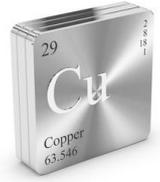


Copper



Description

The name "Copper" derives from the Latin '*cūprum*', and this from the Greek '*kýpros*'; its symbol is Cu; it is a chemical element with atomic number $Z = 29$. It is a transition reddish metal and has a metallic shine which, together with silver and gold, is part of the so-called copper family. It is characterized by being a top electricity conductor.

Native copper often accompanied by minerals in bags that come to the surface to be exploited in open pit mines. Copper is obtained from sulphide ores (80%) and oxide ores (20%), the former are treated by a pyrometallurgical process and the latter by a hydrometallurgical process. In the top layer we usually find oxidized minerals like cuprite and malaquite, together with native copper in small amounts. Below the sea level, we find primary pyrites (sulphurs) such as chalcocite (Cu_2S) and covellite (CuS), and secondary pyrites, such as chalcopyrite (FeCuS_2) whose processing is more profitable than the former. Others are found accompanying these minerals such as bornite (Cu_5FeS_4) gray copper and azurite and malachite carbonates, which often form significant amounts in copper mines because this is how sulphides are usually altered.

Properties

Physical Properties		Electronic Properties	
Name	Copper	Valence	1, 2
Atomic Number	29	Electro negativity	1.9
Symbol	Cu	Covalent Radius	1.38
Atomic Weight	63.54	Ionic Radius	0.69
Density (g/ml)	8.96	Atomic Radius	1.28
Boiling Point °C	2927	Atomic Structure	$[\text{Ar}]3d^{10}4s^1$
Melting Point °C	1083	Ionization Potential (eV)	7.73

Copper is not magnetic, but slightly paramagnetic. Its thermal and electrical conductivities are very high. It is a metal which can be obtained in its purest state; it's moderately hard, extremely tough and hardwearing; these characteristics of copper are accompanied by a high ductility. Mechanical and electrical properties of copper metal, as FCC crystallographic structured metal, depend largely on the physical conditions in which it is located, such as temperature and grain size of the metal.

Copper is neither classified as a hazardous substance by EU regulations nor considered a hazardous good for transportation.

Uses

- Electrical wiring.
- Bronzes.
- Brass.
- Nickel Silver alloys.
- Mintage.
- Manufacturing catalysts.

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