



## Questions & Answers

# Copper in Drinking Water

### What is copper?

Copper is a naturally occurring metal found in rock, soil, water, and sediment. Pure copper is red-orange but becomes blue-green when exposed to air and water. For centuries, humans have used it to produce copper alloys including brass and bronze. Today, copper is widely used in the production of many items including pennies, electrical wiring, and plumbing materials such as household water pipes.

### How can copper affect my health?

A small amount of copper is essential for good health. The Food and Drug Administration recommends a dietary allowance of 2 milligrams (mg) of copper a day. Major food sources of copper are shellfish, nuts, grains, leafy vegetables, mushrooms, chocolate, liver, and some fruits.

Exposure to high doses of copper can cause health problems. Short-term exposure to high levels of copper can cause gastrointestinal distress. Long-term exposure and severe cases of copper poisoning can cause anemia and disrupt liver and kidney functions. While some of the copper you consume rapidly enters the bloodstream, your body is very good at preventing high levels of copper from entering the bloodstream; it will excrete excess copper after several days. Individuals with Wilson's or Menke's disease (genetic disorders resulting in abnormal copper absorption and metabolism) are at higher risk from copper exposure than the general public. If these individuals learn the amount of copper in their water exceeds the action level of 1.3 mg per liter, they should consult their medical provider.

### How does copper get into drinking water?

The major source of copper in drinking water is corrosion of household plumbing, faucets, and water fixtures. Water absorbs copper as it leaches from plumbing materials such as pipes, fittings, and brass faucets. The amount of copper in your water depends on the types and amounts of minerals in the water, how long water stays in the pipes, the water temperature and acidity.

### How can I reduce exposure to copper in drinking water?

Copper from plumbing corrosion can accumulate overnight. Running cold water from the tap for about one minute can reduce copper that accumulates when household plumbing is not in use. Use cold water for drinking and cooking. Because hot water dissolves more copper than cold water, limit consumption of water from the hot water tap. Do not use the hot-water tap to make baby formula.



HELPING TO ENSURE SAFE AND RELIABLE DRINKING WATER

## Do water systems monitor copper levels in drinking water?

Yes. Public water suppliers must monitor copper levels in drinking water to determine whether the water they provide is corrosive. If more than 10 percent of the tap water samples exceed the EPA copper action level of 1.3 mg per liter, water systems must use treatment to reduce corrosion. Consumers should take steps to reduce exposure to copper if they learn their water exceeds the action level.

## How can I determine whether copper is in my drinking water?

Blue-green stains on plumbing fixtures may indicate elevated levels of copper in the water. To determine how much copper is in your drinking water, send a water sample to a lab certified to analyze copper in drinking water. If your water comes from a public or nontransient noncommunity water system, you can get drinking water sampling results from the water system owner.

## What are other sources of copper?

There may be elevated levels of copper in carbonated or acidic beverages that contact copper tubing, fixtures, or containers. Carbon dioxide can corrode the plumbing or container, which can add copper to soft drinks. To prevent carbon dioxide used in soft drink dispensers from contaminating the water supply, we require food establishments to have a backflow prevention assembly on their carbonated beverage dispensers. This keeps carbon dioxide from making water more acidic, preventing corrosion and increased levels of copper in drinking water. For more information, contact your city or county building official or read the [USC Cross Talk article](#) on backflow prevention for carbonators.

## Where can I get more information?

- **Office of Drinking Water**  
<http://www.doh.wa.gov/CommunityandEnvironment/DrinkingWater.aspx>
- **Center for Disease Control and Prevention**  
<http://www.atsdr.cdc.gov/toxfaqs/tfacts132.pdf>
- **Environmental Protection Agency**  
<https://www.epa.gov/dwreginfo/lead-and-copper-rule-compliance-help-public-water-systems>
- **Lead and Copper Sampling Procedure**  
<http://www.doh.wa.gov/portals/1/Documents/pubs/331-227.pdf>
- **Lead and Copper Monitoring: Guidance for public water system operators**  
<http://www.doh.wa.gov/Portals/1/Documents/Pubs/331-111.pdf>

### Call our regional office.

**Eastern Region:** Spokane Valley 509-329-2100

**Northwest Region:** Kent 253-395-6750

**Southwest Region:** Tumwater 360-236-3030



Our publications are online at

<http://www.doh.wa.gov/CommunityandEnvironment/DrinkingWater/PublicationsandForms>