Native minerals

Minerals that are composed of atoms from a single element are referred to as **native elements**

Graphite

Chemical classification:-

Native elements

Formula :- C

Color	Steel gray to black
Streak	Black
Luster	Metallic, sometimes earthy
Cleavage	Perfect in one direction
Diaphaneity(transparency)	Opaque
Mohs Hardness	1 to 2
Crystal System	Hexagonal
Tenacity	Dissection
Density	2.09 – 2.23 g/cm3 (Measured) 2.26 g/cm3 (Calculated)
Fracture	None

Sulfur

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Chemical classification:

Native elements

Formula :- S

Physical Properties:-

Color	Yellow, sulphur-yellow, brownish or greenish yellow, orange, white
Streak	Colourless
Luster	Resinous, Greasy
Cleavage	Imperfect/Fair Imperfect on {001}, {110} and {111}.
Mohs Hardness	1,5 – 2,5
Crystal System	Orthorhombic
Tenacity	Brittle
Density	2.07 g/cm3 (Measured) 2.076 g/cm3 (Calculated)
Fracture	Irregular/Uneven, Conchoidal

Copper

Chemical classification:-

Native elements

Formula :- Cu

Color	Copper red on a fresh surface, dull brown on a tarnished surface
Streak	Metallic copper red
Luster	Metallic
Cleavage	None
Diaphaneity(transparency)	Opaque
Mohs Hardness	2.5 to 3
Specific Gravity	8.9
Crystal System	Isometric
Tenacity	Ductility
Fracture	Hackly
Density	8.94 – 8.95 g/cm3 (Measured) 8.93 g/cm3 (Calculated)

Oxide Minerals

- *The oxide group of minerals include naturally occurring compounds where oxygen is combined with one or more metals such as iron, manganese, aluminum, chromium, titanium and copper. This major group of minerals is known for their distinct physical properties that include high hardness and density, moderate to high luster, and are refractory. Most oxides are very stable in most geologic conditions as well as in the surface environment. They are found as primary minerals in igneous, sedimentary and metamorphic rock types and can be a major component of the rock or may be just an accessory mineral. Many oxide minerals serve as major ore minerals of economic importance, and some as significant gemstones!*

Magnetite

Chemical classification:-

Oxide Mineral

Formula :- Fe3O4

- **Color** is black.

- **Luster** is metallic to dull.

- **Transparency:** Crystals are opaque.

- **Crystal System** is isometric; 4/m bar 3 2/m

- **Crystal Habits** are typically octahedrons

- **Cleavage** is absent although octahedral

- parting can be seen on some specimens.

- **Fracture** is conchoidal.

- **Hardness** is 5.5 - 6.5

- **Specific Gravity** is 5.1+ (average for metallic minerals)

- **Streak** is black.

- ***Tenacity** is Brittle*

chromite

Chemical classification:-

Oxide minerals

Formula :- FeCr2O4

Physical Properties:-

_**Color** is brownish black to a deep dark black.

- **Luster** is metallic to greasy.

- **Transparency:** Crystals are opaque.

- **Crystal System** is isometric; 4/m bar 3 2/m

- **Crystal Habits** include octahedrons often

- **Cleavage** is absent.

- **Fracture** is conchoidal/ Uneven.

- **Hardness** is 5.5

- **Specific Gravity** is 4.5 - 4.8

- **Streak** is brown.

- **Tenacity** is Brittle

Hematite

Chemical classification:-

Oxide Mineral

Formula :- Fe2O3

- **Color** *is steel or silver gray to black in some forms and red to brown in earthy forms.*

- **Luster** *is metallic or dull in earthy.*

- **Transparency:** *Crystals are opaque.*

- **Crystal System** *is trigonal; bar 3 2/m.*

- **Cleavage** *is absent.*

- **Fracture** *is uneven.*

- **Hardness** *is 5 - 6*

- **Specific Gravity** *is 5.3*

- **Streak** *is blood red to brownish red for earthy forms*

- **Tenacity** *is Brittle*