

Purifying Household Water

Water storage and purification is a vital component of disaster preparedness.

Storing Water Safely

- Store water in thoroughly washed plastic, fiberglass, or metal containers that are lined with enamel.
- Never reuse a container that contained toxic materials.
- Plastic containers such as soft drink bottles are best. You can also purchase food-grade plastic buckets or drums.
- Seal water containers tightly, label with date, and store in a cool, dark place.
- Replace water every six months.

Water Purification

- There are many ways to purify water, but none is perfect.
- Boiling and disinfecting will kill most microbes but will not remove other contaminants, such as heavy metals, salts and most other chemicals.
- Before purifying water, let any suspended particles settle to the bottom, or strain them through layers of paper towels or a clean cloth.

Boiling

- Boiling is the safest method of purifying water.
- Bring the water to a rolling boil for at least 5-minutes.
- Let the water cool before drinking.

Distillation

- Distillation involves boiling water and then collecting the vapor that condenses back to water.
- To distill, fill a pot halfway with water. Tie a cup to the handle on the pot's lid so that the cup will hang right side up when the lid is upside down. Make sure the cup is not dangling into the water, and boil the water for 20-minutes. The water that drips from the lid into the cup is distilled.

Disinfection

- You can use household bleach to kill most microorganisms . Use only **regular** household bleach that contains 5.25 percent sodium hypochlorite. Do not use scented or color safe bleaches, or bleaches with added cleaners.
- Add 16 drops of bleach per gallon of water. Stir and let stand for a minimum of 30 minutes. If the water does not have a slight bleach odor, repeat the dosage and let stand another 15 minutes. Cold water should be treated and let stand overnight for maximum treatment effectiveness.

Note: If you are filling a five gallon or larger container, you must still use the 16 drops per gallon method. Do not attempt to convert the drops into any other measure.

- Do not use other agents like iodine or other chemical water treatment products sold in camping stores to disinfect water. These agents may not contain 5.25 percent sodium hypochlorite, which is the only recommended agent to kill most microorganisms.

Note: Household chlorine bleach is not effective in treating water contaminated with either *giardia* (giardia lamblia) or *cryptosporidium*. Both can cause major diarrhea, dehydration, intestinal disorders and even death. Experts estimate that over 63% of water problems in the United States today are directly caused by giardia and cryptosporidium.

Giardia ranges from seven- to fourteen-microns in size and cryptosporidium is from three- to five-microns in size. When the environment becomes inhospitable (e.g., the presence of chlorine), both parasites can go into the cystic form (like a hard, round, impermeable microscopic egg). The cyst form is resistant to chlorine and very hard to kill.

Cryptosporidium is found in approximately 87% of the nation's water supplies. The recommended method of treatment is boiling water or purchase a filtration system capable of filtering out three-microns.