unique packpaper

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upp

The magazine for professionals

Plastics
Packaging
Sustainability
Circular Economy
Trends
Technology
Decoration

In the spotlight:
Paperization

Putting sustainability to the test

upp
The magazine for professionals

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Editorial UPP

Beatrix Praeceptor,
CEO Greiner Packaging

Dear Readers,

Nowadays, packaging needs to be more than just visually appealing and practical – it must also be sustainable. In the pursuit of more sustainable solutions, more and more food producers are considering paper packaging. Paper is perceived as being environmentally friendly. But is paper packaging really the best option? In our special feature on pages 4 to 9, we take a look at the facts and put some assumptions and myths to the test.

The two articles on page 3 also address sustainability. Here, we provide information about our participation in audits on the traceability of recycled materials and the possibility of creating product carbon footprints for our largest product groups in accordance with ISO 14067:2018. On pages 10 to 12, our market focus is on sauces and spices and why plastic should often be the first choice as a packaging material. On page 14 and 15, we provide an insight into the current topic of e-grocery and unveil our new reusable meal boxes, which can be used to pack takeout meals in an environmentally friendly way, before returning to the topic of the circular economy on pages 16 and 17. Here, we present an update on the current status of the PPWR and look at three key aspects of the regulations. Additionally, you will receive information on how PCR material – that is, material from consumer waste – can be produced and used. On page 18, we introduce you to the home-compostable and certified coffee capsules that we developed in an innovative partnership with Constantia Flexibles. Finally, on page 19, we will introduce you to our latest product innovations and show you our different types of self-separating K3® r100 packaging: Cardboard wrap and plastic packaging are separated from each other during the waste disposal process without any human intervention.

Enjoy reading the new unique packaging paper!

Sincerely yours,
Beatrix Praeceptor

Audits on the traceability of recycled material

While the plastics industry has committed itself to the circular economy, legal requirements and obligations for manufacturing companies are increasing, and targets set at the EU level demand more products with an ever-higher proportion of recycled material. But who can guarantee that recycled materials are actually used in the prescribed quantities? For a truly circular future in plastics, the industry has to move toward verifiable and reliable claims. This transparent verification can be achieved through independent third-party certifications. Greiner Packaging and its plants also undergo such external audits.

Long-term assessment of all production sites

The first four plants were being audited this year, and the long-term plan is to assess all production sites. As part of the audit, both the origin of the recycled material and the proportion of the mixture in the production plant must be verified. This ensures that the waste has been processed into recycled material based on the required standards and that the product contains the required materials. Audits are carried out in accordance with the EN 15343 standard, and several independent companies currently issue certificates and licenses based on this.

"Our commitment to the circular economy is of great importance to us. We demonstrate to our customers and consumers that we work seriously and do not engage in greenwashing. Through appropriate auditing according to international standards (EN15343), the correct recycling content is verified and clearly visible on the certificate at a glance." emphasizes Florian Aschermayer, Global Senior Expert for Sustainable Material Excellence at Greiner Packaging.

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Product carbon footprint

ISO certification for CO_2e calculation

The issue of sustainability and environmental protection cannot be ignored. For this reason, more and more companies are defining clear decarbonization strategies for themselves. However, making any necessary adjustments requires an exact knowledge of a product's carbon footprint.

This is a complex issue. After all, a product's entire footprint is made up of many different parts of the value chain. Therefore, to obtain its final carbon footprint, it is necessary to examine all the steps that lead to the final product in detail. These individual partial "product carbon footprints" (PCFs) add up to a product's total carbon footprint. Greiner Packaging provides its customers with information on the PCF of the packaging:

As a packaging supplier, Greiner Packaging also contributes to the CO_2e impact of the final product. For Greiner Packaging's customers, these take the form of "indirect emissions." However the next link in the value chain is not very familiar with its supplier's processes, and the exchange of environmental information is therefore becoming increasingly important.

To calculate the PCFs of its products, Greiner Packaging has created a calculation model that links various data from internal systems, such as energy, transportation, and raw materials. The model and the calculation methodology were validated together with TÜV Austria to ensure the calculation itself and that the links to the inventory data have a solid basis. Greiner Packaging can now create product carbon footprints for the largest product groups according to the ISO 14067:2018 standard. Of course, this not only helps customers: Greiner Packaging also uses the knowledge about its products' emissions to identify hot spots and determine suitable measures for its climate targets.

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In the spotlight:
Paperization

Paperization

Putting sustainability to the test

In the pursuit of more sustainable solutions, more and more food producers are considering using paper packaging, as consumers perceive paper as environmentally friendly. The trend toward fiber-based packaging can be seen in various innovative prototypes, from paper bottles to special cardboard packaging. But is paper packaging really the more sustainable choice? We take a look behind the facade and challenge assumptions and myths.

Putting sustainability to the test:
Paperization and its challenges

Ideally, modern packaging should be a jack-of-all-trades: It should provide the best possible protection for the product as well as being practical to use, appealing to the touch, visually striking, cost-efficient, and environmentally friendly.

The latter, in particular, has become much more critical in recent years: More and more consumers are paying attention to sustainable purchasing and scrutinizing packaging closely. Political pressure is also increasing: The PPWR, the EU's Packaging and Packaging Waste Regulation (see page 16), is the latest step toward promoting a circular economy and drastically reducing packaging waste. Therefore, companies are inevitably looking for environmentally friendly packaging solutions. In the pursuit of greater sustainability, more and more food producers and retail chains are turning to paper packaging – or, more precisely, to fiber-based packaging. We'll come back to this later.

Paper and its environmentally friendly image

"Paperization" is the name of the trend in which attempts are being made to replace plastic with paper in the packaging sector. At first glance, the move seems almost logical. After all, paper has a good image in society. The material is considered a renewable raw material and is thus perceived as sustainable and environmentally friendly. It has a pleasant feeling and can be designed to attract attention.

The positive ecological perception among the population and the image that companies are only too happy to adopt for their own products are big reasons why paperization is booming.

Not all paper is the same

The advantage of paper as a material is that it is made from a renewable raw material and can decompose under natural conditions. However, paper only decomposes optimally if it is not overloaded with food waste or other contaminants. Ensuring that the paper used comes from sustainable forestry is also important. This is because paper loses its ecological benefits and can contribute to the destruction of forests and associated ecosystems if it is not sustainably sourced.

Furthermore, extracting fibers and producing pulp is an energy and resource-intensive process. In the EU, the USA, and China, a large proportion of the primary fibers used are imported, which means that the ecological impact of paper production is often shifted to countries such as Canada or Brazil. Recycled paper has a better environmental footprint than paper made from virgin fibers: It protects forests and requires less energy and water.

One disadvantage of paper packaging is that it runs more slowly in filling plants than plastic packaging. This is a significant drawback, especially in the dairy industry, where huge quantities are filled, as a slower filling process can significantly reduce efficiency and productivity. Paper is also neither water nor grease-resistant. It therefore needs an appropriate coating for drinks or moist food. A plastic coating extends the shelf-life of packaged food, but makes recycling much more difficult and costly. At first glance, coated laminates are perceived as paper, so consumers are often unaware that they are holding packaging with a significant plastic content. It is precisely this type of coated paper and cardboard packaging that is included in the fiber-based packaging category. For the sake of completeness, it should be mentioned that fiber-based packaging also includes traditional corrugated cardboard boxes, paper bags, etc., in addition to coated paper and cardboard packaging. However, the fiber-based packaging category also includes cardboard-plastic combinations, i.e., plastic cups with a cardboard sleeve,

as these generally meet the requirement of at least 50% fiber. In contrast to coated paper packaging, the two recyclable materials cardboard and plastic can be easily separated in cardboard-plastic combinations.

The challenge of coating

The coating of the base material is also an environmental challenge for fiber-based packaging:

- **Material composition:** Paper packaging for food rarely consists of pure paper, but of coated or laminated paper structures that contain plastic or other components. These coatings are necessary to improve the barrier properties and ensure the shelf-life of the products.
- **Recyclability:** The inseparable combination of paper and plastic makes recycling difficult. While pure paper and pure plastic can be separated and recycled relatively easily, coated paper packaging poses a challenge for the recycling industry.

It turns out that the question of a sustainable packaging solution is often more complex than assumed. After all, there is no single ideal material for all products in terms of protection and ecology: Nuts and chocolate, which go rancid quickly, place different demands on packaging than something like pasta. Liquid or fatty foods also require different packaging than, for example oatmeal. When looking for ecological packaging, it's therefore important to take a close look at the requirements and then analyze the environmental impact of the packaging in question.

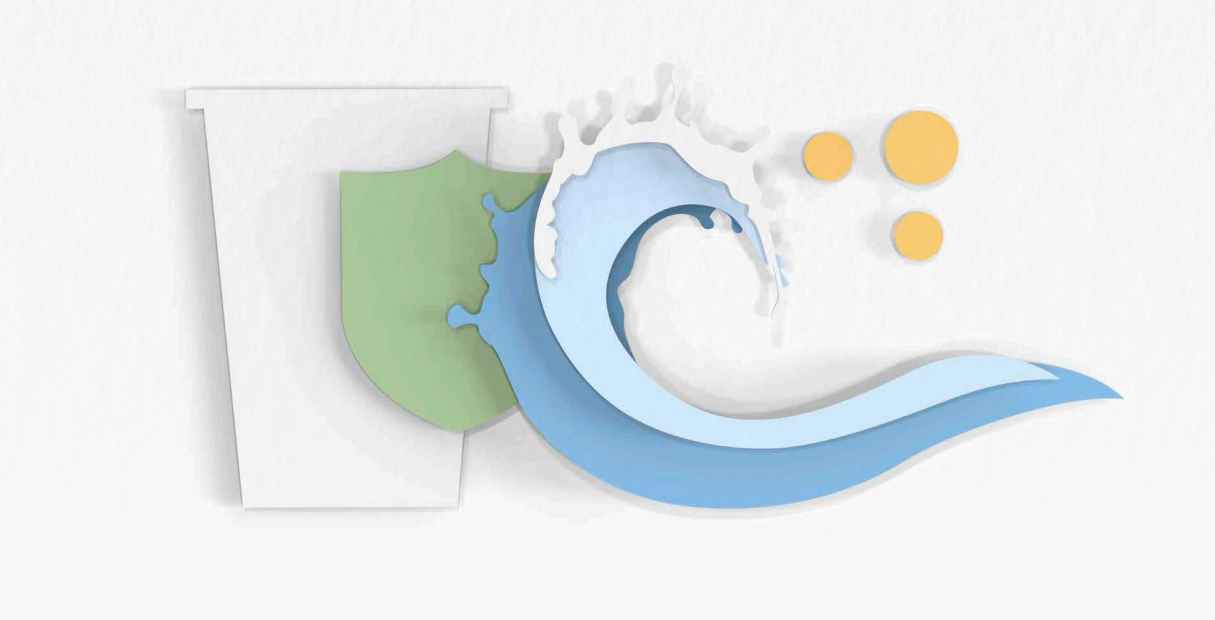
Why do we need a coating at all?

Paper packaging for food often contains a combination of paper and plastic to meet specific requirements. While the paper as the base material of the packaging provides structure and shape, the thin coating of polyethylene or other plastics serves as a barrier against moisture, grease, and other substances that could penetrate the packaging and spoil the food:

- **Moisture barrier:** Foods such as dairy products, which have a high water content, require a barrier to keep moisture inside and prevent moisture from penetrating from the outside. Pure paper is absorbent and, without a coating, would quickly soak through and lose its structure.
- **Fat barrier:** A plastic layer prevents fat from penetrating the paper and damaging the packaging for fatty foods, such as butter or cheese.
- **Oxygen barrier:** Many foods are sensitive to oxygen, which can lead to spoilage or loss of quality. A plastic coating can prevent oxygen penetration and thus extend the shelf-life of the food.
- **Microbiological safety:** Plastic coatings help to prevent the penetration of microorganisms that could also spoil the food.

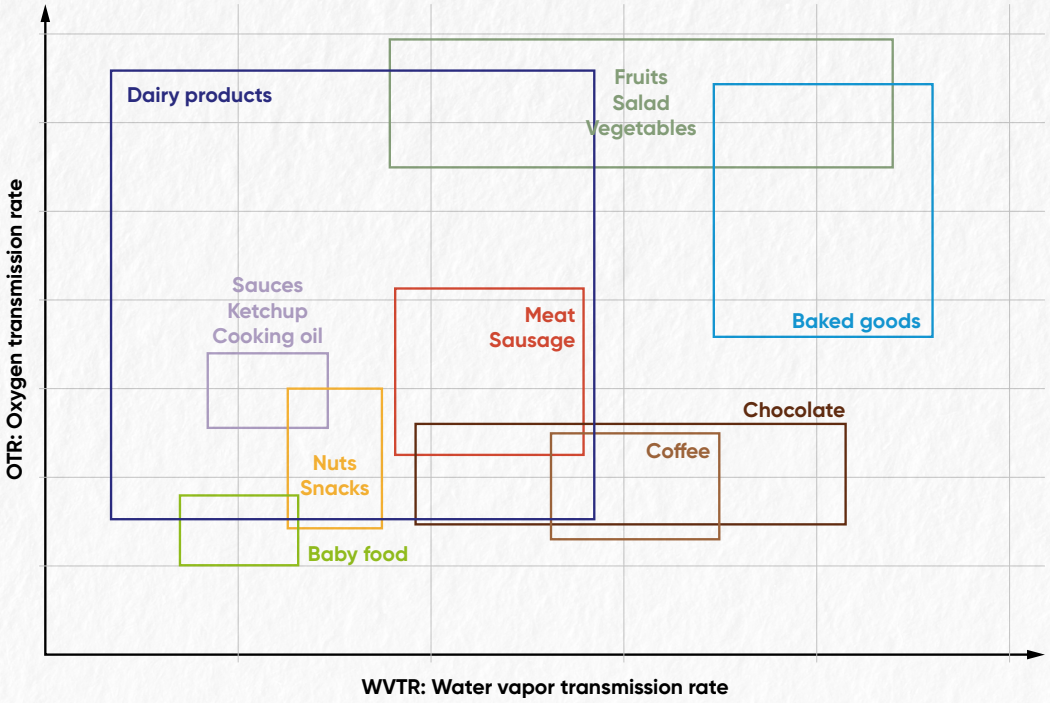
Barrier: Longer shelf-life without preservatives

The barrier therefore ensures a longer shelf life, which often makes preservatives superfluous. However, it is not generally possible to say whether a barrier coating is useful, as foods and their requirements are too varied. Therefore, different packaging is used for food that is stored in a cool place and only has a shelf-life of two or three weeks anyway than for food that is stored at room temperature and needs to keep for months. Better protection is needed here.



Oxygen vs. water vapor barrier

The coatings enable the packaging to guarantee the food's quality and safety. This is particularly important for products with a longer shelf-life and those stored in a humid or variable climate. The issue of barrier thus plays a decisive role in more than just paper packaging. If the right packaging material is to be selected for a product, two parameters in particular need to be considered at the outset: the oxygen transmission rate (OTR) and the water vapor transmission rate (WVTR). Both values guarantee the products' freshness, quality, and shelf-life.



By way of example, let's consider what this means for individual categories:

- **Dairy products:**
  - Variety of different products.
  - Dairy products are susceptible to oxidation, which can affect their taste, smell, and nutritional value. A low OTR ensures that less oxygen penetrates the packaging, extending the product's shelf-life and quality.
  - Dairy products often have a specific moisture balance, which is essential for their texture and consistency. A low WVTR prevents moisture from escaping from the product or external moisture from penetrating.
- **Baby food:**
  - Ethylene vinyl alcohol (EVOH) barrier as an additional protective layer.
  - Very low OTR and WVTR.
- **Coffee:**
  - Unconditional protection from oxygen to preserve flavor and freshness.
  - Very low OTR necessary.
- **Nuts / chocolate:**
  - High fat content.
  - Low OTR and WVTR values necessary.
- **Fruit / vegetables:**
  - High OTR to maintain the breathing process.
  - Medium WVTR to avoid moisture loss and absorption and ensure freshness.

Recycling coated packaging

Coatings in paper packaging may be necessary to ensure the quality and safety of the food inside, but they pose a challenge for the recycling industry. If only paper packaging coated on one side is added to the paper stream, it can generally be recycled. However, the different materials must first be separated from each other. Double-sided coated packaging (such as that used for wet food) requires cost-intensive, specialized equipment and processes that are not available in all recycling plants. This can lead to many of these packaging types not being recycled. This not only means the loss of valuable resources: If it is incinerated or ends up in landfill sites, this packaging, perceived initially as particularly sustainable, has a much worse impact on the climate and environment than previously thought.

Paper + plastic: The best of both worlds?

One way to combine the advantages of paper and plastic is to use cardboard-plastic combinations: Saving plastic significantly reduces CO_2e emissions, the product is optimally protected in the thin-walled plastic cup, and the material's barrier properties contribute to the shelf-life and safety of the food. The cardboard sleeve ensures the stability of the packaging, a pleasant feel, and a sustainable look that consumers appreciate. Additionally, the cardboard sleeve reduces the plastic content by over 30%. The significant advantage of this packaging variant is that cardboard and plastic can be easily separated, recycled, and fed into the right material stream for reuse. However, consumers do not always separate the cardboard sleeve from the plastic cup before disposing of it in the trash, which can lead to difficulties in recycling. Greiner Packaging has tackled this problem with its K3® r100 innovation: Cardboard wrap and plastic packaging are separated from each other during the waste disposal process without human intervention. As a result, achieving excellent recyclability does not depend on proper separation by consumers, as is the case with all previous cardboard-plastic packaging, but happens completely independently during waste disposal. It's a decisive step towards greater sustainability and recyclability – but it's still not the last word on the subject. Sorting facilities also need to have the appropriate sorting options for the separated paper and plastic components (and this is not yet the case everywhere in the EU). The recyclability of its cardboard-plastic combinations is a major concern for Greiner Packaging – and is therefore constantly being put to the test and further developed.

Working together toward a circular economy

Whichever way you look at it, there is no such thing as perfect packaging – both coated paper packaging and cardboard-plastic combinations have advantages and disadvantages. The decisive factor is that the materials are selected to suit the respective application, ensuring both functionality and recyclability. However, due to the material properties, foods with high barrier requirements are better off in plastic packaging (or in cardboard-plastic combinations) than in coated paper packaging. A differentiated approach is, therefore, currently required to achieve genuine sustainability. The right sustainable packaging for every product – this is what Greiner Packaging is committed to with its packaging expertise. Fiber-based packaging is also being intensively discussed. Future developments will show what the next step toward a circular economy could look like.

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Advantages of paper as a packaging material:

- Renewable raw material (if from sustainable forestry)
- Biodegradable (if not too heavily soiled)
- Appealing feel

Advantages of plastic as a packaging material:

- High barrier properties
- Recyclable (in compliance with the Design for Recycling Guidelines)
- Efficient filling

Sustainable packaging: Glass vs. plastic

Which solution for sauces and spices really works?

Sauces and spices are often packaged in glass containers to make them look natural and sustainable. However, plastic offers a lot of advantages in this market.

In the past, the choice used to be easier: ketchup, mayonnaise, pepper, salt, maybe a little chili and salad herbs. Today, there is an almost bewildering range of sauces, dips, honey, dried herbs, and spices. There's something for every taste and every cooking preference in the supermarket. Recent food trends have also contributed to this: Consumers are increasingly looking for healthy, organic, and sustainable alternatives to traditional sauces and spices. Vegetarian or vegan options are also increasingly in demand, as are regional or seasonal offerings. These should contain as few artificial additives as possible, such as flavor enhancers or preservatives, but still have a long shelf-life – especially as there is often no longer just one sauce bottle in the fridge but a greater variety of flavors.

"However, replacing glass with plastic not only saves weight and CO_2e emissions – the material might also be more cost-efficient."

Behfam Garmehi,
Global Business Development Manager,
Greiner Packaging

Packaging is changing

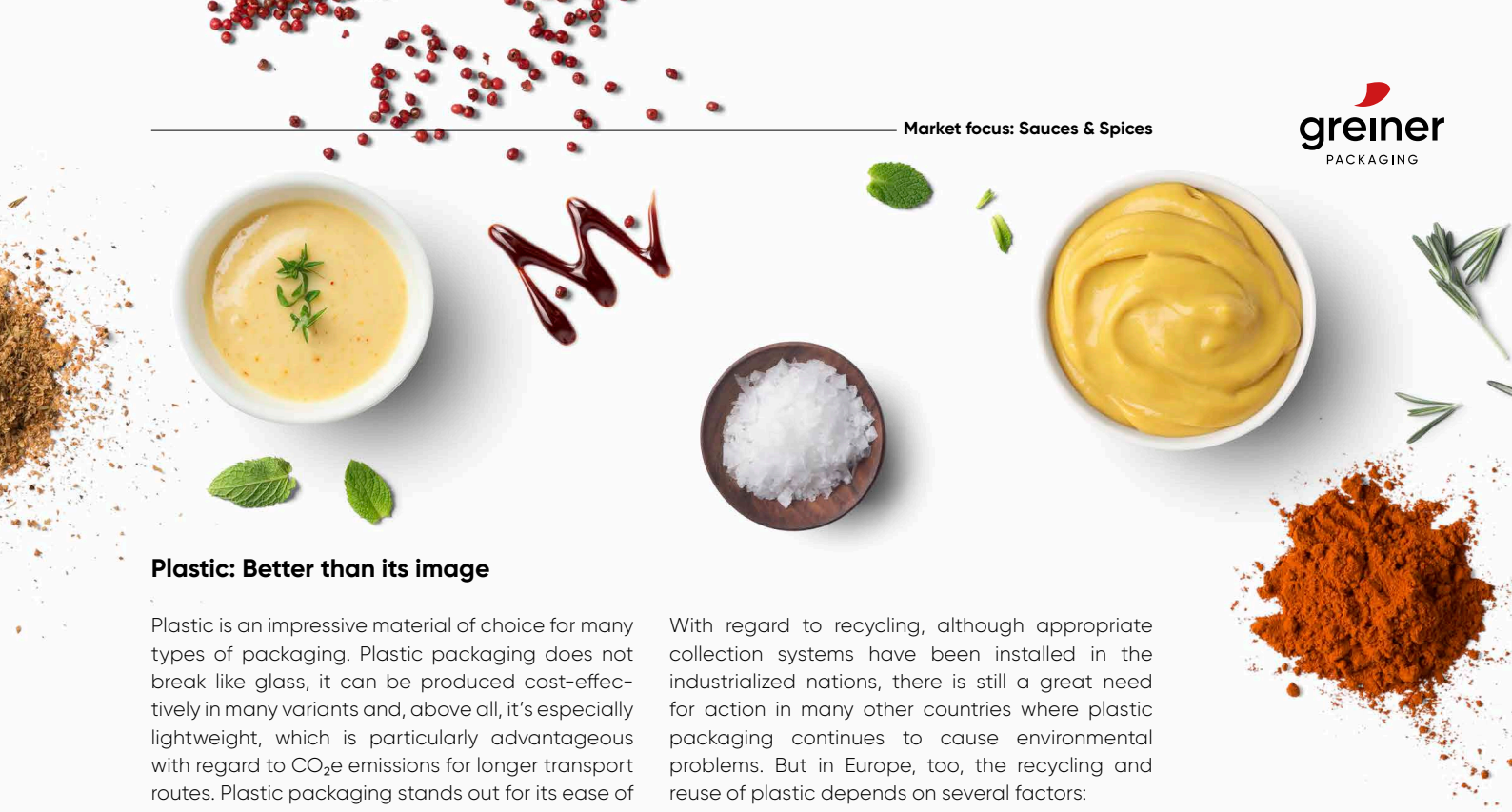
As eating habits and the products offered change, packaging also inevitably changes. Here, sustainability is playing an increasingly important role. The contents and packaging should be a harmonious match. However, there are also stricter legal requirements: At the EU level, the Packaging and Packaging Waste Regulation (PPWR) has aimed to create a circular economic model, making packaging more sustainable and reducing packaging waste. The implementation of the PPWR and its requirements will also impact packaging in the sauces & spices segment.

This means that modern packaging needs to be made from easily recycled materials. It should be safe and contribute to consumer convenience – i.e., easy to open and use – as well as product shelf-life. In addition, the packaging should also be visually eye-catching: With an abundance of products on offer, the packaging can help the product stand out from the competition on the shelf. Whether through form, function, or decoration.

The difficult (material) choice

But let's start with choosing the "right" packaging material: When it comes to sustainable options, many consumers opt for products in glass bottles or shakers. Sauces, dips, and even honey are often packaged in high-quality glass jars. Glass packaging has existed for over 300 years, the material being perceived as high quality and visually appealing thanks to its transparency. It's recyclable and offers excellent product protection thanks to its barrier properties. This gives food a long shelf-life. Glass can be refilled and therefore reused, and returnable products in particular also score highly in terms of sustainability.

However, transport routes are crucial in this respect: Compared to reusable plastic bottles, glass bottles are significantly heavier and, therefore, cause higher CO_2e emissions during transport. As a rule: the more regional, the better the environmental footprint! In principle, disposable glass can be melted down as often as required. However, the energy required to do so is extremely high, and so are the CO_2e emissions and a lot of energy is lost through one-time use. And as aesthetically pleasing as glass may be as a material, the risk of breakage should not be underestimated, as this can result in injuries or the loss of the food product.



Plastic: Better than its image

Plastic is an impressive material of choice for many types of packaging. Plastic packaging does not break like glass, it can be produced cost-effectively in many variants and, above all, it's especially lightweight, which is particularly advantageous with regard to CO_2e emissions for longer transport routes. Plastic packaging stands out for its ease of use for consumers. It also offers excellent product protection, especially when combined with barrier technologies.

The significant advantage of plastic packaging in filling stations is that it causes less noise pollution and can reduce the risk of injury from breakage, which significantly increases workplace safety.

The production of plastic is also associated with energy consumption and, as they are petroleum-based, the raw materials required were once only available in limited quantities. Today, there are solutions for using both recycled and organic-based materials.

With regard to recycling, although appropriate collection systems have been installed in the industrialized nations, there is still a great need for action in many other countries where plastic packaging continues to cause environmental problems. But in Europe, too, the recycling and reuse of plastic depends on several factors:

- Is there a corresponding collection stream?
- Are these mono-material solutions?
- Which type of decoration was used for the packaging?
- Can the recycled material come into contact with food again?

If these questions are taken into account when designing the packaging, the carbon footprint of plastic can be kept to a minimum in comparison to glass, making plastic packaging a sustainable packaging alternative.

Attractive examples

Cooking with **herbs** has never been so easy: thermoformed cups with a sieve and lid for herbs and spices.

- Precise dosing
- Mono-material solution

Sauces in sustainable and attractive cardboard-plastic combinations: Use, enjoy, and recycle with ease!

A comparison of glass and plastic

When choosing the right packaging material, there are some key points to consider in terms of sustainability: the weight of the packaging responsible for high CO_2e emissions, especially during transport, and the overall carbon impact caused by material sourcing and manufacturing.

	GLASS	PET/r-PET
CO_2e	👎	👍
Product safety (breakage resistance)	👎	👍
Handling, transportation, disposal	👎	👍
Barrier, shelf-life	👍	👍

Spices

- **Weight reduction:** Weight reduction: 115 ml of product in a 100 g glass jar or a 20 g PET or r-PET jar – weight reduction of 80%.
- **Carbon impact:** For a 115 ml product, a transport route of 150 km, material, and production are taken into account:
  - Baseline: r-glass 62.5%
  - r-PET 30% saves 10% in comparison
  - r-PET 50% saves 20%
  - r-PET 100% saves 50%

Sauces / dips

- **Weight reduction:** 245 ml of product – PP cup: 27 g / glass 143 g – weight savings of 80%
- **Carbon impact:** For a 254 ml product, a transport route of 150 km, material, and production are taken into account:
  - Baseline: r-glass 62.5%
  - PP saves 20% in comparison
  - r-PET 50% saves 35%
  - r-PET 100% saves 60%

Honey

- **Weight reduction:** 400 ml of product in a 200 g glass or 35 g plastic cup – weight savings of 80%
- **Carbon impact:** For a 400 ml product, a transport route of 150 km, material, and production are taken into account:
  - Baseline: r-glass 62.5%
  - r-PET 30% saves 10% in comparison
  - r-PET 50% saves 20%
  - r-PET 100% saves 50%

More variety – in taste, size, and shape – and a more sustainable range: The market for sauces, dips, honey, and spices is booming. For packaging companies like Greiner Packaging, these trends and market changes call for the development of innovative and sustainable solutions that meet consumers' wishes and the requirements of customers and their products. This also includes minimizing the ecological footprint. It's not an easy task – but it's the path to a successful and sustainable future.

Small but mighty

An innovative addition to the portfolio: Greiner Packaging has come out with a concept study for attractive small spice portion packaging

Whether you're single, on vacation, camping, or just like the trial size – small portion sizes are incredibly popular, even in the spice sector. At Greiner Packaging, the team members in our internal "User-Centric Design" innovative focus group are working on making these small portions practical, attractive, and sustainable. The result from this cross-location, cross-department team: three different "Spice Cups," all designed to prioritize sustainability while offering various optimization options – tailored to meet specific customer needs and requirements.

Less material, more production variety

The spice cups are produced using a resource-saving injection mold or thermoforming process, and they can be made from a variety of materials – including up to 100% r-PET. The decorative possibilities are nearly limitless, from direct printing and labeling to sleeves, IML, and even cardboard. Those who want to save even more material can opt for the cardboard-plastic combination. A label or a foil seal provides evidence of tampering and can easily be removed by the user. The spice cups can be filled and sealed just like standard cups. These three distinct concepts for small portions are the perfect addition to the Greiner Packaging portfolio.

Sustainably packaged, easy to dispense

The cups provide the same convenience as traditional spice jars – the three concepts feature both a generous pour spout and a dispensing opening, which can be adjusted or closed tightly by rotating the lid as needed. This ensures optimal protection of the contents, preserving product quality over time. To best meet the varied sustainability goals of each customer, the three concepts emphasize different key benefits, allowing for a tailor-made solution that meets specific requirements.

The benefits (depending on the concept):

- Mono-material solution for improved recyclability
- Significant material savings compared to spice jars – resulting in reduced CO_2e emissions
- Use of recycled materials – up to 100% r-PET is possible. The cups are thus ideally suited to meet the new requirements of the PPWR in the EU.
- The cups can be delivered pre-assembled and stackable – and thus optimized for logistics. This reduces transportation costs and CO_2e emissions.

How e-commerce is revolutionizing the future of packaging

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The continuing growth of e-commerce has not only changed how we shop – it's also placed new demands on the packaging industry. E-grocery, or online grocery shopping, is experiencing rapid growth, presenting unique challenges and opportunities for packaging solutions.

Greiner Packaging, together with TGW Logistics and the innovation and competence center logistikum.RETAIL at the University of Applied Sciences Upper Austria, has dedicated itself to these challenges in the "e-Pack" research project.

What is e-grocery?

E-grocery refers to the online purchase of groceries, including fresh produce and household items. This type of shopping has grown significantly due to its convenience, particularly in urban areas, and has been further accelerated by the increased focus on home life.

Why is e-grocery relevant?

E-grocery is becoming an essential part of the retail market, especially for these reasons:

- **Growth rates in retail:** Sales in the e-grocery sector are growing faster than in stationary retail.*
- **Changing lifestyles:** Urbanization and the desire for convenience mean that more and more consumers are shopping online.

Challenges for packaging in e-grocery

E-grocery imposes specific demands on packaging:

- **Stability:** Packaging needs to withstand handling by automated picking systems and delivery processes.
- **Size and shape:** The efficient use of space in delivery vehicles and storage systems is crucial, so square or rectangular packaging is ideal.
- **Closure systems:** Lidding and sealing solutions suitable for e-grocery are necessary to ensure packages remain securely closed during automated handling. Ideally, the lids are directly connected to the cup or tub, as is the case with sealing lids, for example.

Results of the empirical tests

As part of the project, project partner TGW Logistics tested various packaging for its properties in the process. These tests provided two key findings.

- **Efficiency of picking robots:** Robots with advanced grippers and machine learning algorithms showed a high success rate in handling different product types.
- **Challenges with certain packaging shapes:** Cylindrical or irregularly shaped packaging is more difficult for robots to handle.

Strategic framework for future-proof packaging solutions

The project's results emphasize the need to adapt packaging design to the requirements of automated systems and logistical challenges. Optimizing packaging design can significantly improve the performance of automated systems, leading to more efficient e-commerce operations.

Conclusion

The study shows that targeted improvements in packaging design can significantly improve not only the efficiency of automated picking, but also stability and safety during transport. Greiner Packaging is committed to taking a leading role in this transformation and providing customers with the most efficient, sustainable, and consumer-friendly packaging solutions for the e-grocery era.

Find out more on our website: Read the full blog post and download the checklist to optimize your packaging for the e-grocery market. The checklist includes tips on stability, standardized systems, sealing solutions, and design adjustments for automated processing.

* Source: McKinsey Analysis / The State of Grocery Retail Europe 2024 | Retail | McKinsey & Company

An innovative reusable concept

Greiner Packaging is introducing a versatile and sustainable meal box

Packaging facts

Technology:	Injection molding
Decoration:	IML, Embossing, Printing
Material:	PP

Whether you're having lunch, on the go, or on the way home – when hunger suddenly strikes, sometimes you just need something quick.

The EU is also aiming for a 10% reusable packaging quota in the take-out business by 2030 and wants to allow customers to fill their own containers. These measures are intended to reduce waste and steer the food service industry toward reusable packaging.

In pursuit of the right reusable system

In light of this, restaurants have to find just the right system – and this is where Greiner Packaging comes into play. The packaging manufacturer now offers reusable meal boxes that are stylish, functional, and environmentally friendly. Environmentally conscious consumers no longer have to forego take-out offers.

Size options and color examples

Many different boxes, many benefits

- **The Mix & Match system:** Combine boxes in different heights and sizes to store your food in the best possible way.
- **Variety of sizes:** Whether a small snack or a large lunch serving, the meal boxes are available in different sizes, perfectly tailored to individual needs.
- **Variety of colors:** The meal boxes are available in a wide range of colors to emphasize the styles of the individual catering establishments.
- **Transparent Lids:** The lids can be ordered in color or transparent.
- **For all types of food:** The boxes can be sealed repeatedly, making them ideal for salads and soups, for example. The box can also be fitted with ventilation holes to ensure optimum freshness (relevant for crispy foods).
- **Sealing:** You can seal the box with our airtight closure system. Seal the box with foil as often as you like – without losing quality with repeated use.
- **Decorations:** Embossings give the meal boxes an individual touch. High-quality IML labels or printing is also possible. Perfect for logos, designs, labeling, or informative graphics.
- **Individual identification:** Asset tracking (using RFID technology, QR codes, data matrix codes, or barcodes) on the meal boxes allows for efficient management of logistics and washing cycles. This offers an innovative solution for keeping track of the boxes and optimizing their use.
- **Click system:** Just one click, even with one hand, is all it takes to close the box quickly and securely, making it ideal for hectic kitchens.
- **Stackability:** Save space in the kitchen or on the go with our boxes' practical, stackable design.

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Curious? Find out more:

Update on the PPWR

On the way to a circular economy

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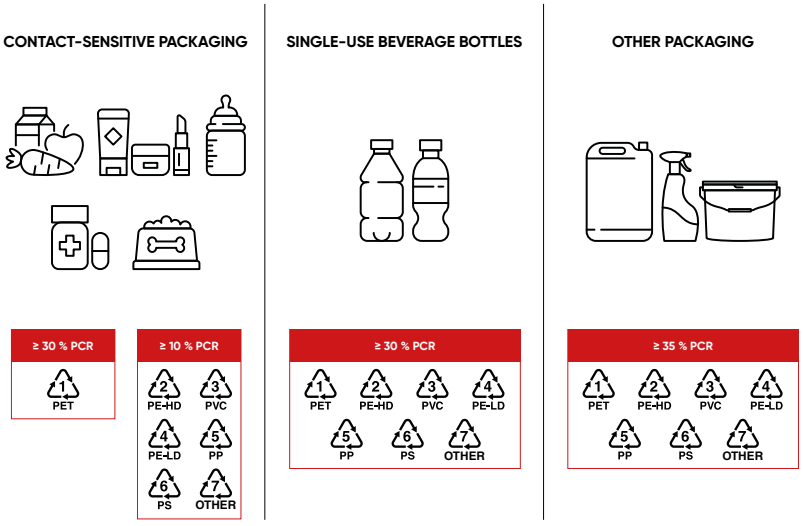
Moving away from a linear to a circular economic model: The PPWR, the Packaging and Packaging Waste Regulation, is considered a milestone on the path to more sustainable packaging and less packaging waste in the EU. The regulation, approved by the European Parliament's plenary session in April 2024, is intended to drive the circular economy. The regulation also aims to harmonize packaging standards and requirements across the EU and to improve environmental protection.
But what does the regulation mean for producers and suppliers?

Minimum recycled content

The regulation contains core targets for 2030 and 2040 with regard to minimum recycled content in plastic packaging and refers to post-consumer recycled (PCR) materials. It differentiates between three different packaging categories:



PCR materials are recycled plastics made from consumer plastic waste. These must either have been collected within the EU or – if outside the EU – according to the same standards that apply in the EU. The regulation does not specify whether PCR materials are produced using mechanical or chemical recycling.

Recyclability

Starting in 2030, all packaging must be recyclable, with a distinction made according to the degree of recyclability: Grade A packaging must be at least 95% recyclable, Grade B at least 80%, and Grade C at least 70%. Starting in 2038, only Grade A or B packaging will be permitted on the market, although there will be exceptions for specific product segments (such as medical devices). Greiner Packaging has already adapted a large part of its packaging portfolio to these new requirements or is in the process of making the necessary changes.

Reusable packaging

In general, the PPWR's goal is to reduce plastic waste – this also includes using reusable packaging solutions wherever possible:

- **Transport packaging:** Starting in 2030, reusable quotas of 40% will apply to pallets, buckets, crates, boxes, and canisters. Reusable packaging should generally be used for transport between company locations within the EU and between companies within a member state. There are exceptions for dangerous goods and cardboard boxes, among others.
- **Beverage packaging:** The reusable quota also applies to beverage packaging. Starting in 2030, the quota will be 10%, rising to 40% by 2040. There are exceptions for wine, spirits, and milk, among other products.
- **Take-out:** Companies that offer take-out food should allow customers to fill their own containers free of charge. By 2030, 10% of products will be offered in reusable packaging.

What's next?

The final version of the regulation is expected by the end of 2024, with the new EU packaging regulation coming into force no later than 18 months later.

- **End of 2025 / beginning of 2026:** Start of implementation of secondary legislation. Further delegated acts (such as "D4R 2028") will follow at a later date.
- **2030:** Targets for the proportion of post-consumer recycled materials in plastic packaging and requirements for recyclability – only grades A, B, and C may be marketed.
- **2035:** Most packaging should not only be recyclable, but also be proven to be comprehensively recycled.

Want to find out more about the PPWR? You can find the entire article on our blog:

Sustainable packaging:
Why post-consumer recycling is key

The requirements for sustainable packaging are constantly increasing, and recycling plays a central role in this development. Post-consumer recycling (PCR), in particular, is increasingly coming into focus. But what exactly does this mean, and why is it so important?

Why post-consumer recyclates?

Post-consumer recycling refers to the process of collecting and processing materials from previously used products and feeding them back into the production cycle. This process reduces the need for new raw materials, waste volumes, and the ecological footprint. PCR is becoming increasingly important in the packaging industry because it supports the circular economy and simultaneously reduces the environmental impact.

Packaging with high PCR content is essential for a more sustainable future. Consumers are increasingly demanding products that are packaged in an environmentally friendly way. By using PCR materials, companies help to conserve natural resources while positioning themselves as responsible market players.

Mechanical vs. chemical recycling

There are two main methods of recycling: mechanical and chemical. Both methods play an important role but differ in their approach and possible applications.

- **Mechanical recycling:** Here, plastic waste is physically shredded, washed, and processed to make new products. This process is energy-efficient and cost-effective, but the material quality can vary.
- **Chemical recycling:** This process aims to break down the polymer chains of plastics into their original building blocks. These can then be used to produce new plastics. The advantage is that material of almost original quality can be produced. However, this process is more complex and more costly.

Both recycling methods are justified and make sense depending on the application and requirements of the end product. Choosing the right process can be decisive for a product's sustainability and efficiency.

You can find out more about this topic in our blog post:

	MECHANICAL RECYCLING	CHEMICAL RECYCLING
Advantages	» Simple and cost-effective » Contributes to the reduction of plastic waste	» Enables the cleaning of contaminated material » Higher purity of the end product
Disadvantages	» The quality of the end product varies depending on the quality of the material flow » Susceptible to contamination and degradation products	» More complicated and expensive than mechanical recycling » Requires special equipment and technologies

Conclusion

Sustainable packaging solutions are hardly conceivable without the integration of post-consumer recycling. Companies can significantly reduce their environmental footprint while meeting the market's requirements by choosing the right recycling process – whether mechanical or chemical.

Want to make your packaging sustainable? Click here to go directly to the free tip sheet:

Certified home-compostable coffee capsules

Innovative partnership sets new standards in sustainability

Taner Ertan,
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Greiner Packaging
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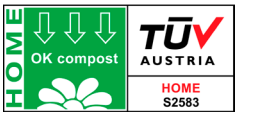


Aluminum or plastic coffee capsules have become a staple in many households. However, when it comes to sustainability, many people view these practical capsules critically. To improve their ecological footprint, Greiner Packaging and Constantia Flexibles have jointly developed an innovative, fully home-compostable coffee capsule solution. This allows the capsules to be easily composted in a home compost heap after use.

The goal of the collaboration was to meet high quality standards for product protection while designing a capsule that is sustainable, environmentally friendly, and practical. Constantia Flexibles is responsible for the lid, the EcoPressoLid, while Greiner Packaging provides the capsule. Both the lid and the capsule have received the "OK Compost Home" certification from TÜV Austria.

Capsule made of compostable polymer

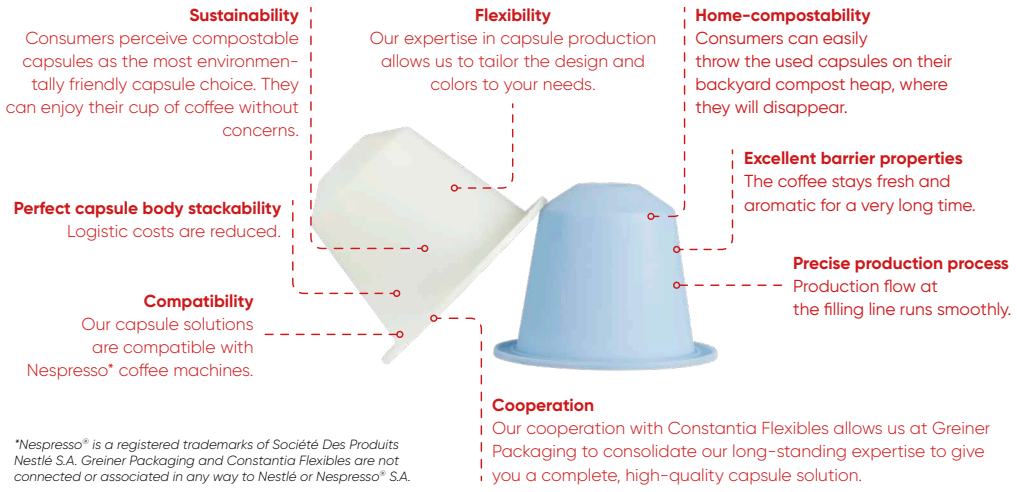
The capsule body, developed by Greiner Packaging, preserves the freshness of the coffee and is compatible with conventional coffee capsule machines. The innovative design offers consumers a sustainable packaging option without compromising on quality or convenience. *"We are committed to pushing the boundaries of sustainable packaging solutions. Our collaboration with Constantia Flexibles on the home-compostable coffee capsule embodies our shared vision for a greener future. This innovative product not only meets the high expectations of eco-conscious consumers, but also sets a new standard in the industry. We are proud to contribute to a solution that balances convenience and environmental responsibility,"* says Taner Ertan, Global Business Development Manager at Greiner Packaging.

Paper-based lidding

The EcoPressoLid offers a high oxygen barrier and seals excellently against compostable coffee capsules. It is compatible with market-standard capsule filling and sealing machines and enables optimal coffee brewing. The paper-based lid can seal both the upper and lower parts of the capsules. Peter Wallach, SVP Head of Business Segment Processed Meat & Beverages at Constantia Flexibles, explains: *"The EcoPressoLid capsule liner is a significant step towards more sustainable coffee consumption. We are particularly proud of our partnership with Greiner Packaging, as it enables us to offer our customers a complete, TÜV Austria certified solution."*

Significant milestone

Sustainability thrives on innovation – this is clearly demonstrated by the partnership between Greiner Packaging and Constantia Flexibles. The compostable coffee capsule solution not only meets consumer demands, but also satisfies the requirements of a circular economy – a significant milestone in sustainable packaging and an important step towards future advancements in the development of environmentally friendly products.



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Success stories:
K3® r100 on the rise in Europe

More about the K3® r100 packaging solution:

The K3® r100 packaging solution from Greiner Packaging has proven to be a trendsetter in various European markets. Below, we will show how leading food manufacturers are using this innovative packaging technology to advance their sustainability goals and meet their customers' high expectations.

Symington's (UK) – A focus on recyclability

Symington's, a major food producer in the UK, is the first company in the region to use the K3® r100 packaging solution. This packaging enables remarkable recyclability, as the cardboard wrap automatically separates from the plastic cup when the packaging is disposed of in the waste process. This simple and effective separation greatly simplifies the recycling process, resulting in a higher rate of recycling and a reduced environmental footprint. This underscores Symington's commitment to a more sustainable future.

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

Olma & Unilever (CZ) – Self-separating packaging and creative design options

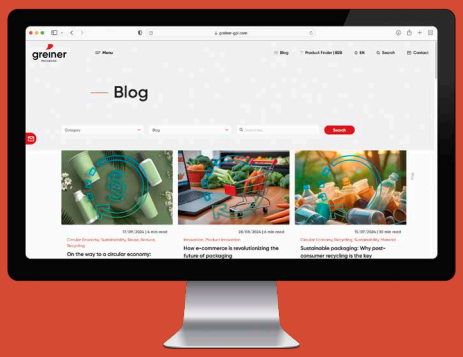
Dessert specialists Olma and Unilever use K3® r100 packaging for its Cavalier and Carte d'Or brands. This packaging solution boasts self-separating technology and a wide range of graphic design options. The internal printing of the K3® r100 cups enables improved consumer communication and gives the products an appealing design on the shelf. The Cavalier line from Olma also features elegant embossing and a high-quality appearance. The combination of sustainability and creative design possibilities makes the K3® r100 technology ideal for Olma.

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

Hemme (DE) – Sustainability as part of corporate philosophy

Hemme Milch GmbH & Co. KG in Germany now uses the K3® r100 cup, packaging that aligns perfectly with the company's philosophy. Hemme Milch attaches great importance to environmentally friendly production methods, and the K3® r100 packaging ideally complements these efforts. The innovative combination of cardboard and plastic allows the company to reduce its environmental impact and extend the shelf-life of its products, helping to reduce food waste. This sustainable packaging solution reflects Hemme Milch's values while supporting its commitment to quality and environmental awareness.

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



Greiner Packaging Blog

Discover the latest insights, trends, and innovations in packaging. Stay up-to-date and immerse yourself in the world of packaging solutions with our blog!

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