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# Drinking water chlorination facts

## What is chlorine?

Chlorine is a common element in nature, where it is usually combined with other elements. The largest amount of chlorine on earth is in the oceans as sodium chloride or salt. Salt and water are the most common ingredients used to manufacture the chlorine used in your drinking water.

## Why is chlorine added to drinking water?

Chlorine is a versatile disinfectant that kills many types of bacteria, viruses and parasites (pathogens) that cause water-borne infections. Some water-borne infections can cause severe illness and even death. Water suppliers add chlorine disinfectants to drinking water to protect public health. For more information on water-borne infections, see HealthLinkBC File #49a Water-borne infections in British Columbia.

## How long has chlorine been used to disinfect water?

Chlorine disinfectants were first added to a public water supply in North America in 1908. By the 1920s, thousands of cities worldwide were using chlorine disinfectants to treat drinking water. There was a drastic reduction in water-borne infections, such as typhoid fever and cholera. Infant mortality also declined.

Most cities or towns in Canada use chlorine disinfectants to treat drinking water.

## How is chlorine added to my drinking water?

There are many different chlorine disinfectant products and each is added to water using a different approach. These products can be a solid, liquid or gas, but once added to water they all work in a similar way. For this reason they all get the generic labeling of “chlorine.”

Your water supplier chooses the product used in your drinking water based on many factors such as cost, source water, size of the water system and whether other forms of treatment are needed.

## What is secondary disinfection?

After being disinfected, water travels through the distribution system to your home through a network of pipes. In some cases, pipes can leak or break and contaminate the water. Chlorine disinfectants protect water against this contamination as it travels to your tap.

## Can my water supplier use anything else to disinfect my drinking water?

Ultra violet (UV) light and ozone are also used to disinfect drinking water. These do not give protection against contamination from the pipes water travels through. This is why chlorine disinfectants are used.

There are benefits to using chlorine disinfectants over other treatments. They can be easier to handle and less expensive. This makes them a better choice for homeowners who have their own water supply systems. It also makes them a preferred choice for water supply systems with limited funds.

If you do not like the smell or taste of chlorine in your drinking water you can use a filter system (such as a pitcher filter) or boil your water and allow it to cool before using.

Well water should be disinfected using the simple chlorination method. This should happen after:

- Constructing a new well
- Altering an existing well
- Well pump installation, maintenance or repair
- The well has tested positive for coliforms or *E. coli*

For more information on using the simple chlorination method for well water, see Ministry of Environment - Water Well Disinfection.

Emergencies or natural disasters such as earthquakes and wildfires can damage water supply systems. Chlorine disinfection is an easy way to make water safe. To learn about a safe method for using household bleach (chlorine) to disinfect water, see HealthLinkBC File #49b Disinfecting drinking water.

## Can the chlorine added to my drinking water harm me?

Chlorine can be dangerous in very high concentrations. But, there is no evidence that chlorine disinfectants are harmful to people when used in the small amount needed to disinfect drinking water.

Most Canadians do not have chlorine levels over 2 mg/L in their tap water. If you are concerned about the chlorine concentration in your drinking water, you should contact your local drinking water provider for more information.

## Can chlorine by-products harm me?

When chlorine is added to water it reacts with any organic content and creates chlorine by-products. Health Canada sets safety limits for chlorine by-products to reduce the risk of any negative impacts on human health.

The addition of chlorine to our drinking water has greatly reduced the risk of waterborne diseases. Although other disinfectants are available, chlorine remains the choice of water treatment experts. Current scientific data show that the benefits of chlorination are much greater than any health risks from by-products.