



# Water In Case of Emergency



## Emergency Water Supply

Health Department and Public Water Safety Officials use many safeguards to protect the sanitary quality of your daily drinking water. However, this protection may break down during emergencies caused by natural disasters and cause the water supply to your home to be cut off or so polluted that it is undrinkable, making stored water your most precious survival item. You may be on your own to provide a safe and adequate water supply. If you have to leave your home, finding and decontaminating water may be a problem. Typhoid fever, dysentery and infectious hepatitis are diseases associated with unsafe water. Do not take the chance. Under serious disaster conditions, NO WATER CAN BE PRESUMED SAFE AND ALL DRINKING AND COOKING WATER SHOULD BE PURIFIED.

## Purifying Drinking Water

For polluted water, strain water through a paper towel or several layers of clean cloth into a container to remove sediment or floating matter.

Boil water vigorously for five minutes to protect from harmful bacteria contamination. (Boiling longer is safer, if you have the heat to spare.)

If boiling is not possible, strain the water as above and treat by adding ordinary liquid chlorine household bleach or Tincture of Iodine to 1 quart of water (see chart). Purchase an eyedropper to add bleach or iodine and keep it for this purpose only. Do not use granular forms of bleach as it is poisonous.

Liquid chlorine bleach loses strength over time, rotate bleach to keep fresh. If bleach is a year old, the amount used should be doubled. Two year old bleach should not be used.

Mix thoroughly by stirring or shaking water in container. Let stand for 30 minutes. A slight chlorine odor will be detectable in the water. If not, repeat the dosage and let stand for an additional 15 minutes before using.

Water purification tablets are available in drug stores and sporting goods stores and are recommended for your first aid kit. 4 tablets will purify 1 quart of water. Water purification tablets have a shelf life of 2 years and lose their effectiveness if allowed to get damp.

DROPS PER QUART

Type of Purifying Agent	Clean Water	Cloudy Water
Liquid Chlorine 4-6% (unscented household laundry bleach)	2	4
Tincture of Iodine 2% (from medicine chest or first aid kit)	5	10

## Preparing and Storing Purified Water

Keep drinking water safe from contamination by storing water in carefully cleaned, non-corrosive, tightly covered containers. Use gallon containers, preferably made of heavy opaque plastic with screw-on caps, empty household bleach bottles are good if clearly labeled. Children should not identify bottles that normally contain a hazardous substance as a container for pure drinking water. Plastic milk bottles are another alternative. They are difficult to wash thoroughly clean and thus all water stored in them must first be treated with the appropriate amount of liquid chlorine bleach (see instructions above). This will ensure that bacteria still in the bottle are destroyed.

## Sterilize the bottles by following the steps below:

1. Wash bottles with soapy water, then rinse thoroughly.
2. Run about 3 quarts tap water in to one of the containers, and then add  $\frac{3}{4}$  cup bleach to the water. Remember, this is still the sterilization process, not the water fit for drinking.
3. Shake well, turning upside down a time or two so that the stopper will be sterilized, too.
4. Let stand for 2-3 minutes, and then put the bleach water into the next container. You can use the same chlorinated water for several containers.
5. Fill bottle with purified water and tightly close with cap or stopper. Label preparation date and mark "Drinking Water Purified."

*Some stored water may develop a disagreeable appearance, taste, or odor, but these properties are not harmful. Inspect your water supply every few months to see whether the containers have leaked or other undesirable conditions have developed. Replace the water if any conditions appear objectionable. If stored water tastes flat after opening, it probably lacks air. To aerate, simply pour the water from one container to another three or four times.*



# Water In Case of Emergency



## Storing Water

Depending on the size of person, amount of exertion, weather and perspiration loss, two quarts per day, minimum, up to one gallon per day, is the amount of drinking water needed for each person in the family. A family of four would thus need at least 14 gallons (and preferable 28 gallons) of pure water as a one-week reserve supply. With careful use, this amount is sufficient for drinking, food preparation and brushing teeth. Additional water for cleaning purposes is desirable if space is available.

In a disaster, water lines are often cracked or broken and impure substances pollute the water. Immediately after a major disaster, prevent contamination to your home water supply by shutting off the valve that leads to the water main. Don't take a chance if the water from your tap is cloudy or has an unpleasant smell. Purify before using!

There are several other sources of liquid if your water is turned off. Water may be drained from the hot water tank, (most hot water tanks hold 30-60 gallons of usable water), dipped from the toilet flush tank (not the bowl) or obtained from melted ice cubes, canned fruit and vegetable juices, and liquid from other canned goods. (Carbonated beverages, alcoholic beverages and beverages with caffeine do NOT meet drinking water requirements.) However, your supply of pure water is by far the best resource.

To use the water in your hot water tank, first turn off the electric or gas supply to the water heater. (Turn off the gas at the intake valve or turn off the electricity at the circuit breaker, or unplug the unit.) Open the drain at the bottom of the tank to retrieve the water. Start the water flowing by turning off the water intake valve and turning on a hot-water faucet. Do not turn on the gas or electricity when the tank is empty. When power is restored and the tank refills with water, turn on the gas or electric to heat the water.

To use the water in your pipes, open (turn on) the faucet at the highest point in your house. This lets air into the plumbing system. Now you can drain the water from the pipes through the lowest faucet in the house. If the main water valve is closed, be sure that gas to heat the water is turned **off** to prevent overheating.

Commercially bottled drinking water is available in sealed plastic containers. Avoid gadgets that claim they purify water. They are designed only for microbiologically safe water.

## Some Additional Notes About Stored Water

Water may be stored for long periods of time, such as 5 years or more, if it does not react with the container or its components. Even though it is heavy, glass is good for this reason. However, polyethylene and polyester (plastic) containers also work well. Be sure that lids do not contain paper components. Polyethylene plastics, such as water, milk and bleach bottles, are somewhat permeable to hydrocarbon vapors, so keep away from stored gasoline, kerosene, pesticides or similar substances.

Water stored for a long time in proper containers may still taste "flat" when opened. Improve the flavor by incorporating air into the water by shaking, or pouring it back and forth between two clean containers.

If the main service valve into the hot water heater is closed, the heater will require venting before water will flow freely. To vent, either open a hot water faucet or disconnect the hot water line at the top of the tank. Drain water from the water heater monthly, allowing it to run until it flows clear to ensure that water remains free of mineral and rust deposits. This will also save on fuel.

If you must use toilet tank water, purify before using (see other side for directions). Do not use chemically "blue" water.

Do not use water stored in vinyl plastic containers, such as waterbeds, for drinking. This plastic may release undesirable chemicals into the stored water.

Use of swimming pool water for drinking water can cause diarrhea due to over-chlorination. Beneficial intestinal bacteria necessary for normal digestion are temporarily destroyed. Use only after other sources of pure water are exhausted.

If you need to seek water outside your home, you can use the sources listed below if you purify the water before using or drinking it. Avoid water with floating material, an odor or dark color.

- Streams, rivers and other moving bodies of water
- Ponds and lakes
- Natural springs
- Rainwater

