

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 very high [thermal](#) and [electrical conductivity](#). A freshly exposed surface of pure copper has a [pinkish-orange color](#). Copper is used as a conductor of heat and electricity, as a [building material](#), and as a constituent of various metal [alloys](#), such as [sterling silver](#) used in [jewelry](#), [cupronickel](#) used to make marine hardware and [coins](#), and [constantan](#) used in [strain gauges](#) and [thermocouples](#) for temperature measurement.

Copper is one of the few metals that can occur in nature in a directly usable metallic form ([native metals](#)). This led to very early human use in several regions, from c. 8000 BC. Thousands of years later, it was the first metal to be [smelted](#) from sulfide ores, c. 5000 BC; the first metal to be cast into a shape in a mold, c. 4000 BC; and the first metal to be purposefully alloyed with another metal, [tin](#), to create [bronze](#), c. 3500 BC.^[5]

In the [Roman era](#), copper was mined principally on [Cyprus](#), the origin of the name of the metal, from *aes cyprum* (metal of Cyprus), later corrupted to *cuprum* (Latin). *Coper* ([Old English](#)) and *copper* were derived from this, the later spelling first used around 1530.^[6]

Commonly encountered compounds are copper(II) salts, which often impart blue or green colors to such minerals as [azurite](#), [malachite](#), and [turquoise](#), and have been used widely and historically as pigments.

Copper used in buildings, usually for roofing, oxidizes to form a green [verdigris](#) (or [patina](#)). Copper is sometimes used in [decorative art](#), both in its elemental metal form and in compounds as pigments. Copper compounds are used as [bacteriostatic agents](#), [fungicides](#), and wood preservatives.

Copper is essential to all living organisms as a trace [dietary mineral](#) because it is a key constituent of the respiratory enzyme complex [cytochrome c oxidase](#). In [molluscs](#) and [crustaceans](#), copper is a constituent of the blood pigment [hemocyanin](#), replaced by the iron-complexed [hemoglobin](#) in fish and other [vertebrates](#). In humans, copper is found mainly in the liver, muscle, and bone.^[7] The adult body contains between 1.4 and 2.1 mg of copper per kilogram of body weight.^[8]