



EMERGENCY DISINFECTION OF DRINKING WATER

There are two general methods by which small quantities of water can be effectively disinfected. One method is by boiling. It is the most positive method by which water can be made bacterially safe to drink. Another method is chemical treatment. If applied with care, certain chemicals will make most waters free of harmful or pathogenic organisms.

When the home water supply system is interrupted by natural or other forms of disaster, limited amounts of water may be obtained by draining the hot water tank or melting ice cubes. In most cases, ground water is generally the preferred source of drinking water. If it is not available and surface water must be used, avoid sources containing floating material or water with a dark color or an odor.

When emergency disinfection is necessary, the physical condition of the water must be considered. The degree of disinfection will be reduced in water that is clouded. Murky or colored water should be filtered through clean cloths or allowed to settle, and the clean water drawn off before disinfection. Water prepared for disinfection should be stored only in clean, tightly covered, containers not subject to corrosion.

METHODS OF EMERGENCY DISINFECTION

BOILING.

Vigorous boiling for three minutes will kill any disease-causing microorganisms present in water. The flat taste of boiled water can be improved by pouring it back and forth from one container into another (called aeration), by allowing it to stand for a few hours, or by adding a small pinch of salt for each quart of water boiled.

CHEMICAL TREATMENT

When boiling is not practical, chemical disinfection should be used. The two chemicals commonly used are chlorine and iodine.

CHLORINE

CHLORINE BLEACH. Common household bleach contains a chlorine compound that will disinfect water. The procedure to be followed is usually written on the label. When the necessary procedure is not given, one should find the percentage of available chlorine on the label and use the information in the following tabulation as a guide.

Available Chlorine ¹	Drops per quart of clear water ²
1%	10
4-6%	2
7-10%	1

¹ If strength is unknown, add 10 drops per quart of water.

² Double amount for cloudy or colored water.

The treated water should be mixed thoroughly and allowed to stand for 30 minutes. The water should have a slight chlorine odor; if not, repeat the dosage and allow the water to stand for an additional 15 minutes. If the treated water has too strong a chlorine taste, it can be made more pleasing by allowing the water to stand exposed to the air for a few hours or by pouring it from one clean container to another several times.

GRANULAR CALCIUM HYPOCHLORITE. Add and dissolve one heaping teaspoon of high-test granular calcium hypochlorite (approximately 1/4 ounce) for each 2 gallons of water. This mixture will produce a stock chlorine solution of approximately 500 mg/L, since the calcium hypochlorite has an available chlorine equal to 70 percent of its weight. To disinfect water, add the chlorine solution in the ratio of one part of chlorine solution to each 100 parts of water to be treated. This is roughly equal to adding 1 pint (16 oz.) of stock chlorine solution to each 12.5 gallons of water to be disinfected. To remove any objectionable chlorine odor, aerate the water as described above.

CHLORINE TABLETS. Chlorine tables containing the necessary dosage for drinking water disinfection can be purchased in a commercially prepared form. These tablets are available from drug and sporting goods stores and should be used as stated in the instructions. When instructions are not available, use one tablet for each quart of water to be purified.

IODINE

TINCTURE OF IODINE. Common household iodine from the medicine chest or first aid kit may be used to disinfect water. Add five drops of 2 percent United States Pharmacopeia (U.S.P.) tincture of iodine to each quart of clear water. For cloudy water add ten drops and let the solution stand for a least 30 minutes.

IODINE TABLETS. Commercially prepared iodine tablets containing the necessary dosage for drinking water disinfection can be purchased at drug and sporting goods stores. They should be used as stated. When instructions are not available, use one tablet for each quart of water to be purified.

WATER TO BE USED FOR DRINKING, COOKING, MAKING ANY PREPARED DRINK, OR BRUSHING THE TEETH SHOULD BE PROPERLY DISINFECTED.

