

## WATER HARDNESS IN THE COUNTY OF BRANT MUNICIPAL DRINKING WATER SYSTEMS

The County of Brant’s Airport, Mt. Pleasant, Paris and St. George municipal drinking water systems rely on groundwater (wells) for their drinking water supply. For Cainsville, drinking water is provided by the City of Brantford with the Grand River as the source. Drinking water in these 5 systems is considered to be very hard water.

Water is considered hard when it contains large amounts of dissolved calcium, magnesium and other minerals. The minerals contributing to hardness (mainly calcium and magnesium) are safe to drink but create scale build-up in pipes, appliances, water heaters and on dishes. As a result, residents in areas with hard water often use water softeners to remove the hardness of water.

Water hardness is reported as the amount of calcium carbonate (CaCO<sub>3</sub>) in the water and is measured in milligrams per litre (also referred to as parts per million or ppm) or grains per US gallon (gpUSg) in a range of five classifications:

Classification	Hardness Range	
	Hardness (mg/litre measured as CaCO <sub>3</sub> )	Grains (gpUSg)
Soft	below 17	0 – 1
Slightly hard	17.1 – 60	1 – 3.5
Moderately hard	61 – 120	3.5 – 7
Hard	121 – 180	7.0 – 10.5
Very hard	over 180 mg/litre	over 10.5

Municipal Drinking Water System	Hardness (mg/litre measured as CaCO <sub>3</sub> )	Grains
Airport	306	18.0
Cainsville	375	22.0
Mt. Pleasant	364	21.4
Paris **	684	37-43
St. George	382	22.0

*\*\*Municipal water in Paris is supplied from three different wellfields, each having different water hardness. The hardness of water experienced by consumers will vary depending on which wellfield is in operation and their proximity to the wellfields.*

### How does a softener work?

Traditional water softeners work by ion exchange – they exchange hardness ions (calcium and magnesium) with sodium (salt) ions. When hard water flows through the softener tank it comes in contact with small resin beads that are covered with sodium ions. As the water flows by the sodium ions they are exchanged with hardness ions. Eventually the beads contain nothing but calcium and magnesium and no sodium. The softener then requires regeneration. Knowing the hardness of the water, and following manufacturer’s instructions to set the regeneration cycle helps to ensure efficient softener operation.

### What about drinking water?

Most people prefer softened water for showers and laundry as it helps create soap lathering, but due to the added sodium it’s not recommended for drinking, cooking or watering plants. You can have a separate line or bypass valve installed in your home to supply unsoftened water for drinking, cooking and outdoor use.

### Should I use a water softener?

This is a matter of personal choice. By reducing scale build-up, softeners will extend the life of appliances and improve their efficiency. Soft water also makes lathering easier and reduces spotting and films on bathroom fixtures and dishes. Soft water can also be better for people with skin conditions.

The main reasons you may want to purchase a water softener are:

- To lower energy consumption by reducing scale build-up in water heaters
- To reduce the amount of soap needed to create a lather
- To maintain plumbing fixture appearance and function
- To enjoy the feel of softened water when washing