

Drinking Water Chlorination: Frequently Asked Questions

What is drinking water chlorination?

Drinking water chlorination is the addition of chlorine to drinking water systems. It is the most common type of drinking water disinfection. Disinfection kills bacteria, viruses, and other microorganisms that cause disease and immediate illness. Chlorine is effective and continues to keep the water safe as it travels from the treatment plant to the consumer's tap.

A little over 100 years ago, waterborne diseases like typhoid fever and dysentery were a common part of life in the United States —and a common cause of death, too. In the early 1900s, cities started disinfecting drinking water supplies to kill bacteria, viruses, and other microorganisms. Both the World Health Organization and the Centers for Disease Control and Prevention regard disinfection of drinking water as one of the most important advances in public health.

To learn more about drinking water disinfection, visit [Disinfection and Disinfection Byproducts](http://www.health.state.mn.us/communities/environment/water/factsheet/ddbp.html). (<http://www.health.state.mn.us/communities/environment/water/factsheet/ddbp.html>).

Is drinking water chlorination required?

Chlorination or other continuous disinfection (disinfection that protects from the treatment plant to the consumer's tap) is required for public water systems that:

- Use surface water, such as rivers, lakes, and streams, as their source;
 - Have treatment processes that expose the water to outside or open air; or
 - Add treatment chemicals for corrosion control; these chemicals can feed microorganisms and cause them to grow
- Disinfection is recommended but not required for other community public water systems.

Is chlorinated water safe to drink?

Yes. The U.S. Environmental Protection Agency (EPA) limits the amount of chlorine in drinking water to levels that are safe for human consumption. The levels of chlorine used for drinking water disinfection are unlikely to cause long-term health effects.

During water treatment, chlorine can combine with naturally occurring organic matter in the water to form compounds called disinfection byproducts (DBPs). DBPs can cause negative health effects after regular, long-term exposure.

The EPA has set limits for several types of DBPs. All public water systems that disinfect must regularly test their treated water to measure levels of regulated DBPs. If they are above the limits set by EPA, the water system must take action to reduce the DBPs. This action includes notifying all of their customers of the DBP levels.

The Minnesota Department of Health sets health-based guidance values for some DBPs. These values are protective for the most sensitive and/or highly exposed populations. Minnesota's public water systems are not required to meet health-based guidance values; they may use guidance values as goals, benchmarks, or indicators of potential concern. Learn more at [Guidance Values and Standards for Contaminants in Drinking Water](#).

(<http://www.health.state.mn.us/communities/environment/risk/guidance/gw/index.html>)

What can water systems do about taste and/or smell from chlorination?

When a system first starts chlorinating, it is normal for people to say they can taste and/or smell the chlorine. Over time, the system stabilizes, and any tastes or smells will decrease or go away. People also usually get used to chlorine in water over time.

Public water systems work hard to keep the level of chlorine in the water at a level that effectively disinfects, while keeping taste and odor to a minimum.

Is there anything I can do about the taste and/or smell?

If you are bothered by the taste or smell, there are a few things you can do:

- Put a pitcher of water in the refrigerator and let it sit uncovered for a few hours. This will allow the chlorine smell to leave the water.

- Use cold water for all drinking water. Cold water has fewer taste and smell concerns. (Using cold water also makes the water less likely to absorb lead and copper from plumbing.)

- Use a filter. All water treatment units, even those in your home, require regular maintenance to work properly. Water treatment units that are not properly maintained will lose their effectiveness over time. In some cases, unmaintained units can make water quality worse and make you sick.

 - Most common point-of-use filters (e.g. pitcher filters) will remove chlorine taste and smell.

 - Granular activated carbon filters will remove chlorine taste and smell. They can be more effective, but are usually more expensive than point-of-use filters. They can be installed either at the tap/sink or as whole-house filters.

 - Learn more at [Home Water Treatment](#).

 - (<http://www.health.state.mn.us/communities/environment/water/factsheet/hometreatment.html>)

Are there other options for disinfection besides chlorination?

Besides chlorine, there are several other types of disinfectants. Each has tradeoffs. Chloramines may form lower levels of regulated DBPs than chlorine, but, depending on the source water characteristics, they have the potential to form other DBPs and increase the risks of nitrate formation and corrosion in the distribution system. Ozone is effective and has no taste, but it can also create other DBPs and does not provide protection in the distribution system, so chloramines or chlorine must still be added to protect the water. Ultraviolet (UV) light is effective in clear water and does not form DBPs. But like ozone, UV light does not provide protection in the distribution system, so chloramines or chlorine must still be added to protect water from the treatment plant to the tap.

What about bathing or showering with chlorinated water?

Chlorine does not get into the body through your skin. The amount of chlorine in the water is too low to cause breathing problems. Some people who are very sensitive to chlorine could experience skin irritation. Because the amount of chlorine in drinking water is extremely small – far less than in a swimming pool – this situation is expected to be rare.

Disinfection byproducts (DBP) can be inhaled or absorbed through the skin during activities like bathing and showering. There is limited information about the health risks of breathing or coming in to contact with DBPs. Point-of-use filtration devices can be used to lower DBP levels in water.

Does chlorine affect home water treatment, like water softening?

Chlorination will not affect the operation of common home water treatment units, such as water softeners and pitchers. You should always follow the manufacturer's recommendations for installation, cleaning, and maintenance of a water treatment unit.