

Environmental Health Division • Drinking Water Program
5050 Commerce Drive Baldwin Park, CA 91706-1423
Tel (626) 430-5420 • FAX (626) 813-3016 • Email: waterquality@ph.lacounty.gov

Disinfection of Onsite Water Storage Tanks Best Practices Fact Sheet

This document is intended to inform homeowners and small water system operators on how to disinfect a water storage tank which has potentially been contaminated with harmful bacteria. If you suspect that your water storage tank may be contaminated or are uncertain about the level of contamination, you should obtain an alternative source of drinking water immediately. Bottled water and/or boiled water are a safe alternative for drinking, cooking, dishwashing, personal hygiene and bathing until your water supply is determined to be safe for consumption.

Please contact a California certified laboratory for the appropriate test methods to make sure that your drinking water does not have harmful bacteria. For a list of certified laboratories that are qualified to do such, refer to the State Department of Public Health Environmental Laboratory Accreditation Program (ELAP) testing, at

http://www.waterboards.ca.gov/drinking_water/certlic/labs/index.shtml.

A water storage tank should be disinfected when the following circumstances occur:

- When water quality analysis confirms that well water tested positive for Total Coliform or *E. coli* bacteria
- When the surrounding area near the water storage tank or well has been flooded
- When dead animals or birds have been found in the tank
- When major changes occur effecting the taste and/or odor of the water
- When significant well casing or well pump repairs are conducted

Forms of chlorine that can be used to disinfect a water storage tank

Liquid sodium hypochlorite, commonly known as bleach can be effectively used for water disinfection. **It is important to remember that chlorine is a highly dangerous substance and should be handled by an experienced professional following strict guidelines to make sure the disinfection is done safely and properly.**

The following procedures should be used to disinfect water storage tanks with Hypochlorite Solution (bleach):

1. Drain the tank and clean it thoroughly. A high pressure hose or pressure washer is recommended. Remove loose debris and dirt.
2. Fill the tank with water to a depth of one to three feet.

3. Add hypochlorite solution to the tank. The amount of hypochlorite added to the tank should be sufficient to achieve a minimum of 10 mg/L free chlorine in the water when the tank is filled to its normal operating level. The values given in the table below can be used to determine how much hypochlorite to add to a 10,000 gallon tank depending on the strength of the solution.

Volumes given are not exact, but have been rounded to an even measurement quantity.

Target chlorine concentration (mg/l)	5.25 percent chlorine	12.5 percent chlorine
10	2 gallons	1 gallon
20	4 gallons	1.75 gallons

4. If the water has a higher than normal chlorine demand (such as waters with high iron, manganese, hydrogen sulfide or color), use the amount listed to achieve a 20 mg/L dosage.
5. The amount of chlorine should be adjusted relative to the size of your water storage tank. Thoroughly mix the hypochlorite solution in the tank.
6. Fill tank to its normal operating level and allow the chlorine to sit for 24 hours.
7. Once the free chlorine residual has reached a level of less than or equal to 2.0 mg/l, draw a sample from the tank and have it tested for the presence of total coliform bacteria. If the test for coliform bacteria is negative, the storage tank may be placed back into service.

Note: To reduce the free chlorine level to 2.0 mg/l it is often necessary to add a chemical dechlorination agent such as sodium bisulfate to neutralize the chlorine. As an alternative, the water in the tank may be disposed of and the tank refilled. However, the chlorine residual should be reduced to as close to zero as practical before disposing of the water. **Disposal of chlorinated water by draining it into surface water is illegal.**

For tank sizes other than 10,000 gallons, use the table below to determine how much hypochlorite solution to use to obtain 10mg/L. Double the amount to achieve a 20mg/L dosage.

Tank Volume (gallons)	5.25 Hypochlorite		12.5% Hypochlorite	
	Ounces	Gallons	Ounces	Gallons
500	20		5	
1,000	30		10	
2,000	50		20	
3,000	80		40	

4,000	110		50	
5,000	130	1	60	
10,000	250	2	110	0.8
20,000	510	4	210	1.7
30,000	760	6	320	2.5
40,000	1020	8	430	3.3
50,000	1270	10	530	4.2
100,000	2540	20	1070	8.3

For additional information regarding methods for disinfecting water storage tanks please refer to the American Water Works Association standard (AWWA C652-92) for the disinfection of water storage facilities. This standard is used to define the minimum requirements for the disinfection of water storage tanks, including the preparation of water storage facilities, disinfection procedures with adequate disinfectant levels, and sampling and testing for the presence of bacteria. Disinfecting a potable water storage tank per AWWA standards can be difficult; it is recommended that an experienced professional handle all chemicals used in the disinfection process.

For additional information please refer to the following:

- EPA Safe Drinking Water Hotline 1-800 426-4791
- EPA Drinking Water <http://water.epa.gov/drink/>
- Los Angeles County Department of Public Health, Environmental Health – Drinking Water Program 626.430.5420 or email: waterquality@ph.lacounty.gov