Emergency Disinfection of Small Quantities of Drinking Water

There are two general methods by which small quantities of water can be effectively disinfected. One method is 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 water free from harmful or pathogenic organisms.

Filtration Prior to Disinfection

When emergency disinfection is necessary, examine the physical condition of the water. Disinfectants are less effective in cloudy water. Filter murky or colored water through clean cloths or allow it to settle, and draw off the clean water for disinfection. Water prepared for disinfection should be stored only in clean, tightly covered, containers, not subject to corrosion.

METHODS OF EMERGENCY DISINFECTION

Boiling:

- A rolling or vigorous boil for one minute will kill any disease-causing microorganisms present in water.
- Boiling is the recommended treatment for public water supplies in an emergency
- The flat taste of boiled water can be improved by pouring it back and forth from one container to 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 and iodine are somewhat effective in protecting against exposure to Giardia, but may not be effective in controlling Cryptosporidium.
- Chlorine is generally more effective than iodine in controlling Giardia, and both disinfectants work much better in warmer water.
- Use iodine or chlorine only to disinfect well water (as opposed to surface water sources such as rivers, lakes, and springs), because well water is unlikely to contain these disease causing organisms.

Chlorine Methods

Chlorine Bleach:

> ***Do not use chlorine bleach with fragrance added or stabilized chlorine for swimming pool use!***

The procedure to be followed is usually written on the label. When the necessary procedure is not given, find the percentage of available chlorine on the label and use the information in the following tabulation as a guide.

Available Chlorine	Drops per Quart of Clear Water
1%	10
4-6%	2
7-10%	1

(If strength is unknown, add ten drops per quart of water. Double amount of chlorine 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 two gallons of water. The 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 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 tablets 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.

Tincture of Iodine

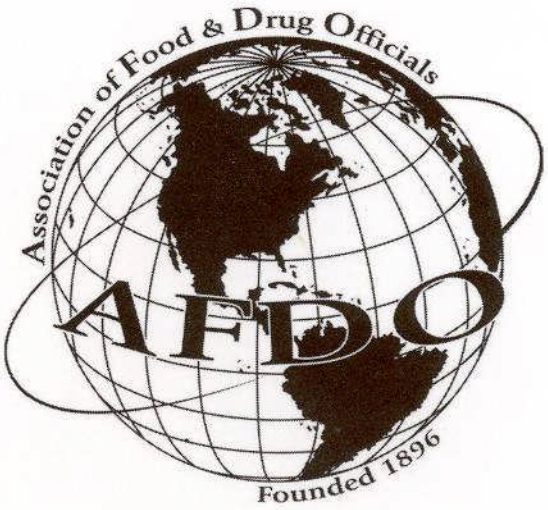
Common household iodine from the medicine chest or first aid kit may be used to disinfect water. Add five drops of 2 percent United States Pharmacopeia (U.S.P.) Tincture of iodine to each quart of clear water. For cloudy water add ten drops and let the solution stand for at least 30 minutes.

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.

Note: water to be used for drinking, cooking, making any prepared drink, or brushing the teeth should be properly disinfected.

FOOD EMERGENCY POCKET GUIDE



The Vision of AFDO

AFDO is an international leader and trusted resource for building consensus and promoting uniformity on public health and consumer protection issues related to the regulation of foods, drugs, devices, cosmetics and consumer products.

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