



PLASTIC PET BOTTLES WASHING AND PELLETIZING LINE

PET Bottle Washing & Pelletizing Line: From Waste to Food-Grade Raw Material

Plastic is a valuable resource. Through closed-loop regeneration, discarded PET can become a sustainable energy and material source. Our PET Washing and Pelletizing Line is designed to bridge the gap between waste and high-quality production.

We prioritize a low-energy process that maintains the highest quality standards. This allows you to transform post-consumer bottles into rPET (recycled PET) that is clean enough for food-grade packaging.

Why This Recycling Line is Different

Most recycling systems focus only on cleaning. Our solution focuses on Value Recovery.

- **Low Energy, High Output:** We use advanced heating and filtration to reduce power consumption while keeping production speeds high.
- **Food-Safety Standards:** Our decontamination technology ensures the final granules are safe for direct food and beverage contact.
- **Stable Intrinsic Viscosity (IV):** By using advanced SSP (Solid State Polycondensation) systems, we ensure your recycled pellets perform like virgin resin.
- **Total Contaminant Removal:** Our washing stages effectively remove glues, labels, and caps to ensure 100% purity.

APPLICATIONS

Diverse Solutions for the PET Lifecycle

This line is versatile enough to handle various streams of PET waste, converting them into premium raw materials for several industries:

1. Consumer & Food Packaging

- **Bottle-to-Bottle Recycling:** Turn old beverage bottles into food-grade PET granules for new bottle production.
- **Household Containers:** Process milk bottles, cosmetic jars, and household packaging into reusable flakes or pellets.
- **Food-Contact Compliance:** Supply rPET pellets for stretch blow molding that meet strict safety requirements.

2. Industrial & Manufacturing Waste

- **Production Scrap:** Recycle PET films, sheets, and injection molding waste directly from your factory floor.
- **High-Purity Granules:** Deliver stable IV pellets for premium industrial parts that require consistent performance.

3. Textiles & Synthetic Fibers

- **Fiber Production:** Create high-quality polyester fibers for the textile industry.
- **Non-Woven Materials:** Supply the raw material needed for industrial fabrics and eco-friendly clothing lines.

4. Environmental & Waste Management

- **Municipal Collection:** Efficiently treat post-consumer PET waste collected from urban recycling programs.
- **Circular Economy Support:** Help brands reach their "Zero Waste" goals by providing a reliable, closed-loop recycling infrastructure.

FEATURES

Easy Recycling and High-Value Plastics

Plastic can be reused as a valuable resource when processed correctly. Our recycling solutions support closed-loop regeneration with low energy consumption and high production standards. The system is designed to recycle discarded beverage bottles and convert them into food-grade PET materials. This technology supports sustainable production while delivering consistent, high-quality output.

Complete PET recycling solutions

Complete PET Recycling Solutions

We provide integrated, end-to-end recycling systems covering every stage of PET processing:

- Bottle and sorting system
- Washing line
- Pelletizing system
- Viscosity increase system

Bottle sorting and recycling system

Bottle and Sorting System

The bottle sorting system prepares incoming materials for efficient recycling. It removes contaminants and ensures high purity before further processing.

- Pre-sorting of incoming materials
- Removal of foreign matter and impurities
- Separation of containers
- Elimination of wood, sand, glass, metal, colored plastics, and foreign polymers
- Label removal
- Crushing bottles into flakes

The system can be customized based on input material quality, local conditions, and required purity levels.

PET bottle sorting line components

THEORY & METHOD

What Can We Do for You?

We deliver complete washing and pelletizing turnkey solutions tailored to customer requirements. Our sales team provides customized system design, technical specifications, and layout drawings.

[Contact Torontech](#) to discuss your project needs.

Installation, Testing, and Training

Engineers can be dispatched to customer sites for installation, testing, and training. This ensures smooth system integration and reliable startup.

Training covers operation and maintenance procedures. Detailed manuals are provided. Layout drawings and installation requirements are shared before delivery to support proper preparation and efficient production.

Spare Parts

We maintain a stock of spare parts for fast delivery. Parts can be shipped by air, sea, or courier based on urgency. Customers are encouraged to keep essential spare parts, such as pelletizing blades and rubber seals, to maintain stable operation.

Service Support

Dedicated sales representatives provide technical consultation, service coordination, and spare parts support throughout the equipment lifecycle.

Our Vision

Our goal is to restore the value of waste plastics through efficient recycling solutions, reducing environmental impact while simplifying the recycling process.

TECHNICAL SPECIFICATIONS

Bottle and Sorting System Components

- Belt de-baler
- Belt trommel
- Manual sorting belt
- Belt pre-wash
- Screw loader
- Vibrating feeder
- Belt bottle sorting unit
- Manual sorting belt
- Crusher
- Label remover

Producing PET pellets for high-grade applications requires precise material selection. During pre-processing, high-quality bottles are selected while impurities such as sand and wood are removed.

PET recycling pre-processing system

Crusher

- High throughput with reduced power consumption due to optimized rotor and cutting chamber design
- Heavy-duty rotor knife mounting for stronger cutting performance
- Improved granule shape with reduced noise from precise cutting gaps
- Hydraulic system for stable and powerful material feeding

Washing Line

The washing line removes contaminants and produces clean PET flakes suitable for fiber, film, and injection molding applications.

- Pre-washing stage
- Caustic washing with caustic renewal
- Multi-stage post-washing
- Drying system
- Automatic waste management to reduce operator workload
- Label and cap separation using float-sink separation and sifting

PET washing line process

Pelletizing System

- Vacuum loader
- Vacuum-state sliding gate feeding device
- Vacuum pump units with dust filtration
- Reactor with five-layer combined cutter discs
- Single-screw extruder
- Backflush screen changer
- Melt pump
- Online melt viscosity measurement system
- Automatic underwater pelletizing system
- Packing system

PET pelletizing system

Viscosity Increase System - SSP

The SSP viscosity increase system combines vacuum technology, solid-state polycondensation (SSP), and a specially designed pelletizing extruder. This system ensures that the intrinsic viscosity (IV) of PET pellets meets required specifications and remains stable.

Even with variations in raw material moisture and IV levels, the system maintains consistent pellet quality. The stable IV output supports downstream processes such as stretch blow molding and enables up to 100% bottle-to-bottle recycling. Compared to bottle flakes, PET pellets provide uniform particle size, no powder formation, and more consistent viscosity.

SSP viscosity increase system

Viscosity Increase System - LSP

The LSP system is suitable for PET film, sheets, scrap, fabric fibers, polyester cloth, waste silk, and similar materials. It uses a spray cooling vacuum exhaust device and a multi-screw large-area vacuum exhaust extruder.

The spray cooling vacuum exhaust device increases the PET melt surface area by up to 1000 times. The multi-screw extruder improves melt homogenization. Combined with a high-performance vacuum pump, the system removes glycol and increases polymerization. This process forms new PET molecules and raises intrinsic viscosity (IV).

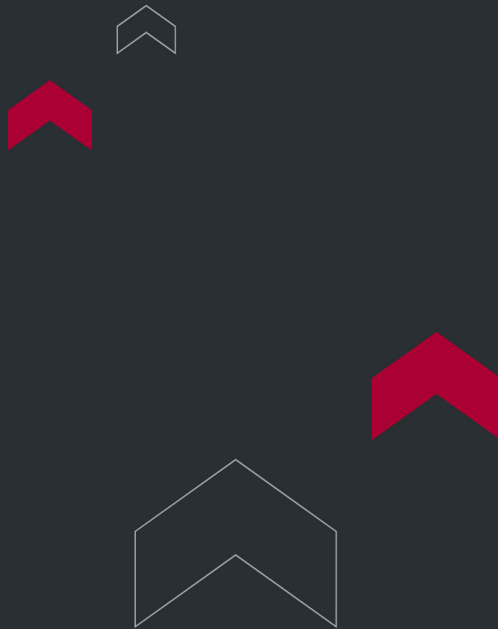
Intelligent data terminal consultant system

Intelligent Data Terminal Consultant System

The system integrates digital tools for equipment maintenance and production monitoring. It supports automated maintenance notifications, fast work order creation, and real-time task execution updates through online messages.

This improves uptime, boosts production efficiency, and increases equipment utilization. The system also supports data analysis by providing indicators such as equipment failure rates and maintenance summaries, helping management make

informed decisions.



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