



## THE BASICS OF EMERGENCY HOME WATER STORAGE

In times of emergency or disaster, we can survive just:

- » 3 minutes without air
- » 3 hours without shelter
- » 3 days without water
- » 3 weeks without food

When storing water at home, a three tier system is best suited for a complete and inexpensive emergency water storage plan:

1. **Grab and Run (Bug-Out Bag)** - Store water in small containers that can be carried on your person or in a 72 hour kit, if you have to run or drive to evacuate your home or area.
2. **Bulk Home Water Storage** - Store enough water for your family at your house for a month during a short-term disaster, such as a storm, power outage or water line break.
3. **Water Treatment Method** – Have equipment or a system available that can treat or filter contaminated water and make it safe to drink until normal activities are re-established. It can be as simple as a \$10 straw filter and as complex as a neighborhood dual-process treatment system. A more complex system can provide emergency water for months after a long-term disaster.

### TREATMENT

The CDC states, “The most effective pathogen reduction method in untreated or poorly treated drinking water is a combination treatment, using the appropriate filtration and disinfection methods.” Chlorine

dioxide and a coconut carbon micro filter used in tandem are most effective.

- » Chlorine dioxide kills or inactivates the microorganisms.
- » Coconut carbon removes excess chlorine and associated taste and odor.
- » Micro filtration with cyst removal capability is very important for removing Cryptosporidium or Giardia in surface waters such as lakes and streams.

## PREPARE AN EMERGENCY WATER SUPPLY

CDC Recommends:

- » Store 2 gallons of water per day for each person and each pet. You should consider storing more water than this for hot climates, pregnant women, and persons who are sick.
- » Store at least a two week supply of water for each person and each pet – 28 gallons minimum/person/pet.
- » Store chlorine dioxide or 5.25% unscented liquid household chlorine bleach (rotated annually) to disinfect your water and use for general cleaning and sanitizing.

**Note:** Caffeinated drinks and alcohol dehydrate the body, which increases the need for drinking water.

## WATER CONTAINERS (CLEANING AND STORAGE)

**Use ONLY commercial food-grade water storage containers**

**Before filling with safe water, use these steps to clean and sanitize storage containers:**

- » Wash storage container with dish soap and water and rinse completely with clean water.
- » Sanitize the container by adding a solution made by mixing 1 teaspoon of unscented liquid chlorine bleach per quart of water, or 1 cup bleach in 5 gallons of water for large containers.
- » Cover the container and shake it well so that the sanitizing bleach solution touches all inside surfaces of the container.
- » Wait at least 30 seconds. Then, pour the sanitizing solution out of the container.
- » Let the empty sanitized container air-dry before use OR rinse the empty container with clean, safe water that is already available.
- » Fill the container with clean or treated water using a food quality hose which has been protected from contamination.

### **Avoid using the following containers to store safe water:**

- » Containers that cannot be sealed tightly.
- » Breakable containers, such as glass bottles.
- » Second-hand containers that have ever been used for any toxic solid or liquid chemicals (ie: old bleach containers).
- » Second-hand plastic or cardboard bottles, jugs, and containers previously used to store milk or fruit juice.

### **For proper water storage:**

- » Label container as “drinking water” and include storage date.
- » Keep stored water in a place with a constant cool temperature.
- » Do not store water containers in direct sunlight.
- » Do not store water containers in areas where toxic substances such as gasoline or pesticides are present.
- » Add a barrier between containers and concrete floors. Untreated porous wood such as plywood or 2x4's work well.

### **Treatment**

- » Adding chlorine dioxide as the water is filling the container will assure safety from bacteria throughout the storage process. Carefully follow label directions for mixing and dosing.

### **HOW LONG CAN WATER BE STORED?**

Many sources state that water should be replaced every 6 months. If the following conditions are met, water can be stored 5 years or longer:

- » A good clean food/water quality container is used.
- » A clean contaminant free filling process is used.
- » A tight seal is maintained with the lid.
- » High quality treated water or added treatment is used at the time of filling the container.
- » The container is maintained tightly closed until use.

## FILTRATION AFTER STORAGE

Water stored in plastic containers for long periods of time may contain chemicals which leach out of the plastic into the water. Using a good quality filter before drinking will remove these chemicals producing better tasting, healthier water.

## FILTERS VS PURIFIERS

The difference between filters and purifiers is defined by the EPA: A filter must be capable of “4 Log” contaminant reduction, and a purifier must be capable of a “6 Log” contaminant reduction. 4 Log (simple filtration) means at least 99.99% of contaminants are removed, leaving no more than 1 part per ten thousand of the original contaminant. This “filtration level” of reduction is sufficient for many conditions. The higher “purification” reduction of 6 Log means that >99.9999% of contaminants are removed, leaving no more than 1 part per ten million of the original contaminant (1000x the effectiveness of the “filter” specification). Systems that achieve this “purifier level” of performance provide ultra-pure water not only in normal conditions, but also in circumstances where there is a risk of extreme and highly dangerous contamination.

## LIQUID BLEACH DOSAGE CHART (EMERGENCY ONLY)

Treating Water with a 5-6 Percent Liquid Chlorine Bleach Solution

Volume of Water to be Treated	Treating Clear (possibly contaminated) Water: Bleach Solution to Add	Treating Cloudy, Very Cold, or Surface Water: Bleach Solution to Add
1 quart/1 liter	3 drops	5 drops
1/2 gallon/2 quarts/2 liters	5 drops	10 drops
1 gallon	10 drops	20 drops
5 gallons	½ teaspoon	1 teaspoon
10 gallons	1 teaspoon	2 teaspoons
50 gallons	1/2 ounce (1 Clorox top capful)	1 ounce (2 Clorox top capfuls)