Using Disinfectants to Make Water Safe When You Can’t Boil it

If boiling isn’t an option during a boil water advisory, how can I make the water safer to drink?

Boiling water for 1 minute is always the best way to disinfect water while a Boil Water Advisory is in effect. During power outages or other situations (e.g., extreme weather), you might not be able to boil water to make it safe. If this happens, you can:

- use disinfectants like chlorine or iodine to kill most germs that may be in the drinking water;
- buy bottled water from a safe source.

Will chlorine and iodine make the water safer?

Chlorine and iodine work well to kill bacteria and viruses. However, these disinfectants will not kill parasites like Cryptosporidium. Sometimes there may be a risk of parasites, but it will be very hard to know this, especially in an emergency. If boiling isn’t possible, the best way to make water safe is with a combination of treatments.

When I use chlorine or iodine to disinfect water, what treatment can I use to remove parasites?

When you use chlorine or iodine to disinfect water, use another treatment to remove parasites if possible. Use one of the methods below to do this. You have to treat for parasites before you disinfect with chlorine or iodine.

- **Filter**: You can buy filters at water treatment suppliers or hardware stores. Buy a filter that is rated at 1 micron absolute or smaller with a cyst rating of NSF 53 or 58 certification. After the filtration treatment, disinfect the water with chlorine or iodine.
- **UV disinfection pen**: You can buy UV disinfectant pens at camping supply stores. The water needs to be very clear (not cloudy) for the UV treatment to work. Let the water sit in a container until the sediment settles before it’s treated. UV disinfection pens aren’t usually certified by a recognized agency, so you have to follow the exact instructions. After the UV treatment, disinfect the water with chlorine or iodine.
How do I disinfect my water with chlorine?
You can chlorinate your water with water purification tablets or bleach.

**Water Purification Tablets**
You can buy the tablets from most outdoor supply or camping stores. Follow the directions on the package.

**Bleach**
To chlorinate your water using bleach, you will need:
- a 1 litre container
- a medicine dropper
- unscented, household bleach (5.25% sodium hypochlorite)

If your water is **clear**:
1. Add **2 drops** of bleach to **1 litre** of water.
2. Mix the water thoroughly and let it stand for **30 minutes**. If there is a slight chlorine smell and the water looks clear, it’s safe to drink.

If your water is **cloudy**:
1. Add **4 drops** of bleach to **1 litre** of water.
2. Mix the water thoroughly and let it stand for **30 minutes**. If there is no chlorine smell, add 4 more drops of bleach and let the water stand for **another 30 minutes**. If there is a slight chlorine smell and the water looks clear, it’s safe to drink.

**How do I disinfect my water with tincture of iodine?**
**Don’t** use iodine for more than **3 weeks** each summer (in controlled doses) because there is a risk of thyroid problems and iodine sensitivity.

**Don’t** drink water disinfected with iodine if you:
- are pregnant;
- have a thyroid problem;
- are hypersensitive to iodine.
To disinfect water with iodine, you need tincture of iodine (2% in liquid form) or iodine tablets. If you use tablets, follow the directions on the package. If you use liquid iodine, follow the directions listed below. You can buy iodine at most drugstores and some outdoor supply or camping stores.

Liquid iodine works best when added to warm water at a temperature of 20 °C (68 °F).

• To treat warm water, add 5 drops (0.25 mL) of iodine to 1 litre of water. Mix the iodine and water together. Let it stand for at least 30 minutes before drinking.

• To treat cold water at a temperature between 5 to 15 °C (41 to 59 °F), use the same amounts as for warm water, but let it stand for 40 minutes before drinking.

• If the water is cloudy, add 10 drops (0.50 mL) of iodine to 1 litre and let it stand for the times listed above depending on whether the water is warm or cold.

For more information, please contact your nearest Environmental Public Health office.

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Calgary Main Office 403-943-2288
Lethbridge Main Office 403-388-6689

Grande Prairie Main Office 780-513-7517
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