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PG - Sem - II
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Unit - IV

sub-topics of Waste Management

[6] **WASHING** :

It

- Removes dirt, Labels, oils, adhesives and contaminants.
- Ensures clean plastic flakes for further processing.
- Prevent defects in recycled products.

→ Washing is essential for producing high-quality recycled plastic.

[7] **SHREDDING** i.e. (comminution)

Shredding is the process of breaking plastics into small pieces.

Benifits :

- Easier handling
- Better separation
- Faster melting
- Improved recycling efficiency

→ often used before gravity or flotation separation.

[8] **EXTRUDING**

Extrudding is the process where ;

→ shredded plastic → melted → forced through a die → forms pellets or new shapes.

→ Final products may includes:

- Plastic containers
- Pipes
- Packaging materials
- Fibers

[9] Thermal Treatment Vs Material Recycling

- Thermal treatment: Burns plastic to recover energy (widely used)
- Material recycling: Reuses plastic but requires high purity, making it more challenging.

Example – PVC is unsuitable for thermal treatment because chlorine additives damage boiler materials.

[10] Special case: PVC Recycling

- Mixed plastics containing PVC often go to Landfills.
- Removing PVC is important for sustainable recycling.

Technologies used:

- selective comminution
- Gravity separation
- Magnetic separation
- Electrical separation
- Flotation (most widely studied)
- Density based separation.

→ supports UN sustainable Development Goal 12 – Responsible consumption and production.

[11] Challenges in plastic Recyling :

- Difficulty in separating similar plastics.
- presence of additives.
- High costs of advanced technology
- contamination issues.