

Safe Well Water RI

Trusted, expert information

Tip Sheet 12



“Tip sheets helped us learn about our well water.”

Get Tip Sheets at www.riwelltesting.org:

- 14 Tip Sheets about harmful substances
- 10 Tip Sheets about treatment choices
- 3 Tip Sheets about other topics of concern

Well water is groundwater, meaning that it comes from the water stored in the earth and rocks below ground. Even though groundwater is *under* the surface, substances *on* the surface, such as gas from a lawnmower or animal waste, can seep down and pollute it. Some natural substances stored in rocks and soil can also affect the smell, taste, color, and safety of well water.

pH of Well Water

pH: The term ‘pH’ refers to a number scale that goes from 0 to 14. The scale rates substances according to whether they are more acidic like lemon juice (2 on the scale) or more basic (alkaline) like soapy water (12 on the scale).

- The neutral point on the scale is 7.
- Water with a pH below 7 is acidic. *Groundwater* with pH below 7 is common in Rhode Island and can lead to problems with the *well* water.

What problems can low pH in well water cause?

Low pH (below 7) means well water is acidic. This is not a health concern, but over time, acidic well water can:

- **Corrode (wear away) household plumbing**
- **Leach metals** such as copper, lead, cadmium, and zinc from the well pump and plumbing system. If these metals are present in amounts higher than levels set by the United States Environmental Protection Agency, they can lead to health problems. See Tip Sheets about copper (5) and lead (8) in well water at www.riwelltesting.org.
- **Change how systems to treat substances in drinking water work.** If your water has low pH (acidic), you may need to adjust it to a more neutral range so other treatment systems work as designed.

What causes pH in well water to be too low (acidic)?

Nature. In Rhode Island, soil and bedrock are naturally acidic. As groundwater passes through them it becomes acidic as well. Remember, groundwater is the source of well water.



How will I know if my well water has low pH?

You may notice:

- Bluish green stains on fixtures with copper plumbing
- Reddish stains with galvanized iron plumbing
- Water system corrosion problems and plumbing leaks

Use a State-certified lab to test your water.

Find a list here: www.health.ri.gov/find/labs/privatewelltesting.

Compare the numbers and letters on your lab test results with the standards (limits) set by the United States Environmental Protection Agency (EPA).

The EPA standard for pH is a Secondary Maximum Contaminant Level (SMCL). SMCL is a water quality standard for *nuisance* substances, not a *health* concern.

EPA limit (SMCL) for pH:

Between 6.5 and 8.5

What can I do about well water with low pH?

Two major solutions:

Solution 1: Install a neutralizing filter containing calcium or magnesium minerals to raise pH. As water passes through the filter, it absorbs some of these minerals. Water with extra calcium or magnesium is called 'hard'.

A neutralizing filter requires care.

- It must be backwashed from time to time to remove solid particles from the water. [Some experts recommend installing a cartridge filter first, to remove solid particles.]
- The calcium or magnesium (sometimes called the neutralizing material or resin) must be replaced from time to time.

Test your water after installing a neutralizing filter.

- Remember, the neutralizing filter will add calcium or magnesium to your water. Levels up to about 120 milligrams per liter (120 mg/L) are fine.
- If levels of calcium and magnesium are higher than 120 mg/L, your water is 'hard'. You may want to install a second treatment system to 'soften' the water. Ion exchange treatment can be used. See Tip Sheet 21 about ion exchange treatment.

Solution 2: Feed a solution of soda ash to the water supply with a chemical feed pump. Soda ash (sodium carbonate), also called washing soda, can be used in a treatment system to raise pH:

- To neutralize larger volumes of water
- To disinfect the water at the same time, since bleach and soda ash may be mixed in a single solution and fed into the water system with the same pump unit.

Important: Before you install a treatment system, call us for expert advice. *Before* you buy a system, ask how it will be installed and whether this costs extra. Get at least 3 price quotes. Learn the questions to ask. See Tip Sheet 16. *After* you buy a system, be sure to:

1. Keep all the paperwork and directions.
2. Learn what you must do to maintain the system and do it.

Learn more

Get Tip Sheets about choosing and buying water treatment systems at www.riwelltesting.org.