

AMPT13 PACKAGING MATERIALS

UNIT-1 PLASTICS

- 1.1 Polymers, Plastics in packaging- types, advantages; Flexible and Rigid packaging- Properties, applications;
- 1.2 Thermoplastic Materials, Thermoset Materials, Food grade plastics- properties, processing methods, applications;
- 1.3 Recycling; Biodegradable and Eco friendly packaging- Advantages and disadvantages.

UNIT-2 WOOD, PAPER AND TEXTILE

- 2.1 Wood- Types, Materials, characteristic properties, application, Nature of wood, properties, wood treatment; Textile- Types of cloth, properties, application;
- 2.2 Paper and Board- Types, Manufacturing, Properties, Specialty papers for Packaging,
- 2.3 Folding board cartons and coated cartons, Corrugated Boards- Types, Applications, and Specifications.

UNIT-3 GLASS AND METALS

- 3.1 Glass- Types, Properties, use, Chemistry, coatings, defects and application areas;
- 3.2 Metals- Tin, Steel, Aluminium- Cans, drums, lacquers, sheet- Materials, properties, treatment, coatings, recycling process;
- 3.3 Foil – Materials, characteristics, decoration, lamination and metallization methods.

UNIT-4 ANCILLARY MATERIALS

- 4.1 Label- types, materials, Label adhesives- Types characteristic properties and uses, shrink wrapping, stretch wrapping, Collapsible tube- materials and properties.
- 4.2 Closures and sealing- materials and properties.
- 4.3 Cushioning Materials- properties and areas of application.
- 4.4 Lacquers- properties, uses; Special additives for food grade films; Nano materials, Reinforcement- materials and properties.

UNIT-5 MATERIAL TESTING

- 5.1 Mechanical- Tensile, Tear burst, impact; barrier properties- WVTR test, OTR test, Adhesion test, Optical- Gloss, haze and clarity;
- 5.2 Chemical Resistance test- solvents and chemicals, Migration test, Plastic material identification test, solvent retention;
- 5.3 Hardness and corrosion test for metals; Clarity and brittleness test for glass.

Reference Books:

1. A.S.Athayle, Handbook of Packaging Plastics, Multi-tech Publishing Co.,First Edition, 1999.
2. Aaron L.Brody& Kenneth S.Marsh, Encyclopedia of Packaging Technology,
3. John Wiley Interscience Publication, II Edition, 1997.
4. Gunilla Johnson, Corrugated Board Packaging, PIRA International, 1993.