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Plastics
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The magazine for professionals

In the spotlight:
Material availability

The Supply-Demand Gap for Plastic Recyclates

greiner PACKAGING

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The magazine for professionals

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Editorial UPP

Beatrix Praeceptor,
CEO Greiner Packaging

Dear Readers,

Transformation does not always begin with grand gestures – often, it's the quiet, consistent steps that truly make a difference. At a time when the circular economy is not just a vision but a necessity, we need the courage to embrace new ways of thinking, openness to partnerships, and most importantly: solutions that work in practice.

At Greiner Packaging, this means facing challenges head-on – even when the solutions are not immediately obvious. One of the most pressing issues in sustainable packaging is the availability of materials. How can the growing demand for recyclates be reconciled with the still limited supply? In our feature on pages 4 to 9, we take a closer look at this very issue and explore current developments and initiatives in this area.

Change is not only evident in materials. Design, too, can be a driving force for sustainability. Take our new "CUBO" – a square-shaped package that offers real added value: space-saving, resource-efficient, and a true eye-catcher (page 13). A great example of how function, form, and environmental awareness can go hand in hand.

Reuse instead of single-use: With our sturdy meal boxes and reusable drinking cups (page 14), we offer solutions that are more than just alternatives – they're a statement for more conscious consumption. Another example of our commitment to sustainability is our K3® r100. RecyClass has confirmed that the plastic component of this product, thanks to its excellent separability, can be optimally integrated into the plastic recycling stream (page 15).

Of course, it's also about innovation. Heat-resistant retort barrier packaging (page 10), the new Click In sealing lid (page 17), and large-volume IML containers (page 18) demonstrate that we develop products that create real added value. You will find two success stories on page 19: a ready-to-drink vial for Orthomol and the growing popularity of the K3® r100 in UK retail show what is possible when collaboration meets innovation.

I'm very pleased to give you insight into our latest developments with this issue. Because in the end, it's not just about packaging – it's about taking responsibility together.

Enjoy reading the new unique packaging paper!

Sincerely yours,
Beatrix Praeceptor

Greiner Packaging celebrates an award-winning 2024

2024 was a year of remarkable achievements for Greiner Packaging, with recognition not only for its innovative products but also for outstanding internal accomplishments.

A major milestone was earning the title of "Lean Management Leading Company®", a distinction that highlights the company's commitment to excellence in operations management. But Greiner Packaging's product innovations also took center stage: the company received two accolades at the prestigious WorldStar Awards. One award recognized the sustainable K3® r100 packaging, which features a self-separating design for easier, more eco-friendly recycling. The other honored the redesigned Olma Pierot yogurt cup, which puts a strong focus on sustainability.

The K3® r100 also received the Packnorth Award 2024, further underscoring the product's recyclability and forward-thinking design.

Greiner Packaging was also honored at the Austrian State Prize for Smart Packaging for its home-compostable coffee capsules, which were celebrated as an "exemplary packaging solution." Additionally, the company won the Sustainability Award at the Hungaropack Awards for its innovative reusable drinking cups equipped with RFID chips.

Success continued at the IMDA Awards 2024, where Greiner Packaging received the "Best Use of IML – Traditional Aesthetic" award for its outstanding in-mold labeling (IML) solution.

These honors not only recognize the innovation behind Greiner Packaging's products but also reflect the dedication of its team and leadership – driven by vision and commitment to shaping a sustainable future. A year of success that sets the stage for even more groundbreaking solutions ahead!

Greiner Packaging partners with SampApp

Greiner Packaging is entering an exciting partnership with SampApp, an innovative waste education app, to promote awareness around sustainability and waste prevention.

By supporting SampApp, Greiner Packaging is helping to provide people in Indonesia with valuable information on plastic production, waste management, and recycling. The app delivers educational content in an engaging and entertaining way, helping users understand the lifecycle of plastic and encouraging more sustainable choices. SampApp uses interactive learning tools such as quizzes and modules to make the educational journey fun and impactful.

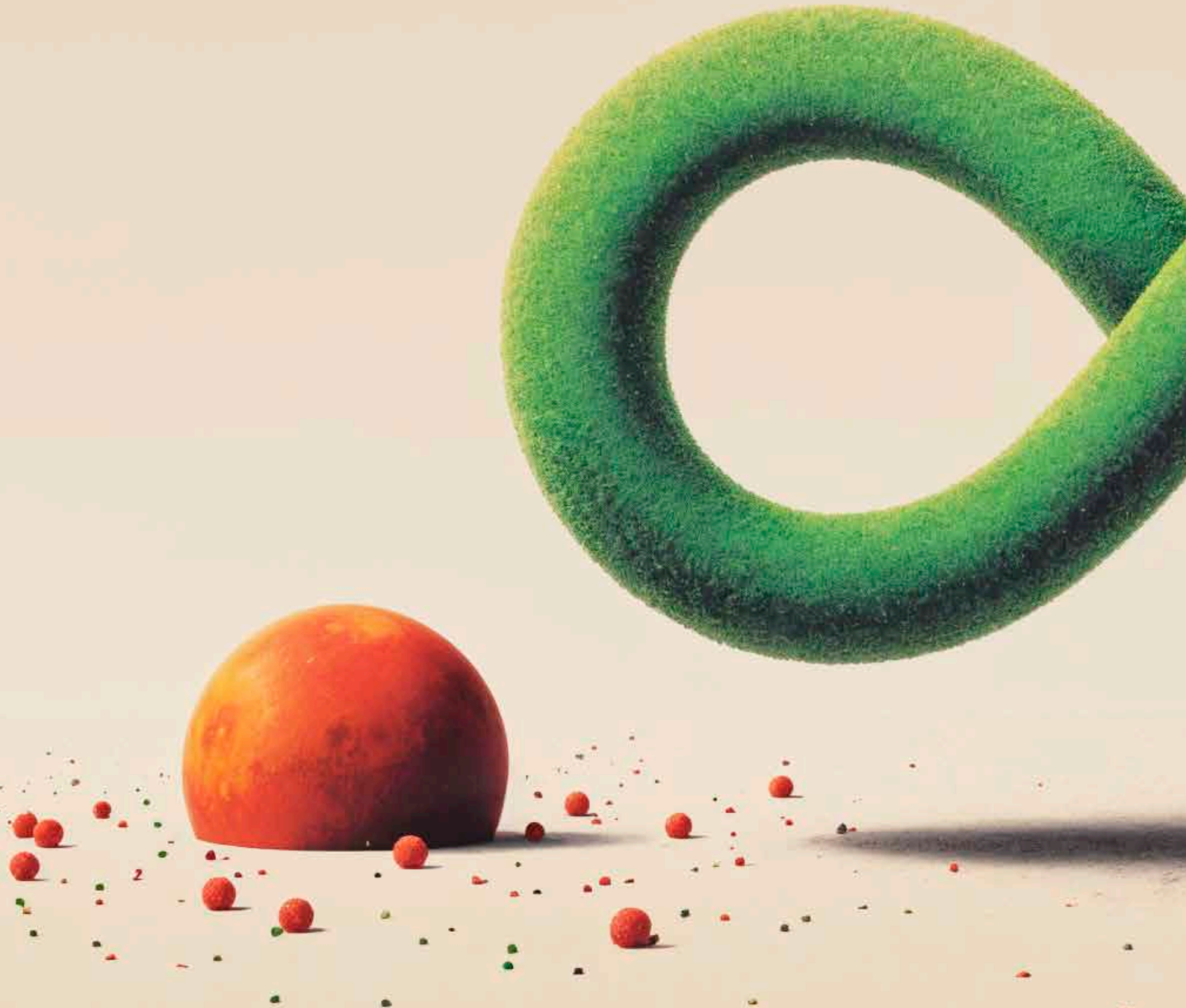
Indonesia faces major challenges related to unmanaged waste. The partnership between Greiner Packaging and SampApp directly addresses this issue by offering both education and practical solutions to reduce waste. Users are encouraged to adopt concrete actions in their everyday lives to minimize waste generation.

Through this collaboration, Greiner Packaging and SampApp aim not only to raise awareness about waste but also to highlight the importance of a circular economy and the responsible use of resources. Their shared goal is to inspire long-term behavioral change and build a more sustainable future.

This partnership marks an important step toward a greener tomorrow – where education, innovation, and conscious consumption go hand in hand to tackle the global challenge of plastic pollution.

SAMPAPP

In the spotlight:
Material availability



Recyclates are becoming mandatory – but is supply keeping up?

The packaging industry is at a turning point: stricter recycling quotas, growing regulatory demands, and the pressing question of the availability of recycled materials. Can these challenges be overcome?

The answer is nuanced: The path is complex but feasible – if business, politics, and society work together. Greiner Packaging demonstrates how this transformation can succeed – with innovative solutions, a willingness to collaborate, and a firm commitment to the circular economy.

Closing the gap

From shortage to solution: How to secure a steady supply of recyclates

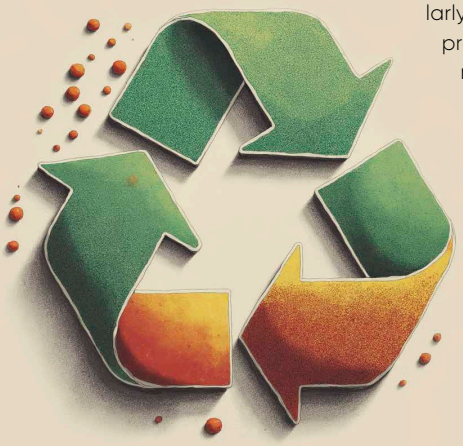
Whether it's a quick snack on the go, breakfast cereal at the office, or coffee to take away – packaging is an integral part of everyday life. It protects products, facilitates transportation, and extends shelf life. But what happens afterward? As a quick look into a waste container reveals, recycling is often more complicated than it seems.

While some packaging can easily be recycled, others, despite good intentions, end up in landfill or incineration. The reasons are many: complex material combinations, lack of collection systems, or limited recycling capacity. Inconsistent collection and sorting systems also pose challenges for consumers. The packaging industry therefore faces the task of designing packaging that is not only attractive and functional but also seamlessly fits into the recycling loop. Because truly sustainable solutions don't start at the waste bin – they start with the very first design idea.

The PPWR: New guidelines for a sustainable packaging future

This is exactly where the European Union's Packaging and Packaging Waste Regulation (PPWR) comes in – one of the most sweeping reforms for the packaging industry. By 2030, all packaging must be fully recyclable or reusable. Single-use packaging must be reduced, and unnecessary materials avoided, to create closed recycling loops.

Ambitious targets



The requirements for the use of recycled materials in plastic packaging are particularly ambitious. Depending on the product category, packaging must contain at least 10 to 35% recycled material by 2030 – and 25 to 65% by 2040. These quotas apply to both food packaging and non-food applications such as cosmetics and household products.

The goals are clear: less waste, more circularity, and a dramatic reduction of the carbon footprint. However, implementation presents companies with major challenges. The availability and quality of recyclates, technical feasibility, and regulatory uncertainties are fueling intense debate. The industry thus faces a double task: driving innovation while reliably meeting the new requirements.

The most important plastics in packaging

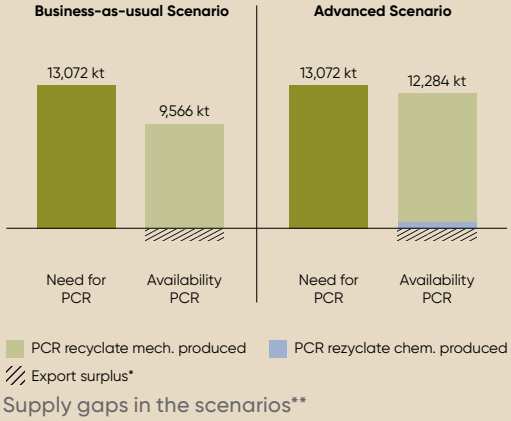
The packaging industry uses a variety of plastics – each with specific properties, advantages, and challenges:

- **Polyethylene terephthalate:** PET is widely used for beverage bottles. It is highly suitable for mechanical recycling and already has a high recycling rate. The challenge: Non-beverage-related packaging is harder to integrate into closed recycling loops.
- **Polypropylene:** PP is highly versatile and particularly robust. However, due to its chemical structure, PP is more difficult to recycle, especially for food-contact applications.
- **Polyethylene:** PE (particularly HDPE) is commonly used for bottles and films. PE is easily recyclable, but colored and mixed materials lower the quality of the recyclate.
- **Polystyrene:** PS is often used for yogurt cups and trays. PS recycling is evolving, but food-grade recyclates are not yet available at scale.
- **Multilayer packaging:** Composite materials offer excellent protection for sensitive products but are difficult to recycle because they consist of multiple types of plastics that cannot be easily separated.

The fear of a recyclate shortage – more real than expected

One of the key challenges in meeting the PPWR requirements is the anticipated shortage of high-quality post-consumer recyclates (PCR), particularly for food-grade polypropylene applications (r-PP). According to a 2024 Conversio study, even under optimistic assumptions, PCR supply could fall short of demand by up to 800,000 tons by 2030. For food packaging made from non-PET plastics like PP or PS, a shortfall of at least 200,000 tons is expected. At the same time, Plastics Europe

forecasts that only about 500,000 tons from chemical recycling will be available by 2027 – far too little to meet growing demand. *"Many still assume that recyclates will be available in sufficient quantity and quality by 2030 – that's dangerously optimistic. In particular, the gap for r-PP is glaring. Other industries like automotive and electronics are already securing large volumes – the packaging sector risks falling behind,"* warns Matthias Giebel, Partner and Managing Director at Berlin-based consultancy BP Consultants. Currently, only around 30% of recyclate from packaging remains within the sector; the rest flows into other industries. *"With mandatory quotas coming into effect, competition for high-quality material will only intensify,"* says Giebel.



Supply gaps in the scenarios**

Why aren't enough recyclates available yet?

Demand for recycled plastics is growing – but actual availability is still lagging behind. There are several reasons for this:

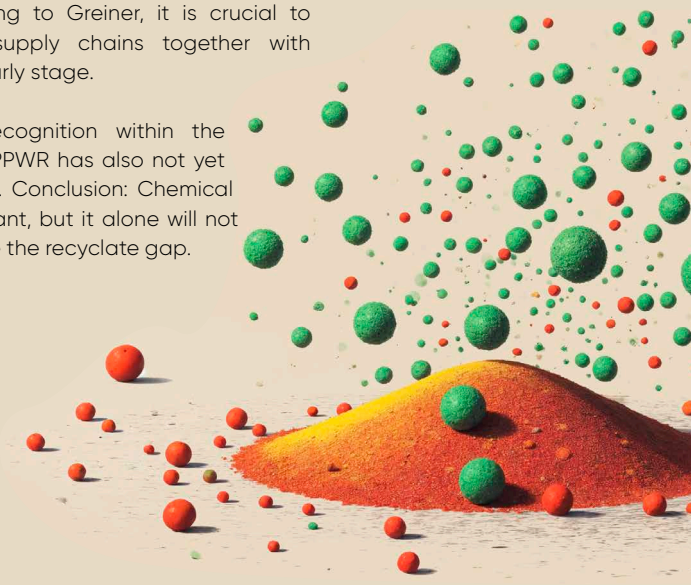
- **Gaps in collection and sorting infrastructure:** In many countries, efficient systems for the separate collection and sorting of plastic waste are lacking. Incorrect disposal, mixed waste, and inadequate separation processes mean that valuable raw materials are lost or are not available in the required quality for recycling.
- **Strict requirements for food-grade recyclates:** Particularly high legal standards apply to food packaging. Many recycling technologies currently cannot meet these standards on a broad scale, which severely restricts the availability of suitable recyclates.
- **Economic hurdles and price volatility:** Recycled plastics are often more expensive to produce than newly manufactured plastics from fossil raw materials. Fluctuating oil prices and unfair competition with cheaper virgin materials slow down investments in recycling capacities and hinder the market establishment of recyclates.
- **Unsuitable input material:** Many packaging types are not optimized for recycling. Composite materials, hard-to-separate layers, or contamination complicate reuse and reduce the amount of high-quality recycling material.
- **Slow scaling of chemical recycling:** While mechanical recycling (in which plastics are washed, shredded, and melted down) is already well-established, chemical recycling (which breaks plastics down into their original building blocks through chemical processes) is still in its infancy. It could offer a solution, especially for complex plastic streams, but is being slowed down by high costs and regulatory uncertainties.

Chemical recycling: A beacon of hope with limitations

Mechanical recycling reaches its limits in many applications – chemical recycling is seen as a possible solution. But reality is more complex: Many technologies, such as pyrolysis, have a high energy demand and a disputed carbon footprint. There is progress in solvent-based processes and depolymerization, for example with PS and in the future PP. However, many projects are still in the pilot stage; their scaling requires time and reliable political framework conditions. *"If policymakers signal that quotas will be lowered because investments are lacking, there will be no incentive for companies to invest in new recycling processes,"* warns Matthias Giebel. *"This could create a vicious cycle – slowing change instead of accelerating it."*

According to a recent Conversio study, even in the optimistic case, the total European production capacity for chemically recycled plastics will only amount to around 500,000 tons by 2027 – compared to an expected demand of around 6 million tons of post-consumer recyclate in the packaging sector. For food-grade PP packaging, the supply from chemical recycling still needs to be significantly expanded. Greiner Packaging is already using the first chemically recycled materials. According to Greiner, it is crucial to further develop supply chains together with customers at an early stage.

The regulatory recognition within the framework of the PPWR has also not yet been fully clarified. Conclusion: Chemical recycling is important, but it alone will not be enough to close the recyclate gap.



* In both scenario models, the current export surpluses were extrapolated to the year 2030.
** Source: Conversio Market & Strategy GmbH, 2024, Forecast Model "Use of recyclates in Europe 2020 to 2030"

Greiner Packaging: A partner for transformation

"As a leading packaging manufacturer, Greiner Packaging is strongly committed to sustainable solutions in order to secure high-quality recycle volumes for its customers at an early stage. In doing so, the company actively supports its customers in achieving their sustainability goals and implementing future-proof packaging solutions," emphasizes Konrad Wasserbauer, Global Director Circular Economy & Sustainability at Greiner Packaging International. The company also invests in its own recycling capacities – for example, operating a recycling plant in Nova Gajdobra, Serbia, where around one-quarter of the country's collected PET bottles are processed into r-PET flakes. These are used both for their own products and sold to customers.

Another innovative project is the "cup-to-cup" initiative: Here, Greiner Packaging is researching how used plastic cups can be fed back into the production of new cups to close the material loop. In addition, the company is working on improving sorting and cleaning processes and partnering with industry and research institutions to boost recycle quality.

Sustainability, however, isn't achieved through technology alone – supportive political frameworks are also essential. That's why Greiner Packaging actively engages in industry associations and advocacy work to make recycling economically viable.

Open to new approaches: Certificate trading and system thinking

An additional tool to close the recycle gap could be "Certified Recycled Content Token Trading" – a system where surplus high-quality PCR (e.g. from non-food applications) could be traded to meet recycled content quotas. While already possible in Switzerland, the EU currently lacks the regulatory framework for it. Two things would be needed for its introduction: First, clear rules for mass balance accounting (allowing book-and-claim systems for recycled content). Second, a legal basis under the PPWR allowing the European Commission to implement such a model by delegated act. If introduced across Europe, it could offer important safeguards for food packaging manufacturers – and incentivize more high-quality mechanical recycling.

PP, PET, PS – a closer look

To achieve the ambitious PPWR targets, the availability of high-quality recycle for three key plastics must be significantly increased:

Polypropylene (PP)

PP is a versatile plastic used for a wide range of applications – from yogurt cups to medical packaging. However, very little high-quality r-PP suitable for food contact is currently available. The reasons include a lack of closed-loop systems, insufficient collection, and a shortage of specialized recycling facilities. Design-for-recycling initiatives alone are not enough – clean, single-stream collection of input materials is critical. to producing suitable recycles.

There are several international initiatives aiming to create closed-loop systems for polypropylene. Whether they will deliver viable solutions on an industrial scale remains uncertain. Most are still in pilot or early stages, with limited volumes of certified-quality recycle available. A broad supply of r-PP in meaningful quantities is not yet in sight.

At the same time, new recycling technologies such as solvent-based processes, as well as regulatory incentives for investment in r-PP infrastructure, are urgently needed. One approach currently under investigation is the "super-clean" process being studied by Fraunhofer IVV. Here, polyolefin streams, including PP, undergo intensive cleaning stages to achieve a level of decontamination that could make them suitable for food contact. The goal is to meet EFSA safety standards for PP – similar to what is already standard for PET.

Polyethylene terephthalate (PET)

PET is the recycling pioneer among packaging plastics. Bottle-to-bottle loops are already well established, although tray-to-tray recycling is still in its infancy. Advances in sorting technologies, washing facilities, deposit systems, and the development of standardized mono-material trays could be decisive in accelerating progress.

Although PET is considered a relatively "safe" plastic, r-PET remains scarce or unavailable in sufficient quality for applications outside the beverage sector. From 2025, the EU will mandate a 25% r-PET share in single-use beverage bottles – Germany already exceeds 50%, according to studies. However, competition for r-PET is intensi-

fying – for example, through its use in textiles and other packaging sectors. As a result, PET recycling is becoming a system-critical factor for the circular plastics economy.

One solution is to improve the separation of PET trays and containers from other materials through better sorting technology, such as AI-supported NIR sorters. The development of "tray-to-tray systems" with standardized mono-material trays is also being driven forward across Europe. There is also discussion about expanding chemical recycling for PET, especially for heavily contaminated or multi-layered materials that are no longer mechanically recyclable.

However, PET faces limitations in applications such as hot filling or hot sterilization – its thermal resistance is limited. Moreover, PET's higher density leads to greater material use for the same volume, which negatively impacts its environmental balance. PET remains important – but it is not a universal solution for all packaging needs.

Polystyrene (PS)

For a long time, PS was considered difficult to recycle. But new studies, including by Fraunhofer IVV, show that PS – like PET – is a diffusion-resistant, inert material fundamentally suitable for food contact if recycling processes achieve sufficient purity. Progress has been made in physical recycling, such as through dissolution processes. The first pilot projects for yogurt cups made from mechanically recycled PS have already reached the market – proving that r-PS can, in principle, be used for sensitive food packaging when proper processes and regulatory frameworks are in place. Intensive efforts are also underway in chemical recycling for PS: Initiatives like Styrenics Circular Solutions (SCS) are advancing depolymerization and other material recovery technologies to achieve full circularity for styrene plastics. The goal is to make EFSA-compliant r-PS widely available – although regulatory approval from EFSA is still pending.

While food-grade r-PS remains limited within the EU, Switzerland offers a notable exception: Thanks to national regulations, Greiner Packaging has already launched the K3®-N multi-chamber cup portfolio made with r-PS, backed by robust testing and approval processes in collaboration with authorities. In the EU, however, a clear legal basis for industrial-scale implementation is still lacking.

Conclusion: An opportunity, not a crisis

The gap between recyclate demand and availability cannot be ignored. It requires honest communication, technological advancement, political support – and the courage to explore alternative solutions. For Greiner Packaging, that means: strategically securing recyclate volumes, actively advancing recycling initiatives with partners, supporting technological innovations, closely monitoring regulatory developments, and providing competent advice to customers – instead of making promises that cannot be kept. *"It's not just about using recyclates, it's about the interplay of design, collection, sorting, reprocessing, and application – only then does a true circular economy emerge,"* summarizes Konrad Wasserbauer. Those who gain a realistic view today can act strategically. 2030 is fast approaching – and with it the opportunity to shape the future of packaging.

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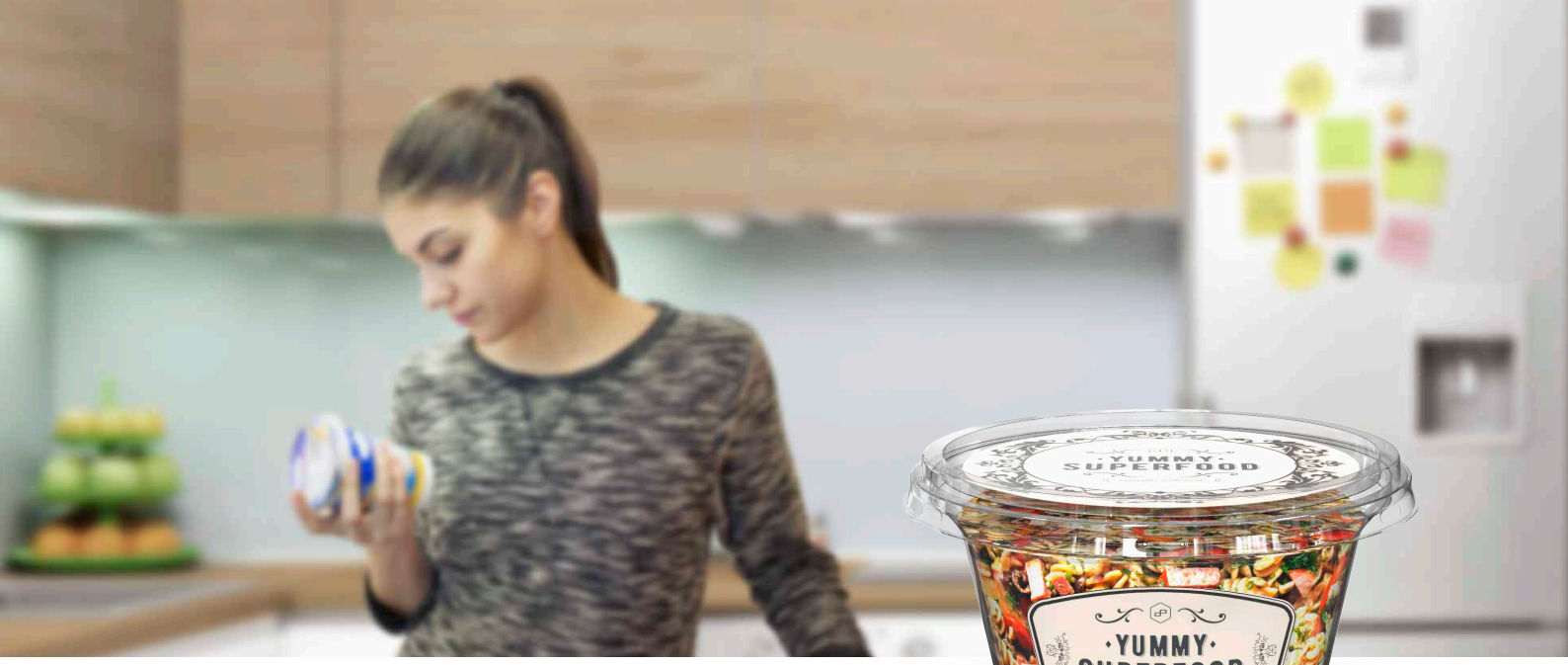


When things heat up: packaging for heat sterilization

The requirements that apply to packaging materials in the food industry are as varied as the products themselves. Some products have particularly high packaging requirements because they not only need to be protected, but must also remain shelf-stable for long periods of time, often without refrigeration. This impacts not only freshness, but primarily food safety: the purpose of such packaging is to prevent germs from growing.

This is where **retort barrier packaging** comes into play. In this process, the packaged food is sterilized in a pressure boiler at high temperatures and while saturated with water vapor. This keeps the product shelf stable for months or even years – without the need for preservatives. However, for this process to work the packaging materials need to withstand these extreme conditions without losing their protective function.

The solution? Retort barrier packaging – a specially developed packaging solution created precisely to meet these requirements.

Retort barrier packaging

Retort barrier packaging is an innovative solution for foods that must withstand **thermal sterilization.** They have been specially developed to handle high temperatures in retorts – while reliably protecting against **oxygen, moisture, and light.** This barrier is essential to ensure the long-term quality of sensitive products: the taste, color and nutrients are retained, while oxidation – one of the greatest enemies of shelf-stable foods – is effectively prevented.

Another key advantage, is that products in such packaging require **no refrigeration,** and offer **consistent, long shelf lives.** This makes storage and distribution significantly simpler – and ensures reliable freshness whenever it is needed.

In comparison to traditional containers like cans or glass packaging materials, there is another practical and economic benefit: retort barrier packaging made of plastic is **lighter, and results in lower material and transportation costs.** Thanks to this combination of efficiency, functional protection and comfort, it is a state-of-the-art answer to the demands placed on modern food packaging.

Multi-layer structure

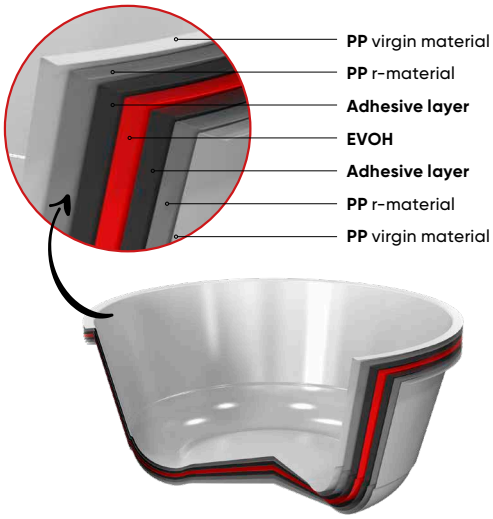
Retort barrier packaging is based on a **seven-layer foil structure** specially developed to meet the requirements of the retort process. The outer layer is generally made of polypropylene (PP), which is known for its flexibility and stability.

This layer protects the product against outer mechanical influences and ensures that the packaging remains intact during the entire process. Inside this, there is a layer of recycled polypro-

pylene. This not only helps improve packaging durability, but also helps make the entire manufacturing process more environmentally-friendly.

The central barrier layer made of ethylene-vinyl-alcohol (EVOH) plays a key role. EVOH provides outstanding protection against oxygen and moisture, thereby preventing oxidation and the loss of taste and nutrients. This layer ensures the packaged product retains its original quality even after a long period of storage. It also protects against the growth of microorganisms that could impact food safety.

The other layers of the packaging are used for adhesion and stability, so that the different material layers remain reliably bonded.



Symmetrical and asymmetrical structures

Greiner Packaging offers its customers the choice between symmetrical and asymmetrical foil structures.

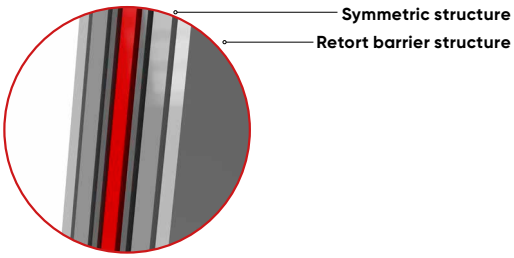
Symmetrical structures are characterized by individual material layers of the same thickness. This even distribution gives the packaging a stable form, while allowing it to consistently serve its function as a barrier. One unique characteristic of this structure is the use of additives in the central EVOH layer. They improve the barrier properties of the EVOH layer at high temperatures, helping the layer to remain stable during the retort process and preventing oxygen exchange. This is key to extending the product's shelf life.

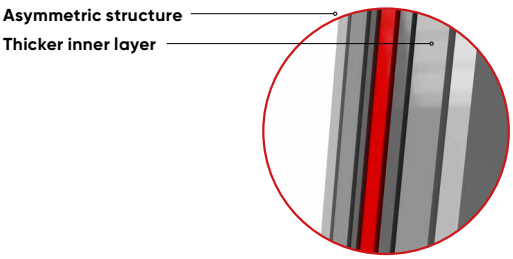
Thanks to the even distribution of layers, the packaging can be thinner, thereby making material usage more efficient and reducing production costs. This structure is also advantageous from a sustainability standpoint, since the small percentage of EVOH has little impact on the recycling process, thereby improving recyclability.

The **asymmetrical structure** also serves as an outstanding barrier for retort sterilization; this is achieved through a varied distribution of layer thicknesses. The inner PP layers, which are closer to the food, are thicker than the outer ones. This optimally protects the EVOH barrier against temperatures and moisture. One advantage of this structure is the flexibility in constructing the EVOH layer: depending on the use of additives, it can be made thicker, the same thickness, or even thinner than in the symmetrical version. This allows the use of additives to be reduced or even eliminated altogether, depending on product requirements and customer needs. This can further enhance the sustainability of the packaging.

Both types of structures have their own advantages, as well as unique challenges. Using additives in the EVOH layer can offer functional advantages, but can also negatively impact recyclability and change coloration – an issue for brand-specific designs.

The additive-free or -reduced alternative, in contrast, requires thicker inner layers. This increases material consumption. One thing is clear: neither solution is entirely superior to the other. Instead, what is most important is developing flexible concepts that can be tailored precisely to specific customer and product requirements.





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Inline production: better efficiency and cost advantages

Greiner Packaging offers a wide range of production technologies for multi-layer, rigid barrier packaging – each of them carefully designed to meet the diverse requirements of modern packaging solutions. The so-called inline process is one particularly pioneering method which stands out not only for its efficiency but also for its remarkable flexibility. The inline process facilitates efficient, cost-saving production since all steps – from extrusion to forming and processing – are connected directly in a continuous production line. This approach minimizes conversion times and ensures rapid production, saving time and resources. In addition, the inline process offers high flexibility in packaging design, in particular in adjusting the thicknesses of all layers to optimally coordinate the packaging to applicable product requirements.

Another advantage of the inline process is reduced material waste. Residual materials during production can be reused immediately and integrated into the materials cycle. This makes production more environmentally-friendly by minimizing waste and ensuring resources are used efficiently. Quick and continuous production also increases capacity and results in a faster time-to-market, giving companies a competitive advantage. Thanks to this efficiency and flexibility, the inline process is a cost-effective and sustainable solution for manufacturing retort barrier packaging.

Markets for retort barrier packaging

High-quality **wet pet food** places high demands on packaging materials. Pet owners expect food to not only remain fresh and safe, but to also be packaged in an environmentally-friendly manner. Retort barrier packaging is excellent at meeting all of these expectations by extending the shelf life of the wet food – without the need for artificial preservatives. The food remains fresh over long periods without changing its taste, simplifying both storage and transportation. In addition, this packaging offers a sustainable solution and helps reduce food waste. Since less frequent deliveries are required, and since packaging materials can be recycled efficiently, they are also good for the environment.

Retort barrier packaging is also a suitable solution for ready-to-cook meals. Consumers want products that are not only fast and practical, but also safe and high-quality. This packaging keeps **ready-to-cook meals** shelf-stable for longer without the need for preservatives, while the taste of and nutrients in the product are preserved. Thanks to the packaging's high temperature-resistance, ready-to-cook meals remain safe even after sterilization or pasteurization, and retain their original quality. In addition, this packaging solution helps reduce the CO_2e footprint of the product.

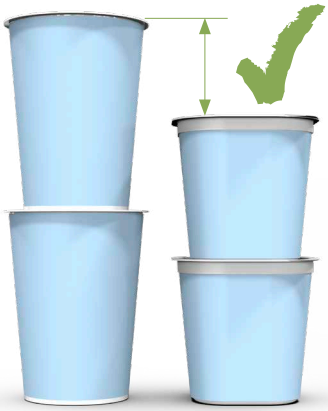
For products like **infant and toddler foods and medical nutrition,** which are often used to care for older persons or persons dependent on that special care, retort barrier packaging is an ideal solution. It reliably protects these sensitive foods against external influences that could negatively impact their quality and nutrient composition. Protection against oxygen and moisture, which could destroy valuable nutrients, is particularly essential. Thanks to this specialized packaging, the nutrient content remains stable even during long storage or transportation terms, ensuring consistent product quality.

Go square, show you care:
The CUBO from Greiner Packaging

Sometimes it's the small changes that make the biggest difference. So why not rethink packaging – not round, but square? The CUBO from Greiner Packaging breaks away from convention with a square shape that not only looks modern but also offers plenty of practical advantages. Because smart design can do more than just look good: it streamlines processes, conserves resources, and perfectly showcases products on the shelf.

More content, less waste – rethinking logistics

Anyone who stacks packaging knows: space is precious. The CUBO makes optimal use of it. Thanks to its square shape, it can be arranged much more efficiently than its round counterpart – with surprisingly significant results. Up to 35% more cups fit on a single pallet, reducing warehouse space requirements, increasing transport efficiency, and lowering CO_2e emissions. Scaled up to an annual production of 25 million cups, this means saving around 160 truck journeys – less traffic, lower costs, more sustainability.



But it's not just producers and retailers who benefit from the space-saving shape. Supermarkets can also use their storage space more efficiently. With improved stackability, more cups fit per pallet – no extra storage space needed. This simplifies product handling, reduces rearrangement efforts, and ensures smoother logistics overall.

Always visible: maximum shelf presence

Round cups have one small but crucial flaw: they tend to spin on their own. The result? The brand slips out of view. The CUBO puts an end to this. Thanks to its angular shape, it stays right where it should – and always shows its best side. But there's more: its flat surfaces provide more space for branding, design, and product information. No distortion, no compromises. A perfect stage for bold brand messaging that stands out on the shelf.

What's more, the CUBO scores with its compact design. Its reduced height not only improves stackability in logistics, but also allows for a more space-efficient shelf presentation. That means more products can be displayed in the same space – a true advantage for retailers. Consumers benefit, too: the CUBO saves space in the fridge, stacking efficiently and neatly.

Flexible in material and design

Flexibility is key – and the CUBO delivers. It can be made from a variety of materials like PP, PET, or r-PET and offers nearly unlimited design possibilities. Whether it's in-mold labeling (IML) for seamless graphics, cardboard-plastic combinations (K3®) for added sustainability, or sleeves – the CUBO adapts perfectly to any requirement.

In Short: The CUBO isn't just a new shape of packaging – it's a true upgrade in logistics, sustainability, and brand visibility. And the best part? It looks damn good doing it.

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Curious? Companies can order a free sample via QR code and experience the Mealbox's functionality firsthand.

Reusable packaging:
Sustainability in every reuse

Sustainable packaging solutions are more important than ever. Companies are increasingly turning to resource-saving alternatives to meet growing demands from customers and regulators alike. The EU Packaging and Packaging Waste Regulation (PPWR) aims for at least 10% of all take-away packaging to be reusable by 2030. Additionally, bringing your own containers is to be further encouraged. One thing is clear: reusables are gaining ground.

Packaging waste isn't limited to take-away food – it's also a major issue at festivals, concerts, and sporting events. While single-use products are convenient, their short lifecycle leads to much waste. Sustainable reusable alternatives offer an easy way to drastically reduce waste in these settings. Greiner Packaging is leading by example: with its reusable meal box and drinking cups, the company provides practical solutions that reduce packaging waste and cut costs – perfect for the food service and event industries.

The Mix & Match meal box: the smart solution for sustainable take-away

Restaurants, canteens, and delivery services face the challenge of finding packaging that's both sustainable and practical. The meal box is just that: a reusable alternative to single-use containers. Made from high-quality plastic, it's designed for everyday use.

Why the meal box stands out:

- Durable & reusable – cuts down on packaging waste and saves costs in the long term
- Lightweight yet sturdy – ensures safe transportation of meals
- Dishwasher- and microwave-safe – easy to clean and reheat
- Customizable – can be personalized with logos, branding, or company colors

The meal box is available in multiple sizes and can be combined modularly. This means meals can be served in perfectly matched containers – a flexible solution for everything from small snacks to full meals.

Reusable drinking cups: the sustainable choice for events

Large events and festivals bring people together – and often, unfortunately, a lot of packaging waste. While single-use cups are convenient, they're rarely used more than once. Greiner Packaging's reusable drinking cups offer an environmentally friendly alternative that's durable and sustainable.

Key benefits of the reusable cups:

- Reusable & dishwasher-safe – easy to clean and long-lasting
- Robust & stable – made to withstand the demands of any event
- Customizable – in-mold labeling allows for high-quality, eye-catching designs
- Smart features – RFID chips or QR codes enable efficient logistics and traceability for reuse systems

New: 400 ml reusable drinking cup
The new 400 ml cup is ideal for a wide range of drinks – from soft drinks to beer or cocktails. It complements the existing 250 ml, 300 ml, and 500 ml sizes, offering even greater flexibility when selecting the right cup for every occasion.

K3® r100: RecyClass confirms plastic compatibility

With the adoption of the European Packaging and Packaging Waste Regulation (PPWR) in 2024, a major step was taken toward a more sustainable and circular economy. The regulation sets clear targets to promote circularity and improve plastic recycling across Europe. Companies are now required to design packaging that is recyclable, thereby contributing to a climate-neutral future. However, legal requirements alone are not enough – clear proof is needed that packaging can indeed be integrated into existing recycling systems.

Currently, there is no universally binding European guideline that precisely defines what "recyclable" means. For this reason, it is especially important for companies to rely on proven testing procedures that realistically reflect the recycling process. One of the most recognized institutions offering such validation is RecyClass.

Successful proof of recyclability

Last fall, Greiner Packaging achieved a major milestone: the K3® r100 cup demonstrated an outstanding separation rate of over 90%. Collection, transport, and sorting processes were simulated in collaboration with a certified RecyClass partner – and the results show that the cardboard wrap and plastic cup can effectively separate during the collection process. According to the PPWR, components must be evaluated separately if they detach from one another through mechanical stress during transport or sorting.

Due to this strong performance, Greiner Packaging was once again awarded a "Letter of Compatibility" (LoC) by RecyClass for the plastic component. This certification confirms that, thanks to the excellent self-separation of the cardboard and plastic, the plastic portion can be optimally integrated into the plastic recycling stream. Thanks to its excellent separability, the plastic component was awarded RecyClass's top recyclability rating, Class A. The certification reinforces Greiner Packaging's commitment to sustainable and environmentally friendly packaging solutions.

Reliable testing of recyclability

RecyClass is one of the leading institutions supporting companies in verifying the recyclability of their packaging. What sets RecyClass certification apart is its foundation in practical, real-world testing. This allows companies to gain a reliable assessment of how their packaging performs in actual recycling conditions.

These certifications serve not only as proof of recyclability but also offer guidance in meeting the expectations of consumers and regulatory authorities. They demonstrate that packaging meets the highest standards for recyclability and thus actively contributes to a functioning circular economy.

Looking ahead

The success of the K3® r100 cup's separability is a significant step forward, but Greiner Packaging isn't stopping here. Achieving a sustainable future requires continuous innovation. That's why we are constantly working to optimize our packaging, guided by practical testing and the latest technologies. Our goal is not only to meet regulatory requirements but also to proactively support the transition toward a circular economy.

The compatibility certification for the plastic component of the K3® r100 cup represents a major step forward, and one that has the potential to positively influence future developments across the packaging industry.

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The PPWR is taking shape: How the new laws detail implementation

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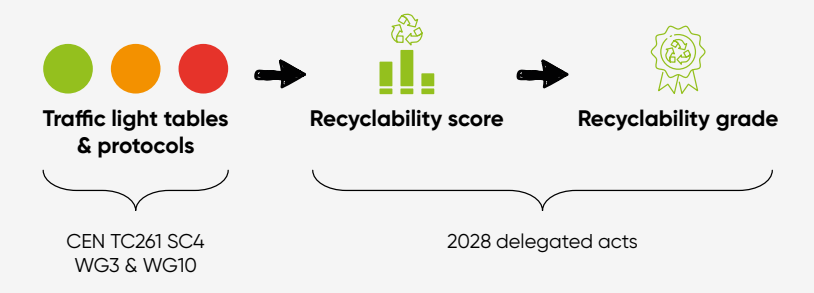
With the Packaging and Packaging Waste Regulation (PPWR), the EU is setting the course for a more sustainable packaging industry. The purposes of the regulation are to reduce packaging waste, promote recycling and increase the use of recycled materials. However, many details related to implementation are still undetermined and will be specified in the coming years through secondary legislation.

The European Commission is currently working on almost 50 such acts which detail, for instance, how to calculate percentages of recycled materials or which design-for-recycling criteria must be fulfilled. Most of these secondary laws will be developed between 2026 and 2028.

Design for recycling as the basis for future packaging materials

One key element of the new regulation is that packaging must be designed from the start to be recyclable. Article 6 of the PPWR stipulates that packaging materials must meet certain design criteria to be considered recyclable – a concept known as "design for material recycling." This means that materials and packaging designs must be chosen so that they can be integrated efficiently into existing recycling processes.

For companies this means that, in the future, only packaging materials that meet these requirements may be brought on the market. Therefore, manufacturers must ensure that their packaging materials continue to conform to requirements in the long term.



Which packaging materials will be considered recyclable in the future?

Article 6(4) of the PPWR defines, for instance, which packaging materials will be classified as recyclable in the future.

Standards developed by the European standardization institute CEN play a central role – in addition to design criteria, they also include reference processes for sorting and recycling that facilitate uniform assessment. This method is based on a traffic light system that sorts packaging materials into different categories – from easy to recycle (green) to non-recyclable (red).

The Joint Research Centre (JRC) is supporting this process, and converting the traffic light system into a metric system in a second step. This can be used to evaluate the recyclability of the packaging as a whole, expressed in mass percent, and to assign it to one of the categories defined in the PPWR, such as A, B, or C. This two-step process will be developed by 2028, and will form the framework for classifying packaging materials under the PPWR.

Professional expertise with vision: guidance in the PPWR framework

Implementing the PPWR will pose a variety of new challenges for companies. Packaging requirements will develop step by step, and upcoming delegated acts will create binding standards that will apply throughout the EU.

As a company dealing intensively with sustainable packaging solutions, we actively contribute our expertise to the relevant working groups and work closely with national standardization institutes such as the Austrian Standards and DIN. In this way, we are supporting the development of the new standards from the start, and can react early on to important changes.

This close collaboration not only helps us make sound decisions for developing our own packaging solutions, but also allows us to help shape practical and economically feasible solutions for the entire industry.

One click, sealed quick:
The new Click In sealing lid

The sealing lid has a long-standing history in the packaging industry and is currently experiencing a renaissance. For over 25 years, Greiner Packaging has been offering innovative solutions with sealing lids that allow direct sealing of cups without the need for an additional foil seal. This approach has proven itself over the years and is now being perfected with the new Click In sealing lid. It sets new standards in flexibility, usability, and sustainability – offering a future-ready solution for modern packaging needs.

The sealing lid: Innovation that locks in!

Greiner Packaging has long offered sealing lids that eliminate the need for a third component – a foil lid. By reducing the materials from three to two components, both the cup and the lid can be made from the same material, such as PP or PET. This saves resources, simplifies the packaging process, and improves recyclability. With the Click In sealing lid, Greiner Packaging is taking it a step further – setting new benchmarks in flexibility, safety, and environmental responsibility.

Compared to traditional sealing lids, the Click In lid requires only a small inward embossing on the cup to stay securely in place. Once clicked on, it stays put and reliably protects the contents – even if the cup is accidentally tipped over. A particularly practical feature: when re-closing the cup, users hear a clear "click," confirming the lid is securely in place and the cup is leak-proof again.

What Makes the Click In Lid Stand Out:

- **Secure fit for reliable leak protection:** Thanks to its innovative click technology, the Click In lid stays firmly on the cup when re-closed. This ensures that even after the first opening, the cup remains tightly sealed and the product stays well protected at all times.
- **Sustainability through mono-material:** Doing away with a separate foil lid significantly reduces material usage and carbon footprint. The Click In lid can be produced from the same material as the cup (e.g. PP or PET), enhancing recyclability and contributing to more sustainable packaging solutions.
- **Design freedom in shape & decoration:** The Click In lid impresses with exceptional versatility. It fits almost any cup, regardless of shape or size. Whether round, square, or rectangular, whether thermoformed or injection-molded, its intelligent design allows it to adapt to various cup types and diameters. It also provides maximum creative freedom: the cup can be decorated in many ways – even right up to the sealing edge. This allows for highly customized and visually appealing packaging.

What consumers love about it:

The Click In sealing lid offers numerous practical benefits for consumers. Unlike traditional packaging with an aluminum foil and snap-on lid, there's no need to remove a separate seal. The lid is simply taken off and placed back on after use – quick and easy. Additionally, the lid protects the product from external influences like moisture or contamination, helping extend shelf life. This means the contents stay fresh and enjoyable for longer – a real benefit for both consumers and manufacturers. Another plus: the audible "click" that signals the lid is properly sealed and the product remains safely protected after opening.

Large-volume packaging on the rise

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The market for food and non-food packaging is currently undergoing a significant transformation. Economic factors such as rising logistics costs, increased production efficiency, and heightened competitive pressure are driving the trend toward offering products in larger volumes. At the same time, shifting consumer preferences – such as the demand for products that are not only high-quality but also cost-effective and user-friendly – are clearly pointing toward larger packaging formats. This trend favors solutions that combine functionality with sustainability, without compromising on practical benefits. Against this backdrop, Greiner Packaging is setting new standards with the lightweight IML bucket and the 1000 ml K3® cup.

Lightweight IML bucket – more than just large volume

The lightweight IML bucket is far more than a simple solution for larger packaging sizes – it offers a variety of additional benefits that make it a standout innovation in the packaging industry:

- **Material efficiency and weight reduction:** With a purposefully reduced wall thickness and innovative design, the bucket achieves a weight reduction of up to 28%. This not only cuts down on material usage but also lowers transport costs and reduces the CO_2e footprint.
- **Excellent recyclability:** Made from a single material, polypropylene (PP), the bucket is especially easy to recycle. The uniform material composition simplifies the recycling process and supports a circular economy.
- **Enhanced brand communication:** Thanks to in-mold labeling (IML) technology, the label is integrated directly into the mold during injection molding, resulting in particularly durable and scratch-resistant decoration. This enhances brand visibility, as the label retains its high visual quality at the point of sale and effectively attracts consumer attention.
- **Smart handling features:** A tamper-evident design ensures product integrity, while an innovative handle-stop feature provides secure grip. Improved stackability and integrated anti-rotation ribs guarantee stable and convenient use – with or without a handle.

The lightweight IML bucket is available in 600 ml, 850 ml, and 1000 ml sizes, as well as in additional variants up to 10 liters. This broad range makes it suitable for a wide variety of applications. In the food industry, it's used for dairy products, salads, honey, chocolate spreads, and ice cream. At the same time, it's an ideal solution for non-food sectors such as household chemicals and cleaning products.

1000 ml K3® cup – the smart cardboard-plastic combination in a large format

While the lightweight IML bucket is made entirely of plastic, the 1000 ml K3® cup relies on a proven combination of cardboard and plastic – a concept that has already proven successful in smaller formats and is now also available in this larger version. The cardboard wrap not only provides structural stability but also reduces the amount of plastic used, thus improving the product's environmental footprint.

In addition, the K3® cup offers further benefits: the cardboard sleeve allows for attractive, high-quality printing, strengthening brand presence at the point of sale. It also provides a pleasant tactile experience, helping the product stand out from purely plastic packaging.

A key factor for the recyclability of composite packaging is the separation of materials – an aspect made significantly easier by a new, intuitive tear-tab. With a simple motion, consumers can separate the cardboard sleeve from the plastic cup, ensuring that both materials can be properly disposed of. Greiner Packaging is currently working on making the self-separating K3® r100 available for this larger packaging size as well – as it is already successfully used for smaller formats.

With the lightweight IML bucket and the 1000 ml K3® cup, Greiner Packaging offers two innovative solutions for the growing market of large-volume packaging – high-performance, brand-appropriate, and tailored to the needs of today's consumers.

Tailor-made production solution for Orthomol

Greiner Packaging has commissioned an innovative production system specifically developed for Orthomol, setting new standards in quality and efficiency. This facility produces Orthomol's distinctive ready-to-drink vials, which are used for the company's high-quality dietary supplements. Using state-of-the-art camera technology and a laminar flow system, each vial is inspected in real time for geometry, color, and potential defects.

Since the beginning of 2025, Orthomol ready-to-drink vials have been produced using recycled PET (r-PET). This step supports the joint efforts to further enhance sustainability in packaging solutions. Greiner Packaging works closely with Orthomol to further increase the proportion of recycled materials in the future and thereby promote the company's sustainability goals.

Packaging facts	
Technology:	ISBM
Decoration:	Label
Material:	r-PET, PET

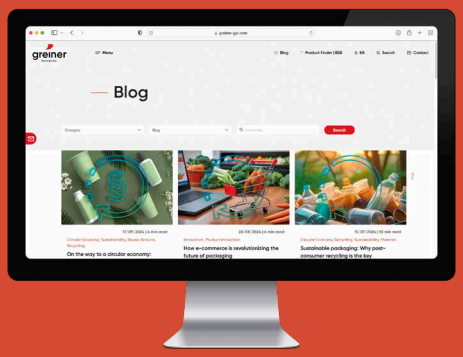
K3® r100 cup wins over British retailers

Seven leading British retailers – including Tesco, Lidl, and M&S – have chosen the innovative K3® r100 cup for their instant porridge products. This decision highlights the retailers' strong commitment to integrating sustainable packaging solutions into their product lines.

With the K3® r100, Greiner Packaging has achieved something unprecedented: during the waste disposal process, the cardboard wrap and plastic cup separate from one another without any human intervention. This means excellent recyclability is no longer dependent on end consumers separating the materials correctly. Instead, it happens automatically during the waste processing stage.

By opting for the K3® r100, the retailers are actively promoting sustainable packaging solutions and sending a strong signal in support of the circular economy.

Packaging facts	
Technology:	Thermoforming
Decoration:	K3® r100
Material:	PP



Greiner Packaging Blog

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Stay up-to-date and immerse yourself in the world of packaging solutions with our blog!

https://www.greiner-gpi.com/en/Newsroom/Blog

Fairs calendar 2025

September 15–19	**drinktec** **GER, Munich**
September 23–25	**FACHPACK** **GER, Nuremberg**
November 7–10	**GLOBAL PACK** **GRC, Athens**

You can also find our current trade fairs and events on our website:

https://www.greiner-gpi.com/en/Greiner-Packaging/Fair-Events

Imprint

Owner, editor, publisher, and editorial office:
Greiner Packaging International GmbH,
Greiner Straße 70, 4550 Kremsmünster, Austria,
greiner-gpi.com
Court of Reg.: Landesgericht Steyr
Reg. No.: 176889g
Responsible for content: Jörg Sabo

Photos & Graphics: Greiner Packaging, freepik, freepik pikaso, Adobe Stock
Artwork: DesPro, Greiner Packaging International
Printing: Druckerei Mittermüller, Rohr, Austria, mittermueller.at

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