

2.14 31514 THERMOSET PLASTICS MATERIALS AND PROCESSING TECHNIQUES

UNIT-1 THERMOSET MATERIALS

1. Introduction: Basic characteristics of Thermoset Molding materials.
2. Monomer Production: Raw material manufacturing process of Phenol, Formaldehyde, Urea, Bisphenol-A, Epichlorhydrin, Melamine, Preparation of Intermediates for Silicon's,
3. Manufacturing Processes of Thermoset Resins: Layout and arrangement of thermoset plastic material manufacturing plant of: Phenol Formaldehyde, Melamine Formaldehyde, Urea Formaldehyde, Epoxy, Silicon, Polyester, Polyurethanes
4. Properties, Applications and Processing characteristics of: Phenol Formaldehyde, Melamine Formaldehyde, Urea Formaldehyde, Epoxy, Silicon, Polyester, Polyurethanes

UNIT-2 PROCESSING OF THERMOSETS

5. Compression Molding: Introduction, Advantages & Disadvantages, Process Description, Factors effecting the process, Types of Compression molds, Bulk factor, Preforms, Powder well, Land area & Pressure Pads, Preheating, Heaters for compression mold, Factors affecting compression molding, Applications of Compression Molding, Trouble shooting. .
6. Transfer Molding: Introduction, Advantages & Disadvantages, and Process Description
Transfer Molding Methods: Pot Type, Plunger Type, And Screw Type
Transfer Types of Transfer Molds: Loose plate, Integral, Auxiliary Ram Molds
Comparison between Compression and Transfer Molding, Factors affecting Transfer molding, Vacuum Venting, Applications of Transfer Molding, and Trouble Shooting.

Reference Books:

- 1) Plastic Materials by J.A.Brydson
- 2) Plastics: Materials and Processing by A.Brent Strong
- 3) Shreve's Chemical Process Industries by George Austin
- 4) SPI Plastics Engineering Handbook by Micheal L. Berins
- 5) Plastics Materials & Processes by Sidney H.Goodman
- 6) Thermosetting Plastics by J.F.Monk