Pb  Lead

Ores with zinc. Galena: PbS. Used in glassware & ceramics by Egyptians.

Properties: Soft, malleable, dense, corrosion-resistant, good alloys, low melting point.

Use: Vehicle batteries, PbO

Old use: Pb - additive in gasoline; paints (PbO), water pipes.

Hg  mercury  Liquid at room T  amalgam Au-Hg
Cinnabar HgS
Reacts with Au. Boiled off.
Near hot springs
Health: producing hats (mad hatter)
Not mined now
Released by volcanoes, coal burning
By-product of Au mining  methylmercury
Past use: medicinal, anti-depressant
make-up  Electrolyte  chlorine
CH₄  CH₃
Zn  Zinc

Galvanizing - Zn as protective coating on steel.

Zn is resistant to corrosion. Extraction: underground mostly

Paint, ointments - ZnO-rubber  4th most widely consumed metal.

Ore: sphalerite ZnS 60wt % Alloy with Cu - electrical, cars.

By-products: Ga, Ge, Cd, Ge, In Health: proper growth.

high $  gallium, germanium, germanium, cadmium, indium

solar cells
Cobalt Co

Alloy with Fe → steel. Aircraft engines

Batteries

AlNiCo magnets

Health: necessary micronutrient (B12)

Radioactive Co-60 to treat cancer.

China, Zambia, Russia, Congo - By-product of Cu-Ni ores.

Co-maintains magnetic properties to high temperatures

Some Co in Earth's core.

Co-S+As compounds.

Co-skin rashes, vomiting, can be toxic