



**St. Charles County Government
Department of Community Health and the Environment
Environmental Public Health Program**

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PRIVATE WATER WELLS: DISINFECTION

Purpose The purpose of this document is to assist customers in checking and disinfecting a private water well.

Background Water of uncertain bacteriological quality should be disinfected before used for drinking or in food preparation. Boiling water will kill disease-producing organisms that may be present, but boiling large quantities of water is inconvenient and impractical. It is usually more practical to disinfect a water supply with an *oxidizing* agent such as chlorine.

There are several commercial products that may be used for disinfection water. These include dry chlorinated lime (also called bleaching powder), household bleaches such as Clorox or Purex and calcium hypochlorite compounds such as HTH, Perochloron or B-K Powder.

The amount of chlorine compound required to make water safe varies according to both quality and amount of water to be treated. The general rule is to add enough disinfectant to give the water a distinct chlorine odor and taste. The odor and taste will disappear within a few days following treatment.

Instructions Table 1 lists various chlorine compounds and shows the amount of material ordinarily required to disinfect 1000 gallons of water. A chlorine concentration of five parts per million is sufficient for routine disinfection; a heavily contaminated supply may require up to 50 ppm for complete disinfection.

If a powdered or granular compound is chosen for use, blend the material with water until it becomes a smooth paste. Allow this mixture to settle; then strain the liquid through a finely woven cloth. The disinfectant is then ready to add to the water supply.

If a liquid compound is used, the required amount should be mixed in one or two gallons of water, and poured into the well or cistern. If possible, the water should be stirred to aid distribution of the disinfectant. (This may be accomplished by re-circulating the water back into the well with the use of a garden hose or other method of conveyance.)

After the chlorine compound has been added to the well or cistern, open all faucets and flush all toilets till you smell chlorine. This will disinfect the plumbing.

When disinfecting a deep well, there is a possibility that liquid or powdered material will not reach the bottom of the well in sufficient quantity to be effective. Calcium hypochlorite in tablet form, which will sink to the bottom of the well before dissolving, is preferable in this case. If the well has been flooded or if tests indicate heavy contamination, add enough chlorine material to the well water to establish a chlorine concentration of 50 ppm. The well can be pumped to reduced the chlorine content to a level suitable for drinking (5 ppm), after 12 hours.

If surface drainage or shallow underground water can enter the well, disinfection provides only temporary protection. To permanently safeguard the supply, the well should be reconstructed to protect against further contamination.

Table 1.

Materials	% Chlorine in material	Amount to add per 1000 gal. to produce 50 ppm chlorine	Amount to add per 1000 gal. to produce 5 ppm chlorine
Sodium Hypochlorite (liquid laundry bleaches such as Clorox or Purex)	5.25	1 gallon	1 ½ cups
Sodium Hypochlorite Commercial Strength	12	7 cups	¾ cup
Chlorinated Lime (powder)	25	3 ½ cups	5 tablespoons
Calcium Hypochloride (B.K. Powder)	50	1 ½ cups	2 ½ tablespoons
Calcium Hypochlorite (H.T.H., Perchloron, etc.)	70	1 1/8 cups	2 tablespoons

***Note: 16 tablespoons=1 cup and 256 tablespoons=1 gallon**

**** For materials not listed above, the percent of available chlorine will be found on the label under "active ingredients."**

Table 2: To determine amount of water in well or cistern

CIRCULAR WELL OR CISTERN	
Diameter of well in feet	Gallons of water per foot depth
½	1 ½
1	6
2	24
3	53
4	94
5	147
6	212
7	288
8	376
9	472
10	587
11	710
12	846
RECTANGULAR OR SQUARE CISTERN	
Length x width x water depth x 7 ½ = gallons	

Examples

To disinfect a well a well that measures 1 foot across and has 250 feet of water in it:

First, find the number of gallons of water in the well from Table 2 above.

$$6 \times 250 = 1500 \text{ gallons}$$

Second, determine the material to be used for disinfection and from Table 1 find the amount of material required for each 1000 gallons of water.

For laundry bleaches 1 gallon is required for each 1000 gallons and there are 1 ½ thousand gallons of water in the well, so 1 ½ gallons of laundry bleach are required.

Contact

If you need additional information on water wells contact the Environmental Public Health Program at 636-949-1800.

Source: MO DHSS "Disinfection of Contaminated Wells and Cisterns" (Lab 10-D(R3-02))