

2.16 31516 PLASTIC RECYCLING & WASTE MANAGEMENT

UNIT-1

- 1.1 Introduction to Plastic Waste Definitions regarding plastic waste Sources of Plastic Waste
Plastics Cycle-Flow of plastics products & plastics waste Generation of Industrial Plastic waste.

UNIT-2

- 2.2 Separation Separation of components of municipal solid refuse-Size reduction & Separation methods,
2.3 Separation Processes Specific to plastics-Separation of Paper/Plastics mixture,
2.4 Separation of plastics from Plastic-coated fabric,
2.5 Separation of mixtures of Plastics Separation using Recycling Codes

UNIT-3

- 3.1 Primary Recycling Degradation of thermoplastics due to repetitive processing-Mechanisms
Granulators,
3.2 Granulating difficult materials- Cryogenic Grinding,
3.3 Reprocessing low Bulk density plastic waste with plunger and screw type of stuffer, In-line
Automatic Recycling Systems

UNIT-4

- 4.1 Secondary Recycling Approaches to secondary Recycling Equipment Requirements
Equipment's for Reworking of Mixed Plastic waste-Mitsubishi Reverzer, Klobbe,
4.2 FN machine Secondary Recycling by Co-extrusion and Co-injection Molding Use of Plastic
waste as fillers

UNIT-5

- 5.1 Tertiary Recycling Pyrolysis and Pyrolysis systems for Municipal solid refuse Pyrolysis of
Plastics waste-Pyrolysis reactions Reactors for Pyrolysis of Plastics-Union Carbide's
apparatus, Japan Steel works Ltd.
5.2 System Chemical decomposition of plastics waste

UNIT-6

- 6.1 Quaternary Recycling Energy recovery from municipal solid refuse Incinerators Incineration
of predominantly plastics waste
6.2 Problems associated with incineration of pure plastic waste, Incinerators suitable for Plastics
waste

UNIT-7

- 2.2 Disposal of waste plastics without the recovery of value Incineration without the recovery of
energy Landfill-Open Dumping & Sanitary Landfill Plastics in Landfill

UNIT-8

- 8.1 Recycling of various Plastics and Plastic Products Recycling of HDPE containers, Recycling of PP/HDPE woven sacks to pellets, Recycling of PE films/plastic bags,
8.2 PET Recycling, recycling of PVC, Recycling of PS, Recycling of PU, Recycling of medical waste Environmental Implications of Recycling & Polymer Degradation

Reference Books:

1. Plastics Waste by Jacob Leidner
2. Plastics Fabrication and Recycling by Manas Chanda & Salil Roy
3. Introduction to Plastics recycling by Vanessa Goodship
4. Plastic Waste management Processing and Disposal by Muralisrinivasan Natamai Subramanian

