

# Recycling Plants

## PET Recycling Lines

The AMUT PET Recycling Lines represent a cutting-edge solution for the recycling of PET (polyethylene terephthalate) materials, transforming used PET bottles into high-quality PET flakes. These flakes are characterised by their purity and quality, making them almost indistinguishable from virgin PET. As a result, they are highly suitable for various applications including Bottle-to-Bottle, Bottle-to-Packaging, Bottle-to-Fibres, and Bottle-to-Strapping. This technology offers an environmentally friendly and economically viable method for recycling PET, aligning with global efforts to reduce plastic waste and promote a circular economy.



The technology incorporates advanced water management systems that significantly reduce water, chemical, and energy consumption, further enhancing its sustainability credentials. Additionally, the centralised waste collection system improves operational efficiency by reducing the need for manual intervention and maintaining a clean working environment.

### Key Features

- **High-Quality PET Flakes:** Comparable to virgin PET.
- **Minimal Contaminants:** Advanced detection and removal systems.
- **Effective Cleaning:** Friction washer and hot washing for thorough cleaning.
- **Sustainable Practices:** Efficient water, chemical, and gas usage.
- **Operational Efficiency:** Automated processes reduce manpower and maintain cleanliness.

### Key Benefits

- **High-Quality Recycled PET Flakes:** Comparable to virgin PET with minimal contaminants, suitable for high-end applications such as Bottle-to-Bottle, packaging, fibres, and strapping.
- **Comprehensive Cleaning and Processing:** Advanced systems ensure thorough removal of impurities like organic residues, labels, and glue, resulting in clean and high-grade PET flakes.
- **Sustainable and Eco-Friendly Operations:** Efficient water usage (1.1 litres/kg RPET), reduced chemical and gas consumption, and support for circular economy practices.
- **Operational Efficiency and Cost Savings:** Automated, continuous processing with reduced manpower requirements and lower operational costs.
- **Versatility and Broad Applicability:** Ideal for various applications and adaptable to different types of PET waste, meeting diverse recycling needs across industries.

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### Detection Systems

#### Colour/Metal NIR Detection

- PVC Contamination: Reduced to 0-40 ppm.
- PVC Labels: Detected and removed.
- Colour Detection: Identifies and separates coloured flakes.
- Metal Detection: Identifies and removes metal contaminants.

#### Advantages:

- Ensures minimal PVC presence.
- Effective identification and separation of contaminants.

### Pre-Processing

#### Wet Grinding

- Process: Intensive pre-washing of PET bottles.

#### Advantages:

- Provides thorough initial cleaning before further processing.

### Flake Cleaning Systems

#### Flakes Washing

- Machine: Patented friction washer.
- Process: Intensive friction at high temperatures.
- Function: Removes paper labels, glue, and contaminants.

#### Advantages:

- Non-destructive cleaning.
- Eliminates risk of glue redistribution on flakes.

#### Hot Washing

- Process Type: Continuous.
- Action: High friction with caustic hot washing.
- Residues: Organic residues reduced to 0-70 ppm.

#### Advantages:

- Efficient, thorough cleaning.
- Maintains low levels of organic contaminants.

#### Rinsing

- Polyolefin Residual: Reduced to 20 ppm.
- pH Control: pH rise kept below 0.5.

#### Advantages:

- Effective removal of polyolefins.
- Maintains minimal pH fluctuation, indicating low soda residue.

#### Dedusting

- Dust Particles: Less than 0.5% of particles are smaller than 0.6 mm.

#### Advantages:

- Reduces contamination from labels, fibres, and barrier layers.

### Detection and Separation

#### Colour Flakes and Metal Detection

- Function: Detects and removes pollutants like coloured flakes, wood, metal, and labels.

#### Advantages:

- Significantly reduces the presence of contaminants.

#### PO Recovery

- Process: Separates caps and labels.

#### Advantages:

- Enhances the quality of the final product by removing non-PET materials.

### Water Management

#### Water Filtration Process

- Water Usage: 1.1 litres per kilogram of recycled PET.
- Chemical and Gas Consumption: Reduced through efficient processes.

#### Advantages:

- Sustainable water usage.
- Low consumption of chemicals and gas.

### Operational Efficiency

#### Centralised Waste Collection

- Manpower: Reduced requirement.
- Workspace: Cleaner and more organised.

#### Advantages:

- Improves operational efficiency.
- Minimises manual labour and maintains a clean work environment.



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