REPRO-FLEX

In-house recycling at its best

- 100% pellets reusability right back into your production line
- Minimal material degradation without property change
- Reduces production cost by reprocessing your own industrial waste
Application

Post-industrial waste

“Recycling has allowed us to save about 30 percent in raw material buying”  — Andrey Habibulin, Europolimer

Blown and cast film producers
HDPE, LDPE, PP shrink, stretch film, BOPP, CPP, OPP Leftover waste of edge trim from blown film in the format of scraps (T-shirt bags cut-offs from bag making processes), complete film rolls and sheet can be efficiently recycled in a simple process. The high quality, uniformed sized recycled pellets are almost like virgin material which can be put directly back into the film production line.

Raffia & woven
In-house waste generated from the production of PP woven bags, non-woven, jumbo bags, PP raffia, PP woven sacks and tapes. The recycled PP pellets can be reused (100%) for production, in most cases in circular weaving looms and tapelines.

Rigid Regrind
Pre-crushed, heavy rigid regrind scraps such as bottles, pipes, containers and lumps in the form of granules. Applicable materials are mainly HDPE, LDPE, PP, PA, PC, PU, ABS and others.
Flexible in operation

Simple in design

- One-step direct technology with cutting + extrusion + pelletizing
- Very easy to install, operate and perform maintenance
- Fast change between different types of material

POLYSTAR’s Repro-Flex is designed for the reprocessing of polyethylene (HDPE, LDPE, LLDPE) and PP polypropylene flexible packaging material, printed and non-printed. This cutter integrated pelletizing system eliminates the need of pre-cutting the material, requires less space and energy consumption while producing high quality plastic pellets at a highly productive rate.
Filter with dual channel system
For non-stop operation and reduces machine down time

Cutting & Compacting
Very fast and stable feeding from the compactor directly into the extruder

Filtration

Degassing Ability
- Unvented: 5%
- Single vented: 20%
- Double vented: 40%
- Triple vented: 100%

Double degassing
Able to process both printed and non-printed material

Die face pelletizing
Produces high quality plastic pellets for reprocessing

Able to process both printed and non-printed material
Fast • Stable • Direct

+20% higher output comparing to traditional feeding method

-10% Lower Power Consumption
Model Comparison

<table>
<thead>
<tr>
<th>Model</th>
<th><em>Output(kg/hr)</em></th>
<th>Power consumption</th>
<th>Dimension</th>
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<tbody>
<tr>
<td></td>
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<td>A (Length)</td>
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<tr>
<td>Repro-Flex65</td>
<td>80-120</td>
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<td>Repro-Flex180</td>
<td>1000-1200</td>
<td>385 kw</td>
<td>9500</td>
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* Output based on clean, dry LDPE film processing, without degassing.

100% Customization

- Different degassing and filter options
- Minimal space requirement
- Personalized design to meet your requirement and factory layout

Triple degassing

In addition to the double degassing in the first extruder, the venting area (the connection between the first and second extruder) serves as a third degassing section to further remove the ink and extra humidity level from the material.

Dosing device

Color masterbatches and CaCO3 compounds (in pellet form) can be added during the recycling process.

Filter re-positioning

The re-positioning of filtration before degassing ensures a superior degassing effect, producing excellent quality pellets from heavily printed material.

Unvented

The unvented extruder has a very short screw L/D ratio, in which the material travels in the extruder for the shortest time and distance. This results in minimal change in material property and higher output comparing to vented extruder.

World’s Simplest Operation System
POLYSTAR has been working closely with plastic producers around the world in Asia, Africa, Europe, Middle East & America.

Through continuous customer feedback and 27 years of experience, POLYSTAR has become one of the global leaders in the field through 3 generation of technological evolution.

The focus on user-friendliness of its machines through re-engineering, making recycling extremely “Simple” for its users – Easy operation and maintenance is the core competence of POLYSTAR recycling machines.

In 102 countries Worldwide presence

POLYSTAR’s representative in Russia, Nikolay Muschkov

The #1 selling recycling machine

From your world-class producer

“Since K show 2013, POLYSTAR has already installed more than 20 cutter-compactor recycling machines in Russia. With proven success and satisfied customers, Polystar has established itself as a premium brand of recycling line that offers reliable and high performing equipment in the market.”

----- POLYSTAR’s representative in Russia, Nikolay Muschkov

"The POLYSTAR machine is extremely easy to install and operate”

----- Chad May, Great Plains Environmental and Recycling, USA

“What POLYSTAR provides is world-class machine and service!”

----- Thepassak, Bags and Gloves, Thailand

1,000 recycling machines

102 countries
Germany

EPE and EPS foam waste, post-industrial

“We decided to bring our own recycling plant to process our own foam waste and at the same time, creating surplus production capacity that allows us to collect industrial waste from other producers,” said Mr. Geier, operation manager of the German company. “The investment pays off rapidly because we are using less primary raw materials and savings in disposal cost.”

Indonesia

Packaging film producers

Leftover waste of edge trim from blown film and cast film in the format of scraps (T-shirt bags cut-offs from bag making and punching processes), complete film rolls and sheet can be efficiently recycled in a simple process. “The high quality, uniformed sized recycled pellets are almost like virgin material which can be put directly back into film production line” — production manager, Mr. Hendrix

USA

BOPP & Stretch film Recycler

BOPP and stretch film scraps and film on-roll can be turned into high quality pellets for reprocessing. POLYSTAR’s advanced cutter-compactor system can process material that is typically more difficult to recycle due to its special property, such as printed BOPP and stretch film that one normally faces problem with the traditional recycling systems.

Mexico

LDPE / HDPE Regrind

Application: washed and dried rigid regrind from injection waste and LDPE bottles “The POLYSTAR system helps to further reduce the moisture level of the material coming from the washing line. It is beneficial for processing both washed rigid regrind and washed film flakes” — production manager, Mr. Rivera

Saudi Arabia

PP woven producers

In-house waste generated from the production of PP woven bags, non-woven, jumbo bags, PP raffia, PP woven sacks and tapes. The recycled PP pellets can be reused (100%) for production. In most cases in circular weaving looms and tapelines
Turkey

Istanbul based film producer goes for POLYSTAR

In September, Polystar installed another 250 kg / hr plastic film recycling machine in Turkey.

The Turkish packaging company manufactures various types of printed and unprinted bags including grocery store bags, soft loop handle bags, fruit and vegetable bags as well as other types of food packaging products.

The newly installed Polystar recycling machine enables the producer to put the recycled pellets directly back into its mono and multi-layer blown film lines up to 100%, keeping the post-industrial waste recycling and film extrusion/reprocessing completely in-house.

The in-house recycling process results in minimal material property loss as well as controlling the quality of the material. The recycled pellets are of very good quality and are ideal for reuse in blown film extrusion.

The output ranges between 200–250kg per hour, processing different types of film and bag scraps of HDPE, LDPE and LLDPE.

The bag and film scraps are fed via the belt conveyor while the nip roll feeder feeds the film-on-roll wastes into the cutter-compactor simultaneously. The feeding is controlled automatically (continues/pauses) based on how full the cutter compactor is.

The cutter compactor then cuts and densifies the light-weighted film waste into a semi-molten condition (a gentle heating just below the agglomeration point), which is ideal for the extrusion process that follows. The cutter compactor then feeds the compacted material directly and consistently into the extruder screw with high output.

This was the 4th recycling machine installation that Polystar has done in Turkey in 2015, with a few more to be commissioned in the upcoming months. Polystar will also be exhibiting its recycling line in Plast Eurasia this December with live demonstration.

Nigeria

Recycling Center

Professional recyclers who collect both post-consumer and post-industrial waste. The pellets quality can be improved by direct dosing of masterbatch and additives.
Vietnam

In-house recycling
Ensures sustainability of production waste

Located in Ho Chi Minh City, Vietnam, the packaging film producer has stepped up its in-house recycling effort by working with Polystar.

The 37-year old plastic producer provides a wide range of plastic packaging and printing products including high and low density polyethylene film, shrink film, stretch film, flexo printed film, T shirt bags, garbage bags, patch handle bags, side sealing bags, laminated film, cluster bags, banana film and many others.

The newly installed Polystar plastic waste recycling machine can effectively and flexibly reprocess a variety of film products including heavily printed, lightly printed as well as non-printed HDPE, LDPE, PP, BOPP film waste. Different film compositions ranging from monolayer, two layer, multi-layer to laminated films with different degrees of printing percentage are reprocessed efficiently in Polystar’s Repro-Flex model which produces high quality recycled pellets.

In-house recycling returns the production waste up to 100%, putting high quality recycled pellets back into the production process (in this case blown film extrusion) and keeping the high quality of the end products (film) consistently high.

100% Sustainability : Recycling Without Quality Loss - Recycled Pellets Used For Immediate Blown Film Extrusion

With Polystar’s plastic waste recycling technology, the recycled HDPE and LDPE pellets are put right back into the blown film extrusion process. The gentle recycling process results in minimal material degradation without significant property change with reusability up to 100%.

Part of the film products such as T-shirt and garbage bags are made of 100% recycled pellets, and the quality of the end product remains high.

Top Productivity, Flexibility, And User-friendliness : The One-step Recycling Technology With Easy Operation

The one-step plastic waste recycling technology (combining cutting + extrusion + pelletizing) requires minimal space requirement and labor intervention. The production waste enters the plastic waste recycling machine from the conveyor belt (for film scraps and rigid plastic regrind) and also through nip roll feeder (for film-on-rolls) at the same time.

The input is controlled automatically based on the load of the cutter compactor. Through natural heat and friction, the cutter compactor then cuts and densifies the material into a semi-molten condition (a brief gentle heating just below the agglomeration point), which is ideal for the extrusion process then follows. The cutter compactor subsequently feeds the compacted material directly and consistently into the extruder then into the degassing, filtering and pelletizing processes.

In-house recycling significantly reduces production and labor cost

Flexible packaging makes up approximately 25% of the world’s plastic productions. PE film applications such as shrink film; stretch films and BOPP occupy the sector with yearly growth rates up to 5 % in the market. As raw material costs makes up a majority (over 75%) of the production costs, the question of how to reduce and reuse production waste becomes important for all plastic producers.

Recycling has allowed the company to save about 20~30 percent in raw material procurement. The reclaim of valuable secondary raw material has become indispensable for plastic producers today to stay competitive in the market.

The successful case proves how in-house recycling can be done efficiently and intelligently. The in-house recycling solution saves production and labor cost at the same time with a fast return on investment.
A New Milestone  
Success in Chilean recycling market

Following a successful exhibition at FullPlast (Chile), POLYSTAR has reached a new milestone with its 15th installation of its new generation recycling machine in the Chilean market, in only 22 months.

With strong after-sale and technical support by its local Chilean representative, POLYSTAR has established itself as a premium brand of recycling line that offers reliable and high performing equipment in the market with proven success and satisfied customers.

We decided to bring our own recycling plant to process our own film waste and at the same time, creating surplus production capacity that allows us to collect industrial waste from other producers,” ------said Mr. Ortiz, general manager of the Chilean company.

The investment pays off rapidly because we are using less primary raw materials and savings in disposal cost. Recycling has allowed Temuplas to save about 30 percent in raw material buying. The reuse of valuable secondary raw material has become indispensable for plastic producers today to stay competitive.

A high performing, user-friendly, one-step recycling technology

“With POLYSTAR’s recycling machine, we are currently processing 300kg per hour at a very stable and consistent rate,” says Marcelo Zurita, production manager of Temuplas. Besides being productive, the machine design is extremely user friendly and easy to operate. “Polystar has made recycling much more simple for us.” The one-step technology (cutting + extrusion + pelletizing) requires minimal space labor intervention with consistently high and stable output.

The waste material enters the plastic recycling machine from the belt conveyor (for film scraps and rigid plastic regrind) and nip roll feeder (for film-on-rolls) at the same time. The feeding is controlled automatically based on how full the cutter compactor is.

The cutter compactor then cuts, dries and compacts the material into a semi-molten condition (a gentle heating just below the agglomeration point), which is optimal for the extrusion process that follows. The cutter compactor then feeds the compacted material directly and consistently into the extruder screw.

Recycling without quality loss: recycled pellets are ideal for reuse in blown film extrusion

With POLYSTAR’s recycling technology, the recycled pellets are put back into the blown film production process. The soft recycling process results in minimal material degradation without notable property change.

Examples of the waste are PE edge trim and roll (from blown film), HDPE and LDPE film scraps, left over waste from punches, both printed and non-printed film from the production waste are processed.

Some of the film products such as garbage bags are made of 100% recycled pellets, and the quality of the end product remains superb.

Efficient in-house recycling

In the example of Temuplas, plastic manufacturer of high and low-density polyethylene bags, with operations in Temuco city, Chile, has acquired POLYSTAR’s plastic recycling machine for recovering its in house production waste as well as waste collected from outside. The increase in price of raw material forces the plastic producer to cut down the use of virgin materials in order to reduce costs.

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