

## 2.8 31508 PLASTIC MATERIALS

1. Genral Purpose Thermoplastics: Polyolefines: LDPE, LLDPE, HDPE, PP, EVA, And UHMHDPE.
  - 1.1 Styrene Plastics: Polystyrene, high impact polystyrene, ABS, SAN and PAN. Vinyl Polymer: PVC, PVDC.
2. Advanced thermosets, epoxies, poly urethanes
3. Engineering thermoplastics – poly carbonates, polyamides, PEEK, poly phenylene oxide, acetals,
  - 3.1 Nylons: Nylon6, Nylon66, Polycarbonate, Polyacetol, PET and PBT, PPS, PPO, Polysulphone, PMMA, Polyurethanes.
  - 3.2 Thermoset Materials: PF, UF, MF, EPOSY, ALKUD, POLYSTER
4. Reinforced plastics –principles of composite reinforcement, effect of reinforcement on strength of plastics.
  - 4.1 Role and nature of binders and coupling agents, properties and applications of fibres in reinforcement (glass and carbon).
  - 4.2 Miscellaneous fillers (Talc, mica, glass beads). Properties and applications of FRPs (un-saturated polyesters, epoxies, PU, nylon)
5. Polyblends and alloys–Definition, advantages of polymers, blends and alloys, role of composition, properties and applications of parameters for compability, PVC – Nitrile rubber, ABS-PVC and PP-EPDM
6. High performance polymers–poly tetra fluro ethylene, Teflon, poly sulphones, liquid crystalline polymers
7. Preliminary concept of new materials such as conducting polymers, biopolymers, onto-electronic plastics,
  - 7.1 Nano-polymeric materials and plastics in biomedical applications, interpenetrating polymer networks, polymer concretes

### Reference Book:

1. Plastics Materials BY Brydson