

wellcare[®] information for you about

DISINFECTING YOUR WELL

We recommend using a licensed well contractor to perform the disinfection procedure. However, if you must perform the procedure yourself, please use the following instructions and read all cautions before proceeding.

This information sheet is provided as guidance. Please refer to your local or state health department or environmental agency for instructions on disinfecting a well. The instructions provided by local or state environmental agencies supersede the instructions below.

Chlorination disinfects your well by destroying unhealthy bacteria and microorganisms and removing dissolved iron, manganese, and hydrogen sulfide. It can be managed easily at home with common household bleach and food grade white vinegar.

Chlorination uses concentrations of chlorine that are 100 to 400 times the amount found in municipal water supplies. The highly chlorinated water is held in the pipes of your well system before it is flushed out and the system is ready again for use.

When To Disinfect Your Well

You should test your water for bacteria each year, usually in the spring, or if there is any change in the taste, color, or odor of your drinking water.

Other well maintenance activities can also threaten your water supply. Disinfect your well when:

- The well is new. Chlorinate before using.
- The well has been repaired, reconstructed, or new pump or pipes have been added to the water system.
- The well has been flooded or exposed to bacterial contamination in another manner, such as a crack in well cap.

How To Disinfect Your Well

Liquid chlorine in the form of household bleach and food grade white vinegar can be used to disinfect your well. When chlorine is added to water the pH level will rise. Food grade white vinegar is used to lower the water's pH level so the chlorine will work effectively. Make sure to use a new bottle of regular bleach, as it can lose potency over time. **Do not use** splashless bleach, scented bleach, stabilized swimming pool chlorine products, or non-chlorinated "pool shock" products as they are not effective enough to clean drinking water.

Before You Begin

Be careful when handling chlorine solutions. Wear rubber gloves, goggles, and a protective apron. If chlorine accidentally gets on your skin, flush immediately with clean water.



****Caution: Bleach added to water with a pH below 5.0 will release chlorine gas which is toxic. This procedure should be done in a well-ventilated area. Do not mix vinegar and chlorine together above ground.****

Do not pour bleach or vinegar directly on electrical connections or the pitless adapter (if applicable) as this can cause damage to these components.

Determine the amount of water in your well known as Standing Well Volume (SWV). This is accomplished by knowing the total depth of the well and subtracting the depth to water multiplied by the gallons per foot the well can hold. Refer to your well log, use the following table and equation to find the SWV.

$$\text{SWV} = \text{depth of well} - \text{depth to water} \times \text{gallons per foot in well}$$

Well Casing Diameter (inches)	Water Volume Per Foot of Water Depth
4	0.65
6	1.4
8	2.6
10	4.1
12	6

Once you know your SWV, follow the steps below:

- Step 1** Consider the general water quality of your well. High levels of iron, sulfur, or hard water will influence the effectiveness of the disinfection process. Using Table 1 or 2 on the following page, calculate how much liquid chlorine bleach and vinegar you will need.

Table 1: Disinfection Quantities for Average Well Water Quality

NO sulfur, low to moderate bacteria and hardness

Standing Well Volume (gallons)	pH Control (white vinegar) Food Grade	Chlorine Required, min. 5.25% (Sodium Hypochlorite)*
50	1 ½ cups	1 cup
100	3 cups	2 cups
150	1 quart	2 ½ cups
200	5 ½ cups	3 ½ cups
250	6 ½ cups	1 quart
300	8 cups	5 cups
350	½ gal + 1 cup	6 cups
400	½ gal + 2 ½ cups	7 cups

Source: Moravec Water Wells – www.moravecwaterwells.com, prior to note

*Amount of hypochlorite should be at least 5.25%; however, most household bleach now contains 8.25% sodium hypochlorite

Table 2: Disinfection Quantities for Difficult Well Water Quality

HIGH bacteria, iron, hardness, and sulfur

Standing Well Volume (gallons)	pH Control (white vinegar) Food Grade	Chlorine Required, min. 5.25% (Sodium Hypochlorite)*
50	5 ½ cups	3 ½ cups
100	½ gal + 2 ½ cups	6 ½ cups
150	1 gallon	½ gal + 2 cups
200	1 gal + 5 cups	½ gal + 5 ½ cups
250	1 ½ gal + 2 cups	1 gal + 1 cup
300	2 gallons	1 gal + 1 quart
350	2 gal + 5 cups	1 ½ gal
400	2 ½ gal + 2 ½ cups	1 ½ gal + 3 cups

Source: Moravec Water Wells – www.moravecwaterwells.com, prior to note

*Amount of hypochlorite should be at least 5.25%; however, most household bleach now contains 8.25% sodium hypochlorite

- Step 2** Turn the power to the pump OFF. Place any water treatment equipment into the bypass mode. Failure to do so could result in a breakdown of the treatment media.
- Step 3** Remove the cap on the top of the well. Pour the required amount of vinegar followed by the required amount of chlorine into the well in one rapid, continuous flow, **avoiding all electrical connections and pitless adapter if applicable**. Do not mix vinegar and bleach above ground.
- Step 4** Turn the power back ON.
- Step 5** Attach a clean hose to a nearby faucet and place the other end into the top of the well. Open the faucet and recirculate the chlorinated water for one hour, washing down the entire inside of the well casing and pump piping to remove any excess chlorine residue. Turn off the hose and recap the well.
- Step 6** Open each indoor faucet one by one and let the water run until a strong odor of chlorine is detected. Shut off faucet.
- Step 7** Allow the chlorine solution to remain in the well and plumbing system for 8 hours, or overnight.
- Step 8** Flush the entire system until you can no longer smell chlorine. First, run the chlorinated water outdoors, but be careful to avoid areas that drain into lakes or streams because it can kill fish and other aquatic life. The solution can, likewise, kill grass and shrubs, as well as disrupt septic systems. A good choice may be a backyard ditch (make sure the ditch is not connected to a lake or stream) or side area that will partially contain the solution while it is absorbed by the soil.
- Step 9** After the chlorine is out of the system, turn off the outside faucets and turn on the remaining indoor faucets to flush them. Rusty water may come from the faucets, so flush until the water is clear. This should only take a few minutes.
- Step 10** After the entire system has been flushed out, shut down all faucets. Change any water treatment filters and clean water treatment devices separately per the manufacturer's or your water treatment professional's instructions. Once cleaned, put water treatment into service. Chlorination of the water well system is now complete.

Retest your water supply for bacteria at least 2 days after disinfection. If chlorination has not eliminated the bacteria problem, you may need a continuous disinfection system or there may be a problem with the well construction or its location. Contact a licensed well contractor or water treatment professional for guidance. If you need assistance locating professionals in your area, contact the [wellcare® Hotline](#) at 888-395-1033 or [visit our website](#).

For more information on Disinfecting Your Well

Contact your licensed well contractor, local health department, state environmental agency, or the [wellcare®](https://www.wellcare.org) Hotline at 888-395-1033 or by email at info@wellcarehotline.org.



Information to help maintain and protect your water well system:

[wellcare®](https://www.wellcare.org) is a program of the [Water Systems Council \(WSC\)](https://www.watersystemscouncil.org). 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®](https://www.wellcare.org) information sheets available FREE at www.watersystemscouncil.org.

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

JOIN THE WELLCARE® WELL OWNERS NETWORK!

By joining the FREE [wellcare®](https://www.wellcare.org) Well Owners Network, you will receive regular information on how to maintain your well and protect your well water.

Contact us at 1-888-395-1033 or visit www.wellcarehotline.org to join!