

Water Purification

In addition to having a bad or taste, contaminated water can contain microorganisms that cause disease such as dysentery, cholera, typhoid and hepatitis. You should always purify all water of uncertain purity before using it for drinking, food preparation or hygiene.

There are many ways to purify water, but none are perfect. Usually the best solution is a combination of methods. Before beginning the purification, let any suspended particles settle to the bottom, or strain them through layers of paper towel or clean cloth. Here are some easy purification methods:

- **Boiling** – Boiling is the safest method of purifying water. Bring water to a rolling boil for 10 minutes, keeping in mind that some water will evaporate. Let the water cool before drinking.

Boiled water will taste better if you put oxygen back into it by pouring it back and forth between two containers. This will also improve the taste of stored water.

- **Chlorination** – Chlorination uses unscented liquid chlorine bleach to kill microorganisms. Use these recommendations:
 - For 1 quart water use 2 drops of unscented liquid chlorine bleach. If water is cloudy, use 4 drops.
 - For 1 gallon water use 8 drops of unscented liquid chlorine bleach. If water is cloudy, use 16 drops.
 - For 5 gallons water use $\frac{1}{2}$ teaspoon of unscented liquid chlorine bleach. If water is cloudy, use 1 teaspoon.
 - For 15 gallons water use $1 \frac{1}{4}$ teaspoons of unscented liquid chlorine bleach. If water is cloudy, use $2 \frac{1}{2}$ teaspoons.
 - For 55 gallons water use $4 \frac{1}{2}$ teaspoons of unscented liquid chlorine bleach. If water is cloudy, use 3 tablespoons.

*Note: There are approximately 100 drops in a teaspoon.

Add unscented liquid chlorine bleach to the water, stir and let stand for 30 minutes. If the water does not taste and smell of chlorine at that point, add another dose and let stand another 15 minutes.

If you do not have a dropper, use a spoon and a square ended strip of paper or thin cloth about $\frac{1}{4}$ inch by 2 inches. Put the strip in the spoon with an end hanging down about $\frac{1}{2}$ inch below the scoop of the spoon. Place unscented liquid chlorine bleach in the spoon and carefully tip it. Drops the size of those from a medicine dropper will drip off the end of the strip.

- **Distillation** – Distillation involves boiling water and then collecting the vapor that condenses back to water. The condensed vapor will not include salt or other impurities. To distill, fill a pot halfway with water. Tie a cup to the handle of the pot's lid so that the cup will hang right side up when 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.
- **Fallout Filter** – To make a fallout filter, punch holes in the bottom of a large bucket, and put a layer of gravel in the bucket about 1 $\frac{1}{2}$ inches high. Cover the gravel with a towel cut in a circle slightly larger than the bucket. Cover towel with soil and place the filter over a large container. Pour contaminated water through. Then, disinfect the filtered water using one of the methods, described previously. Change the soil in your filter after every 50 quarts of water.