

Making Water Safe in an Emergency

 [cdc.gov/healthywater/emergency/drinking/making-water-safe.html](https://www.cdc.gov/healthywater/emergency/drinking/making-water-safe.html)

If you don't have safe bottled water and if boiling is not possible, you often can make small quantities of filtered and settled water safer to drink by using a chemical disinfectant such as unscented household chlorine bleach. Disinfectants can kill most harmful or disease-causing viruses and bacteria, but are not as effective in controlling more resistant organisms, such as the parasites *Cryptosporidium* and *Giardia*. (<https://www.cdc.gov/parasites/giardia/index.html>) Chlorine dioxide tablets can be effective against *Cryptosporidium* if the manufacturer's instructions are followed correctly.

To disinfect water with unscented household liquid chlorine bleach:

If the water is cloudy,

1. Filter it through a clean cloth, paper towel, or coffee filter OR allow it to settle.
2. Draw off the clear water.
3. Follow the instructions for disinfecting drinking water that are written on the label of the bleach.
4. **If the necessary instructions are not given**, check the "Active Ingredient" part of the label to find the sodium hypochlorite percentage, and use the information in the following table as a guide. Typically, unscented household liquid chlorine bleach will be 8.25% sodium hypochlorite, though concentrations can be different. Using the table below, add the appropriate amount of bleach using a medicine dropper, teaspoon, or metric measure (milliliters).
5. Stir the mixture well.
6. Let it stand for at least 30 minutes before you use it.
7. Store the disinfected water in [clean, sanitized containers](https://www.cdc.gov/healthywater/emergency/drinking/cleaning-preparing-storage-containers.html) (<https://www.cdc.gov/healthywater/emergency/drinking/cleaning-preparing-storage-containers.html>) with tight covers.

If the water is clear,

1. Follow the instructions for disinfecting drinking water that are written on the label of the bleach.
2. **If the necessary instructions are not given**, check the "Active Ingredient" part of the label to find the sodium hypochlorite percentage, and use the information in the following table as a guide. Typically, unscented household liquid chlorine bleach will be 8.25% sodium hypochlorite, though concentrations can be different. Using the table below, add the appropriate amount of bleach using a medicine dropper, teaspoon, or metric measure (milliliters).
3. Stir the mixture well.
4. Let it stand for at least 30 minutes before you use it.
5. Store the disinfected water in [clean, sanitized containers](https://www.cdc.gov/healthywater/emergency/drinking/cleaning-preparing-storage-containers.html) (<https://www.cdc.gov/healthywater/emergency/drinking/cleaning-preparing-storage-containers.html>) with tight covers.

Making water safe to use with bleach having a 1% concentration of sodium hypochlorite

* If the water is cloudy, murky, colored, or very cold, add double the amount of bleach listed below

1 quart/liter water	1 gallon water	5 gallons water
If you have a dropper: Add 10 drops of bleach	If you have a dropper: Add 40 drops of bleach	If you have a dropper: Add 200 drops of bleach
If you have something that measures milliliters (ml): Add ½ ml of bleach	If you have something that measures milliliters (ml): Add 2½ ml of bleach	If you have something that measures milliliters (ml): Add 12½ ml of bleach
If you have a measuring spoon: Add ⅛ teaspoon of bleach	If you have a measuring spoon: Add ½ teaspoon of bleach	If you have a measuring spoon: Add 2½ teaspoons of bleach

Making water safe to use with bleach having a 4-6% concentration of sodium hypochlorite

* If the water is cloudy, murky, colored, or very cold, add double the amount of bleach listed below

1 quart/liter water	1 gallon water	5 gallons water
If you have a dropper: Add 2 drops of bleach	If you have a dropper: Add 8 drops of bleach	If you have a dropper: Add 40 drops of bleach
If you have something that measures milliliters (ml): Add 0.1 ml of bleach	If you have something that measures milliliters (ml): Add ½ ml of bleach	If you have something that measures milliliters (ml): Add 2½ ml of bleach
If you have a measuring spoon: Amount too small to measure	If you have a measuring spoon: Amount too small to measure	If you have a measuring spoon: Add ½ teaspoon of bleach

Making water safe to use with bleach having an 8.25% concentration of sodium hypochlorite**

* If the water is cloudy, murky, colored, or very cold, add double the amount of bleach listed below

1 quart/liter water	1 gallon water	5 gallons water
If you have a dropper: Add 2 drops of bleach	If you have a dropper: Add 6 drops of bleach	If you have a dropper: Add 30 drops of bleach
If you have something that measures milliliters (ml): Amount too small to measure	If you have something that measures milliliters (ml): Add ½ ml of bleach	If you have something that measures milliliters (ml): Add 2 ml of bleach

1 quart/liter water**1 gallon water****5 gallons water**

If you have a measuring spoon:
Amount too small to measure

If you have a measuring spoon:
Amount too small to measure

If you have a measuring spoon:
Add $\frac{1}{3}$ teaspoons of bleach

**8.25% is the most common household bleach concentration available

Making water safe to use with bleach having an unknown concentration of sodium hypochlorite

* If the water is cloudy, murky, colored, or very cold, add double the amount of bleach listed below

1 quart/liter water**1 gallon water****5 gallons water**

If you have a dropper:
Add 10 drops of bleach

If you have a dropper:
Add 40 drops of bleach

If you have a dropper:
Add 200 drops of bleach

If you have something that
measures milliliters (ml):
Add $\frac{1}{2}$ ml of bleach

If you have something that
measures milliliters (ml):
Add $2\frac{1}{2}$ ml of bleach

If you have something that
measures milliliters (ml):
Add $12\frac{1}{2}$ ml of bleach

If you have a measuring spoon:
Add $\frac{1}{8}$ teaspoon of bleach

If you have a measuring spoon:
Add $\frac{1}{2}$ teaspoon of bleach

If you have a measuring spoon:
Add $2\frac{1}{2}$ teaspoons of bleach

To disinfect water with tablets that contain chlorine or iodine:

- Follow the manufacturer's instructions on the label or in the package.
 - Chlorine dioxide tablets can be effective against *Cryptosporidium* if the manufacturer's instructions are followed correctly.
 - Iodine and iodine-containing tablets (tetraglycine hydroperiodide) or chlorine tablets are **not** effective against *Cryptosporidium*.