Copper: History, Production and Uses by Judy

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Cu and the atomic number 29 are the symbols of copper on the periodic table. Copper is a ductile metal that has a high electrical and thermal conductivity level. Copper in its pure form is extremely soft and malleable.

History

The history of copper use dates back at least 10,000 years. Since copper occurs naturally, it is known to be used by some of the oldest recorded civilizations. The estimates of the discovery of copper date it to around 9000 BC. It is thought to have first been used in the Middle East. There was a pendant made of copper found in the northern part of Iraq that is dated back to 8700 BC. Gold and iron are the only other two metals that were used by humans before copper.

The smelting of copper was locally invented in several parts of the world. It was likely discovered in China around or before 2800 BC, in Central America around 600 AD, and used in West Africa around the ninth or tenth centuries.

Around 4500 to 4000 BC is when investment casting was discovered. This discovery was in the Southeast part of Asia. Through carbon dating it is found that mining occurred in Cheshire, United Kingdom at Alderley Edge around 2280 to 1890 BC. Otzi the iceman was found with an axe that had a copper head and his body was dated at round 3300 to 3200 BC. There were high levels of arsenic found in his hair, which suggests that he may have been involved with the smelting of copper.

Copper Uses

Copper is used as a heat and electricity conductor, in many metal alloys, and as a building material. Roughly 60% of copper is used in electrical wires. Around 20% of copper is used in the roofing and plumbing industries and around 15% is used in industrial machinery.

Most of the time copper is used as a metal. However, when more hardness is required it can be combined with other elements to form an alloy. This accounts for around 5% of its total use. Brass and bronze are two of the most common copper alloys.

Electronics

Copper wires are commonly used because of its high electrical conductivity. Heat exchangers, heat sinks, cathode ray tubes, vacuum tubes, and magnetrons used in microwave ovens all use copper. This is because of the heat dissipation capacity of the metal. Copper is becoming more popular than aluminum to use because it is the superior conductor.

Industry and Architecture

Copper is waterproof and has been used as roofing material because of this. The green colored roofs found on buildings are made of copper. Over time the copper undergoes chemical reactions from the elements that cause it to turn this green color. Roofs have been made of copper since the ancient times.

Lightning rods are made with copper as a way to divert the electrical current to the ground as opposed to ruining the main structure. Additionally, copper is great for brazing and soldering and

can be welded easily.

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