

Explanation of Water Hardness

Many individual and domestic water users are concerned about the hardness of their water. Hard water requires more soap and synthetic detergents for home laundry and washing, and contributes to scaling in boilers and industrial equipment. Hardness is caused by compounds of calcium and magnesium, and by a variety of other metals. Water is an excellent solvent and readily dissolves minerals it comes in contact with. As water moves through soil and rock, it dissolves very small amounts of minerals and holds them in solution. Calcium and magnesium dissolved in water are the two most common minerals that make water “hard”.

The hardness of water is referred to by three types of measurements: grains per gallon, milligrams per liter (mg/L), or parts per million (ppm). Typically, the water produced by Orillia’s Environmental Services and Operations Department is considered “moderately hard” to “very hard”. The table below is provided as a reference.

Water Hardness		
Grains Per Gallon	Milligrams Per Litre (MG/L) or Parts Per Million	Classification
less than 1.0	less than	Soft
1.0 - 3.5	17.1 - 60	Slightly Hard
3.5 - 7.0	60 - 120	Moderately
7.0 - 10.5	120 - 180	Hard
over 10.5	over 180	Very Hard

Often, when you purchase a new dishwasher or washing machine, the manufacturer has recommended settings that depend on the hardness of the water. The table below provides the historical range of “hardness” of water in the Orillia Water System.

Our treatment process at the Water Filtration Plant doesn’t include a process to reduce the hardness level of the water. This can be accomplished by the installation of a water softener at the residence. A traditional water softener exchanges calcium and magnesium with sodium or potassium. Sodium can be a health concern for some people, and a separate un-softened supply for cooking and drinking might be a consideration.

Orillia Water Filtration Plant Water Hardness Scale		
Grains Per Gallon	Milligrams Per Litre (mg/L) or Parts Per Million	Classification
7.3 – 9.9	125 – 175	Moderately Hard to Hard

West Orillia Well Hardness Scale		
Grains Per Gallon	Milligrams Per Litre (mg/L) or Parts Per Million	Classification
17.5 – 24.0	300 – 410	Very Hard

This range of data is taken from 2019 of Finished Water Total Hardness results.