

## **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.

During times of serious emergency, the normal water supply to your home may be cut off or become so polluted that it is undrinkable. **A supply of stored water could be your most precious survival item!**

You and your family may then be on your own to provide a safe and adequate water supply. Remember that typhoid fever, Dysentery, and infectious hepatitis are diseases often associated with unsafe water.

**Don't take a chance!** Generally, under serious disaster conditions, **no water can be presumed safe - all drinking and cooking water should be purified.**

Of all the preparedness related areas, this is one of the most important. We take safe drinking water for granted.

After one day (24 hours) without liquid, you are well on your way to dehydration. The symptoms of dehydration are decreased coordination, fatigue, and impaired judgment.

After 2 to 3 days (48 to 72 hours) your kidneys may begin suffering irreversible damage and may stop functioning. It is possible to lose fluid so quickly that the normal thirst mechanism is overwhelmed or overridden.

The loss of fluid comes from urination, perspiration, respiration, and small amounts from defecation (approx. 0.1 liter per day). And with diarrhea can increase to as much as 15 liters over a 24-hour period. The loss of fluid will fluctuate depending on the level of physical exertion, altitude, humidity and the temperature of the air. Everyone should begin storing at least a 72 hours supply of water, and Two weeks supply is a preferred minimum.

### **Required Amounts of Drinking Water Per Person**

A minimum of two quarts and up to one gallon of water is needed per day, depending on the size of the person, the amount of exertion, weather, and perspiration loss. A minimum of seven gallons pure water per person would be needed for a two-week survival supply. With careful rationing, this amount would be sufficient for drinking, food, preparation, brushing teeth, etc. Fourteen gallons per person will allow for hygiene care.

Keep an emergency supply of drinking water in plastic containers. Commercially bottled drinking water is available. It stays pure for months and should have the expiration date clearly marked on it.

There are several other sources of water if your water supply is turned off -- water drained from the hot water tank (usually contains 30 to 60 gallons of usable water, melted ice cubes, canned fruits and vegetable juices, and liquid from other canned goods.)

Storage - A few things to consider when storing water is the amount, the method of storage, type of storage container and the way it is kept clean or purified.

**The Amount:** As stated above, one gallon per person per day is recommended by most experts this amount should be doubled for warmer climates, it should also be increased for large framed people, people with diabetes and other health concerns. This is only the drinking water in an average climate and temperature, and average size person. You will need more water for food preparation and personal hygiene (washing & cleaning). Especially if you are storing dehydrated food. The most accurate way to find out how many gallons you should store, is to monitor your water consumption for a few weeks at different times of the year (one week in the summer, one in the winter for example).

**The method or way you will store the water:** Some people will recommend small containers, 1,3, or 5 gallon, while other will recommend larger ones, 15, 30 or 55 gallon barrels or drums. Each has pros and cons. A gallon of water weighs about 8 pounds making a 55 gallon drum about 440 pounds not including the container. Almost impossible to move if you have to evacuate. But, if you rule out 55 gallon drums, a family of six would require about 165 - one gallon jugs.

Divide the number of gallons by the container size, to get an idea how much room it will take to store this water. For example, if you use one gallon jugs (8 lbs. each) you will need 165 jugs, or you would need 55 - three gallon canisters at about 24 lbs. Each, or 34 - five gallon containers at 40 lbs each, or 12 - 15 gallon barrels at 120 lbs each.

Now you can better understand what you are will best work for you and your family? The 165 gallon jugs would require a lot more storage space than 3-55 gallon drums.

I recommend a combination of both. If you are forced to stay at home you will have what you need with a more efficient use of space, if forced to evacuate you would be able to easily take enough water for three or four days. This should give you enough time to return home later, if allowed, to get more water from your larger containers. If you are not allowed back to your home, you will have enough water to give you three or four days to locate another source for water and you will have there usable containers to keep you going three to four days at a time. This brings us to the next issue. What to store the water in.

**The type of container:** Thin plastic jugs like those used for milk can be used but are not recommended, because they dissolve over time and it is difficult to completely remove the milk residue. keep the drinking water safe from contamination by carefully storing it in clean non-corrosive, tightly-covered containers, preferably made of heavy opaque plastic with screw-on caps. You will also need to sterilize the bottles you intend to use. The heavier the plastic the better. 1, 2 or 3 liter Pop bottles are ok but take up a lot of space. You can also buy water in Mylar bags (usually 5 gal. boxes) these are great for long term storage, but cannot be easily reused. If large barrels or drums are used and stored outside the house. remember the container should be only 2/3 full to allow for expansion if they freeze. You should never use glass or metal containers. Glass may break, and metal may rust and corrodes and may contaminate the water.

#### **How to Prepare and Store Bottles of Purified Water:**

- Wash bottles with soapy water, then rinse thoroughly
- Run about three quarts tap water into one of the containers, and then add 3/4 cup bleach to the water.

- Shake well, turning upside down a time or two so that the stopper will be sterilized also.
- Let the mixture stand for two to three minutes then pour it into the next container. You can use the same chlorinated water for several containers.
- Fill the empty bottle with pure or purified water and seal it tightly close with cap or stopper.
- Label with "Drinking Water -- Purified", and the date of preparation.
- Some stored water may develop a disagreeable appearance, taste, or odor. These properties are not necessarily 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 it becomes contaminated.

**SANITIZE ALL BOTTLES!**  
**1/4 Cup Clorox to 1 Quart Water**

**Methods to purify Water for Drinking**

Treatment method number one and two are the most recommended. I only list the others as secondary methods in case you don't have access or run out of supplies for the first two. There are several ways or purifying water. One of the most important things to remember is to never use heavy polluted or chemically contaminated water. The most common and simple purification methods are not very effective and may not work at all on this water. No matter what method you use, if the water is cloudy, smelly, or otherwise polluted, strain it through a paper towel or several layers of clean cloth into a container in order to remove any sediment or floating matter.

**Chlorine Bleach** - One of the most common talked about way is using house hold chlorine bleach and tap water. Use 1/8th of a teaspoon (8 to 10 drops) per gallon. (Double this amount if the water is not clear or is cloudy) Mix well and let stand at least 30 minutes, After 30 minutes uncap and smell. You should be able to smell a light chlorine bleach odor, if not repeat the above steps again. This should be replaced every six months to 1 year.

**NOTE:** The bleach used should have at least 5.25% sodium hypochlorite. Also, if the bleach is over one year old it loses about 50% of its strength and you should double the amount of drops listed above. Also make sure there are no other detergents, fragrances or phosphates added, as they may not be safe for human consumption. Over chlorination can cause diarrhea, cramps and vomiting. You may also want to pour the purified water from one container to another just before drinking, to help aerate the water. This helps the chlorine gas to escape making the water a little more pleasant to drink. I recommend running the water through a Brita or Pur water filter before drinking. This will also help remove the heavy chlorine taste.

**Boiling**

Bring water to a rolling boil, cover, and then start timing. In researching this method, I found both 5 and 10 minute times recommended. So you decide. I would boil the water for at least 5 minutes. 10 are preferred. Keeping the pot or pan covered so you don't lose much water to evaporation. The water will come to a boil faster. The higher the altitude the longer it will take to get the water to a rolling boil. You may want to pour the water from one container to another to cool and to remove the flat taste you get after boiling water.

**NOTE:** It takes a fair amount of fuel to purify water this way. Also, the higher the altitude the longer it will take to bring the water to a rolling boil.

## **Water Purifiers**

Water purifiers have a wide range in price and functionality. Some are better than others. In this case you usually get what you pay for. **Read the packaging carefully!** Some imply they do more than they really do. But if you read closely you can see through the hype. Your basic purifiers remove some metals, mineral, and some bacteria. Then you step up to removing 99.9% of bacteria, viruses and heavy metals. Some use charcoal, some chlorine, some porcelain and some combine methods. The porcelain types although expensive are used by many military and health organizations. Unlike less expensive models they will take out both alpha and beta radioactive particles also. Visit a few stores or web sites, do a little research, and you should be able to find something that will work well for your budget. A high quality filter system should possess the following characteristics: light-weight; have fewer parts (less to go wrong); a fine pre-filter; a replaceable or clearable filter; tight, well-made pump; high volume output; quick filtration; should screen out organisms over 0.5 microns (0.2 microns is best). A system with all of these features may not be inexpensive, however. The cost will usually reflect reliability as well as technology or design. Always use a filter properly. Always use the clearest water available, allowing suspended matter to settle out. Use a pre-filter if your system has one. Do not let the "outlet" end of filter come in contact with contaminated waste. Be sure the vessel you're pumping into is clean.

## **Stabilized Oxygen**

This is one of the easiest ways I have heard of to purify water. It doesn't have a funny taste, it doesn't have the side effects Chlorine and Iodine have. To purify a glass (8 oz) of contaminated water add 10 to 20 drops of stabilized oxygen (as per label directions). The stabilized oxygen is non-toxic and tasteless and removes chlorine, anaerobic bacteria (i.e. Salmonella, Cholera, Achillea, and Giardia Lamblia) and viruses, which some water treatments won't even touch. It also sustains aerobic organisms (good bacteria needed for good health). One 2 oz bottle has approx 1260 drops or enough to treat 8 to 16 gallons of contaminated water. Using 10 drops per gallon of chlorinated water or 20 drops per gallon of non-chlorinated water will treat between 63 and 126 gallons of water. And the 2 oz bottle is easy to carry in a backpack or 72 hour kit.

## **Tablets - Iodine and Chlorine**

**Iodine** - may also be known as halazone tablets. Use may vary from one manufacturer to another. If instructions are not available the ration is usually 1 tablet to 1 liter or 1 quart of water.

**Chlorine Tablets** - Follow manufacturer's instructions. If they are not available 1 or 2 tablets will usually purify 1 quart or 1 liter of water. Once the tablet has dissolved wait 30 minutes before using. Not all brands of tablets kill all bacteria. When purchasing tables read the labels for shelf life and weather or not it is strong enough to kill Guardia or Cryptosporidium.

**2 % Tincture of Iodine** - similar to the Chlorine Bleach method. Use 12 to 15 drops per gallon. (Double this amount if the water is not clear or is cloudy)

**NOTE:** Iodine may be more difficult to get in large quantities, as it is used in the manufacturing of illegal drugs. Many states have laws, limiting the amount you can legally possess. Also, Iodine has more side effects on young children, the elderly, and nursing or pregnant woman. It should never be used for more than 72 hours as it can cause thyroid problems.

**If you already have thyroid problems you should not drink water treated this way.** During a nuclear crisis iodine may provide the benefit of preventing the thyroid gland from radioactive disruption.