

Total Hardness, Calcium, Magnesium & PRIVATE WELLS



What are total hardness, calcium, and magnesium?

Total hardness is a measurement of the amount of dissolved minerals in your water. Hard water has high levels of calcium, magnesium, and other metals. Hardness is often referred to as the ability of your well water to react with soaps.

Calcium and magnesium are natural elements found in rocks deep underground. They contribute to the hardness of your well water.

How do calcium and magnesium get in my private well water?

Calcium and magnesium can enter your private well water from erosion of rocks underground.

How can total hardness, calcium, and magnesium affect my health?

Total hardness is not an essential element, meaning your body does not need it. You can't see or smell total hardness. Total hardness may have a detectable taste.

- Total hardness may cause dry, itchy skin and scalp.

Calcium is an essential element, meaning your body needs it. It helps with bone development, kidney function, metabolism, vascular contraction, blood clotting, muscle contraction and nerve transmission. You can't see or smell calcium. Calcium may have a detectable taste.

- Only people with preexisting conditions, like milk alkali syndrome and hypercalcemia, may be affected by drinking high levels of calcium because it can interfere with the absorption of other essential elements.

Magnesium is an essential element, meaning your body needs it. It helps with energy metabolism, protein synthesis, vascular tone, and insulin sensitivity. You can't see or smell magnesium. Magnesium may have a detectable taste.

- Only people with preexisting kidney problems may be affected by drinking high levels of magnesium because it can cause diarrhea or laxative effects.

What level of total hardness, calcium, and magnesium should I be concerned about?

The **US Environmental Protection Agency** or **NC Department of Environmental Quality** have not developed standards for total hardness, calcium, or magnesium.

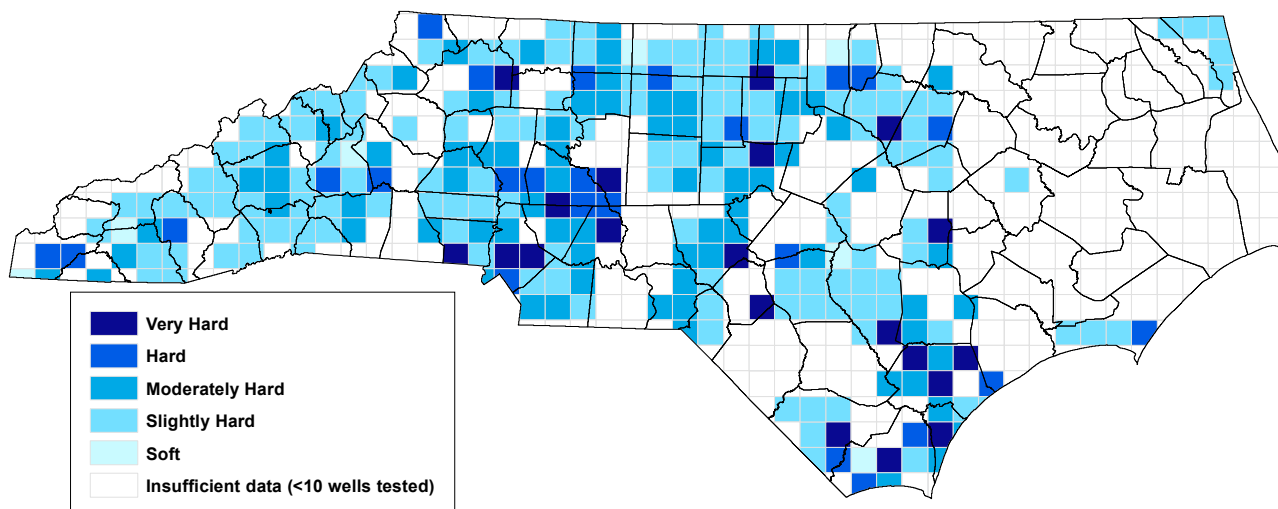
The **World Quality Association** developed a degree of hardness standard:

Degree of Hardness	Milligrams per liter of water (mg/L)
Soft	< 17.0
Slightly Hard	17.1 – 60
Moderately Hard	60.1 – 120
Hard	120.1 – 180
Very Hard	> 180

Hard water can lead to technical effects in the well such as:

- High soap usage
- Mineral deposits on dishes
- Scale build up in sinks, tubs

Private Well Total Hardness, 2011-2013



How do I test for total hardness, calcium, and magnesium in my private well?

You can use a certified lab or buy test kits at your local home improvement store to test for total hardness, calcium, and magnesium. Contact the private well program at your county health department to assist you with getting your water tested. Pricing of testing varies from county to county.

Where is total hardness, calcium, and magnesium found in NC?

Calcium and magnesium contribute to the total hardness in your water. Calcium ranges from 1-400 mg/L and magnesium ranges from 1-600 mg/L in private well water throughout the state. Total hardness in private well water varies across NC (3-2,600 mg/L), see map for areas with hard water.

What if my water is hard?

If you are concerned about the taste of your well water, you can install a treatment system to reduce the levels of total hardness, calcium, and magnesium in your private well.

Cation exchange, also known as a Water Softener, is a treatment system that can reduce the levels of total hardness, calcium, and magnesium in your well water.

Where can I find more information about total hardness, calcium, and magnesium and my well?

Visit the NC Division of Public Health's Private Well and Health Program website: <http://epi.publichealth.nc.gov/oeo/programs/wellwater.html>.

There you can find:

- Contacts for your county private well program
- Total hardness, calcium, and magnesium in well water maps
- A guide for selecting a treatment system
- Other private well resources

You can also call the Private Well and Health Program at 919-707-5900.

Where did this information come from?

World Health Organization: www.who.int/water_sanitation_health/publications/publication_9789241563550/en/

Water Quality Association: www.wqa.org/learn-about-water/perceptible-issues/scale-deposits

