

Copper

General information

Key Points

- Toxic via inhalation, ingestion or skin contact
- Inhalation may cause metal fume fever. Symptoms include coughing, sore throat, tightness of the chest, headaches and fever
- Ingestion may result in stomach pain, nausea, vomiting and diarrhoea
- Skin contact with copper can cause contact inflammation and burns
- Copper fragments can cause serious eye damage

Background

Copper is a reddish-brown metal that is insoluble in water. It is present in the earth's crust, and is found naturally in soil, rocks, air, food and water. Copper is an essential element for all living organisms; hence small amounts are needed in the body.



Due to the heat and electrical conductivity of copper, as well as its resistance to corrosion, ductility and malleability, it has many industrial applications and is widely used in electrical wiring, switches, electroplating, plumbing pipes, coins, metal alloys and fireworks.



Copper can be released into the environment from natural sources such as volcanoes, forest fires, dust and decaying vegetation. It can also enter the environment when copper is mined and from industries that make or use copper compounds as well as from waste dumps, waste water, and from the combustion of fossil fuels and wood.

As copper is naturally present in the environment, sources of exposure include breathing air, drinking water and eating food. Exposure to copper can also occur during mining and industrial use of copper. However, safe levels are enforced within the workplace to protect workers.

If exposed to copper the harmful effects that may occur depend on the way and the amount to which people are exposed. Breathing fumes of copper can lead to metal fume fever, which is characterised by symptoms such as fever, headache and tiredness, as well as cough, sore throat, tightening of the chest. Sometimes a metallic taste in the mouth, nausea, vomiting and blurred vision can occur. Eating foods or drinking water containing high levels of copper can cause stomach pain, nausea, vomiting and diarrhoea. Exposure to skin can cause inflammation, itching and burns.

Exposure to high levels of copper will result in the same effects in both adults and children, although it isn't known if effects occur at the same level in both adults and children. Studies in animals showed that young animals had more severe effects than adults but it isn't known if this would also occur in humans. There are no data regarding the effects of copper during pregnancy and whether it causes harm to the unborn child. Animal studies showed that high levels of copper cause a decrease in foetal growth.

There are no data available regarding whether copper can cause cancer in humans or animals.

Frequently Asked Questions

What is copper?

Copper is a reddish-brown metal that is present in the earth's crust.

What is copper used for?

Copper is an essential element for all living organisms hence small amounts are needed in the body. Due to the heat and electrical conductivity of copper, as well as its resistance to corrosion, ductility and malleability, it has many industrial applications and is widely used in electrical wiring, switches, electroplating, plumbing pipes, coins, metal alloys and fireworks.

How does copper get into the environment?

Copper can be released into the environment from natural sources such as volcanoes, forest fires, dust and decaying vegetation. It can also enter the environment when copper is mined and from industries that make or use copper compounds as well as from waste dumps, waste water and the combustion of fossil fuels and wood.

How will I be exposed to copper?

As copper is naturally present in the environment, sources of exposure include breathing air, drinking water, consumption of food. Exposure to copper can also occur during mining and industrial use of copper. However, safe levels are enforced within the workplace to protect workers.

If there is copper in the environment will I have any adverse health effects?

The presence of copper in the environment does not always lead to exposure. Clearly, in order for it to cause any adverse health effects you must come into contact with it. You may be exposed by breathing or drinking the substance, or by skin contact. Following exposure to any chemical, the adverse health effects you may encounter depend on several factors, including the amount to which you are exposed (dose), the way you are exposed, the duration of exposure, the form of the chemical and if you were exposed to any other chemicals.

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Can copper cause cancer?

There are no data available regarding whether copper can cause cancer in humans or animals.

Does copper affect children or damage the unborn child?

Exposure to high levels of copper will result in the same effects in both adults and children, although a very small percentage of infants and children are unusually sensitive. There are

no data regarding the effects of copper during pregnancy and whether it causes harm to the unborn child.

What should I do if I am exposed to copper?

You should remove yourself from the source of exposure.

If you have got copper on your skin, remove soiled clothing, wash the affected area with lukewarm water for at least 10-15 minutes and seek medical advice.

If you have got copper in your eyes remove contact lenses if necessary, wash the affected area with lukewarm water for at least 10 – 15 minutes and seek medical advice.

If you have inhaled or ingested copper seek medical advice.

This document will be reviewed not later than 3 years or sooner if substantive evidence becomes available.