



Water Purification and Storage Recommendations

METHODS OF WATER PURIFICATION:

With water of unknown quality, first filter the water through clean cloth and allow remaining sediment to settle so you can pour off the cleanest water possible (some foreign matter will remain). Then use one of the following methods to purify the water.

1. **Boil water.** Boiling is the surest method to make water safe to drink and kill disease-causing microorganisms like *Giardia lamblia* and *Cryptosporidium*, which are frequently found in rivers and lakes. Boil the water vigorously for one minute (at altitudes above one mile, boil for three minutes).
2. **Add ordinary household chlorine bleach.** Use only unscented chlorine bleach (typically 5.25%) to disinfect water. Refer to the tables below for purification mixtures and wait time. The water should have a slight chlorine odor.
3. **Add tincture of iodine.** Use this 2% mixture in accordance with the table below for purification rates and duration.
4. **Add Betadine® (Povidone-Iodine).** Use this 10% mixture in accordance with the table below for purification rates and duration.
5. **Use iodine or chlorine dioxide tablets, liquid and sweetener products.** There are many commercially available water purification tablets and solutions available. Follow directions on the packaging and ensure the products have not expired.

Water Purification Mixtures

| | | Chlorine Bleach (unscented) | Tincture of Iodine (2%) | Povidone-Iodine (Betadine®) (10%) |
|--------------|-----------|------------------------------------|--------------------------------|--|
| Clear Water | 1 Quart | 2 drops | 5 drops | 3 drops |
| | 1 Gallon | 8 drops | 20 drops | 10 drops |
| | 5 Gallons | ½ tablespoon | | |
| Cloudy Water | 1 Quart | 4 drops | 10 drops | 5 drops |
| | 1 Gallon | 24 drops | 40 drops | 20 drops |
| | 5 Gallons | 1 tablespoon | | |

Purification Wait Time

| Water Clarity | Water Temperature (°F) | |
|----------------------|-------------------------------|------------|
| | 41 | 59 |
| Clear | 30 minutes | 15 minutes |
| Cloudy | 60 minutes | 30 minutes |

- Notes:
- 1) To improve the taste of boiled or chemically treated water, aerate it by pouring it from one container to another and allow it to stand for a few hours.
 - 2) For mixing purposes, a liter and a quart may be considered equal in volume.



6. **Use a water purifier bottle or pump system.** Water purifier bottles can be filled with water and when you drink through the nozzle the water is pulled through a filter system to purify the water. Pump systems use similar technology to pump water directly from the source (lake or stream) into a holding bottle for fresh purified water. These systems typically use a ceramic and/or glassfiber filter along with a carbon filter to provide clean fresh drinking water.

QUANTITY OF WATER NEEDED:

1. In general, science tells us that a human can survive 3 days without water; however, our body needs a minimum of 1 pint of water per day to live for more than four or five days.
2. Most preparedness experts agree that **1 gallon of water per person per day** is adequate when planning your water storage needs.
3. However, more water is better! When you consider first aid needs, regular hygiene, special medical requirements and cooking; you may need more than 1 gal/person/day.

EMERGENCY WATER SOURCES AT HOME:

1. Keep a supply of commercial bottled water in your home (e.g., 5 gallon or 1 liter bottles).
2. Immediately following an earthquake, turn off the water main valve to your home. This will protect water sources in your home (i.e., water heater, toilet tanks*, in-home water pipes, ice makers) in case water mains have ruptured and are contaminated. By opening your faucet of lowest elevation (e.g., ground-floor bathtub, or external hose bib) and your highest elevation faucet, you may be able to drain many gallons of water from home plumbing.
2. Prior to flooding or a hurricane, you should collect an emergency water supply ahead of time into various large storage barrels. However, evacuation may be required so have smaller containers available as well.
3. Swimming pools are a large source of water, but will have a chlorine taste. Use a purifier pump system to transfer the water from the pool into a storage container and remove the chlorine taste.
4. Ice in your freezer can also be melted for additional drinking water.

* Toilet tanks that have had or currently have colored sanitizing agents cannot be used for drinking unless it is filtered through a purifier system.

WATER STORAGE:

1. Use various plastic containers in the kitchen; avoid glass as it breaks and doesn't seal.
2. Portable units are 2 to 5 gallon plastic containers weighing 17 to 42 lbs. when full.
3. Larger immobile water storage barrels can hold 30 to 55 gallons.
4. To preserve the purity of water consider the following:
 - a. Add 1/2 to 1 tablespoon of unscented bleach to each 5 gallon container
 - b. Add 1/2 cup of unscented bleach to a 55 gallon barrel or 1/3 cup in a 30 gallon barrel.
 - c. Commercial "sweeteners" are also available for large barrels to improve water flavor.
5. You may also consider using a pump purification system to extract water from a large storage barrel to eliminate the chlorine odor/taste.