. The ideal range for water is 6.5 to 8.5. Below 6.5 it is considered acidic and therefore aggressive and corrosive. Acidic water corrodes copper pipes and lead solder and causes blue green stains. Low pH can be corrected with an acid neutralizer filter or chemi feed system.

Turbidity: Turbidity is usually caused by the presence of suspended material such as clay, silt, finely divided organic material and other inorganic materials. It gives water a cloudy or murky appearance. Turbidity can be treated by mechanical filtration and a variety of media.

Sodium: Sodium levels are set at different limits in different states. Persons with high blood pressure, hypertension or on a low salt diet should consult with a physician before consuming water with a high sodium level. Most waters that contain high levels of sodium are due to water softeners containing sodium chloride. A reverse osmosis system will greatly reduce the sodium level.

Nitrate & Nitrite Nitrogen: Nitrates in water are an indication of human or animal wastes or fertilizers as the potential source, although the specific source is often not known. Higher levels interfere with the blood's ability to absorb oxygen especially in infants and young children. The limit is set at 10 mg/L (milligrams per liter) and can be effectively removed with a certified reverse osmosis system. When considering a reverse osmosis system for nitrate removal look for the specific certification for nitrate removal such as one from NSF (National Sanitation Foundation) to ensure safety and performance.

Manganese: There is no limit set for manganese but as little as .25 mg/L (milligrams per liter) can cause dark brown, blackish stains on fixtures or laundry. Low levels of manganese can be removed with a water softener or iron filter.

Color: Many waters have some coloration that at low levels are not objectionable. Color can be caused by dissolved organic material, decaying vegetation and/or certain inorganic material such as iron or manganese. For example it is the tannin in tea that gives it "color". Treatment varies depending on the source and can involve mechanical filtration, chlorination, or anion exchange systems.