

**CLEANING AND SANITIZING A 400 GALLON WATER TRAILER
IAW TB MED 577.**

10-2. Equipment cleaning, sanitizing, and decontamination

All equipment associated with the purification, storage, and distribution of potable water will be cleaned, sanitized, and inspected by the owning unit and its FST at least quarterly. During noncombat operations, when working in containers large enough to accommodate a person, workers will adhere to standards for working in confined spaces set by the National Institute for Occupational Safety and Health (NIOSH). These standards are presented in NIOSH Publication No. 80-106.

c. Water storage containers larger than 5 gal.

(1) *General information.* Prior to general cleaning, rust and mineral deposits should be removed from metal tanks.

(a) *Rust.* DO NOT use a mechanical grinder or sanding device to remove rust.

These devices will degrade the surface of the tank and cause more rust. To remove the rust in a stainless steel tank, clean the rusted areas with water and scouring powder (NSN 7930-01-423-1147) and a nonmetallic, nylon brush (NSN 7920-00-061-0038). Be sure to flush the tank thoroughly with clean water.

(b) *Mineral deposits.* Mineral deposits on the bottom of the tank can be removed by putting 8 gal of vinegar (NSN 8950-01-079-3978) in the tank, leaving it for 5 to 6 hours, and then emptying and flushing the tank with clean water.

(2) *General cleaning procedures.*

(a) Clean the outside of the water container with water and a stiff brush (soap is recommended, but is optional).

Note: For the 400-gal water trailer, remove the drain plug located beneath the rear portion of the water trailer, and elevate the front of the trailer so the water will flow toward the drain.

(b) Prepare a soap solution by adding 1/3 cup of liquid detergent to 10 gal of hot water.

(c) Thoroughly wash the inside surfaces of the water container with the soap solution and a long handle scrub brush such as the one identified by the NSN 7920-00-061-0038.

(d) Clean the valves and spigots by flushing the soap solution through them. Drain the container by removing the drain plug.

(e) Rinse the container and spigots twice with water (preferably warm water) to completely remove the soap solution.

(f) Sanitize the container prior to filling it with drinking water.

(3) *Sanitizing method 1.* Use this method if both water and the required chemicals are plentiful.

(a) Fill the container full of water with about a 100-mg/L chlorine concentration.

(b) Mix or slosh the solution around so it contacts all the surfaces.

(c) Run some of the solution through the valves and spigots.

(d) Keep all interior surfaces wet with the solution for at least 60 min.

(e) Drain the disinfecting solution into a sanitary sewer or other approved location (not into a lake, stream, or storm drain).

(f) Rinse the container and spigots twice with potable water.

(4) *Sanitizing method 2.* Use this method if either water or the required chemicals are in short supply.

(a) Prepare 5 gal of water with a 100-mg/L chlorine concentration (see table 10-1).

(b) Using a long-handled brush, stick, or rod with a cloth secured to the end (or some other method), swab the interior walls of the tank every 10 min or as often as necessary to keep the walls wet with the solution.

(c) Run some of the solution through the valves and spigots.

(d) Drain the accumulated solution from the container into a sanitary sewer or other approved location (not into a lake, stream, or storm drain).

(e) Rinse the container and spigots twice with potable water.

(5) *Storage.* Upon completion of method 1 or method 2, if the water container is not going to be used for more than 30 days, open the faucets, valve, drain plug, and manhole cover, and allow the tank to air dry. After it is dry, close it up and repeat the cleaning and disinfection procedures prior to using it.

d. Options for making 100 mg/L chlorine water solutions. The mixtures presented in tables 10-1 and 10-2 will result in a concentration in the water of approximately a 100 mg/L chlorine.

Table 10-1

Requirements to make 5 gal of water with an FAC of approximately 100 mg/L (assuming no chlorine demand)

Measurement	Bleach (5 percent)	Dry HTH (70 percent)	HTH Solution (~2.3 percent)
dp	568	n/a	1243
mL	38	1.2	82.8
tsp	8.0	1/4	17
tbls	2.5	0.08	5.6

Table 10-2

Requirements to make 400 gal of water with an FAC of approximately 100 mg/L (assuming no chlorine demand)

Measurement	Bleach (5 percent)	Dry HTH (70 percent)	HTH solution (~2.3 percent)
mL	n/a	92	n/a
tsp	n/a	19	n/a
tbls	n/a	6 (6.2) ¹	n/a
oz	102	3 (3.1)	224
cp	13	0.40	28
pt	6.5	0.20	14
qt	3 (3.2)	0.10	7
L	3	0.10	6.5 (6.6)
gal	0.8	n/a	1.75

Note:

¹More accurate values are shown in parentheses.

Table 10-3

Nomenclature for ordering equipment cleaning and sanitizing supplies

NSN	Item description
7920-00-061-0038	Brush, scrub, plastic Item used to scrub the interior surfaces of water purification, storage, and distribution equipment.
7920-00-753-5242	Pad, scouring, type II, 6 in x 9.5 in x 1/4 in
7930-00-205-0442	Scouring powder, 14-oz can Item used to clean steel and aluminum surfaces of water purification, storage, and distribution equipment.
7930-00-899-9534	Dishwashing compound, 5-gal bottle Item used to prepare a soap solution for cleaning equipment.
6810-00-242-4770	Calcium hypochlorite, technical, 3.75-lb bottle
6810-00-255-0471	Calcium hypochlorite, technical, 6-oz bottle
6810-00-255-0472	Calcium hypochlorite, technical, 100-lb drum
6810-00-598-7316	Sodium hypochlorite, 5-gal bottle

CHLORINATING A 400 GALLON WATER TRAILER (M149/M149A1)

After filling water trailer with POTABLE WATER, perform the following steps:

1. Thoroughly wash hands.
2. Flush the spigots. Test the Free Available Chlorine (FAC) level using the chlorination test kit.
3. If below 2 PPM chlorine, chlorinate as follows:
4. Using half a canteen cup of water add, 3 MRE spoonfuls of calcium hypochlorite (1 Tablespoon) or 22 ampules of calcium hypochlorite.
5. Stir the solution until a slurry mixture is achieved. All of the calcium hypochlorite will not dissolve.
6. Add the slurry solution to the water trailer using a circular motion.
7. Stir the water with a clean, sanitized piece of equipment or clean, sanitized stick, broom handle, etc. or pull the trailer with a truck for adequate mixing.
8. Flush the spigots. Wait TEN (10) minutes.
9. Flush the spigots. Check the chlorine residual. If at least 2 PPM, wait an ADDITIONAL TWENTY (20) minutes contact time and release for drinking.
10. If less than 2 PPM, repeat steps 4-9 using half amount of calcium hypochlorite.

NOTE: When in the field, check chlorine levels every 2 hrs. During the hottest part of the day, check the level EVERY HOUR (due to dissipation of chlorine).

QUESTIONS? Call 531-4861/4757.

Rounded-up volumes of 5 percent liquid bleach that will provide approximately the indicated chlorine dose when added to the listed volume of water

Gallons to be chlorinated	1 mg/L	2 mg/L	5 mg/L	10 mg/L	100 mg/L
5	6 dp	0.75 mL	1.9 mL	3.8 mL	8 tsp
10	0.75 mL	1.5 mL	3.8 mL	1.5 tsp	16 tsp
25	2 mL	3.8 mL	2 tsp	4 tsp	1 cp
36	3 mL	5.5 mL	2.75 tsp	2 tbls	1.25 cp
50	4 mL	1.5 tsp	4 tsp	3 tbls	1.75 cp
100	7.7 mL	3 tsp	3 tbls	5 tbls	3.25 cp
400	2 tbls	4.25 tbs	0.75 cp	1.5 cp	3 qt
500	3 tbls	0.33 cp	1 cp	1.75 cp	1 gal
1000	0.33 cp	0.67 cp	1.75 cp	3.25 cp	2 gal