

General Principles and Processes of Isolation of Elements

Aluminium



Bauxite $\text{Al}_2\text{O}_3 \cdot \text{H}_2\text{O}$

Kaolinite $\text{Al}_2(\text{OH})_4\text{Si}_2\text{O}_5$

Iron



Haematite Fe_2O_3

Magnetite Fe_3O_4

Iron Pyrite FeS_2

Ores

Minerals from which we can extract metals viably.

Copper



Copper Pyrite CuFeS_2

Cuprite Cu_2O

Malachite $\text{CuCO}_3 \cdot \text{Cu}(\text{OH})_2$

Zinc



Zinc Blende ZnS

Zincite ZnO

Calamine ZnCO_3

Metallurgy

1. Concentration of the ore

Removal of the unwanted materials based on the difference between physical properties of ore and unwanted particles

3. Refining Process

To ensure that the isolated metal is free of any impurities.

2. Isolation of metal from the ore

Convert the metal ore (compound) to metal (elemental) using chemical methods