

ALLOYS

Definition: The material obtained by melting together metals or metals with non-metals or metals with metalloids is called an alloy. Or in other words, "an alloy is an intimately mixed metallic solid mixture of two or more different elements, at least one of which is a metal."

Features of Alloy

1. Alloys are homogeneous in molten state but they may be either homogeneous or heterogeneous in solid state.
2. Alloys containing mercury as one of the constituent are called **amalgams**.
3. An alloy must contain a metal.
4. In alloys, chemical properties of the component elements are retained, but certain physical properties are improved.

Classification of Alloys: Alloys can broadly be classified into two categories:-

A. Ferro alloys B. Non-Ferro alloys

A. Ferro alloys: The alloy containing iron as the main constituent is called a ferro alloy.

For example: Stainless steel, Manganese steel etc.

B. Non-ferro alloys: The alloy which does not contain iron as the main constituent is called non-ferro alloys. For example: Brass, Bronze, Solder, Gun metal, Bell metal etc.

COMPOSITIONS AND USES OF BRASS, BRONZE, BELL METAL, ANILCO, GERMAN SILVER AND DURALUMIN.

Alloys	Composition	Uses
1. Brass	Cu: 60% – 90% Zn: 40%– 10%	It is used in making: utensils, hard wares, screws, jewellery musical instrument, battery caps tubes, name plates
2. Bronze	Cu: 80% – 95% Sn: 20% – 5%	Making imitation jewellery water fittings, statues, medals heavy load bearings, turbine blades, pump valves, coins

3. Alnico Steel: 50%
Ni: 21%
Al: 20%
Co: 9%

It is used in making permanent magnet.

4. Duralumin Al: 95%
Cu: 4%
Mn: 0.5%
Mg: 0.5%

It is used in making air ships