

Heat Treatment

- * The properties of material metals and alloys can be improved by heating and cooling process.
- * For example steel to be hardened to resist cutting action and prevent abrasion.
- * The rate and of cooling and manner of cooling are the controlling factors in heat treatment process.
- * Heat treatment process not only increase hardness but also increases the tensile strength and toughness.

Classification of heat treatment process

1. Annealing
2. Normalizing
3. Hardening (by quenching)
4. Tempering.

Purpose of heat treatment →

- ① Relief of internal stresses.
- ② Hardened and strengthen metals.
- ③ Improve machinability.
- ④ change grain size.
- ⑤ Improve ductility & toughness.
- ⑥ Increase heat, wear and corrosion resistance of material.

Stages of heat treatment process.

- ① Heating a metal/alloy to definite temp.
- ② Holding at that temp. for a sufficient period to allow necessary changes to occur.
- ③ Cooling at a rate necessary to obtain desired properties associated with changes in the nature, size etc.