



Definition

Corrosion is defined as “**the gradual decay or deterioration or destruction of metals/alloys due to chemical or electrochemical reaction with its environment**”. Due to corrosion, some useful properties of a metal such as malleability, ductility, cluster, thermal conductivity, hardness and electrical conductivity are lost.

Examples:

- A layer of reddish brown scale and powder of ferric oxide (Fe_3O_4) is formed (**Rusting of iron**) on the surface of iron in the presence of moisture and air.
- A green film of basic carbonate ($\text{CuCO}_3 + \text{Cu}(\text{OH})_2$) is formed on the surface of copper, when it is exposed to moist air containing carbon dioxide.

1.5 Causes of corrosion

In nature, metals occur in two different forms.

- Native State
- Combined State

Native State

Metals occurs in the earth's crust is free state or uncombined state. Example: Noble metals like Au, Pt, Ag, etc, They are non-reactive with nature and good corrosion resistance.

Combined State

Except noble metals, all other metals are highly reactive in nature which readily undergoes reaction with their environment to form stable compounds called ores and minerals. These are called combined state of metals. Example: Fe_2O_3 , ZnO, PbS, CaCO_3 , etc.,