**From Wikipedia**

**Hematite**, also spelled as haematite, is the **mineral** form of **iron(III) oxide** (Fe$_2$O$_3$), one of several **iron oxides**. Hematite crystallizes in the **rhombohedral lattice system**, and it has the same **crystal** structure as **ilmenite** and **corundum**. Hematite and ilmenite form a complete solid solution at temperatures above.

Hematite is colored black to steel or silver-gray, brown to reddish brown, or red. It is mined as the **main ore of iron**. Varieties include kidney ore, martite (pseudomorphs after magnetite), iron rose and specularite (specular hematite). While the forms of hematite vary, they all have a rust-red streak. Hematite is harder than pure iron, but much more brittle. Maghemite is a hematite- and magnetite-related oxide mineral.

Huge deposits of hematite are found in **banded iron formations**. Gray hematite is typically found in places that can have still standing water or mineral hot springs, such as those in Yellowstone National Park in North America. The mineral can precipitate out of water and collect in layers at the bottom of a lake, spring, or other standing water. Hematite can
also occur without water, however, usually as the result of volcanic activity.

Clay-sized hematite crystals can also occur as a secondary mineral formed by weathering processes in soil, and along with other iron oxides or oxyhydroxides such as goethite, is responsible for the red color of many tropical, ancient, or otherwise highly weathered soils.

Iron(III) oxide or ferric oxide is the inorganic compound with the formula Fe$_2$O$_3$. It is one of the three main oxides of iron, the other two being iron(II) oxide (FeO), which is rare, and iron(II,III) oxide (Fe$_3$O$_4$), which also occurs naturally as the mineral magnetite. As the mineral known as hematite, Fe$_2$O$_3$ is the main source of iron for the steel industry. Fe$_2$O$_3$ is ferromagnetic, dark red, and readily attacked by acids. Iron(III) oxide is often called rust, and to some extent this label is useful, because rust shares several properties and has a similar composition. To a chemist, rust is considered an ill-defined material, described as hydrated ferric oxide.

Other names

diferric oxygen(2-) (IUPAC Name)