

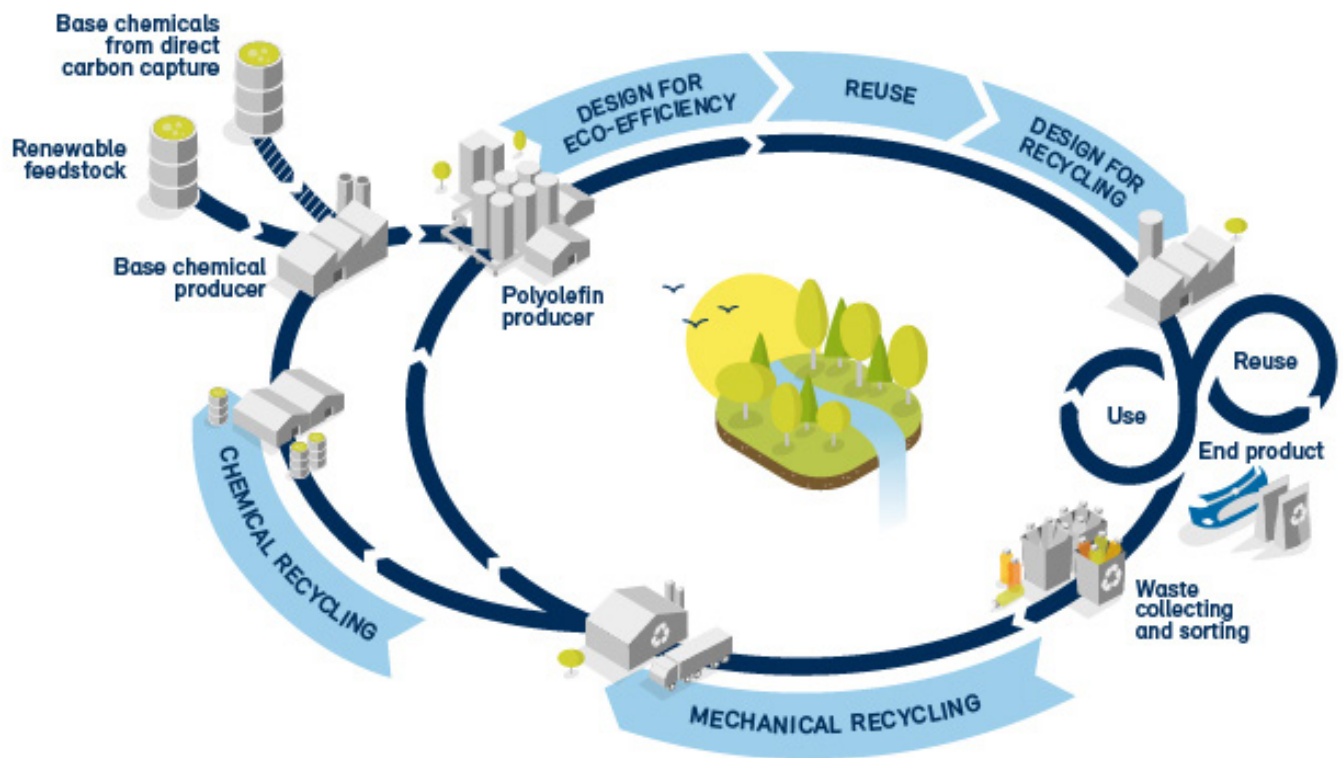
Your expert partner for mechanical recycling



Accelerating Action
on Circularity

Innovative solutions for active environmental protection

IMPROVING OUR ECOLOGICAL BALANCE



In comparison with conventional production and use of new virgin plastics, we achieve the following environmental and economic benefits each year:

In an effort to continuously improve, we have undertaken a Life Cycle Assessment (LCA) of various grades at our mechanical recycling plants to understand the environmental impacts of our products.

The LCA was performed in accordance with ISO 14040 and 14044 standards and critically reviewed by a third party. The Global Warming Potential, amongst other impact categories, was assessed.

Life Cycle Assessment is a tool to quantify the the environmental impacts across a product's life, and can be used to identify hot spots for improvement and decision making to avoid shifting burdens.

We are constantly working on further improving our ecological balance, and invest heavily in modern technology necessary for this. For example, our wastewater is mechanically, chemically and biologically treated in our own water treatment plant, and rainwater from roofs and other surfaces is re-used several times in our production water system.

We place focus on mechanical recycling but take a wider view on the value chain.

Our approach towards a more circular economy

Plastic use has increased twenty-fold in the past 50 years due to its excellent properties and benefits, such as functionality, durability and versatility. But since becoming indispensable in appliances, an increasingly amount of plastic waste is now generated every year. To make sure these products avoid landfill, we promote the development of a circular economy through three key principles.

By enhancing material effectiveness through reuse, recycling and alternative feedstock, we can ensure the circularity of plastic. This means better environmental and economic outcomes while continuing to harness the many benefits of plastics.

1

**PRESERVING AND ENHANCING
NATURAL CAPITAL**

2

**CIRCULATING PRODUCTS, COMPONENTS
AND MATERIALS AT THEIR HIGHEST UTILITY**

3

**CREATING ONLY MINIMUM WASTE
AND POLLUTION**



Your expert partner for rigid polyolefin recycling



MTM PLASTICS – A EUROPEAN TECHNOLOGY LEADER

mtm plastics has been recycling used plastic packaging from post-consumer sources at our site in Niedergebra in Thuringia since 1994. We have continued to develop our technology to become one of Europe's technology leaders in mixed plastic waste recycling. mtm plastics produces high quality polyolefin recyclates for manufacturing injection moulding products and is EuCertPlast certified. (which allows our customers to apply for the blue angel certificate)

In 2016 mtm plastics became a member of the Borealis Group, a leading provider of innovative solutions in polyolefins, base chemicals and fertilisers. Following the acquisition, Borealis initiated an expansion project of the Niedergebra site, leading to an overall increase of input processing capacity, and improved capabilities to address the needs of the high-end recyclate market.

MTM COMPACT

Not all the material collected is suitable for recycling into high quality materials. mtm plastics's sister company, mtm compact GmbH, located in Fürstenwalde near Berlin, processes lower grade material into plastic pellets under the trade name Compactat™. Compactat™ is used by steel mills as a reducing agent in their blast furnaces, depleting oxygen levels to separate iron from its ore. This is usually performed using carbon monoxide released by burning coal or oil. If the steel mill switches to Compactat™ as a reducing agent, it not only saves primary resources but also lowers climate damaging greenhouse gas emissions.

Your expert partner for flexible polyolefin recycling

A LEADING PROVIDER OF INNOVATIVE SOLUTIONS

Ecoplast is a recycling facility located in Wildon, Austria and is the first polyolefin mechanical recycler in Austria to receive the International Sustainability and Carbon Certification (ISCC PLUS).

With almost 30 years of experience, we are one of the ten largest plastic recyclers in Europe and are EuCertPlast certified. Our company was founded in 1989 and has worked in the recycling of plastic waste under the name Ecoplast since 1991.

In 2018 we became a member of the Borealis Group, a leading provider of innovative solutions in Polyolefins, Base Chemicals and Fertilizers.

Our team focuses primarily on the production of high quality recyclates from polyethylene post-consumer feedstock. We are continuously optimising our processes and equipment in order to offer the best possible secondary raw material solution for our customers' specific applications and requirements. Furthermore, our customers are eligible to get blue angel certificate with our products.

As a recycler turning post-consumer waste into new products, we ensure that plastic is not wasted, meaning that active environmental protection is at the very heart of what we do at Ecoplast.

**We don't just talk
about environmental
protection, we do
it everyday.**



From bales to pellets

mtm plastics

Input materials:

- PO bulky household waste plastic
- PO municipal / household waste
- Industrial plastic waste
- Feedstock sourced across Europe



Separately collected and pre-sorted polyolefin plastic waste

Ecoplast

Input materials:

- PE film municipal / household waste
- PE film commercial waste
- Industrial plastic waste
- Feedstock sourced across Europe



Separately collected and pre-sorted polyolefin plastic waste

The feedstock is sorted and separated into PE and PP. Additional washing helps to improve the purity of the final product.

mtm is equipped with shredders, non-FE and FE metal separators, air separators (wind sifters), grinders, NIR and optical sorters.

Finally the materials are densified, melted, filtered, degassed, homogenized, compounded, and pelletized.



The input materials are pre-sorted, shredded, grinded, separated via air, washed and dried.

Afterwards, the materials will be extruded, filtered, degassed and pelletized.

mtm plastics recyclates

Available in mix PO, pure PE and pure PP quality with different MFRs



Ecoplast PE recyclates

Available in various qualities with different MFRs



Products and services

Ecoplast

ECONOMICAL - SUSTAINABLE - COMPETITIVE

As a well-known plastics recycler, we are at the pulse not only of plastics waste quantities and qualities, but even more aiming for additional applications in which recycled content can replace new plastics together with our customers on project and operative level.

We use this knowledge to maintain and constantly improve the cycle of new product, reuse, recovery and again new product.

GRANULATE LDPE/HDPE

LDPE (low-density polyethylene) recycle for film manufacture. This odour minimised plastic is especially suitable for manufacturing films for use in grocery bags, trash bags, construction film, agricultural sheeting, etc. It is highly resistant to chemicals, and has very low water vapour permeability Custom LDPE/HDPE mixtures on request and subject to customers demand.

EXAMPLE APPLICATIONS USING NAV

- Carrier bags
- Bin liners
- Films
- Packaging applications
- Pipes

EXAMPLE APPLICATIONS USING CWT

- High demanding primary and secondary packaging
- Collation shrink films



Our product range for film/foil applications

Resin name	MFR (g/10 min) 190°C/2.16kg	Residual moisture content (%)	Density (g/cm ³)	CO ₂ footprint (kgCO ₂ eq/kg)	Available colours	Product description
Post-Consumer Recyclate portfolio						
Borcycle™ CWT100VL	0.35	≤ 0.05	0.925	coming soon	Transparent/ natural	Very low gel LDPE 100 % PCR ideal for high-end film applications
Borcycle™ NAV101L	0.75	≤ 0.05	0.925	coming soon	Transparent	Low gel LDPE 100% PCR for high- end blown film applications
CWT100LG	0.35	≤ 0.05	0.925	0.44	Transparent/ natural	Low gel LDPE 100% PCR ideal for high-end blown film applications
NAV101	0.75	≤ 0.05	0.925	0.44	Transparent	LDPE 100% PCR for high-end blown film applications
NAV101M	0.75	≤ 0.05	0.925	0.44	Transparent	LDPE 100% PCR for high-end blown film applications
NAV102	0.85	≤ 0.05	0.925	0.44	Translucent	LDPE 100% PCR for high-end blown film applications
NAV103	0.70	≤ 0.06	0.945	0.44	Coloured	Coloured rLDPE for blown film applications
NAV104	0.70	≤ 0.05	0.935	0.44	Light-coloured	Light coloured or black rLDPE for blown film applications
NAV107	0.70	≤ 0.06	0.945	0.55	Black	Black rLDPE ideal for blown film applications
NAV108	0.70	≤ 0.06	0.945	0.55	Black	Black rLDPE ideal for pipe applications

Resin name	MFR (g/10 min) 190°C/2.16kg	HDPE/LDPE ratio	Residual moisture content (%)	Density (g/cm ³)	CO ₂ footprint (kgCO ₂ eq/kg)	Available colours	Product description
Made to order grade							
NAV112	0.4 ± 0.2	40/60	≤ 0.06	0.95	Coming soon	Black	Ideal for extrusion and blow moulding
NAV113	0.5 ± 0.2	30/70	≤ 0.06	0.95	Coming soon	Black	Ideal for extrusion and blow moulding
NAV114	0.6 ± 0.2	20/80	≤ 0.06	0.94	Coming soon	Black	Ideal for extrusion and blow moulding
NAV117	2.8	HDPE/LDPE mix	≤ 0.06	0.95	Coming soon	Black	Ideal for injection moulding

Typical values. Data should not be used for specification work.
More rLDPE and rHDPE mixtures are available on demand, for more information please contact our representatives.

LCA available on demand



Products and services mtm plastics®

ECONOMICAL - SUSTAINABLE - COMPETITIVE

When compared to the use of new products, every tonne of processed recyclate from mtm has approximately 30 percent lower carbon dioxide (CO₂) emissions vs. comparable virgin polyolefins.

DIPOLEN™

Dipolen™ is made of household plastic waste, collected via the yellow bag collection system in Germany. Highly selective processing technology involves thorough degassing and melt filtration. This makes Dipolen™ ideal for injection moulded products with static and dynamic loads.

PURPOLEN™

Purpolen™ is made of bulky plastic collected from municipal recycling centres. A homogeneous high quality, high purity recyclate, Purpolen™ is particularly well suited to the production of sophisticated consumer products.

Purpolen™ is separated by HDPE and PP. Both are available in extrusion and injection-moulding grades.

EXAMPLE APPLICATION USING DIPOLEN™ AND PURPOLEN™

- **Rigid packaging**
Boxes, crates, edge protectors, plastic pallets
- **Home and garden**
Pens, painting tools, composers, buckets, lawn grids
- **Construction**
Pipes, concrete distance spacers, drainage systems
- **Compounds**



Our product range for rigid applications

Dipolen™								
Resin name	MFR (g/10 min) 230°C/2.16kg	Tensile modulus (MPa)	Charpy NIS 23°C (kJ/m²)	Density (g/cm³)	CO ₂ footprint (kgCO ₂ eq/kg)	Available colours	Type of recyclate	Product description
Dipolen™ S	6.0	900	5.5	0.94	0.44	Grey, black, green	PO mix	Dipolen™ is a post-consumer polyolefin recyclate for use in injection moulding coming from pre-sorted household and municipal waste
Dipolen™ SP	8.0	1050	5.0	0.93	0.42	Grey, black, green	PO mix	
Dipolen™ PP	12.5	1200	5.0	0.92	0.37	Grey, black, green	PP recyclate	
Dipolen™ H	6.0	950	5.0	0.95	0.42	Black	PO mix	

Purpolen™								
Resin name	MFR (g/10 min) 230°C/2.16kg	Tensile modulus (MPa)	Charpy NIS 23°C (kJ/m²)	Density (g/cm³)	CO ₂ footprint (kgCO ₂ eq/kg)	Available colours	Type of recyclate	Product description
Purpolen™ PP	20	1200	5.5	0.92	0.68	Grey	PP recyclate	Purpolen™ is a high-quality post-consumer polyolefin recyclate for both extrusion and injection moulding using feedstock coming from presorted municipality waste
Purpolen™ PP Y40-74	40	1200	5.5	0.92	Coming soon	Grey	PP recyclate	
Purpolen™ PP Y55-71	55	1200	5.5	0.92	Coming soon	Light-coloured	PP recyclate	
Resin name	MFR (g/10 min) 190°C/2.16kg	Tensile modulus (MPa)	Charpy NIS 23°C (kJ/m²)	Density (g/cm³)	CO ₂ footprint (kgCO ₂ eq/kg)	Available colours	Type of recyclate	
Purpolen™ PE	0.6	900	15.5	0.96	0.68	Grey	PP recyclate	
Purpolen™ H-89	1.0	Coming soon	Coming soon	0.96	Coming soon	Anthracite	PE recyclate	



Our product range for post-industrial recyclate (PIR)

FEEDSTOCK ORIGINATES FROM BOREALIS PRODUCTION PROCESSES*

Resin name	MFR (g/10 min) 230°C/2.16kg	Tensile modulus (MPa)	Charpy NIS 23°C (kJ/m ²)	Residual moisture content (%)	Density (g/cm ³)	CO ₂ footprint (kgCO ₂ eq/kg)	Available colours	Product description
Post-industrial recyclate PP								
NAV128 / PP-02	5 - 35	1500	5.5	< 0.1	0.91	Coming soon	Transparent	All feedstock of the listed grades is coming from the Borealis virgin sites and reprocessed in our recycling plants Ideal for injection moulding
NAV128 Y40-02 / PP Y40-02	40	1500	5.5	< 0.1	0.91	Coming soon	Transparent	
NAV128 / PP-03	5 - 35	1500	5.5	< 0.1	0.91	Coming soon	Transparent dark	
NAV128 Y40-03	40	1500	3.0	< 0.1	0.90	Coming soon	Transparent dark	
NAV128 / PP-04	2 - 15	1400	8	< 0.1	0.97	Coming soon	Black	
NAV128 Y10-04	10	1500	5.5	< 0.1	0.99	Coming soon	Black	

Resin name	MFR (g/10 min) 190°C/5kg	Residual moisture content (%)	Density (g/cm ³)	CO ₂ footprint (kgCO ₂ eq/kg)	Available colours	Product description
Post-industrial recyclate PE						
NAV159	6 - 10	≤ 0.05	0.935 - 0.955	Coming soon	Natural, black and grey	The feedstock of the grade is coming from Borealis production sites and reprocessed in recycling plants NAV159 is ideal for injection moulded parts

EXAMPLE APPLICATION USING PIR

- **Flexible packaging**
Films, collection shrink films, carrier bags
- **Rigid packaging**
Boxes, crates, edge protectors, plastic pallets
- **Home and garden**
Pens, painting tools, composers, buckets, lawn grids
- **Construction**
Pipes, concrete distance spacers, drainage systems



Typical values. Data should not be used for specification work.
More PIR PE available on spot, for more information please contact our representatives.
*Our PIR definitions require at least an extrusion step in the upcycling processes



**We do everything to
meet this expectation,
every single day.**

We are focusing on quality

HIGH LEVEL OF RELIABLE, CONSISTENT QUALITY

Buyers of secondary raw materials rightly expect an especially high level of reliable, consistent quality. We do everything to meet this expectation, every single day.

- In-house laboratory for ongoing quality assurance throughout the entire production process
- Production and delivery of homogeneous 24 tonne batches
- Quality for recyclates is certified with ISO 9001, ISO 14001 (Ecoplast) and ISO 50001 (mtm)
- Certified by EuCertPlast
- Ecoplast received the International Sustainability and Carbon Certification (ISCC PLUS)

Whether during materials sourcing, materials receiving and post-sorting, after extrusion or before loading, our employees are aware of their responsibility. They work expertly and conscientiously to make their contribution to a perfect, environmentally sustainable recycling result.



Well advised by the experts

CREATING AND IMPLEMENTING EXPERT SOLUTIONS

The outstanding quality of our recyclates is the result of blending experience, comprehensive specialist knowledge, top equipment, effective monitoring and our determination to provide our customers with a perfect product. Seamless quality assurance through our entire process chain ensures consistently high recyclate quality.

But before we do anything else, we talk to our customers. Our specialists work with them to define exactly what requirements the recyclate must meet, and offer individual suggestions for the best way to achieve this. We are happy to advise customers on the many opportunities for replacing expensive primary raw materials in production processes with our high quality recyclates. We see ourselves as a service provider, creating and implementing expert solutions.

**We see ourselves
as a service
provider, creating
and implementing
expert solutions.**



Accelerating Action
on Circularity

Because thinking circular today will provide us, our partners
and society with a better tomorrow.

FOR MORE INFORMATION

visit borealisgroup.com, ecoplast.com, mtm-plastics.eu/en/ and borealiseverminds.com

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Borealis is one of the world's leading providers of advanced and sustainable polyolefin solutions and a European front-runner in polyolefins recycling. In Europe, we are a market leader in base chemicals and fertilizers. We leverage our polymer expertise and decades of experience to offer value adding, innovative and circular material solutions for key industries such as consumer products, energy, healthcare, infrastructure and mobility.

In re-inventing essentials for sustainable living, we build on our commitment to safety, our people, innovation and technology, and performance excellence. We are accelerating the transformation to a circular economy of polyolefins and expanding our geographical footprint to better serve our customers around the globe.

With head offices in Vienna, Austria, we employ 7600 employees and operate in over 120 countries. In 2022, we generated a net profit of EUR 2.1 billion. OMV, the Austria-based international oil and gas company, owns 75% of our shares, while the remaining 25% is owned by Abu Dhabi National Oil Company, or ADNOC, based in the United Arab Emirates (UAE). We supply services and products to customers around the globe through Borealis and two important joint ventures: Borouge (with ADNOC, headquartered in the UAE); and Baystar™ (with TotalEnergies, based in the US).

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