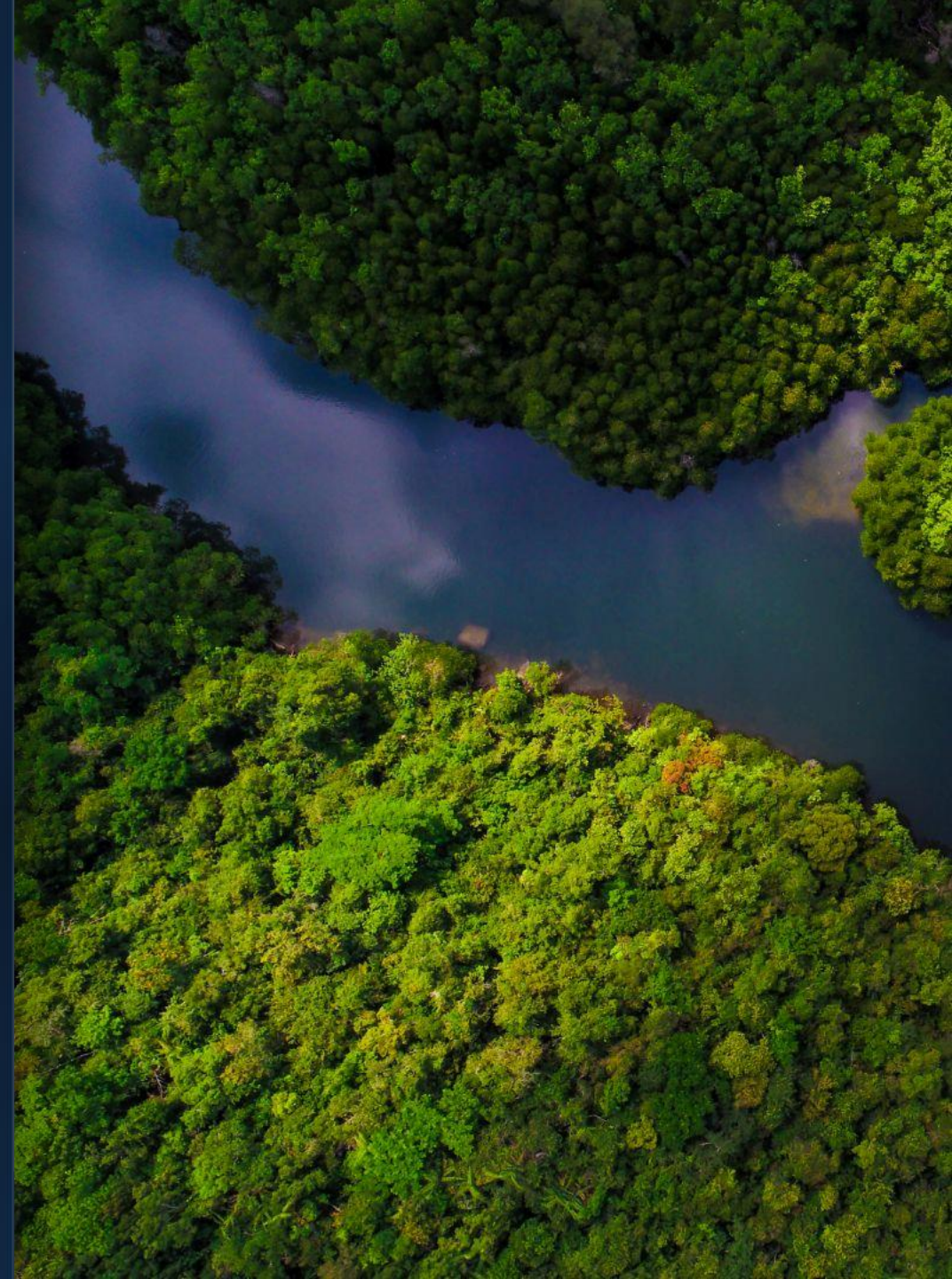


Leaders in zero waste

Recycling Technologies:

- **sorting and pre-treatment of waste,**
- **production of recycled materials,**
- **production of final products.**



530 kg

of waste produced per person per year

Europe generates 530 kg of municipal waste per person per year, with 50% recycled or composted and 23% still landfilled. There are significant differences in recycling practices across EU countries.

6 560 000 tons

of recycled plastic waste

In 2021, the total amount of plastic waste produced in the European Union was 16.13 million tons. Of this, approximately 6.56 million tons were recycled.

25%

reduced CO₂ production emissions for the last 13 years

From 2008 to 2021, there was approximately a 25% decrease in greenhouse gas emissions from manufacturing activities in the EU, partly due to improved circular economy practices such as repeated recycling and resource efficiency.

4 300 000

jobs in the circular economy industry

In 2021, circular economy sectors employed approximately 4.3 million people in the EU, representing an 11% increase since 2015.

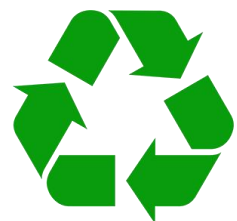
We contribute to the protection of natural resources



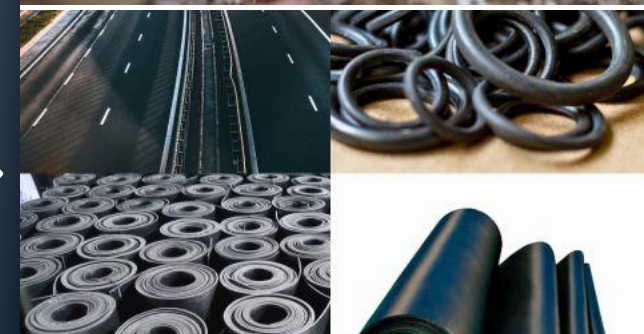
“

Waste is not a burden, but a valuable renewable resource

Ideological motto of Castor & Pollux Group



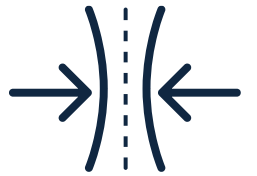
We recycle waste
innovatively and efficiently



Soft waste

We are able to process

(mixed plastic waste, RDF, composite waste from industry, rubber, waste paper, wood waste and biomass, insulation and textiles, etc.)





RDF/Plastic

Insulation/Textil

Rubber

Biomass

WASTE



RECYCLED MATERIAL



FINAL PRODUCT



Soft waste processing scheme



Waste pre-processing

Primary shredding up to 300 mm
Separation of metals and unwanted impurities
Secondary shredding up to 300 mm

Waste grinding - key technology ⚙️

Waste dosing
High-speed mill
Classification of recycled material and air filtration

Product manufacturing

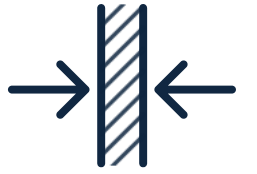
Pressing into boards, lamination, gluing into panels.
Mixing with other raw materials, production of
plastcrete. Extrusion with mineral waste, extrusion into
fuel pellets.



Hard waste

We are able to process

(C&D construction and demolition waste, waste concrete, metallurgical slag, fly ash, bottom ash, plasterboard, glass, etc.)





Construction waste

Concrete

Slag and fly ash

Plasterboard

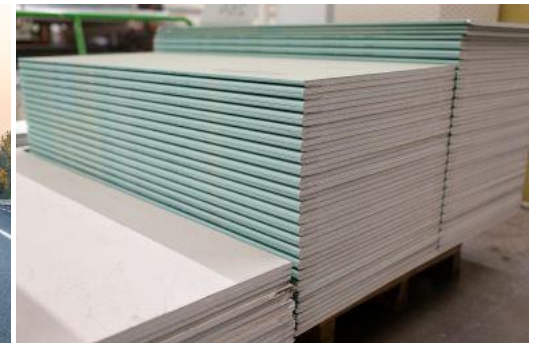
WASTE



RECYCLED MATERIAL



FINAL PRODUCT



Hard waste processing scheme



Waste pre-processing

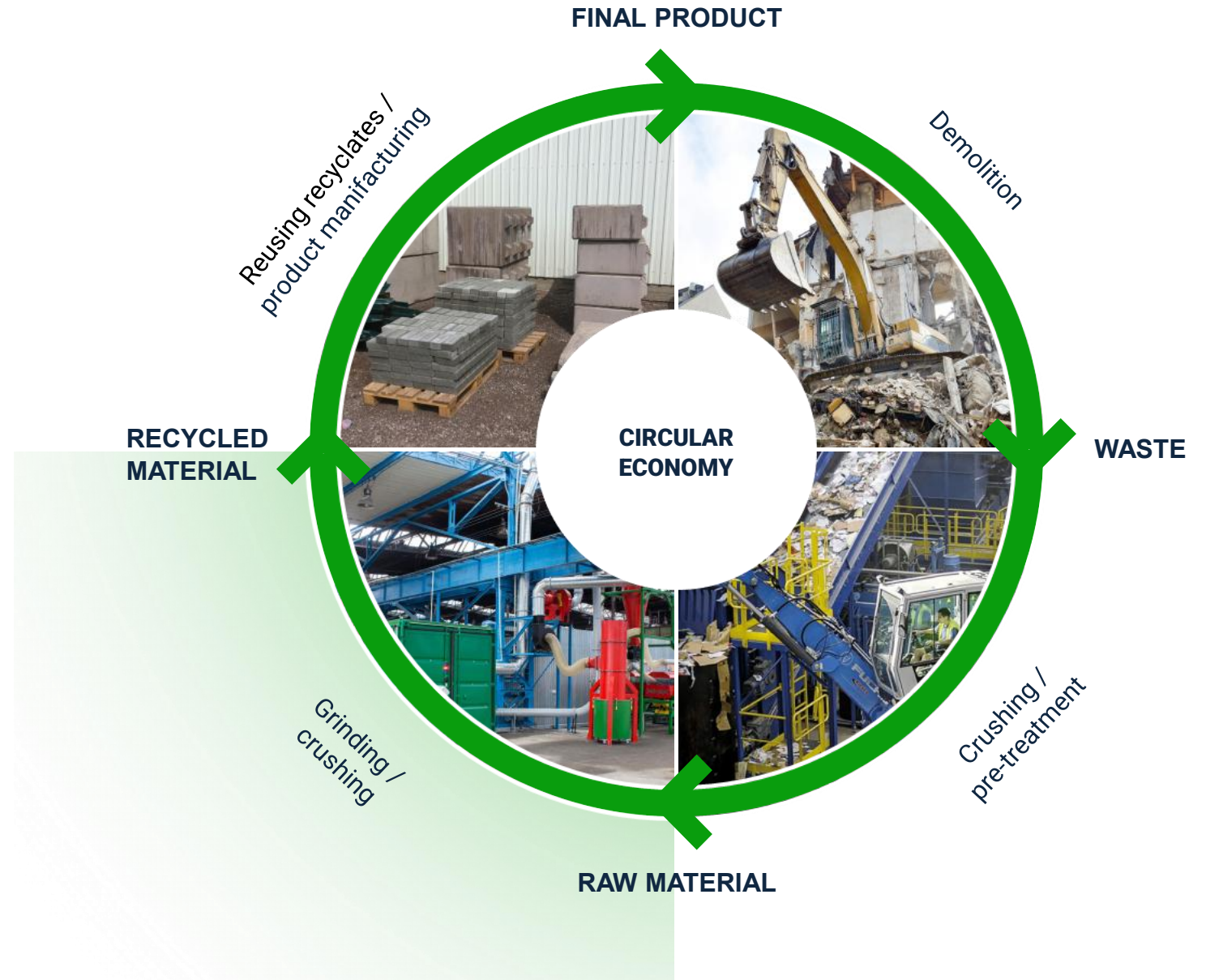
Primary shredding up to 100 mm
Separation of metals and unwanted impurities
Secondary shredding up to 10 mm

Waste grinding - key technology ⚙️

Waste dosing
High-speed mill
Classification of recycled material and air filtration

Product manufacturing

Mixing with other raw materials
Extrusion with plastic waste
Vibropressing to construction products



High-speed mill - key technology of efficient waste recovery

- | Lines contribute to reducing the ecological footprint
- | Wide range of waste to process
- | Quick return on investment
- | High-speed mill - the heart of each line
- | Homogenization, drying, mill and disinfection in one step
- | Automatic fire protection system



Stationary Recycling Line

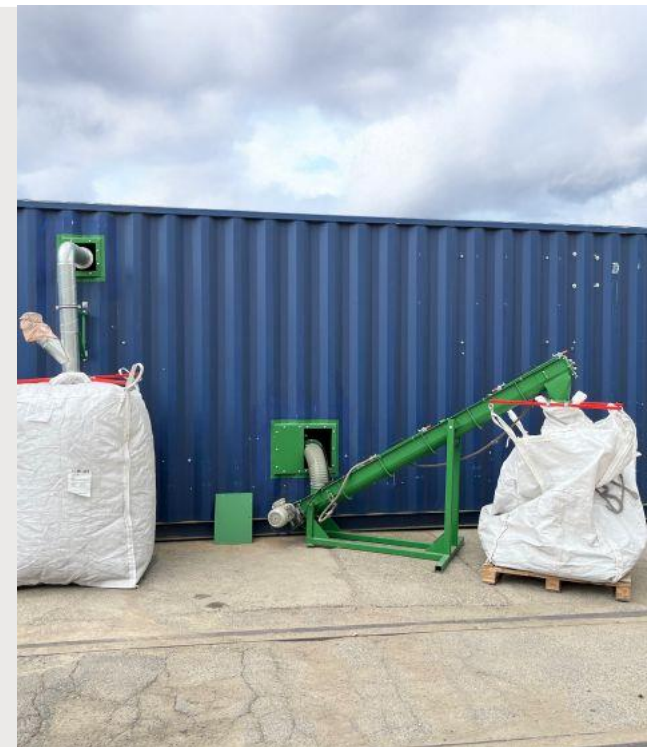
Suitable for large volume processing

- |||← SGD models
- |||← SBD models

Mobile Recycling Line

On-site waste processing

- |||← MRLM models
- |||← MRLT models



Mobile recycling lines and their parameters

Container design

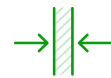
Mobile Recycling Line for Soft Materials

- | Waste input size from 20 to 100 mm
- | Recycled material output size from 2 to 10 mm



Mobile Recycling Line for Hard Materials

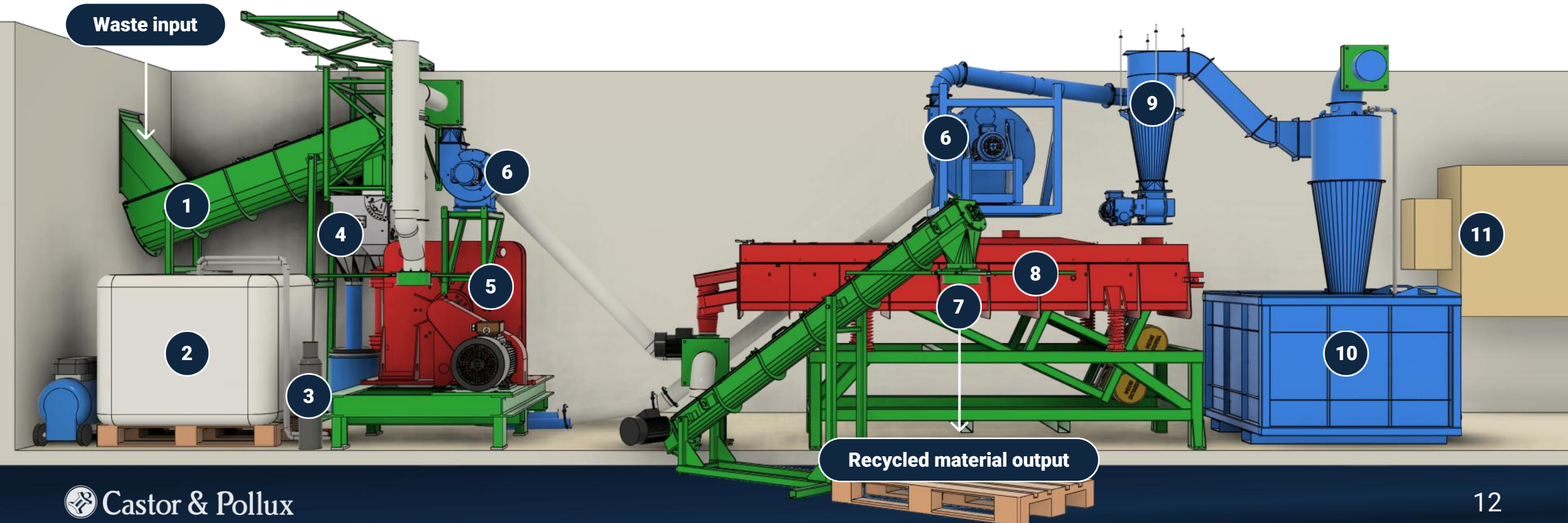
- | Waste input size from 5 to 20 mm
- | Recycled material output size from 50 to 300 microns



Mobile Recycling Line for Soft Materials



1. Input screw conveyor
2. Cooling
3. Fire protection system of the mill
4. Magnetic separator
5. High-speed multilevel mill
6. Transport fan
7. Recycled material output
8. Vibrating classifier - fineness of milling check
9. Cyclone separator
10. Water filter station
11. Electrical power switchboard/control system



Mobile Recycling Line for Hard Materials

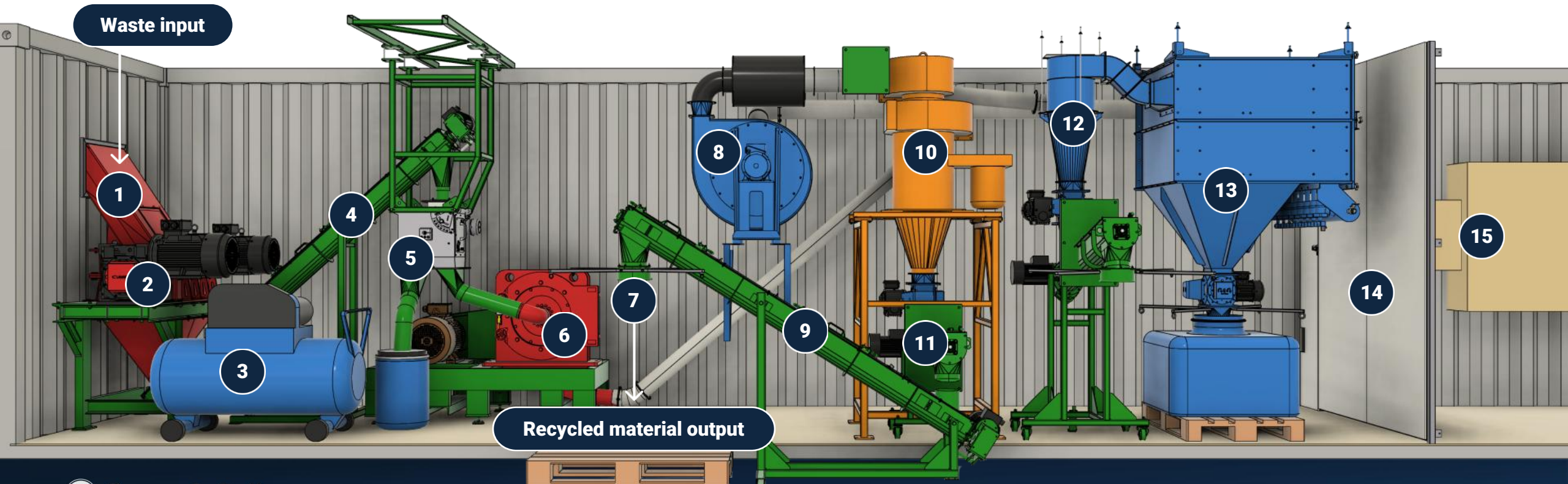


1. Waste input
2. Roller crusher
3. Compressor
4. Screw conveyor
5. Magnetic separator

6. High-speed multilevel mill
7. Recycled material output
8. Exhaust fan
9. External conveyor of raw material

10. Classifier
11. Screw conveyor from classifier
12. Cyclone separator
13. Air filter

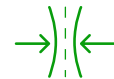
14. Noise barrier
15. Electrical power switchboard/control system



Stationary recycling lines and their parameters

Hall design

Stationary Recycling Line for Soft Materials

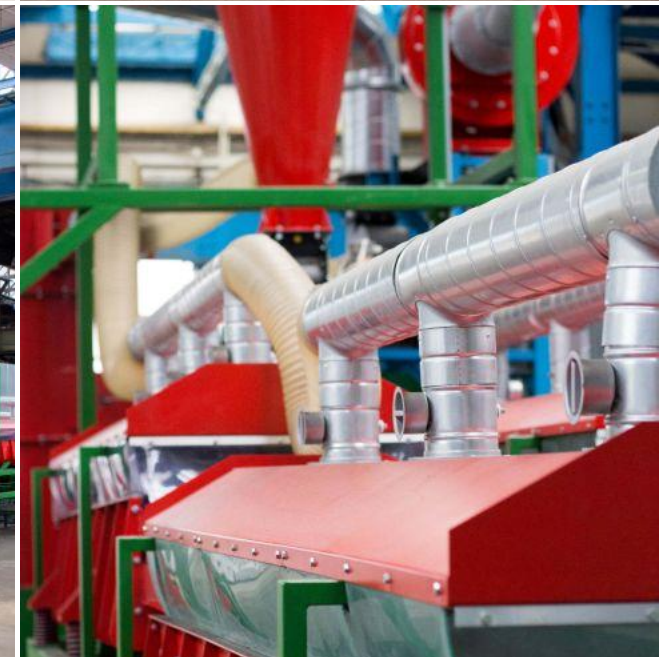


- | Waste input size from 20 to 100 mm
- | Recycled material output size from 2 to 10 mm

Stationary Recycling Line for Hard Materials



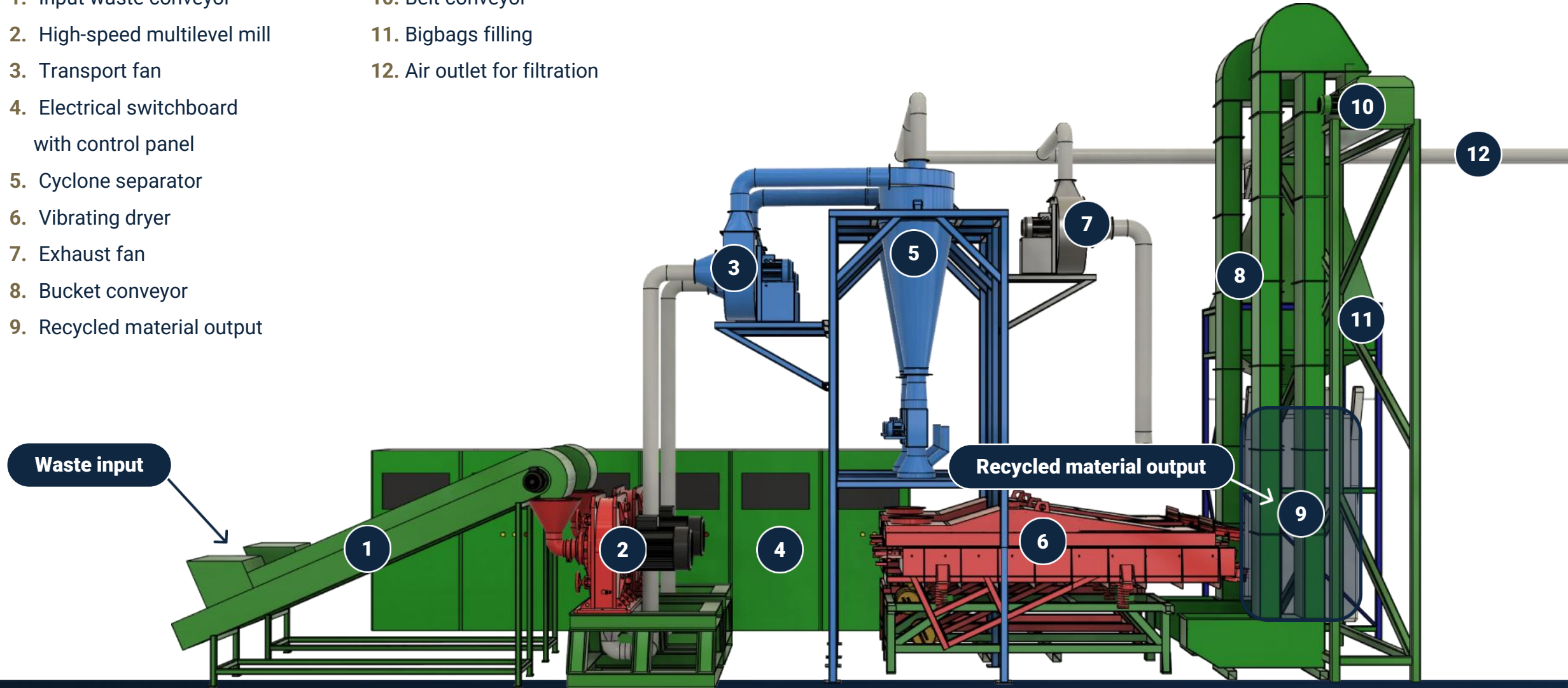
- | Waste input size from 5 to 20 mm
- | Recycled material output size from 50 to 300 microns



Stationary Recycling Line for Soft Materials - waste processing



1. Input waste conveyor
2. High-speed multilevel mill
3. Transport fan
4. Electrical switchboard with control panel
5. Cyclone separator
6. Vibrating dryer
7. Exhaust fan
8. Bucket conveyor
9. Recycled material output
10. Belt conveyor
11. Bigbags filling
12. Air outlet for filtration

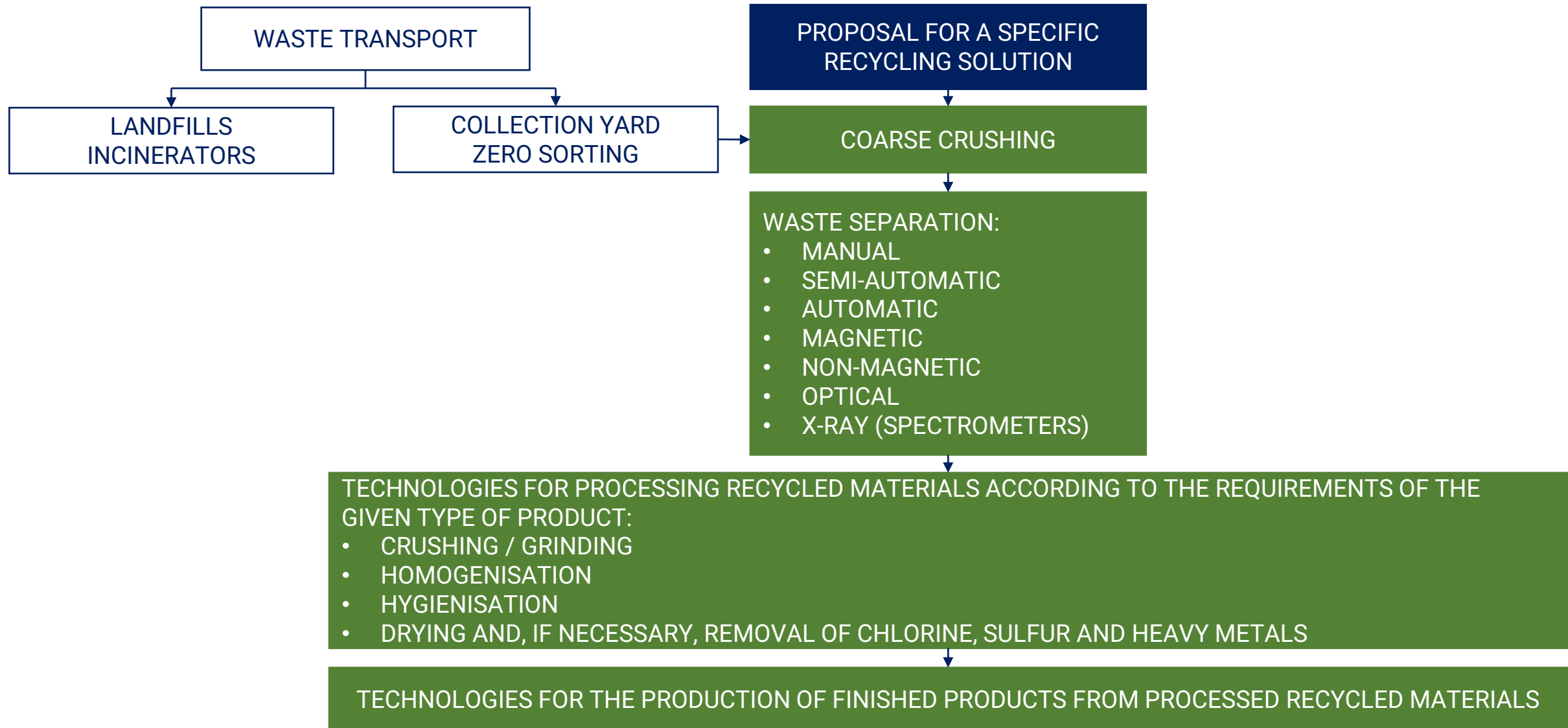


Stationary Recycling Line for Soft Materials - air filtration



- 12. Air inlet for filtration
- 13. Washing solution preparation
- 14. Washing solution storage tank
- 15. Air scrubber
- 16. Air scrubber
- 17. Exhaust fan

Recycling diagram from input waste to output product



Biomass recycling products



Waste suitable for processing

- | Sawdust, wood chips, straw, hay, roots and leaves, green waste from parks and gardens, pits, kernels
- | Straw and chaff from cereals
- | Paper and cellulose waste
- | Sludge from crop processing (pressing sludge, rapeseed sludge, sugar beet sludge, distillery sludge, etc.)
- | Sludge from wastewater treatment plants
- | Waste from mining

Recyclate

- | Recycled biomass: wood chips, sawdust, wood dust

Final products

- | Pressed chipboard
- | Disposable products for catering
- | Wood dust for 3D printing
- | Fuel briquettes
- | Fuel pellets
- | Activated carbon (e.g. water filtration, oil purification, air filtration)
- | Organic fertilizers
- | Active water-retaining pellets or briquettes



Fuel pellets



Chipboard



Fuel briquettes



Biomass recycling

Rubber waste recycling products



Waste suitable for processing

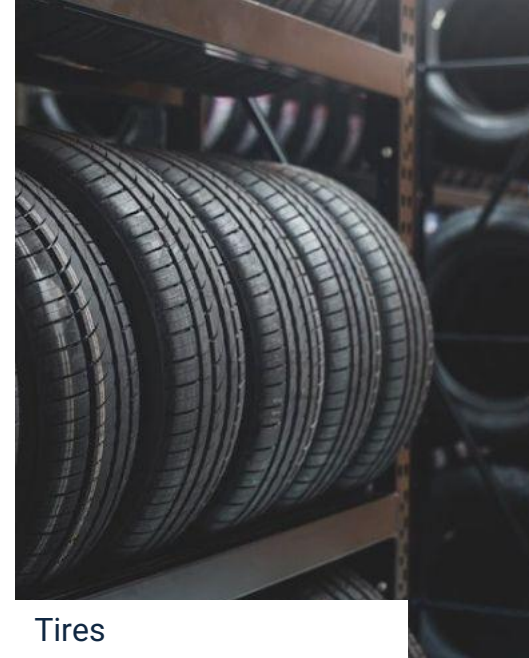
- | Rubber waste
- | NR – natural rubber products
- | SBR – tires
- | EPDM – seals, hoses, etc.

Recyclate

- | Recycled rubber waste

Final products

- | Filler for asphalt concrete
- | Production of thermoplastic – TPE
- | Active rubber dust for rubber compounds
- | Production of noise barrier components
- | Molding of products such as paving for sports facilities, curbs, noise barriers, geogrids, and geonets



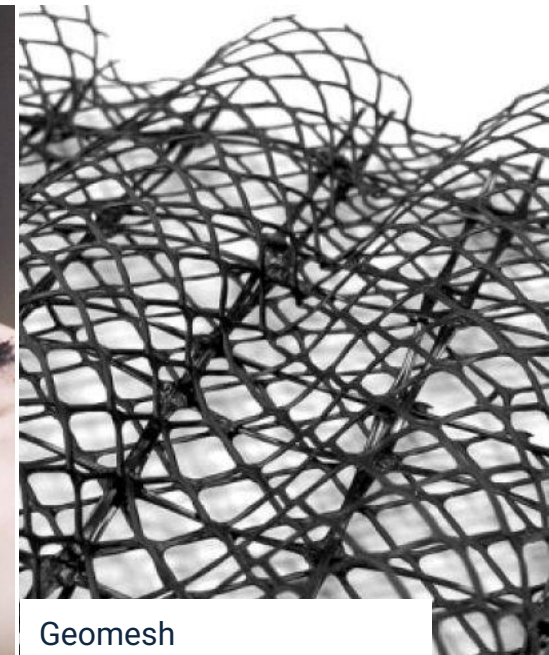
Tires



Paving for sports facilities



Active rubber powder
for rubber compounds



Geomesh

Insulation and textiles recycling products



Waste suitable for processing

- | Waste mineral insulation
- | Waste polystyrene (including contaminated)
- | Waste polyurethane (from car seats, mattresses, insulation panels, etc.)
- | Automotive textiles (carpets, upholstery, insulation fillings, car covers)
- | Industrial waste textiles

Recyclate

- | Recycled insulation
- | Recycled PUR / PIR shredded material
- | Recycled textile shredded material

Final products

- | Pressed insulation boards and panels
- | Blown insulation
- | Insulating plasters
- | Non-woven fabric
- | Lightweight concrete
- | PUR plasters
- | Pressed profiles
- | Energy fuel pellets



Pressed insulation board



Extruded profile



Blown insulation

Plastic waste and RDF recycling products



Waste suitable for processing

- | RDF
- | Plastic waste
- | Composite waste

Recyclate

- | Recycled material from RDF
- | Recycled material from plastic waste

Final products

- | Recyclates for mixing into concrete
- | Vibro-pressed plastic concrete products
- | Pressed boards, panels, and profiles
- | 3D printing
- | Extruded boards, profiles, paving, and others



Active plastic dust



RDF - Fuel



Material for 3D plastic printing



Plastic concrete products



RDF pressed board

Single-type plastic waste recycling products



Waste suitable for processing

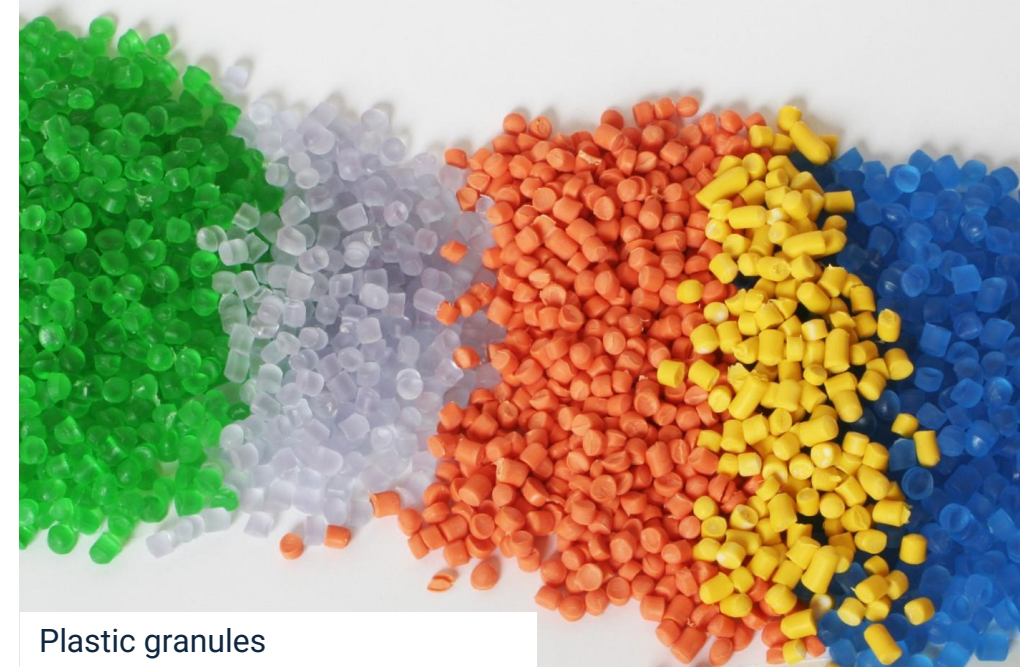
- | PP – car bumpers
- | PE – food and cosmetics packaging
- | HDPE – cables, jerry cans
- | LDPE – packaging, plastic film
- | PS – insulation, yogurt pots, packaging
- | PET – packaging, including cosmetics packaging
- | PVC – cables, floor coverings, sewer pipes, windows

Recyclate

- | Granules
- | Plastic powder

Final products

- | Material for 3D printing
- | Polymer for modified asphalt
- | Manufacture of plastic products by pressing, injection molding, and rotational molding

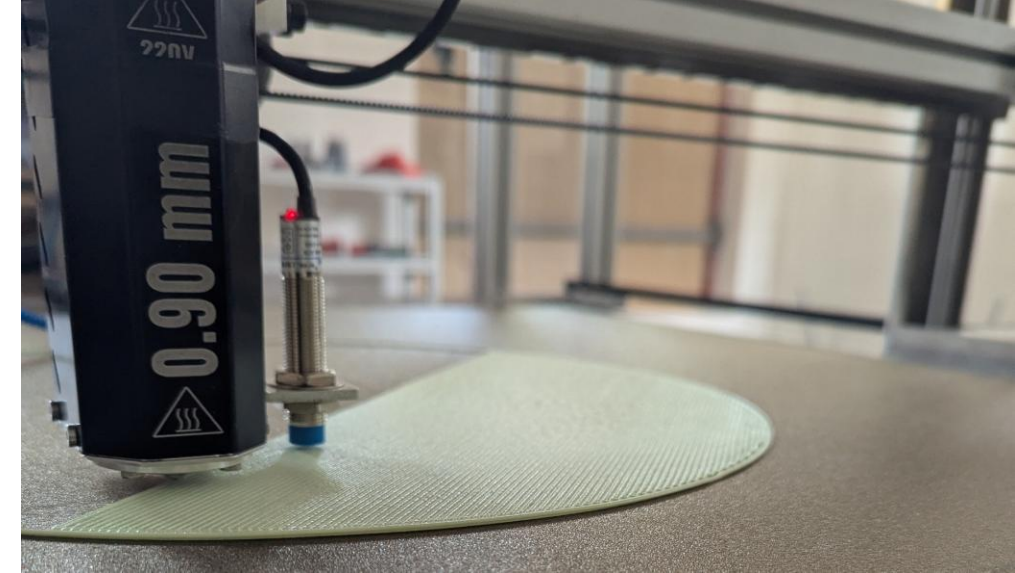


Plastic granules



Material for 3D plastic printing

Recycling products processed for use in 3D printing



3D printing

Waste suitable for processing

| Plastic in its various forms, e.g. PLA, ABS, PET

Recyclate

| Plastic granules, mainly PET and PETG, and possibly PP or PLA

Final products

| Customised products that offer solutions tailored to the individual needs of each customer



3D printing products

Recycling products molded plastic boards



Waste suitable for processing

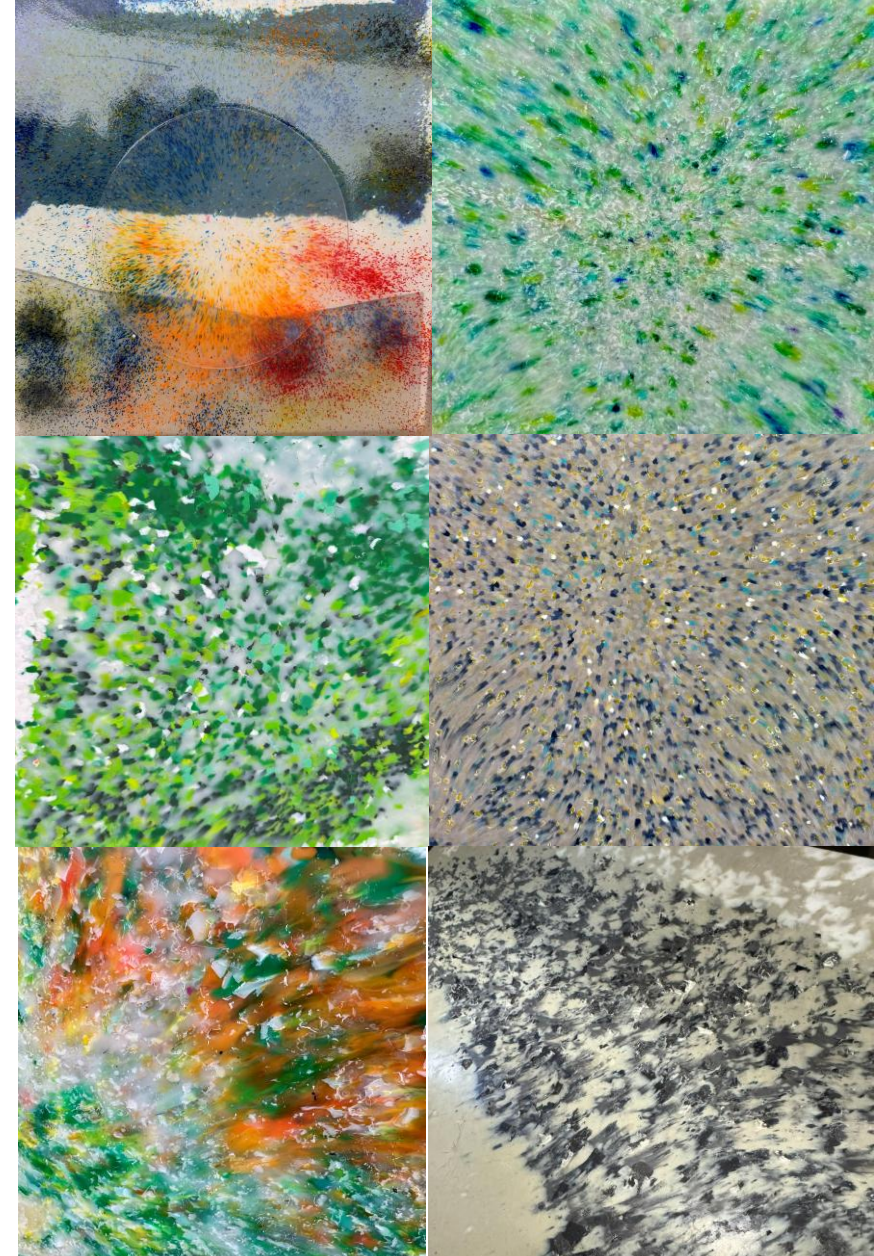
- | Plastic in its various forms

Recyclate

- | Plastic granules

Final products

- | Custom-made products that create unique surfaces and structures, used in interior design, architecture, and artistic creation



Molded plastic boards

Battery packaging recycling products



Waste suitable for processing

- | Car battery packaging
- | Lithium batteries

Recyclate

- | Recycled material from car batteries
- | Plastic scrap
- | Metal scrap – Fe, Al, Cu
- | Black matter LiFePO

Final products

- | Plastic products
- | Lithium for batteries
- | Metal production



The lithium battery recycling process



The process of crushing car batteries

Non-ferrous metals recycling products



Metal scrap

Waste suitable for processing

| Non-ferrous metals

Recyclate

| Metal chips

| Micronized metals

Final products

| Metal production

| 3D printing



3D metal printing

Glass and photovoltaic panels recycling products



Waste suitable for processing

- | Flat and container glass
- | Photovoltaic panels

Recyclate

- | Glass cullet and micro-ground dust
- | Extruded aluminum
- | Plastic cullet
- | Electrical waste
- | Composite cullet containing silver

Final products

- | Glass production
- | Cement replacement in concrete
- | Aluminum production
- | Fuel pellets
- | Silver leaching
- | Lightweight concrete
- | Foam glass



Glass grit



Foam glass

Construction and demolition waste recycling products



Waste suitable for processing

- | SDO, plasterboard – SDK, materials made from gypsum, e.g. molds
- | Concrete, aerated concrete
- | Roofing materials – tiles
- | Ceramics, tiles, bricks

Recyclate

- | Recycled construction waste
- | Sand substitute
- | Active concrete dust
- | Gypsum-based aggregate up to 5 mm
- | Active filler for construction (cement and concrete) mixtures

Final products

- | Cement replacement in concrete
- | Recycled material for gypsum production for plasterboard
- | Active filler for dry building mixtures
- | Gypsum products with improved properties
- | Active filler for asphalt
- | Active filler for plastics
- | Production of building products with improved properties
- | Active filler for the production of gypsum mixtures in construction - dry plasters, poured floors and others
- | Gypsum for cement production



3D concrete printing



Colored interlocking paving stones

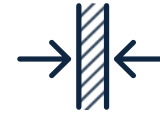


Gypsum recyclate



Plaster mixture

Slag and fly ash recycling products



Waste suitable for processing

- | Ash from coal and waste incineration
- | Metallurgical slag
- | Slag
- | Fly ash

Recyclate

- | Recycled slag and fly ash
- | Micronised dust

Final products

- | Partial replacement of cement in concrete
- | Self-leveling floor compounds
- | Active filler for dry building mixtures
- | Active filler for asphalt concrete
- | Production of building products with improved properties



Glue



Self-leveling compounds



Mortar



Active filler for asphalt

We use renewable energy – greenPOWER from SSE

We have obtained the **greenPOWER certificate** from **Stredoslovenská energetika, a. s.** for **2026 and 2027**, which confirms that **all the electricity used in our production comes exclusively from renewable sources**. This step is part of our commitment to **environmental and social responsibility**.

The greenPOWER certificate supports projects focused on **sustainable energy production** from renewable sources such as **hydro, wind, solar, and geothermal energy, biomass, and biogas**.

This certificate is a commitment for us to continue supporting **green solutions** and to ensure that our production is as sustainable and environmentally friendly as possible.

The image shows a greenPOWER certificate from SSE Stredoslovenská energetika, a.s. for the years 2026 and 2027. The certificate is awarded to Enviro Lieskovec, a.s. and confirms that all electricity used in their production comes exclusively from renewable sources. The certificate is signed by Ing. Patrik Váčenec, Director of section Sales to B2B customers. The certificate is printed on 100% recycled paper.

SSE
STREDOSLOVENSKÁ
ENERGETIKA

2026

greenPOWER certificate

Awarded to:

Enviro Lieskovec, a. s.
Lieskovská cesta 245, 962 21 Lieskovec
IČO: 31405061

greenPOWER is a Stredoslovenská energetika, a. s. certificate that confirms that the total volume of electricity delivered in this period is entirely produced from renewable energy generation, and thus supports projects aimed at social and environmental responsibility.

Period:

1. 1. 2026 – 31. 12. 2027

Stredoslovenská energetika, a. s. is a modern energy supplier that is aware of its environmental responsibility. It is therefore our long-term objective to support energy efficiency, the rational use of electricity, and increasing the generation of electricity from renewable sources (water, wind, solar, geothermal, biomass, biogas, etc.).

Zilina, **5.12.2025**

Ing. Patrik Váčenec
Director of section
Sales to B2B customers

As an environmentally
responsible company
we use 100 % recycled paper.

tel: +421 41 519 11 11 sse@sse.sk www.sse.sk Stredoslovenská energetika, a. s.
Príslušnosť 8591/40, 010 47 2111

Id. No.: S1 865 467, VAT No: SK2120814575, Tax ID: 2120814575, IBAN: SK91 0200 0000 0000 2492, BIC: SUBASKEX, Stredoslovenská energetika, a. s.
is registered in the Business Register of the District Court Zilina, Section: Sa, Insert No.: 10328/L
www.sse.sk

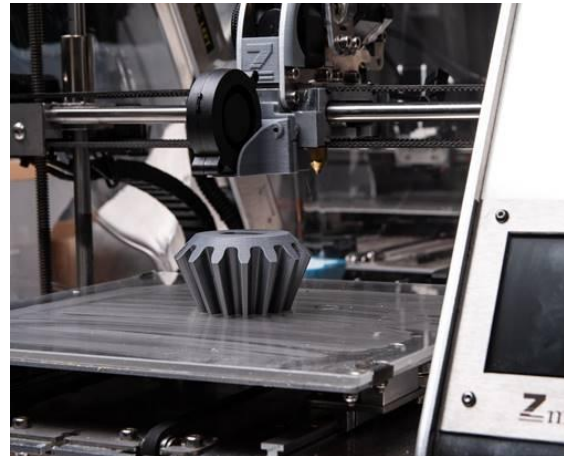
What the future holds

🌱 Pre zelenú planétu a budúce generácie



Cooperation with universities, research institutions and manufacturers

We are developing innovative solutions and access to the latest technologies. It allows us to combine academic know-how with practical experience.



Special waste sorting with preparation for 3D printing

We are developing new methods of waste sorting with pre-processing for 3D printing. We can create useful products from recycled materials, even from composites or less pure plastics. We use optical technologies and AI for sorting.



Development of composite material formulations from waste and materials for 3D printing

Preparation of clean recyclables for 3D printing, namely:

- construction products,
- plastic products,
- non-ferrous metal products.

Thank you for your attention

Contact:

Ing. Ján Badžgoň, PhD.

CEO

Castor & Pollux, s.r.o.

Email: badzgon@castorpollux.sk

Phone: +421 2 593 11 726

Ing. Ľubomír Švantner

Chairman of the Board

Enviro Lieskovec, a.s.

Email: svantner@envirolieskovec.sk

Phone: +421 908 777 317

 **Castor & Pollux**

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2025

