

pH & WELL WATER

What is pH?

The pH level of drinking water reflects how acidic it is. pH stands for “potential of hydrogen,” referring to the amount of hydrogen found in a substance – in this case, water. pH is measured on a scale that runs from 0 to 14. Seven is neutral, meaning there is a balance between acid and alkalinity. A measurement below 7 means acid is present and a measurement above 7 is basic or alkaline.

What are the health effects of pH?

The U.S. Environmental Protection Agency (EPA) does not regulate the pH level in drinking water. It is classified as a secondary drinking water contaminant whose impact is considered aesthetic. However, the EPA recommends that public water systems maintain pH levels of between 6.5 and 8.5. Well owners should also use this range as guidance.

Water with a low pH can be acidic, naturally soft and corrosive. Acidic water can leach metals from pipes and fixtures such as copper, lead, and zinc. It can also damage metal pipes and cause aesthetic problems, such as a metallic or sour taste, laundry staining or blue-green stains in sinks and drains.

Drinking water with a pH level of above 8.5 indicates that a high level of alkalinity minerals are present. High alkalinity does not pose a health risk, but can also cause aesthetic problems, such as an alkali taste to the water that makes coffee taste bitter; scale build up in plumbing, and lower efficiency of electric water heaters.

If you suspect contamination or experience illness, stop drinking or cooking with the water immediately, and do not resume use until testing has proven it to be safe. Always seek the advice of your medical doctor if you have any health concerns.

How do I test for pH?

You should test for pH initially and monitor any level found annually thereafter. It is also recommended to test for metals like copper, lead, and zinc, and general chemistry such as boron, chloride, hardness, sodium, sulfates, and turbidity in case treatment is necessary. Contact your state or local health department or use our [interactive map](#) for a list of state-certified laboratories in your area.

What are the treatments for pH in well water?

Two home treatment methods to adjust pH are acid neutralizing filters and chemical feed pump systems injecting a neutralizing solution. An acid neutralizing filter uses a calcite or ground limestone (calcium carbonate) for normal pH correction but could also include a blend of magnesium oxide and calcite, if the pH is very low. Since the water dissolves these minerals when it passes through the filter, the alkalinity and hardness will increase. Hardness is easily treated with a water softener that uses an ion exchange process to remove the hardness minerals.

A chemical feed pump solution is made with well water and soda ash (similar to baking soda) and mixed in a solution tank. The chemical feed pump injects this high pH solution into the household piping system where it reacts with the low pH water in a retention tank (typically 40 gallons) and neutralizes the pH. **Note: Neutralizing with soda ash slightly increases the sodium content of the water which may pose additional health concerns if someone in your household is on a reduced sodium diet. See the [wellcare@](#) information sheet on [Sodium & Well Water](#) for more information.**

Alkalinity, hardness, pH, and sodium should be tested regularly after treatment is installed. In addition, when selecting the pH treatment method, the levels of total dissolved solids (TDS) and carbon dioxide in the water should also be taken into consideration. For example, acid neutralizing filters are not as effective in raising pH when the water contains excessive levels of TDS or carbon dioxide.

If the pH level of the well water is greater than 8.5, you can reduce the effects of excessive alkalinity by installing either a special ion exchange unit designed to reduce alkalinity or a chemical feed pump system that injects a weak acid solution. This procedure is more complicated and beyond the scope of this information sheet. If high pH is a problem, please contact a certified water treatment professional for advice.

These technologies may have a wide range of effectiveness. Look for treatment systems that are certified by [NSF](#) or [Water Quality Association \(WQA\)](#). Certified water treatment professionals can help you select the right treatment. To locate a certified water treatment professional in your area, visit [WQA's website](#).

It is imperative to maintain treatment devices and change filters as specified by the manufacturer or your water treatment professional. You should also retest your water after treatment is installed and after maintenance to confirm the effectiveness of the device.

For More Information on pH and Well Water

Contact your licensed well contractor, local health department, certified water treatment specialist, or the wellcare® Hotline for more information on pH.



Information to help maintain and protect your water well system:

wellcare® is a program of the [Water Systems Council \(WSC\)](#). WSC is the only national organization solely focused on protecting the health and water supply of an estimated 23 million households nationwide who depend on private wells (according to the U.S. EPA).

This publication is one of more than 100 wellcare® information sheets available FREE at www.watersystemscouncil.org.

Well owners and others with questions about wells and well water can contact the wellcare® Hotline at 1-888-395-1033 or visit www.wellcarehotline.org to fill out a contact form or chat with us live!

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By joining the FREE wellcare® Well Owners Network, you will receive regular information on how to maintain your well and protect your well water.

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