



2024

SUSTAINABILITY BROCHURE



IK Industrievereinigung
Kunststoffverpackungen e.V.



Gesamverband
Kunststoffverarbeitende
Industrie e.V.

INHALTSVERZEICHNIS

| | PAGE |
|---|-----------|
| 1. PRESENTATION SILVER PLASTICS® GMBH & CO. KG | |
| Foreword by the management..... | 3 |
| Company overview..... | 5 |
| Reifenhäuser - Our parent company..... | 9 |
| silver plastics® Product overview..... | 11 |
| 2. OUR UNDERSTANDING OF SUSTAINABILITY | |
| Sustainability at silver plastics®..... | 13 |
| Value proposition, Mission and Vision..... | 15 |
| Resource conservation, carbon footprint and Golden Fibres®..... | 16 |
| Initiative Save Food and Ecovadis..... | 17 |
| Zero pellet loss..... | 18 |
| 3. CIRCULAR ECONOMY | |
| Monomaterials and PET - The material..... | 20 |
| PET-Extrusionstechnology..... | 21 |
| Our response to the PPWR..... | 23 |
| 4. RESEARCH AND DEVELOPMENT | |
| Reduce/replace/recycle and current projects..... | 25 |
| Use of recyclates at silver plastics®..... | 29 |
| 5. OUR QUALITY MANAGEMENT | |
| Hygiene and compliance management..... | 31 |
| Energy management and approach to sustainable succe..... | 32 |
| 6. CLOSING WORDS..... | 33 |



FOREWORD

AN INTRODUCTION OF THE MANAGEMENT

The topic of sustainability at silver plastics® GmbH & Co. KG is the dominant theme in our daily business. With this in mind, as a manufacturer of plastic packaging for the food industry, it is a matter close to our hearts to ensure that the challenge of a circular economy and a better tomorrow is sustainable.



Franz-Josef Klein, CEO

As a packaging manufacturer, we want to use our innovative approaches and technologies to leave a lasting mark on our industry, going beyond our legal obligations and making our own contribution

„We have the responsible task of enabling the preservation and protection of food and thus avoid food waste“

to a more environmentally friendly world for customers and end consumers. In doing so, it is important for us to look at the entire value chain: from the procurement of raw materials through our production to the end consumer, we want packaging to become packaging again! We dedicate our resources to this overarching goal so sustainability and economic performance going hand in hand.

With the help of our parent company, the Reifenhäuser Group, we are in an excellent position to always have direct access to the latest developments in plastics extrusion and thus to be able to develop and produce not only high-quality and certified products, but also sustainable ones.

Through close co-operation with various associations and initiatives, silver plastics® can have its high quality regularly certified and improved. With the help of objective sustainability tools, we measure

and scale our impact on the environment and society and use this as a current basis to constantly work on our performance. We are therefore proud to have been recognised several times for our commitment to sustainability and to be among the 15% most sustainable companies according to the sustainability rating agency EcoVadis.

„Our commitment to the circular economy does not end with production - it starts there.“



Sebastian Kremer, CSO

Thanks to numerous collaborations with universities, institutes and associations, we are able to participate in the most innovative research projects and thus always work with the latest standards and

constantly improve them - together for a better future. In our current sustainability report, we would like to draw your attention, dear readers, to our strategic and sustainable goals and reveal current developments and our visions for the future.

In addition to disclosing our understanding of sustainability, in our report we have not only addressed our company, but also the overarching mission of the United Nations: we list the extent to which we in the industry are making our contribution to achieving the 17 Sustainable Development Goals.

„We are prioritising the continuous improvement of our economic performance in line with the sustainable development of our planet.“



Damir Mekic, CFO



1. COMPANY

silver plastics® has been developing and marketing intelligent packaging solutions in co-operation with industry and trade since 1967. A large number of well-known food packaging products for meat, fish, delicatessen and fruit and vegetable sectors come from our company. As a leading manufacturer of plastic packaging, we produce in Troisdorf in North Rhine-Westphalia. Conveniently located on the A59 motorway between Cologne and Bonn, we develop and produce packaging for the food retail.

With around **140 employees**, approximately **one billion packaging** are produced on over **56,000m²** factory space.

We have set ourselves the goal of protecting the environment and respecting the applicable environmental standards. We are committed to sustainable and resource-conserving production and environmentally friendly products.

As early as the raw materials processing stage, silver plastics® pays close attention

to short transport routes and the economical use of all materials.

We recycle 100% of all raw materials used internally and endeavour to avoid waste completely. Product weights are reduced as far as possible in line with technical requirements. This saves valuable raw materials by reducing the amount of material used. All the raw materials used in our products are recyclable, which means that we are conserving resources in a sustainable manner. In addition, silver plastics® is committed to protecting the environment in the production of plastic packaging above and beyond the legal requirements. All employees are committed to sustainable environmental protection and resource conservation. We therefore use raw materials, energy and our packaging materials sparingly and in an environmentally friendly manner.

This way, we endeavour to continuously reduce our impact on the environment.



We care for the health and well-being of our employees and our environment.



OUR COMMITMENT

„We see the future of the packaging industry in closed loops. Our entire commitment is orientated towards this.“

Our certifications, which go beyond the legal requirements, correspond to our understanding of sustainability and product safety. As an innovative plastics processor, we are involved in various schools and university projects with working groups and lectures on the subject of sustainability. We also offer guided tours of our production halls to give students an insight into our work.

We are also actively involved in various research groups, associations and organisations:

OUR COMPETENCES

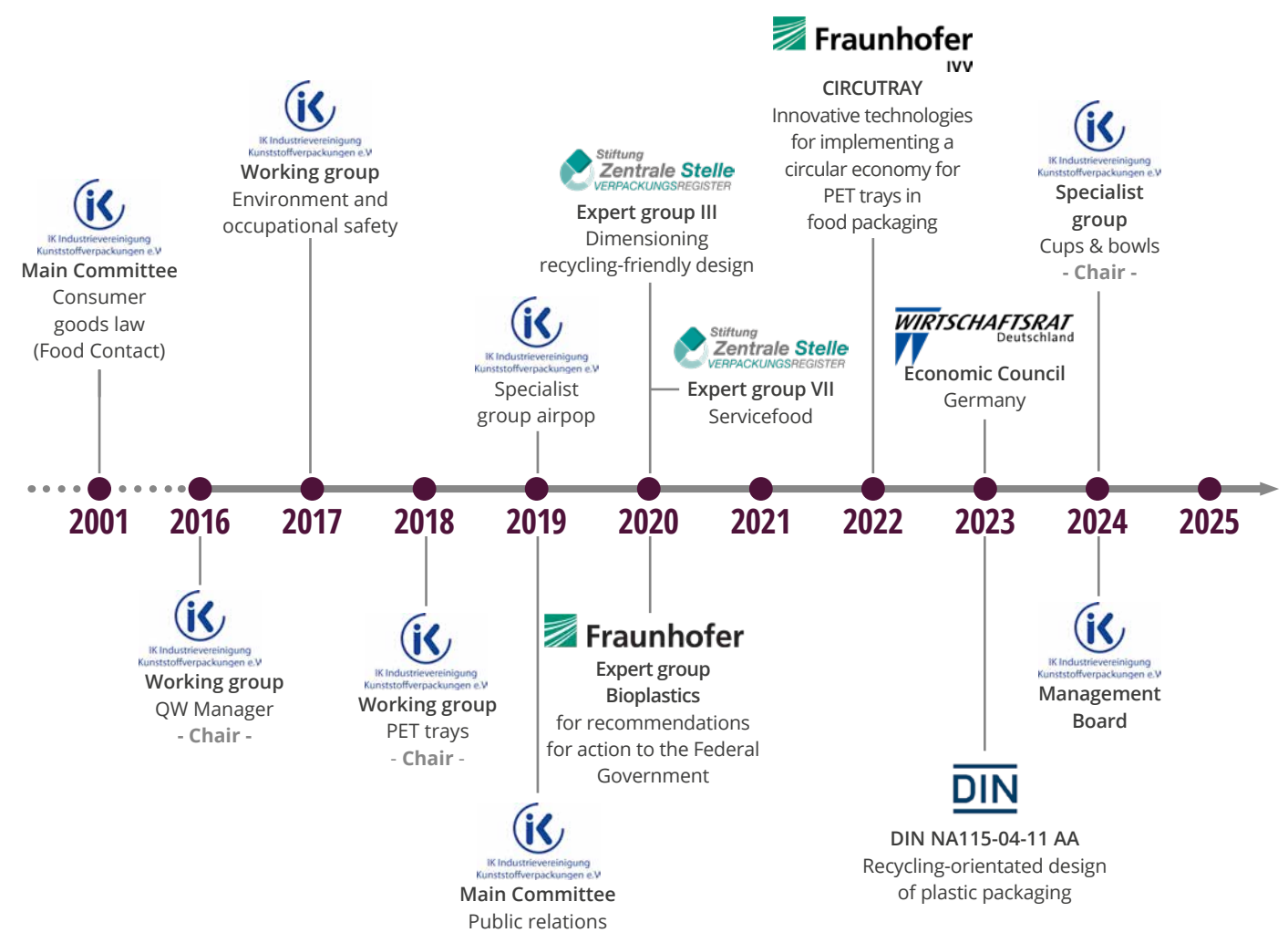
We **EXTRUDE** highly transparent films from 0.15 mm to 1.5 mm depending on the material.

As experts in the field of **FOAMING**, we have succeeded in reducing the density of extruded plastics by a factor of 10, down to 0.1 g/cm³, depending on the material.

We **THERMOFORM** over 800 different product variants using the thermoforming process.

Thanks to our many years of expertise in **TRAY SEALING**, we can find the ideal combination for every sealing medium to meet our customers' requirements.

Our products are developed in a way that **DE-NESTING** can be realised at up to 250 trays per minute.





FAMILY BUSINESS SINCE 1911



f.l.t.r. Ulrich Reifenhäuser, CSO; Karsten Kratz, CFO; Bernd Reifenhäuser, CEO; Dr. Bernd Kunze, CTO

Since the beginnings of the plastics industry in the 1950s, Reifenhäuser has supported countless customers in setting up successful production and becoming top suppliers in their industry. Even today - as a market leader and family-owned company with specialised business units that pool their knowledge: in design, process engineering, automation, project planning, production, project management and logistics. Together, the Reifenhäuser Group forms the world's largest competence network for plastics extrusion technology. The requirements for plastic extrusion products have never been as complex as they are today. In the past, films and nonwovens primarily had to be economical and functional. Today, sustainability is the main requirement. The Reifenhäuser Group supplies customised systems and components for the production of high-quality blown films, cast films, sheet films and nonwovens, with which producers serve the market and the environment. More than 100 years after its founding in 1911, the company is still 100 per cent family-owned. Brothers Bernd and Ulrich Reifenhäuser are now the third generation to run the group.

- **1911** Founded as a blacksmith's shop in Troisdorf by Anton Reifenhäuser
- **1948** The first Reifenhäuser extruder
- **1954** Invention of vacuum calibration technology for the extrusion of hollow profiles
- **1967 FOUNDATION OF THE SUBSIDIARY SILVER PLASTICS® GMBH & CO. KG**
 - Development of coextruded 2-layer film
 - silver plastics® with Sivatex® as the leading manufacturer in Europe
- **1979** Commissioning of the French trading branch
- **1984** Introduction of film thickness control via translators/First spunbond line with the new REICOFIL system
- **1999 VAMPIRELLA® IS LAUNCHED**
- **2000** New technology for the production of breathable films
- **2004** Consolidation of the operating areas on Godesberger Street
- **2008** Inauguration of the new nonwovens technology centre at the Troisdorf site
 - Expansion of the management by Bernd (CEO), Ulrich and Klaus Reifenhäuser
- **2011 - 100 YEARS OF REIFENHÄUSER** Restructuring of Reifenhäuser Extrusion into the companies Reifenhäuser Extrusion Technology and Reifenhäuser Cast Sheet Coating
- **2017 - 50 YEARS OF SILVER PLASTICS®**
- **2022 - PET EXTRUSION COMMISSIONING** Europe's most modern PET extrusion line in the halls of silver plastics®



1.750 Employees

1911

Company founded
In 1911 by
Anton Reifenhäuser



All core components
Developed and produced
in-house

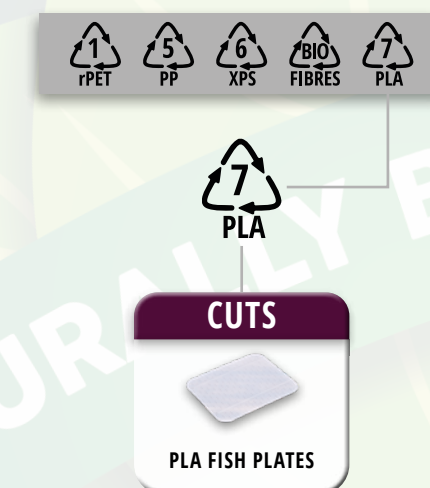
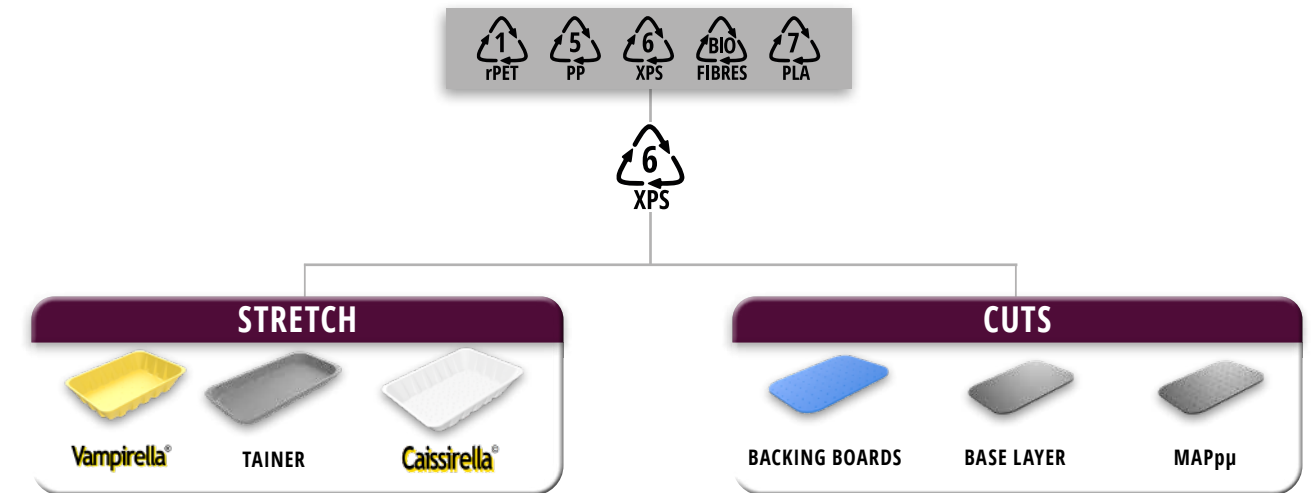
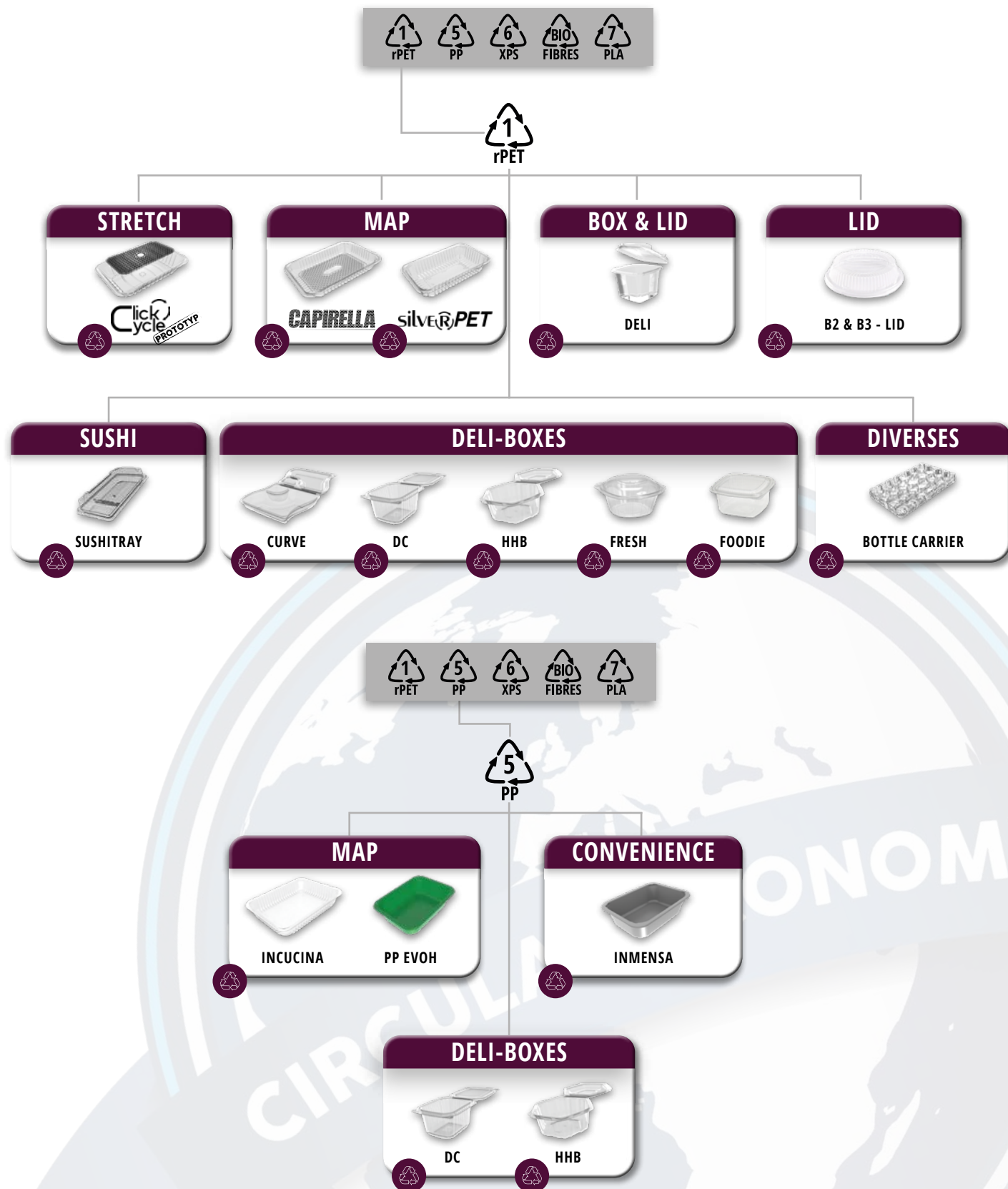


The Extrusioners
Internal network

**A LEADING SUPPLIER IN THE FIELD OF
PLASTICS EXTRUSION - WORLDWIDE!**

REIFENHÄUSER - OUR PARENT COMPANY

OUR PRODUCTS



2. SUSTAINABILITY

silver plastics® has set itself the goal of protecting environment and respecting the applicable environmental standards. silver plastics® is therefore committed to sustainable and resource-conserving production and environmentally friendly products. Even during the processing of raw materials, attention is paid to the economical use of materials and raw materials. silver plastics® recycles 100% of all raw materials used internally and endeavours to avoid waste completely. Product weights are reduced as far as possible in line with technical requirements. This means that valuable raw materials are saved due to the reduced use of materials. All raw materials used in our products are 100% recyclable, which means that we operate sustainably and conserve resources.

In addition, silver plastics® is committed to protecting the environment in the production of plastic packaging above and

beyond the legal requirements. The entire company, organisation and employees are committed to sustainable protection of the environment and resources. We therefore use raw materials, energy and packaging materials sparingly and in an environmentally friendly manner and dispose of waste in an environmentally friendly way. We endeavour continuously to reduce our impact on the environment and build a sustainable future.

„We see the future of the packaging industry in closed loops. Our entire commitment is orientated towards it in long term.“



Sebastian Kremer, CSO and sustainability expert

6 CLEAN WATER AND SANITATION



By introducing various measures to reduce the discharge of pollutants into the water, we are making our contribution to the realisation of SDG 6.



WE ARE SILVER PLASTICS®



As part of a 3th generation family business, we think sustainably in the long term and always act with the „next generation“ in mind.

We want to close loops and see it as our mission to turn a packaging back into a packaging.



In our vision, packaging is no longer seen as a problem in society, but rather as part of the solution.



CONSERVATION OF RESOURCES

Conserving valuable resources and reducing CO₂ emissions are key environmental concerns of our time. However, the responsible treatment of the environment is also very important to us and many of our customers. silver plastics® is committed treating the environment with care in the production of plastic packaging, going beyond the legal requirements.



CARBON FOOTPRINT

The carbon footprint, also known as the CO₂ balance, is a key tool for presenting the climate impact of products, services and everyday activities in a measurable and transparent way. This assessment makes it possible to quantify emissions and derive targeted measures to reduce them. silver plastics® reports detailed operating figures annually in order to disclose its own contribution to climate

protection. In addition to its active involvement in sustainability reports, the company also participates in the work of the IK - Industrievereinigung Kunststoffverpackungen e.V. (Industrial Association for Plastic Packaging).



GOLDEN FIBRES

Our Golden Fibres are made from 100% natural fibres!

In this process, „waste products“ from agriculture, i.e. agricultural residues such as straw, are cleaned, mechanically processed and the resulting cellulose is then processed into various types of packaging. Depending on the application, we avoid using additional laminates so that the packaging can even be disposed of in domestic compost after use.



Golden Fibres peel after approx. 6 weeks on the home compost

Alternatively, Golden Fibre's products can be easily recycled in the paper bin. It is important for us not to use edible materials that serve as food for humans.

Golden Fibres products are already being used in a variety of ways in the packaging of fresh products such as fresh meat, salad mixes and berries. In 2023, we subjected the recyclability of our Golden Fibres trays to a final test by Interzero Circular Solutions Germany GmbH and scored „good“ with 18 out of 20 points.



INITIATIVE SAVE FOOD

A third of all food is either wasted or gets lost. Enough to meet the world's food needs. Together with our members from industry, politics and society, SAVE FOOD wants to drive innovation, promote interdisciplinary dialogue and initiate de-



bates in order to create solutions - along the entire value chain from the field to the consumer. With everybody involved. On a broad level. Taking responsibility always means thinking outside the box. By producing food packaging, we take on a social responsibility.

We actively support the „SAVE FOOD“ initiative and work to ensure that less food gets wasted in industrialised countries and that food in developing countries is better packed and protected during transport from the field to the market.

ECOVADIS

This year, we have once again achieved the silver standard for the ecovadis sustainability rating, putting us in the top 15% of all companies assessed/evaluated.



An important and indispensable aspect of sustainability for us is the evaluation of our CSR (Corporate Social Responsibility) performance. We undergo an annual assessment by the sustainability assessment platform ecovadis.

This helps us to continuously improve the sustainability of our company and at the same time offer our customers full transparency in the performance within our supply chain.

ZERO PELLETT LOSS

The voluntary Zero Pellet Loss (ZPL) initiative was launched by Plastics Europe. This European network of plastics manufacturers aims to end plastic waste pollution by 2040 by transforming the plastics industry into a climate-neutral circular economy. In 2015, the ZPL initiative was combined with the global Operation Clean Sweep (OCS) program. These initiatives are based on EU laws and regulations. silver plastics® also deals intensively with this topic within its QMS. One of its focal points is the Zero Pellet Loss initiative. Plastic pellets and flakes are delivered and processed on the company premises. As part of the continuous improvement of their processes and the identification of risks and opportunities, an optimisation project was initiated that deals with the Zero Pellet Loss initiative. The aim is to realise an action plan developed as part of a bachelor's thesis for the effective implementation of the ZPL initiative in the silver plastics® QMS. The current project is based on the proven PDCA cycle, a process-orientated approach which runs through repeatedly:

- First, the four phases (Plan, Do, Check, Act) are analysed in order to design a structure and implementation of the ZPL initiative.
- A management system is then set up with organisational structures, responsibilities, processes and resources.
- It is then integrated into the in-house QMS, based on the model of an integrated management system (IMS).
- A team of employees from various departments in the end carried out a comprehensive error and cause ana-

lysis to identify weak points that were leading to material losses. Targeted measures were derived from this.

In line with the keep-it-short-and-simple principle, all employees should concentrate on just two general key performance indicators (KPIs) to begin with:

- The number of incidents relating to material leakage and
- the respective outlet quantity.

In the course of process monitoring, the deviation indicator could also be introduced. This would provide information, for example, if insufficient cleaning was carried out, the material leakage was ignored for too long or additional complaints occur. The more frequently a deviation occurs or the higher the number of material leaks and incidents, the more urgently the ZPL system and its processes need to be revised. Proven quality management tools were used to support this analysis, including:

- Flowcharts,
- 5-Why,
- the environment-oriented failure mode and effects analysis (FMEA) and
- Various risk matrices.

With the increasing number of customer requirements and legal regulations, it is becoming more and more important for companies to integrate the topic of sustainability. Ideally, quality management systems and sustainability requirements are becoming increasingly closely interlinked and promote each other. Ultimately, however, one thing counts:

„All measures make a valuable contribution to protecting our environment.“

Excerpt from the article „The Zero Pellet Loss Initiative within Quality Management“ - „QZ“ (11/2024) by our employees BA Eng. Julia Katharina Mita.

We want to ensure long-term profitability and at the same time sustainably improve the community and the environment.

8 DECENT WORK AND ECONOMIC GROWTH



3. CIRCULAR ECONOMY

MONOMATERIALS AND WEIGHT REDUCTIONS

All silver plastics® items manufactured in-house are analysed along the entire value chain during product development and their application is examined by means of a risk assessment. As a result, the market and end-of-life scenarios are presented in detail in advance and the product is designed according to its final functionality. The focus is always on minimising the use of materials and weight, as well as recyclability, which can only be achieved with a mono-material solution.

This means that >95% of the product material is made from one material. These sustainable solutions can vary depending on specific fields of application, functionality and product processing. In the PET sector, you often still see a lot of so-called multilayer packaging, which consists of a combination of different plastics. However, the following applies to the recycling of plastics: the less impurities from foreign material enter the recycling pro-

cess, the better - which is why mono is the solution! With the help of the patented relief seal rim, CAPIRELLA® (meat) trays, for example, can do without foreign material such as adhesives. They are made from up to 100% recycled mono-PET to make the recycling process as simple and effective as possible - *Designed for Recycling*.

PET - THE MATERIAL FOR A SUSTAINABLE PACKAGING INDUSTRY

Polyethylene terephthalate is a versatile polymer that has established itself as a valuable plastic, particularly in the food industry, thanks to its chemical and mechanical-technological properties. In addition to its visual advantages due to its high transparency, the material offers further benefits for processors and users of PET products. The material can be easily extruded and thermoformed, which enables a wide range of shapes and designs due to its good formability and abstraction.



Vollgepackt mit hochmoderner Technologie - unsere neue PET-Extrusionsanlage der Firma Reifenhäuser®

This guarantees a wide range of different applications, from simple tray designs to PET display packaging. The material is extruded on reels, and silver plastics® relies on the expertise of its parent company „Reifenhäuser“ and its „Cast Sheet Coating“ business unit.

In 2021, investments were made in state-of-the-art extrusion technology, which is also a recycling process in its own right and is approved in accordance with the European EFSA guidelines for packaging in the food sector. This meaning the extruder is designed in a way that the processing of recyclates and the addition of other necessary additives for sustainable films with the highest possible recycled content can be guaranteed.“ As a manufacturer, silver plastics® is therefore also its own recycler.

TOWARDS A CIRCULAR ECONOMY WITH NEW PET EXTRUSION TECHNOLOGY

The use of recyclates, the Packaging & Packaging Waste Directive and the associated influences on the PET value chain are currently on everyone's lips and are therefore of great importance. silver plastics® has positioned itself in a way that, in addition to the purchase of recyclates, an

internal recycling loop is also fully implemented. All regrind from the thermoforming process is fed 100% back into the previous extrusion process, whereby the quality and performance of the end products remain constant. The aim is to minimise the loss of raw materials. Due to the specific properties of the materials, we deal with PP and foamed PS, but mainly focused on PET. Due to its molecular structure, PET is particularly suitable for recycling and creating a circular economy. This applies not only to bottles, as has been the case for many years, but also to other areas of application such as trays or thermoforms. The material remains the same, only the shape changes.



CAPIRELLA® - Designed for recycling, Environmental award winner and made from up to 100% rPET

An internal recycling loop for polyolefins and polystyrene is feasible. However, the availability of external PCR recyclates for further applications in the food sector is difficult due to the strong and uncontrolled permeation behaviour of potential contaminants. For this reason, silver plastics® is increasingly focussing on the use of chemically recycled materials.



IV booster for tray flake preparation

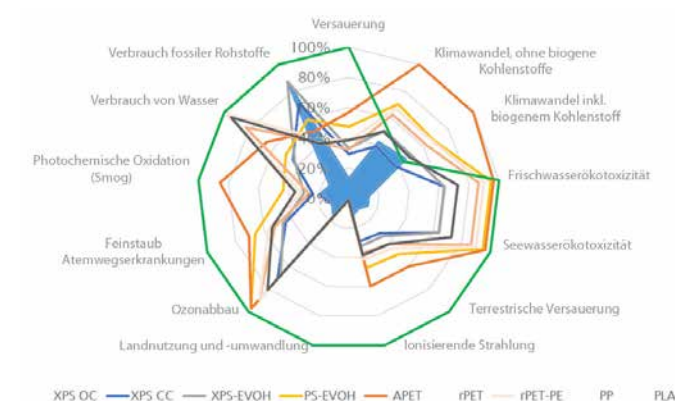
EFSA, IV-BOOSTER

Since November 2021, silver plastics® has been pursuing the creation of its own EFSA dossier. This dossier declares the extrusion line as a recycling technology and thus certifies the use of PCR materials, i.e. recyclates, for food contact. For this reason, we have registered as a recycler with both the EFSA and the local authority. As part of the new EU Regulation 1616/2022, which deals with „materials and items made of recycled plastic intended to come into contact with food“, the European association „PETCORE Europe“ has set up a „Task Force Functional Barrier“. The aim of this task force is to officially promote the authorisation of a functional barrier using ABA film structures that are already conventionally used on the market. silver plastics® is also part of this task force, so that in addition to its own EFSA application, a further guarantee for the use of recyclates in food packaging and contact with them is ensured.

FRAUNHOFER MATERIAL COMPARISON

In 2015, silver plastics® conducted a comprehensive study in collaboration with the Fraunhofer Institute UMSICHT. This

study, which was conducted as part of a life cycle assessment, analysed various packaging materials and their impact on the environment and the life cycle of the products. Against the backdrop of the ongoing debates on the circular economy, the EU strategy for plastics, the discussion on marine litter and microplastics, the debate on the ban on single-use plastic products and the amendment of the German Packaging Ordinance, polymer foams and hybrid packaging (multilayer packaging) have become the focus of attention. In order to understand the environmental impact of different tray solutions for meat, silver plastics® and Fraunhofer UMSICHT have carried out a comparative environmental assessment of various packaging solutions.



PS-based materials achieve the best results in the LCA for food trays.

The environmental assessment method used was a life cycle assessment (LCA) based on the ISO 14040/44 standards. The following packaging solutions were analysed: PS-based trays (extruded polystyrene, extruded polystyrene with five-layer structure with ethylene vinyl alcohol)

- PET-based trays (recycled polyethylene terephthalate (with polyethylene layer), amorphous polyethylene terephthalate), and
- Polypropylen (PP)
- Polylactic acid

The scope of the LCA study covered the production of the trays and the end-of-life phase. The production of meat, filling the tray with meat and sealing were not taken into account.

The results show that PS-based trays, especially monomaterial solutions produced from extruded polystyrene (XPS), have the lowest environmental impact, apart from resource consumption. Multilayer products tend to have a higher environmental impact. The LCA also shows that the end-of-life phase has a significant impact on the environmental performance of packaging, but the production of the packaging dominates the overall results. The sensitivity analysis showed that even with higher recycling rates, XPS solutions continue to perform best from an environmental perspective. These trays have the lowest use of raw materials and consist of around 8% plastic and 92% air.

OUR RESPONSE TO THE PPWR

silver plastics® is responding to the new challenges posed by EU regulations, in particular the Packaging and Packaging Waste Regulation (PPWR), by avoiding excessive packaging in order to minimise material consumption. Through the „Design for Recycling“ approach, we strive to improve the recyclability of materials and simplify the disposal process for customers and consumers by clearly labelling our products and taking responsibility at the same time. We also plan to increase the transparency of product information through continuous reporting in order to facilitate the implementation of the new regulation. We are also investing in innovative technologies to save materials and are increasingly focussing on recycled raw materials in order to promote our circular economy and further reduce our environmental impact.

We think in cycles



We focus on the macro environment by consistently implementing high quality and environmental standards

9 INDUSTRIE, INNOVATION UND INFRASTRUKTUR





4. RESEARCH AND DEVELOPMENT

When it comes to how silver plastics® deals with sustainability in its products, reference is usually quickly made to the Research & Development (R&D) department. Before a new product is launched on the market, the entire value chain is analysed during development. In addition to the primary customer requirements, the manufacturing process, the final application by the end user and the disposal route are also taken into account. The core competences in the area of product innovation, design and production also focus on the areas of „reduce, replace, recycle“ in order to develop comprehensive and sustainable packaging concepts.

REDUCE

By minimising the use of materials while maintaining the same quality and functionality, silver plastics® creates a material-saving solution for the entire value chain. Product design creates ways to reduce the use of materials and fulfil customer and environmental requirements.

By foaming plastic in particular, only a fraction of the material is used to create functional packaging. The reduction of film thicknesses in the rigid sector also lends itself to similar fields of application. In addition to the weight reduction, the use of auxiliary materials such as laminates for sealing is also reduced or completely eliminated, so that the customer can be presented with an equivalent solution in the form of mono-packaging.

REPLACE (INSTEAD OF REUSE)

In the packaging industry, the concept of „reduce, reuse, recycle“ is often emphasised. At silver plastics®, however, we see greater importance in „reduce, replace, recycle“, as certain resources must be considered detrimental when reusing. With the focus on „replace“, silver plastics® clearly emphasises the vision that packaging must fulfil a specific function. In addition to valuable plastic packaging for fresh meat, fish or perishable foods, there are areas of application in which

We make our contribution to the circular economy through recyclable product design.

**12 RESPONSIBLE
CONSUMPTION
AND PRODUCTION**



plastic-free packaging solutions can be used and thus represent „replacements“. Fibre-based packaging in particular is a pioneering alternative and addition to our portfolio of plastic packaging.

RECYCLE

silver plastics® attaches great importance to „Design4Recycling“ in all material areas. In addition to maximising the use of recyclates, the recyclability of the products is crucial, which is why silver plastics® designs all of its products in a way that they can be sorted into the respective material fractions using country-specific and technological infrastructure and then recycled. In this sense, silver plastics® sees itself as a general recycler, which is why it is constantly investing in expanding its options. In addition to the general raw and auxiliary materials, colour masterbatches are also selected in such a way that they can be detected by material fraction during disposal e.g. and do not disrupt the process. This is accompanied by a clear vision of the „cradle-to-cradle“ principle for our products in order to be able to finally design a „Tray2Tray“ packaging concept.

CURRENT PROJECTS

silver plastics® not only seeks exchange with customers, but also with associations, institutes and other organisations. In addition to active participation in various association activities, this results in an opportunity to take part in various projects and working groups. In connection with the digital representation of the value chain and the associated traceability of materials, silver plastics® is involved in the „PackAn“ project and Reifenhäu-

ser's „R-Cycle“ initiative. Both projects consist of various players in the value chain and jointly examine the material cycle in terms of traceability and digital product passports. The associated transparency of raw material, production, application and disposal data is intended to eliminate weak points and preserve valuable raw materials in the cycle. The digital product passport can be tracked using a QR code scanner on a smartphone.



With this prototype, the „digital product passport“ can be tracked via QR code scanner on a smartphone.

The use of post-consumer recyclates (PCR) is clearly regulated by EU Regulation 2022/1616 to ensure that there is no harm to human health. Each company is responsible for setting up and monitoring appropriate processes to ensure compliance with the legislation.

In more specific applications, particularly in the PET sector, silver plastics® joined the PETCORE Europe association at the end of 2021. PETCORE Europe is the European association and the voice of companies and member associations in Brussels that are active in the PET value chain. PETCORE's mission is:

- Ensuring that the entire PET industry is ideally aligned to increase its value and sustainable growth,
- representing the PET industry vis-à-vis

the European institutions and other interest groups,

- PET is positioned as an excellent packaging material and recognised as environmentally friendly,
- Support and validation of innovative packaging solutions from a recycling perspective,
- work with all interested parties to ensure a continuous increase in the collection and recycling of PET after use.

As part of this association, a TASK Force on the topic of „functional barriers“ was set up in mid-2022 with over 65 members. Together with its participants, this TASK Force prepared a joint dossier in accordance with the new Regulation 2022/1616 on the use of recyclates in food contact. PETCORE Europe submitted this dossier to the EU Commission / EFSA for certification as a „novel technology“ on 30th of April 2023. The dossier confirms the conformity of the application of a functional barrier / ABA layer structure in a PET film, with PCR material in the B-layer. By using virgin material in the A-layer, a functional barrier is applied to prevent the migration of potential contaminants from the recyclate. In addition, the Fraunhofer Institute IVV has launched a research project as part of the „Innovative technologies for implementing a circular economy for PET trays in food packaging (CircuTray)“ project in the „Research for Sustainable Development - FONA3“ framework programme for the BMBF funding guideline „Resource-efficient circular economy - plastics recycling technologies (KuRT)“. The overall project aims to establish a circular economy for PET in food packaging by combining innovative material

recycling processes and novel production processes. The aim is to enable the use of recycled PET material without compromising consumer safety. As part of the work packages, silver plastics® aims to develop a mono-material PET tray designed according to the current Design 4 Recycling principles. For this purpose, film laminates with an rPET core will be produced in small and scalable quantities, from which trays will be produced by thermoforming. The suitability for use on industrial systems is also being tested.

OUR STRATEGIES

Although PET trays are 100% recyclable, in Germany they are currently still incinerated as mixed plastic in energy recovery. In contrast, in Austria and the Netherlands, PET trays are already certified by the „Institut cyclos-http“ as 100% recyclable. Where, only the material used is taken into account and not the area of application.



CAPIRELLA® - Certified by the Cyclos Institute as 100% recyclable in Austria and the Netherlands

To make this possible, a corresponding infrastructure is required in the waste management industry, including the development of sorting and recycling technologies. Accordingly, a standardised EU-wide regulation for the sorting and recycling of packaging materials is

required in order to implement the EU's objectives with minimum use quotas for recyclates and to provide all participants in the value chain with the corresponding resources and raw materials on the market. Each recyclate has its own quality, which in turn has an influence on processing and the subsequent application product. The so-called IV value of the material plays a decisive role here, which describes the intrinsic viscosity and thus indicates the intermolecular „cohesion“. The more frequently a material is grinded or recycled, the lower its IV value. A low IV value significantly impairs the processability of the film and the quality of the products made from it.

Currently available PCR materials from bottles (bottle flakes), for example, are of high quality in terms of their IV value, which makes them easy to process. In future, however, the input material will be more diverse, as legislation and minimum use quotas for recyclates will open up further sources of recyclates. In addition to bottle flakes, recycled materials from trays and thermoforms will also become increasingly available. This is the ambition for the future, as the aim is to create a closed „Tray2Tray“ cycle that replaces the current life cycle of the tray and leads to a „cradle-to-cradle“ cycle. Due to the processing of trays / thermoforms, the IV value of the material deteriorates, so that in future tray flakes will have to be processed and their IV value increased.

Together with our parent company Reifenhäuser, we are carrying out a development project to prepare regrind/PCR materials from trays in a reactor in a way that a safe and high-quality processing

process is subsequently possible. The future of SP is clearly focussed on a cradle-to-cradle approach.

USE OF RECYCLED MATERIALS



Regrind is 100% reused - with consistent quality!

The use of recyclates is playing an increasingly important role in the packaging industry and is a key part of efforts to promote a sustainable circular economy. Companies such as silver plastics® recognise the importance of integrating recyclates into their production processes in order to conserve resources and reduce environmental impact. By using recyclates, valuable raw materials can be reused, which not only lead to a reduction in the amount of waste, but also to a reduction in the environmental impact of producing new materials. In addition, the use of recyclates helps to reduce the consumption of energy and water and minimise the CO₂ footprint. silver plastics® therefore pursues a holistic strategy that maximises the use of recyclates in both its products and its production processes in order to make a positive contribution to sustainability.

We address climate protection by constantly complying with various environmental guidelines. In doing so, we want to act in favour of climate protection in order to counteract compromises in the existence of future generations



13 CLIMATE ACTION





5 OUR QUALITY MANAGEMENT

Our company has been pursuing the highest standards in the areas of quality management (QM), hygiene, compliance and energy management for many years. These measures not only serve to ensure the safety, quality and sustainability of our products, but also create a fair, safe and supportive working environment for our employees. We are convinced that these comprehensive measures form the foundation for our long-term success and our responsibility towards customers, employees and the environment.

HYGIENE MANAGEMENT

We have been demonstrating our strict hygiene guidelines through external certifications since 2009 and are proud to be constantly developing our processes to meet the increasing demands of the industry:

- **Global Standard (BRCGS rev. VI):** Certified according to the recognised Global Standard for Packaging Safety.

- **HACCP system according to VO 852/2004 EC:** Implementation of the HACCP system for systematic risk analysis and control.
- **Quality management system in accordance with Regulation (EC) 2023/2003 GMP:** Our processes follow the requirements of Good Manufacturing Practice based on DIN EN ISO 9001 (2008-2015).

COMPLIANCE-MANAGEMENT

For us, compliance means much more than just adhering to regulations. It is about our commitment to ensure ethical and sustainable standards in all areas of our company:

- **silver plastics® Codex since 2012;** last update in Feb. 2024: Our company code to ensure compliance with ethical and sustainable standards.
- **ETI Base Code since October 2019;** Last update in Apr. 2024: Commitment to comply with the Ethical Trading Initiative Base Code, which promotes fair working conditions.

- **GKV certification since November 2012:** Compliance with the standards of the Gesamtverband Kunststoffverarbeitende Industrie e.V. (GKV).
- **Formal inclusion in the BSCI system in July 2013:** Membership of the Business Social Compliance Initiative (BSCI) system to improve social standards in the supply chain.
- **EcoVadis since 2019;** Successful re-certification in July 2024: recognition of our sustainability performance by the renowned EcoVadis platform.

ENERGY MANAGEMENT

Sustainability and energy efficiency are two central pillars of our corporate philosophy. We actively contribute to environmental protection with our certified energy management system:

- **Initial certification in May 2013:** Since 2013, we have been using a certified energy management system to improve our energy efficiency, which complies

with the internationally recognised standards for energy efficiency and sustainability and the requirements of DIN EN ISO 50001:2015.

- **Consideration of environmental and resource aspects:** Our focus is on reducing energy consumption and using resources sparingly to minimise our ecological footprint.

OUR APPROACH FOR SUSTAINABLE SUCCESS:

By integrating high QM/hygiene standards, responsible compliance management and a certified energy management system, we not only ensure the quality and safety of our products, but also actively contribute to environmental protection and fair working conditions. Our company sees itself as part of a global network taking responsibility for people, products and the environment. With our holistic approach, we are making a significant contribution to a more sustainable future.





6. CLOSING REMARKS

Sustainability is not just a trend, but a responsibility that we take seriously as a packaging manufacturer. With our food trays made of PP, PET and XPS, we have made it our mission to develop and use materials in a way that they make an important contribution to the circular economy. By using recyclable plastics and continuously improving our production processes, we aim to reduce our environmental footprint while maintaining the quality and safety of our products.

Our commitment to the circular economy does not end with production - it starts there. Together with our partners, we are working to strengthen the recycling infrastructure and promote the return of materials to the cycle. This way, we create

sustainable solutions that ensure a balance between environmental protection and functionality today and in the future.

We thank you for your trust and look forward to continuing on this path towards a circular future together with you. Sustainability starts with each individual - let's take responsibility together.

Publisher:

silver plastics® GmbH & Co. KG
Godesberger Str. 9
53842 Troisdorf
Tel.: +49 (0)2241 88 08-0
info@silverplastics.de
www.silverplastics.de

Pictures: silver plastics® & www.shutterstock.com

CAPRELLA

OUR ANSWER TO THE PPWR

Patented relief sealing rim
no PE coating necessary

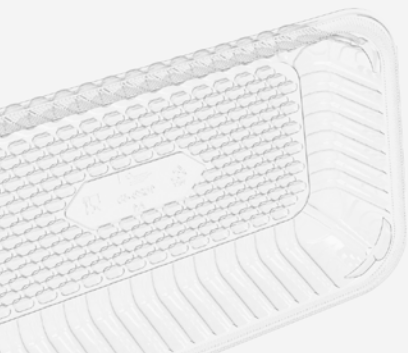
Capillary bottom
no glued-in absorbent pad

100% Mono
up to 100% recycled mono-PET

100% Optic
gloss and high transparency



stay **ECO**



**KNOWING.
PACKING.
RELYING.**

