Cobalt

Cobalt is a chemical element with the symbol **Co** and atomic number 27. Like nickel, cobalt is found in the Earth's crust only in chemically combined form, save for small deposits found in alloys of natural meteoric iron. The free element, produced by reductive smelting, is a hard, lustrous, silver-gray metal.

Cobalt-based blue pigments (cobalt blue) have been used since ancient times for jewelry and paints, and to impart a distinctive blue tint to glass, but the color was later thought to be due to the known metal bismuth. Miners had long used the name *kobold ore* (German for *goblin ore*) for some of the blue-pigment-producing minerals; they were so named because they were poor in known metals, and gave poisonous arsenic-containing fumes when smelted. In 1735, such ores were found to be reducible to a new metal (the first discovered since ancient times), and this was ultimately named for the *kobold*.

Today, some cobalt is produced specifically from one of a number of metallic-lustered ores, such as cobaltite (CoAsS). The element is, however, more usually produced as a by-product of copper and nickel mining. The copper belt in the Democratic Republic of the Congo (DRC) and Zambia yields most of the global cobalt production. World production in 2016 was 116,000 tonnes (according to Natural Resources Canada), and the DRC alone accounted for more than 50%.[4]

Cobalt is primarily used in lithium-ion batteries, and in the manufacture of magnetic, wear-resistant and high-strength alloys. The compounds cobalt silicate and cobalt(II) aluminate ($CoAl_2O_4$, cobalt blue) give a distinctive deep blue color to glass, ceramics, inks, paints and varnishes. Cobalt occurs naturally as only one stable isotope, cobalt-59. Cobalt-60 is a commercially important radioisotope, used as a radioactive tracer and for the production of high-energy gamma rays.

Cobalt is the active center of a group of coenzymes called cobalamins. Vitamin B_{12}, the best-known example of the type, is an essential vitamin for all animals. Cobalt in inorganic form is also a micronutrient for bacteria, algae, and fungi.