



COPPER

29
Cu
Copper
63.55

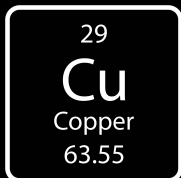
WHAT IS COPPER?

Copper is a chemical element with the symbol Cu (from Latin: cuprum) and atomic number 29. It is a soft, malleable and ductile metal with a reddish-orange color. It is a good electrical conductor and is commonly used for electrical wiring, roofing and plumbing. It is also used in various alloys, such as brass and bronze, and in various industrial and decorative applications. Copper is an essential trace element for all life forms and is found in a variety of foods, including fruits, vegetables and grains.

WHAT IS THE HISTORY OF COPPER?

Copper has been used by humans for thousands of years. The history of copper dates back to ancient civilizations such as the Egyptians and Sumerians, who used copper for a variety of purposes, including tools, weapons and jewelry.

Copper mining and smelting were advanced in ancient times. The ancient Egyptians knew how to extract copper from ores by heating with fire, and the Sumerians and Chaldeans in Mesopotamia used a similar method to extract copper from its ores.



COPPER

DID YOU KNOW?

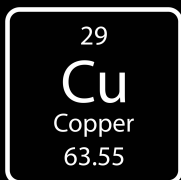
Most copper in ancient times was from Cyprus. Hence, the Romans called it 'aes cyprium' which translates to 'ore from Cyprus'. Its later modification became 'cuprum'. That is where the modern-day 'copper' name came from.

Copper metallurgy was also developed independently in the Andes, where the oldest known molten copper artifacts are from the Moche culture of ancient Peru and date to about 1000 BC.

Copper has been an important metal for human civilization for thousands of years, but the Bronze Age, a period that began around 3000 BC, was particularly significant in the history of copper. During this era, bronze, an alloy of copper and tin, was widely used to make tools, weapons, and other objects.

In more recent history, copper played a crucial role in the Industrial Revolution, when it was used in steam engines, generators and other machinery, spurring technological progress and economic growth. Today, copper is still used in many industries, including construction, transportation, and electronics.





COPPER

DID YOU KNOW?

The average person will use 1500 pounds of copper just to enjoy today's standard of living. (Think computers, telephones, automobiles, etc.)

WHY IS COPPER AN IMPORTANT COMMODITY?

Copper is an important commodity for several reasons:

1. **Electrical conductivity:** copper is an excellent electrical conductor, making it essential for the manufacture of electrical wires, motors, generators and other electrical components.

2. **Corrosion resistance:** copper is highly resistant to corrosion, making it ideal for use in water supply and drainage systems, as well as other applications exposed to the elements.

3. **Thermal Conductivity:** Copper is also an excellent conductor of heat, making it ideal for use in heat exchangers, radiators and other heat transfer applications.

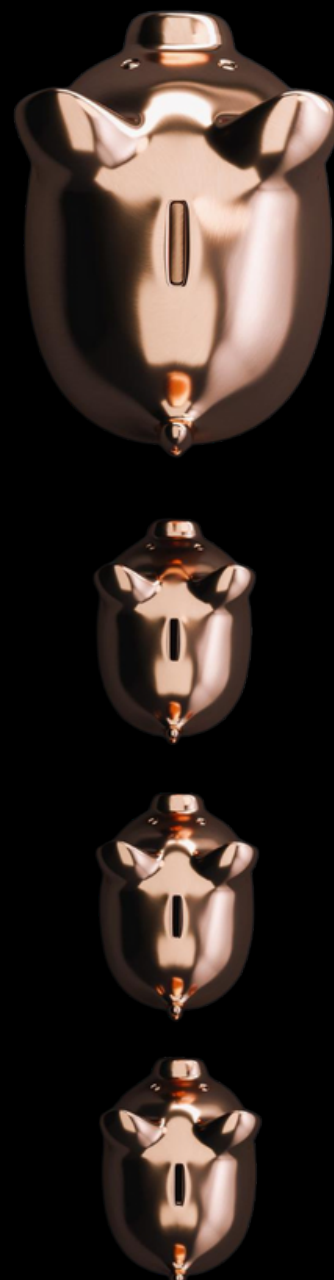
4. **Alloys:** Copper is also used to produce a variety of alloys such as brass and bronze, which have their own unique properties and uses.

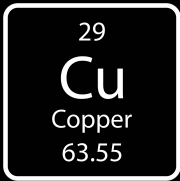
5. **Industrial and Decorative Applications:** Copper is also used for a variety of industrial and decorative applications, including roofing, sculpture, and coins.

6. **Health benefits:** Copper is an essential trace element for all life forms and is found in a variety of foods. It plays a role in the development of the nervous system, the formation of red blood cells, and the maintenance of healthy bones and blood vessels.

7. **Green Energy:** Copper is an important component of renewable energy technologies such as wind turbines and solar cells.

Because of these properties and its many uses, copper has been an important raw material for centuries and remains so today.





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DID YOU KNOW?

The Statue of Liberty is made from 179,000 pounds of copper.

HOW IS COPPER MINED?

Copper is usually mined in large open pit or underground mines. The mining method used depends on the location and quality of the copper deposit and the surrounding environment.

1. Open pit: Open pit mining is used to extract copper from large open pit mines. In this method, the overburden (the soil and rock that cover the copper deposit) is removed to access the copper ore. Once the ore is exposed, it is mined and transported to a processing plant for further processing.

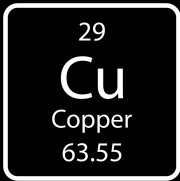
2. Underground mining: Underground mining is used to extract copper from deep deposits. In this method, tunnels and shafts are dug to access the copper ore. The ore is then mined and brought to the surface for processing.

3. Leaching: Some copper deposits are too low-grade to be mined using traditional methods. Instead, the copper is extracted by a chemical process called leaching. The most common method is called heap leaching, in which the copper-bearing rock is poured onto a large heap. An acidic solution is then poured over it to dissolve the copper, and the solution is then collected at the bottom of the pile.

4. Bioleaching: Bioleaching is a method of recovering copper from low-grade ore using microorganisms. In this process, the ore is mixed with water and a specific type of bacteria that can convert the copper into a soluble form that can then be extracted from the solution.

Once the copper is mined, it goes through a series of processes such as crushing, grinding, floatation and smelting to produce a concentrate with a copper content of about 30%. The concentrate is then refined to obtain 99.99% pure copper





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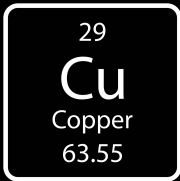
Professional chefs prefer to cook with copper pots and pans, as it delivers uniform cooking and has no heat spots.

WHAT EVERYDAY PRODUCTS CONTAIN COPPER?

Copper is used in a variety of everyday products, some examples are:

1. **Electrical wiring:** copper is the most used material for electrical wiring in buildings, appliances and electronics due to its excellent conductivity and corrosion resistance.
2. **Plumbing:** Copper tubing is commonly used in plumbing systems because of its durability and corrosion resistance.
3. **Coins:** Many coins around the world are made of copper or copper alloys such as bronze.
4. **Cookware:** Copper cookware is valued for its excellent thermal conductivity, which allows for even heating and precise temperature control.
5. **Jewelry:** copper is often used to make jewelry because it is relatively inexpensive, easy to work with, and has a warm, reddish color.






COPPER

DID YOU KNOW?

The average home contains 400 pounds of copper that is used for electrical wiring, pipes and appliances. The average car has 50 pounds of copper.



6. Roofing: Copper is used for roofing because of its durability and resistance to corrosion and weathering.

7. Construction: Copper is used in construction as a cladding material because it is durable, low maintenance and can withstand extreme weather conditions.

8. Electronics: Copper is used in many electronic devices such as smartphones, laptops and televisions because of its conductive properties.

9. Transportation: Copper is used in the transportation industry, such as cars and trains, because of its conductive and heat dissipating properties.

10. Medical instruments: copper is used in various medical instruments such as surgical tools and equipment because of its antimicrobial properties.

These are just a few examples of the many products that contain copper. It is a versatile metal that can be found in a variety of everyday products.