

## WATER HARDNESS INFORMATION

The Water District delivers drinking water from two sources – treated surface water from the Central Arizona Project canal which originates from the Colorado River, and groundwater pumped locally from the Eastern Salt River Sub-Basin Aquifer, beneath the earth's surface. Using the United States Environmental Protection Agency's categorization of hard water, the water delivered from these two blended sources would be considered **hard water** (greater than 10.5 grains per gallon).

**The following reference is taken from the United States Environmental Protection Agency (EPA) website.**

The "EPA was established on December 2, 1970 to consolidate in one agency a variety of federal research, monitoring, standard-setting and enforcement activities to ensure environmental protection."

Link: [http://publicaccess.supportportal.com/link/portal/23002/23012/Article/18984/Is-hard-water-safe-nbsp-Should-I-get-a-water-softener?\\_ga=1.232890782.1665284769.1380054517](http://publicaccess.supportportal.com/link/portal/23002/23012/Article/18984/Is-hard-water-safe-nbsp-Should-I-get-a-water-softener?_ga=1.232890782.1665284769.1380054517)

### **Is hard water safe? Should I get a water softener?**

Hardness in drinking water is caused by two nontoxic chemicals-usually called minerals — calcium and magnesium. If either of these minerals is present in your water in substantial amounts, the water is said to be "hard," because making a lather or suds for washing is "hard" (difficult) to do. Thus cleaning with hard water is difficult. Water containing little calcium or magnesium is called "soft" water. Water that does not contain enough calcium or magnesium may be "too soft."

***Hard water is not known to cause any adverse health effects.*** However, relatively softer water enhances consumer acceptability. Hardness is primarily caused by the presence of calcium and magnesium in the water. There is no well-defined distinction between hard water and soft water. In general, hardness values of less than 75 mg/L as calcium carbonate (CaCO<sub>3</sub>) represent soft water, and values above 150 mg/L CaCO<sub>3</sub> represent hard water.

With additional questions, you may contact the Safe Drinking Water Hotline toll free at 1-800-426-4791 to speak with an Information Specialist, Monday - Friday, 10:00 am - 4:00 pm Eastern Standard Time.

The Hotline is closed on Federal holidays (except Veterans Day) and the day after Thanksgiving.

The Hotline provides recorded messages in English and Spanish 24-hours a day, seven days a week. Bilingual service is available. An introductory telephone message tells Spanish callers to leave a detailed message.

You can also write to The Safe Drinking Water Hotline:

Safe Drinking Water Hotline  
4606M  
1200 Pennsylvania Ave., N.W.  
Washington, D.C. 20460

You may also contact the Office of Ground Water and Drinking Water:

Office of Ground Water and Drinking Water (4601)  
Ariel Rios Building  
1200 Pennsylvania Avenue, NW  
Washington, DC 20460-0003

Phone: 202-564-3750  
Fax: 202-564-3753

**The following reference is from the Water Quality Association website.**

The Water Quality Association “..*primarily represents the sector of the water treatment industry devoted to treating water on the homeowner's or business-owner's property.*”  
Link: <http://www.wqa.org/Learn-About-Water/FAQs>

**What is hard water?**

Hard water is a common quality of water which contains dissolved compounds of calcium and magnesium and, sometimes, other divalent and trivalent metallic elements. The term hardness was originally applied to waters that were hard to wash in, referring to the soap wasting properties of hard water. Hardness prevents soap from lathering by causing the development of an insoluble curdy precipitate in the water; hardness typically causes the buildup of hardness scale (such as seen in cooking pans). Dissolved calcium and magnesium salts are primarily responsible for most scaling in pipes and water heaters and cause numerous problems in laundry, kitchen, and bath. Hardness is usually expressed in grains per gallon (or ppm) as calcium carbonate equivalent.

The degree of hardness standard as established by the American Society of Agricultural Engineers (S-339) and the Water Quality Association (WQA) is as follows:

Term	Grains per Gallon (gpg)	ppm (mg/L)
Soft	<1.0	<17.0
Slightly Hard	1.0-3.5	17.1-60
Moderately Hard	3.5-7.0	60-120
Hard	7.0-10.5	120-180
Very Hard	>10.5	>180

### **What causes hard water?**

Hardness minerals – calcium and magnesium – are in plentiful supply. While they are not found in their elemental form in the earth, they occur in combination with other elements in an abundance of forms. Common calcium minerals include chalk, limestone, and marble. These substances are chiefly calcium carbonate (CaCO<sub>3</sub>) or mixtures of calcium and magnesium carbonates and other impurities. The hardness in water that is caused by calcium, magnesium, and other cations is usually described in terms of the calcium carbonate equivalent.

### **Additional Water District Specific Background Information:**

Well #5 Water tested on 11/06/2014 resulted in the following:

<b>Constituent</b>	<b>Well #5 ppm (mg/L)</b>	<b>Calculated Grains/Gallon</b>
<b>Total Hardness (as CaCO<sub>3</sub>)</b>	<b>232</b>	<b>13.5</b>
Carbonate Hardness	76	
Non-Carbonate Hardness	156	