

# Copper in Drinking Water FAQ

This fact sheet answers frequently asked questions about copper and health, how copper may get into your drinking water, and what you and your family can do to avoid exposure. Copper is a naturally occurring and essential nutrient for good health in low levels. Exposure to high levels of copper can harm health. Parents of infants and young children, pregnant women, and people with Wilson's disease or liver disease should be aware of the possible health effects following exposure to high levels of copper and should take precautions to minimize their exposure.

## HOW DOES COPPER GET INTO MY DRINKING WATER?

In Massachusetts, most drinking water sources from reservoirs and groundwater do not contain elevated levels of copper. When copper is present in water, it is typically due to the water flowing through pipes or plumbing in homes with copper and brass parts. Service lines, which are the pipes that connect homes to the water main, could have copper in them. Inside your home, you may have copper pipes or brass fixtures. Copper levels are highest in water that has been sitting in pipes for several hours. The amount of copper in the water decreases after the water is run for 1 minute. Hot water causes copper to dissolve and enter water faster.

## HOW DOES COPPER GET INTO MY BODY?

You may be exposed to small amounts of copper in the air you breathe, the water you drink, the foods you eat, or from touching copper, particles attached to copper, or copper compounds. Copper can get into the body from drinking water or preparing food with water containing copper. Copper is not easily absorbed through our skin. Because copper is essential to good health in small "trace" amounts, everyone absorbs small amounts of copper every day. Our bodies have a natural mechanism to maintain the proper level of copper.

## HOW DOES COPPER MAKE YOU SICK?

Periodically drinking water that contains copper above the action level does not guarantee it will harm someone's health. Consuming high levels of copper may cause nausea, vomiting, diarrhea, and stomach cramps. Some infants and children, people with liver disease, and people with Wilson's disease have trouble eliminating copper from their bodies and are more likely to experience negative health effects, such as kidney and liver damage.

## CAN MY CHILD HAVE A COPPER TEST DONE BY THEIR PEDIATRICIAN?

Copper is normally found in all tissues of the body. It can be measured in blood, urine, feces, hair, and nails. Testing blood, urine, hair, and nails can only show if a person has been exposed to higher than normal levels of copper. It cannot be used to predict the amount of the exposure, how long the exposure occurred, or potential health effects. Specific health questions about exposure to copper should be directed to your doctor or other health care provider.

## WHAT CAN I DO RIGHT NOW TO PROTECT MY FAMILY?

- 1. Run your water before using and use COLD water**  
Always use **cold** water for drinking and cooking. **Do not** use hot water for drinking or cooking. If you want hot water, run cold water from the faucet and warm it in the microwave or on the stove.

When mixing powdered baby formula with tap water, always use cold water and do not use hot water. Simply warm formula to serve. Bottled or filtered water should be used when mixing baby formula if copper levels are known to be elevated in tap water. Filters should be NSF-certified to remove copper.

Run the water for 1 minute before using it. This can reduce copper levels by flushing out the water that

has been sitting in copper pipes for several hours. Boiling water does not eliminate copper. If there is copper in your water, boiling may increase copper levels.

## 2. Test your drinking water

If you have copper in the pipes inside your home or if you aren't sure if you do, consider testing your water. This is the best way to find out if you have elevated levels of copper in your water. Testing typically costs between \$20 and \$40 and should be done by a certified laboratory. Water samples may be mailed or dropped off. Be sure to follow the lab's sample collection instructions exactly. The Massachusetts Department of Environmental Protection (MassDEP) provides a list of certified laboratories, which can be found here: <http://www.mass.gov/eea/agencies/massdep/water/drinking/certified-laboratories.html#1>. The US Environmental Protection Agency action level for copper in drinking water is 1,300 ppb (also reported as "1300 µg/L", "1.3 ppm", or "1.3 mg/L").

## WHERE CAN I GET MORE INFORMATION?

### For additional health information contact:

Massachusetts Department of Public Health  
Bureau of Environmental Health  
Phone: 617-624-5757 | Fax: 617-624-5777 |  
TTY: 617-624-5286  
[www.mass.gov/dph/environmental\\_health](http://www.mass.gov/dph/environmental_health)

CDC Agency for Toxic Substances and Disease  
Registry  
Public Health Statement on Copper  
<http://www.atsdr.cdc.gov/ToxProfiles/tp132-c1-b.pdf>

### For additional drinking water information contact:

Massachusetts Department of Environmental  
Protection  
Drinking Water Program  
617-292-5770  
Program.Director-DWP@state.ma.us  
<http://www.mass.gov/eea/agencies/massdep/water/drinking/lead-and-other-contaminants-in-drinking-water.html#19> (and see sections on "Copper" and "Lead and Copper")

### For a list of state-certified laboratories for drinking water testing:

<http://www.mass.gov/eea/agencies/massdep/water/drinking/certified-laboratories.html#1> (click on Find MassDEP-Certified Laboratories)

### For information on certified filters and bottled water:

NSF International  
<http://www.nsf.org/>

### NOTE FOR PUBLIC WATER SUPPLIERS:

This FAQ does not fulfill the notification requirements of the Lead and Copper Rule 310 CMR 22.06B. Public Water Systems should contact MassDEP for specific Lead and Copper Rule requirements.

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[www.mass.gov/dph/environmental\\_health](http://www.mass.gov/dph/environmental_health)

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