

Ore



Figure 1: Hematite is an ore, a kind of mineral that contains metal or another valuable mineral. The metal found in hematite ore is iron.

Ore is a kind of mineral that contains other, more valuable minerals. Metals are some of the most important minerals found in ore. Deposits of ore are located in many areas around the world, but ore is never found in a pure state. It is always mixed with rocks and other minerals in Earth's crust.

There are hundreds of different minerals on Earth, but only about 100 are ore minerals. Two examples of ore minerals are galena and sphalerite. Galena is the main source of the metal lead. Sphalerite is the main source of another metal, zinc. The same ore may contain more than one metal. For example, galena often contains silver as well as lead. Also, different types of ore may contain the same metal. For instance, iron is found in several different ore minerals: hematite, magnetite, limonite, and siderite.

Extracting, or removing, metal from ore requires several steps. First, the ore and its surrounding material are mined, or taken from the ground. Second, unwanted rocks and minerals are separated from the ore. The rock mixture may be crushed, washed, and filtered to obtain pure ore. Magnets, electricity, or other technologies also may be used to purify the ore. Third, the ore is treated with heat, electricity, or chemicals to extract the metal. Smelting is the oldest way of extracting metal from ore. In smelting, ore is heated until liquid metal flows out.

Last, the extracted metal may be refined, or purified. It also may be combined with another substance to create an alloy.



Figure 2: Galena is the most common mineral that contains lead.

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