

Copper - ToxFAQs™



What is copper?

Copper (Cu) is an element and metal. It is found in rocks, soils, water, and air. Copper is an essential nutrient for humans and is in many foods. It is also essential to animals and plants. Copper and substances containing copper are used in many industries in the United States. Copper can be found in materials and products such as wiring, plumbing, pesticides, cookware, and dietary supplements, among others. Copper scrap can be combined with other metals to make brass and bronze pipes. In the United States, copper is mined and recovered from metal through smelting.

What happens to copper in the environment?

- Copper is released from natural sources, such as windblown dusts and decaying vegetation, and from human activities like municipal solid waste management and fossil fuel burning.
- In air, copper usually attaches to particles (particulate matter) and can travel far from its source.
- In water, copper will usually attach to soils if possible, or dissolve.
- Copper attaches to soils, where it can be taken up by plants.
- Mollusks, such as clams and oysters, can build up copper in their bodies.
- Copper does not break down in the environment.

Ingesting copper in food is necessary for human health. Too much copper can be harmful.

How can I be exposed to copper?

- People ingest copper from drinking water and food, inhale copper from air, and may touch copper or products that contain copper.
- Drinking water can contain high levels of copper if your home has copper pipes and acidic water. This is more likely to occur in new or recently renovated buildings/homes using copper plumbing.
- Blue copper sulfate crystals can be used to control algae in ponds and have been accidentally ingested by people who confused them for candy or toys.
- You may be exposed to copper particles in air if you work or live near a site that uses copper in mining or agriculture or in a facility that processes copper.
- Soils near mines, processing facilities, or waste dump sites may have a lot of copper.

How can copper affect my health?

It is essential for people to ingest small amounts of copper every day in food and water. Ingesting too much or too little copper can lead to illness and/or disease. Ingesting a high amount of copper, usually in drinking water, can cause vomiting, nausea, abdominal pain, and/or diarrhea. Ingesting higher than recommended amounts of copper every day over time, such as in water or in copper supplements, can lead to severe illness, such as kidney and liver damage.

Breathing in copper dusts, sprays, or crystals can irritate your nose and throat and cause dizziness and headaches. People who have ingested these substances have gotten very sick and/or died.

Copper is essential to the development of babies and children and is found in breast milk. Babies and children are expected to have symptoms similar to adults when exposed to high levels of copper in air, water, or food. If you have a disorder that causes copper to build up in your body, like Wilson's disease, you may be especially vulnerable to high copper levels in air, food, or water.

Copper

Can copper cause cancer?

The [U.S. Department of Health and Human Services \(DHHS\)](#) has not evaluated the carcinogenicity (whether it causes cancer) of copper.

The [U.S. Environmental Protection Agency \(EPA\)](#) has not evaluated the carcinogenicity of copper.

The [International Agency for Research on Cancer \(IARC\)](#) has not evaluated the carcinogenicity of copper. IARC lists copper 8-hydroxyquinoline as a group 3 agent, indicating that the carcinogenicity in humans cannot be classified due to lack of cancer studies in humans and animals.

Can I get a medical test to check for copper?

There are tests to measure the amount of copper in your blood, urine, nails, and hair. Your medical provider can help decide if a test is needed and which is the most appropriate for you. High levels of copper in these tests can show if you have been exposed to a lot of copper or if there is a problem with copper regulation in the body. These tests will not predict if you will have health problems. These tests are not part of standard health tests that are done at your doctor's office and are done through a special lab. If you think you may have been exposed to high levels of copper, talk to your doctor, nurse, or clinic, or call poison control.

How can I protect my family from copper exposure?

If your water is metallic or bitter in taste or smell and/or is green-blue in color, this may be a sign that there is too much copper in your drinking water. If you have copper piping, it can leach into water if your home is new or recently renovated or if your water is corrosive (acidic). Regularly cleaning or flushing out your system can help avoid this. There are tests available to check if your water is acidic or if copper levels in your water are high.

Safely store copper powders, crystals, or dusts away from children, pets, or other adults.

Monitor your copper intake if you are adding more copper to your diet, such as by taking dietary supplements with copper, to make sure you are not eating too much. Talk to your doctor, nurse, or clinic to figure out if you are taking the proper amount of copper.

If you work with copper, wear the necessary protective clothing and equipment, and always follow safety procedures. Shower and change your clothes before going home each day.

For more information:

Call **CDC-INFO** at 1-800-232-4636, or submit your question online at <https://wwwn.cdc.gov/dcs/ContactUs/Form>

Go to ATSDR's Toxicological Profile for Copper: <https://wwwn.cdc.gov/TSP/ToxProfiles/ToxProfiles.aspx?id=206&tid=37>

Go to ATSDR's Toxic Substances Portal: <http://www.atsdr.cdc.gov/substances/index.asp>

Find & contact your ATSDR Regional Representative at http://www.atsdr.cdc.gov/DRO/dro_org.html

