

Copper in Drinking Water

Copper is a metal that occurs naturally and is used to make many products, including parts for plumbing systems. Copper can get into your drinking water as the water passes through your household plumbing system. Your body needs some copper to stay healthy, but too much is harmful.

Health Effects

Eating or drinking too much copper can cause vomiting, diarrhea, stomach cramps, nausea, liver damage, and kidney disease. People with Wilson's disease and some infants (babies under one year old) are extra sensitive to copper. Their bodies are not able to get rid of extra copper easily.

How to Protect Yourself and Your Family

Drinking water with more than 1,300 micrograms of copper per liter of water ($\mu\text{g/L}$)* can be a health risk for everyone. Infants and people with Wilson's disease may need water with an even lower level of copper to stay safe.

Copper can get into your drinking water as it passes through your plumbing system. Over time, plumbing parts with copper in them usually build up a natural coating that prevents copper from being dissolved into the water. Plumbing systems with copper parts fewer than three years old usually have not had time to build up this protective coating. You can take the steps below to help keep your drinking water safe:

1. **Let the water run** for at least 30-60 seconds before using it for drinking or cooking if the water has not been turned on in over six hours.
2. **Use cold water** for drinking, making food, and making baby formula. Hot water releases more copper from pipes than cold water.
3. **Test your water.** In most cases, letting the water run and using cold water for drinking and cooking should keep copper levels low in your drinking water. If you are still concerned about copper, arrange with a laboratory to test your tap water. Testing your water is

important if an infant or someone with Wilson's disease drinks your tap water. Minnesota Department of Health (MDH) recommends using an accredited laboratory (see *Search for Accredited Laboratories*). Contact the laboratory to get sample containers and instructions, or ask your county environmental or public health services if they provide well water testing services.

4. If tests show you have levels of copper over 1,300 $\mu\text{g/L}$ in your drinking water after you let the water run 30-60 seconds, you may want to consider home water treatment (see *Home Water Treatment*).

* 1 microgram per liter ($\mu\text{g/L}$) = 1 part per billion (ppb)

If you own a private well

Copper is not usually found in the groundwater that feeds your well. Copper may enter your drinking water as it travels through your plumbing system. If your plumbing system has parts made with copper, follow the steps above to help keep your drinking water safe.

If you are on a public water system

The U.S. Environmental Protection Agency (EPA) has an action level of 1,300 $\mu\text{g/L}$ for public water systems serving places where people live, work, go to school, and receive childcare. These systems have to take actions to reduce the amount of copper in the water if more than 10 percent of the water samples they take from homes and sampling sites served by the system have copper levels over 1,300 $\mu\text{g/L}$.

You can find the level of copper detected in the system serving where you live (called a community water system) by reading the

system's water quality report (also known as a Consumer Confidence Report [CCR]). You can call your public water system to get a paper copy of your CCR, or you may be able to find it online (see *Search for your CCR webpage*).

Remember that your home may have higher levels of copper in drinking water than the homes your public water system tested. Follow the steps above to help keep your drinking water safe.

Noncommunity water systems serving schools, offices, factories, and childcare facilities test for copper; you can contact your noncommunity system to find the level of copper detected in the system. Noncommunity systems serving restaurants, resorts, and campgrounds are not required to test for copper.

Background Information

Copper can get into drinking water if the water moving through the plumbing system is corrosive. Corrosive water can dissolve copper in plumbing parts. Pinhole leaks, pitting in your pipes, or blue green stains on plumbing fixtures may be signs that you have corrosive water. If you see signs of corrosive water, lead may also be in your drinking water (see *Lead in Drinking Water*). Water with a lot of dissolved copper in it can make drinking water taste or smell bad or give it a blue color.

Copper in Minnesota Water

Although the pH of groundwater in Minnesota is normally high enough to prevent water from dissolving copper, there are other water qualities that may contribute to corrosion. Public water systems monitor how corrosive water is to reduce the risk of lead and copper getting into drinking water. Learn more about copper and lead levels in Minnesota public water systems through *Drinking Water Protection Annual Reports*.

In 1999, Minnesota Pollution Control Agency found that none of the 954 wells they tested in

Minnesota had copper levels over the EPA action level (see *Copper, Chromium, Nickel, and Zinc in Minnesota's Ground Water*).

Resources

[Copper, Chromium, Nickel and Zinc in Minnesota's Ground Water \(PDF\)](https://www.pca.state.mn.us/sites/default/files/copper7.pdf) (<https://www.pca.state.mn.us/sites/default/files/copper7.pdf>)

[Drinking Water Protection Annual Reports](https://www.health.state.mn.us/communities/environment/water/dwar.html) (<https://www.health.state.mn.us/communities/environment/water/dwar.html>)

[Home Water Treatment](https://www.health.state.mn.us/communities/environment/water/factsheet/hometreatment.html) (<https://www.health.state.mn.us/communities/environment/water/factsheet/hometreatment.html>)

[Lead in Drinking Water](https://www.health.state.mn.us/communities/environment/water/contaminants/lead.html) (<https://www.health.state.mn.us/communities/environment/water/contaminants/lead.html>)

[Search for Accredited Laboratories](http://www.health.state.mn.us/labsearch) (www.health.state.mn.us/labsearch)

[Search for your CCR](https://mnccr.web.health.state.mn.us/index.faces) (<https://mnccr.web.health.state.mn.us/index.faces>)

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