



## Office of the Ohio Consumers' Counsel

Your Residential Utility Consumer Advocate

# CONSUMERS' FACT SHEET

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# The Ins and Outs of WATER SOFTENING



Drinking water is one of the most important resources to healthy living. Ensuring the water that comes into your home is of good quality is a priority. Every Ohio water consumer has the right to have potable (drinkable) water that is free of harmful levels of impurities like bacteria, viruses, minerals and organic substances. It also should be aesthetically acceptable and free of unpleasant impurities, such as objectionable taste, color, cloudiness and odor.

Often, consumers only have their own senses to determine if the water they receive is perceived as good enough to drink. When water is not deemed to have sufficient quality, consumers may take steps of their own to make the water they use in their homes acceptable. For example, there are inexpensive home testing kits available to check water hardness levels, which can be purchased at local hardware and pool and spa retail stores. Some independent water treatment companies even provide testing services or send water test kits free of charge. If water is hard, an in-

home water softening unit can be used to lessen the hardness of water and the effects it has with everyday use. Before purchasing or renting a water softening unit, check with your water company to determine if they already soften the water at the treatment plant. This would be an important factor in your determination as to whether or not your water needs additional softening to suit your needs.

### **What constitutes hard water?**

Hard water is water that has a high mineral content. The level of hardness is determined by the amount of calcium and magnesium in the water. About 85 percent of the water in the United States is considered hard, according to the U.S. Geological Survey.

### **What are the effects of hard water?**

Hard water is not dangerous to health but can cause potentially costly household problems. Hard water can cause excessive scale build-up inside pipes and water-using appliances that may reduce the life

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The Office of the Ohio Consumers' Counsel (OCC), the residential utility consumer advocate, represents the interests of 4.5 million households in proceedings before state and federal regulators and in the courts.

The state agency also educates consumers about electric, natural gas, telephone and water issues.

For more information, please visit the OCC website at [www.pickocc.org](http://www.pickocc.org).



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of appliances and increase the need for plumbing repairs.

Water that is too hard requires more soap for laundry and washing. It also can cause soap scum to develop in bathtubs and showers. Spotting on dishes and automobiles also may be problematic with hard water. Hard water can cause irritation to the skin and make hair look dull and lifeless.

### **How can hard water be remedied?**

The way to resolve hard water is through a process called water softening. The process of water softening is accomplished by removing some of the calcium and magnesium from the water. There are multiple ways to accomplish softening.

One way is through a process called ion exchange softening. This is the most common way to soften water. During the process, water softening salt is added to the water. This results in the calcium and magnesium ions being exchanged for sodium ions as the water is run through a process to reduce the concentration of hard minerals.

Water also can have its hardness level lowered through reverse osmosis. This process filters out all minerals from the water as it passes through a membrane. This is a much more expensive process than ion exchange softening.

Either process can be utilized by a water company to soften water or consumers may purchase or rent portable units to treat the water directly at their home.

Although there is no standard established for water hardness, the Ohio Environmental Protection Agency recommends a range between 120 to 150 milligrams per liter (7-9 grains per gallon) of total hardness for finished water.

Consumers can contact their water company to determine if it provides water softening treatment and to what hardness level. Water hardness is considered a personal preference, so consumers may want to consider purchasing a water softener if the water company does not soften the water for them or to complement measures that the company already has implemented. Any softening treatment a water company utilizes accompanied by an in-home water softener could have a degenerative effect.

### **Can water be softened too much?**

Fully softened water should be avoided as there are risks that over-softened water will likely cause corrosion in pipes and plumbing fixtures. Water can be softened to as low as 80 mg/L (5 grains per gallon) without any negative side effects, according to the Ohio EPA.

There also may be dietary considerations associated with softened water because of the increased levels of sodium. When very hard water (greater than 10 grains per gallon) is softened, only 20 to 40 milligrams of sodium is added for every 8 ounces of water. For comparison, an 8-ounce glass of low-fat milk contains about 120 milligrams of sodium, a can of diet soda has 20 to 70 milligrams and an 8-ounce glass of orange juice has about 25 milligrams.

Overly-softened water is not recommended for watering houseplants, lawns or gardens.