

MM

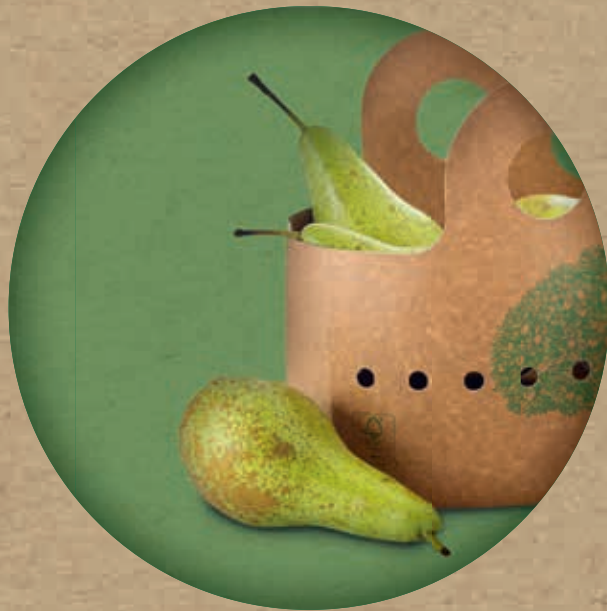
# reshape

THE MM PACKAGING  
MAGAZINE

## Baskets just got smart

A more attractive  
and sustainable way  
to package fruit and  
vegetables.

Pages 3 – 7



# Baskets just got smart

MM Packaging's clever folding carton solutions can be individually adapted so that almost any type of fruit or vegetable can be attractively packaged without the need for plastic.





**T**he previously widespread use of plastic trays for offering fruit and vegetables in supermarkets is increasingly giving way to more sustainable cartonboard packaging solutions. Such packaging embodies everything today's customers expect in terms of freshness, originality and naturalness. However, each retailer and each type of fruit and vegetable has its own specific requirements. This is why MM has developed several folding carton concepts that can be quickly and easily adapted to suit product requirements and meet customer expectations. What's more, the eye-catching designs also help to drive sales.

**THE AWARD-WINNING BASKET.** Austria's large supermarket chain HOFER, which is part of the ALDI Group, has stated that its aim is "to offer a hundred fruit and vegetable products that are more sustainably packaged or unpackaged by the end of 2025." To achieve this goal, the supermarket chain is using the MM Basket, the natural fruit basket manufactured by MM Neupack Austria. This packaging is produced from brown recycled cartonboard instead of the traditional plastic trays. Its plain design is reminiscent of a fruit basket and



The multi-award-winning MM Basket which resembles a fruit basket.



It all started with kiwi fruit packaging.



The MM Clickbox can do more than a conventional clam shell carton.



This elegant box for cherry tomatoes saves 50 tonnes of plastic each year.



*“We want to create really eye-catching designs – to give customers another reason to switch from plastic.”*

KLAUS GATTERBAUER

is as simple as it is ingenious: the packaging can be adapted to suit different types of fruit such as apricots, pears or plums, and can be assembled with one simple hand movement. The opening at the top and the holes on the sides ensure optimal air flow so that the fruit stays fresh longer. This also makes it easy for the customer to inspect the produce from all angles before buying it. The MM Basket concept received the European Carton Excellence Award last autumn in recognition of its innovative design. In addition to HOFER, the supermarket chain SPAR has also been using this packaging for various types of stone fruit.

**IT ALL STARTED WITH THE KIWI.** The fruit basket is not MM's first and only clever fruit packaging solution: several years ago, we began proactively researching how to reduce the high plastic content of fruit and vegetable packaging. The first product we developed was a pack for three to four kiwi fruit, which is still in use today.

**VARIOUS BASIC CONCEPTS.** Following the phenomenal success of kiwi pack, MM developed several solutions that could be adapted to different types of fruit. In addition to the MM Basket, the company developed the MM Easybox and the MM Clickbox. Klaus Gatterbauer, our Key Account Manager for Sales at MM Premium Austria, is particularly proud of this achievement. “It's not the clam shell commonly used for hamburgers, but an innovative solution which is particularly easy to close without an additional hand movement – and it has a sound effect too – it actually clicks! That's its unique selling point.”



Dr Thomas Greigeritsch,  
Head of Group Sustainability  
and Marketing Communication

## Dear readers,

I'm pleased to announce the launch of our new magazine reshape, in which we have “packaged up” all our latest news and interesting information for you to enjoy. We chose the title “reshape” to highlight our mission to shape the field of folding carton production in new and innovative ways. This also explains the unique shape of the magazine, with its rounded-off corner.

The biggest drivers for new solutions in the packaging industry are undoubtedly the climate crisis and the growing mountains of plastic waste that will remain on our planet for centuries to come. How can we package products in a more environmentally friendly and climate-neutral way whilst maintaining high quality? How can we substitute plastic, aluminium and other materials with renewable raw materials?

It was clear to us that the first issue of our magazine needed to address these questions. This is why our cover story focuses on our smart and innovative fruit and vegetable packaging solutions – an area which has recently attracted a lot of attention and caused much excitement.

In addition, this issue features an interview with our Management Board plus some particularly successful folding carton solutions. We will also dispel a common myth about the useful life of paper fibres.

I hope you enjoy reading the inaugural issue of reshape.

Thomas Greigeritsch



MM's commitment to this area is not limited to the plant in Vienna-Strebersdorf. For instance, MM Packaging France in Monéteau has launched a new vegetable packaging solution for cherry tomatoes to replace a plastic tray. In this case, 100 per cent less plastic per piece of packaging means over 50 tonnes less plastic each year. And its attractive design enables an outstanding brand presentation and is a real eye-catcher in any fruit and vegetable department.

**EYE-CATCHERS SELL BETTER.** Creativity and a strong focus on extraordinary packaging concepts set MM apart from the competition. "Our aim is to create really eye-catching designs," Klaus Gatterbauer explains. "This can also provide an additional incentive to switch from plastic to cartonboard. Consumers are more willing to pay more for premium and organic products than they were in the past."

**WELL-ENGINEERED CONCEPTS AND THE RIGHT MACHINERY.** Appearance is not the only thing that matters – functionality is important too. That is why MM takes great care to ensure that its packaging sizes are configured to suit standard IFCO reusable crates and that there is no empty space. Customers don't just get great packaging – they are also offered a sophisticated packaging process concept that can include an assembly machine if desired.

For more information and specific enquiries, please contact

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## Plastic ban on fruit shelves

Plastic food packaging is to be significantly reduced in the wake of the EU's Single-Use Plastics Directive. EU Member States are now required to transpose the directive into national law. Some countries have been particularly ambitious in this regard. In France, for instance, many types of fruit and vegetables, such as apples, oranges, cucumbers and carrots, have no longer been packaged in plastic since January 2022. Transitional periods are still in place for more perishable items. However, from the middle of 2026 even delicate items, such as berries and sprouted products, may no longer be packaged in plastic in France.

**TOP-QUALITY MATERIALS AVAILABLE WITHIN THE GROUP.** High-quality materials can be sourced within the Group through the MM Board & Paper Division. "We have recently acquired two flagship factories – MM Kotkamills in Finland and MM Kwidzyn in Poland – which will open up even more opportunities in this area," Klaus Gatterbauer reports. "Among other things, they produce different types of cartonboard with a special moisture barrier, which is essential for fruit and vegetable packaging."

**MORE THAN OFF-THE-SHELF PRODUCTS.** The trend towards plastic-free fruit and vegetable packaging will continue to accelerate over the next few years due to both consumer demand and new legal requirements (see box above). "Off-the-shelf packaging does not offer plastic-free solutions that also extend product shelf life," Klaus Gatterbauer explains. "Our next steps are going to be very exciting." ●





# FAQ

on fruit and vegetable packaging

## **Which fruit and vegetables can be packaged in cartonboard packaging?**

Suitable packaging for almost any type of fruit or vegetable can be created using special carton solutions.

## **How do the costs compare with plastic packaging?**

At the moment, the costs are higher for cartonboard than for plastic packaging due to the higher specific material weight and the more complex processing tasks involved. But experience shows that consumers are also willing to pay more if the packaging is appealing.

## **How much space does the packaging take up before it is filled?**

MM designs packaging so that it can be delivered pre-glued flat or nested. For example, 18,000 MM Baskets can be delivered per pallet.

## **Are the solutions suitable for machine packaging?**

Yes. The packaging is intentionally designed so it can be quickly assembled and filled by hand, but also by machine. MM can also supply machines designed for this purpose on request.

## **Apart from environmental aspects, what are the benefits of cartonboard packaging?**

Our solutions have been designed to be eye-catching and to promote sales. One supermarket saw a more than 50 percent increase in demand for stone fruit that was presented in MM Baskets. This also reduced spoilage from 15 to 5 per cent.

## **How is the packaging disposed of?**

The cartons can be collected with waste paper without an issue.

## **Where does MM supply its packaging solutions?**

In addition to Europe, we are able to supply several regions in the world because we have production sites located around the globe.

# 3 QUESTIONS FOR THE MANAGEMENT BOARD

**Dr Andreas Blaschke,**  
member of the MM Group Management Board

**“We benefit from being able to source our cartonboard directly from within the Group.”**

**The pandemic is still affecting supply chains and other operations in the global economy. How is MM specifically affected?**

The situation regarding the supply of raw materials remains precarious, but we are dealing with it as best we can. So, for instance, we've had to align our production according to raw material supply in some cases. However, we have the advantage over other folding carton manufacturers of being able to source cartonboard directly from within the Group from MM Board & Paper.

**What does this mean for customers in terms of order lead times and delivery dates?**

Order lead times have obviously tended to become longer because delivery lead times for raw materials have become much longer and things aren't always available. This has therefore meant that our customers need to plan carefully and be flexible. And setting priorities is particularly important. Fortunately, our customers are very understanding of this difficult situation, and I would like to thank them for that. We have almost always been able to work together to find an acceptable solution to ensure deliveries arrive on time.



Dr Andreas Blaschke has been a member of the Management Board of Mayr-Melnhof Karton AG for 20 years. He is also responsible for overseeing the objectives of the MM Packaging division.

**In situations like this, is it an advantage that MM Packaging operates plants around the globe?**

If you are asking whether we can move an order to another plant at short notice, then the answer is no. This is not possible in most cases. This can happen between two sites, say in Germany or neighbouring countries in Europe, but not between Vietnam and Turkey. But we learned a lot from each other about how to deal with the pandemic, about the best measures to ensure the safety of our employees and to ensure deliveries reached our customers. Lockdown restrictions in other countries were often much stricter than in Europe. For example, in the Philippines we sometimes had to provide accommodation for our employees in the factory because they were not allowed to commute. We have seen an impressive amount of commitment everywhere. I would therefore like to take this opportunity to thank all our employees for their dedication and tremendous efforts. ●

## NET ZERO EMISSIONS BY 2050 AT THE LATEST

The MM Group has joined the global initiative “Business Ambition for 1.5°C” to help limit global warming to 1.5 degrees. Through this initiative, MM has pledged to set science-based climate targets, which aim to achieve net zero emissions across the entire value chain by 2050 at the latest. “MM is at the forefront of plastic waste prevention through our use of innovative recyclable packaging made from renewable raw materials,” says Peter Oswald, CEO of the MM Group. “In addition, reducing greenhouse gas emissions is an integral part of our corporate strategy. That’s why we have set ourselves ambitious goals and are actively participating in the Business Ambition for 1.5°C initiative.”

Photo Net zero: shutterstock.com/Zadira Eugeni

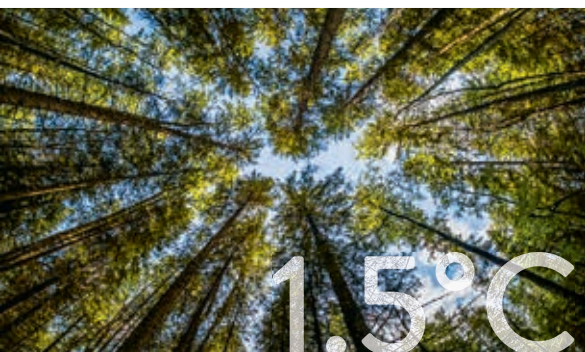


Photo Fachpack: Nuremberg Exhibition Centre/Thomas Geiger



## FACHPACK – the highlight of the trade fair calendar

Here we go again! After a spate of cancellations due to the COVID-19 pandemic, several large trade shows and conventions for the packaging industry are scheduled to take place again this year. The trade show season for MMP starts with Hispack in Barcelona in May. FACHPACK, which takes place in Nuremberg in September, serves as the biggest platform for the company. The main theme this year is “Transition in packaging”, which focuses on the megatrends of the circular economy, digitalisation and e-commerce.

- 24 – 27 May 2022, Hispack, Barcelona [www.hispack.com](http://www.hispack.com) ↗
- 15/16 September 2022, ECMA Congress, Kraków [www.ecma.org](http://www.ecma.org) ↗
- 7 – 10 June 2022, RosUpack, Moscow [www.rosupack.com](http://www.rosupack.com) ↗
- 27 – 29 September 2022, FACHPACK, Nuremberg [www.fachpack.de](http://www.fachpack.de) ↗

## CDP rating: the MM Group is a leader in climate action

The non-profit organisation CDP (Carbon Disclosure Project) has awarded the MM Group an A- rating for its climate change measures and a category B rating for its commitment to protecting forests. Achieving the A- rating means that the MM Group has received leadership status for the first time and now ranks among the top 11 per cent of the participating companies. Leadership status confirms that the company has comprehensively disclosed environmental data, has a strong awareness of risks and carefully manages them, and implements market-leading best practice initiatives.





# The sound of growth

Question: what do classical music by Chopin, microflute corrugated board, a record investment and a revolutionary printing system have in common? Answer: the Polish subsidiary MMP Neupack Polska.

“My growth target each year is always in double digits,” explains Johann Taferner, who has been Managing Director of MMP Neupack Polska since 1999. The company has followed a steep growth trajectory since it was founded in 1995. Today, it is the market leader in carton-board packaging production in Poland and has a significant market share in other European countries, from the Baltic States to the UK. A second factory had to be added as early as 2013, which has since been expanded several times. But the latest investment breaks all records. The 60-million-euro investment will double the plant’s capacity and provide new technology.

## Sounds of Chopin among pallets of cartonboard

“Bydgoszcz is one of Poland’s most important centres for music. It boasts three music academies, a magnificent opera house, jazz cafés and many classical music concerts. It’s a great place to live if you love music. So, it’s obvious why we took advantage of this fact in 2013 when we opened the new factory. We invited a pianist to give a classical piano concert among our pallets of cartonboard. You always hear nice speeches at these sorts of opening events, so we decided to do something different. It’s not often you hear the sounds of Chopin’s music among pallets of cartonboard!” (Johann Taferner)



The plant has been continually expanded over the years, but the current expansion is by far the largest.

**REVOLUTIONARY: DIGITAL PRINTING FOR MASS PRODUCTION.** “In mid-2022, we will start operating MM Packaging’s first industrial digital printing line,” explains Johann Taferner, emphasising the word “industrial”. This is because digital printing usually only handles short print runs, but the new press – with its 272 print heads – can manage long print runs at high speed. It even allows each carton and type of packaging to be printed individually.

The process will be used primarily for packaging cartons. “Packaging will increasingly have an individual code so that it can be easily tracked throughout the logistics chain,” Johann Taferner explains. It will soon be possible to produce these types of individually printed cartons cheaply and in large quantities in Poland. There is significant potential to be found in the e-commerce market.



## MMP Neupack Polska

**Year established:** 1995

**Products:** folding cartons and microflute cartonboard for all kinds of commonplace goods and e-commerce packaging

**Specialities:** extremely fine flute (microflute) cartonboard; cold foil printing; 8-colour, dual-coating press; industrial digital printing

**Customers:** local and international consumer goods manufacturers, e-commerce

**Production volume\*:** 4.5 to 5 million folding cartons each day

**Number of employees:** 350

**Turnover\*:** 140 to 150 million euros each year

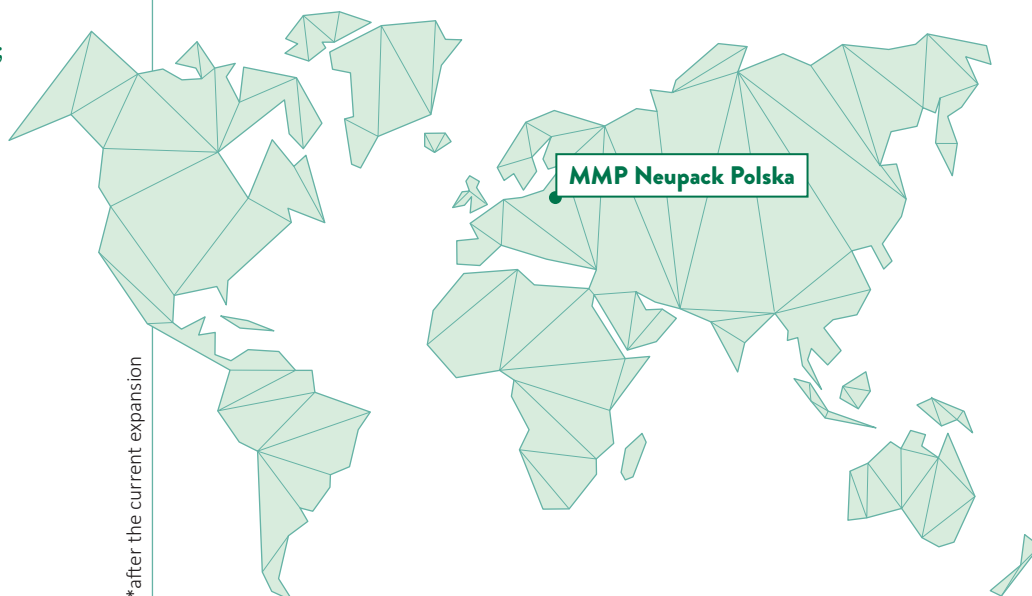
**Size of plant\*:** approx. 67,000 m<sup>2</sup>

**Market share in Poland:** 25%

**PRINTING SPECIALISTS FOR HIGH-QUALITY PACKAGING.** However, affordability is not the only priority at MMP Neupack Polska. “We’re not simply a low-cost facility. We can also do some things that others can’t,” Johann Taferner explains. The plant in Bydgoszcz also produces specialist microflute cartons. These are made from a sturdy, extremely fine flute cartonboard which is then laminated. It is used in ready meal packaging or for packaging electrical appliances. The Polish plant also offers cold foil printing for applying gold metallic foil on more luxurious designs. And the brand-new 8-colour, dual-coating press is perfect for creating high-quality chocolate boxes. It not only applies exactly the right colour shade, but can carry out spot gloss printing to highlight special design elements.

### ON COURSE FOR RENEWED GROWTH.

The company has been one of the largest employers in the region for some time. The current expansion will create another 70 new jobs and make MMP Neupack Polska the largest producer of folding cartons and microflute cartonboard in Europe. What’s more, Johann Taferner can look forward to achieving double-digit growth again. It is expected that the current expansion will increase annual turnover from just under 100 million to between 140 and 150 million euros within a short period. ●



\*after the current expansion

# A 12,500-person-strong innovation department

MM has realigned its innovation management strategy to create the packaging solutions of the future. The company is getting all its employees involved and energised by inviting them to contribute their own ideas.

Many roads lead to innovative ideas. It often starts with an inspiring customer briefing session, or with targeted market research, or maybe an idea that pops up during a trip to the supermarket or when the next e-commerce product is delivered. It is the job of Andreas Macku and his team to direct, prioritise and implement the many ideas and approaches within a large organisation. He has been responsible for directing the many strands of innovation at MM Packaging for several months now. "But you can't think of it as just two or three people sitting in a dark basement trying to develop something," Andreas Macku explains. He tries to harness the creativity and imagination of all employees as much as possible to create novel packaging solutions.

**EVERYONE IS ENCOURAGED TO PUT THEIR THINKING CAPS ON AT WE.INVENT.** "Every idea counts and we want everyone to be involved," Andreas Macku continues. "That's why we've introduced we.invent, a Group-wide platform for collecting and sharing ideas." For the first time in MM's history, more than 12,500 employees were actively called upon at the end of 2021 to submit their own ideas via the new platform. Fantastic prizes are awarded for the best ideas.

*"Every idea counts and we want everyone to be involved."*

ANDREAS MACKU

Employees are also involved in coming up with innovations on a smaller scale. As Andreas Macku explains: "We've also gone into supermarkets and looked at how certain products are packaged. We then used an internal employee survey to gather suggestions for a more attractive alternative that was also 100 per cent recyclable."

**FROM IDEA TO MARKET MATURITY.** When creating the first prototypes, Andreas Macku and his team have to consider many points to find the optimal solution, including, "finding the right materials for each application, determining which design to use, selecting the right mode of transport and thinking about how the customer will open the packaging. We work concurrently with our expert colleagues in production to determine how the product can be manufactured and the kinds of costs involved. And we evaluate how much more recyclable this solution is compared with what is currently on the market."

Then the critical final phase comes into play, which involves working with the customer and scheduling packaging tests. "During this process, we test how the packaging is handled in real-life situations to answer questions such as: how quickly can it be filled? Does it work well with transport containers?" If everything goes smoothly, then market launch is good to go.



### ALWAYS ROOM FOR IMPROVEMENT.

"I believe that a packaging project is only complete when I can buy it in a store as a consumer," says Andreas Macku, although he doesn't seem to be able to close off the project even at this point. "That's when we become very self-critical and pay special attention to how something looks and start to consider how it can be optimised for use in other applications – because it might work well for one product but even better for another." ●



## In the pipeline

### Twister system

**Question:** how can you reduce the amount of plastic in an advent calendar? **Answer:** by replacing the plastic tray inside with a cartonboard solution that has already been developed by MM. A flat piece of cartonboard is cut in such a way that, when pressed, spiral-shaped hollows are formed which hold the pieces of chocolate in the correct position. "It's an ingenious idea that I can definitely see working for other products," Andreas Macku explains.



## Already on supermarket shelves

### Chocolate boxes for the European market

A large confectionery manufacturer was looking for a unique packaging solution for its chocolates. As many as 20 people from the MMP Innovation Network worked with the machine manufacturer and the customer to test carton types, construction perforations and gluing methods to create the perfect packaging solution. After several months of development and fine-tuning, the new packaging was ready and is now being produced for the entire European market.

More heads, more ideas – MM pools creative ideas from across the entire organisation.



Nikolaus Henn and Hannes Köck from MM Premium Vienna present the elegant wine box.

## AS EXQUISITE AS VINTAGE WINE

MM Premium Vienna has created a shining example of premium packaging and demonstrated how a combination of finishing effects can play off each other to create elegant and impactful wine packaging. The design combines an all-over, soft-touch varnish, relief varnish on the fine lines, multiple hot foils, embossing, die-cutting, 3D effects using different layers and blind creasing. The effects are created on Excellent Top™ grade cartonboard from MM Board & Paper.

*“Here at MM Premium Vienna, we are now refocusing our efforts on the premium segment. This packaging allows us to showcase our wide range of technologies.”*

NIKOLAUS HENN, CATEGORY MANAGER AT MM PREMIUM VIENNA

## Award for Chilean wine box

In Central Europe, wines are almost exclusively marketed and sold in bottles, but in many regions of the world the “bag-in-box” concept is now widespread. The advantage of the bag-in-box solution is that it helps the wine to last longer because it prevents air from getting inside. What’s more, it is space-saving and lightweight. This packaging by MMP Chile for the Concha y Toro winery is a particularly successful solution and has received a prestigious packaging accolade, the Theobaldo de Nigris Award. The elegant packaging won first prize in the microflute and corrugated solutions for wines.



## Delicate and delectable

The Austrian confectioner Heindl uses MMP Austria's premium packaging solutions to present its delectable chocolate selections. The entire front side of the box is covered with a soft-touch varnish and feels smooth and soft, while the reverse side has a glossy finish. The delicate, golden lines on the front side are created by micro-embossing with hot foil. The packaging is a visual and tactile sensation and a one-of-a-kind on the marketplace. "We sell our portfolio of luxury chocolate selections using MMP's wide range of exquisite finishing technologies. This provides luxury that you can see and taste!" says Andreas Heindl, Managing Director of Heindl Confectionery.



## PASTA PACKAGED IN PAPER INSTEAD OF PLASTIC

"How to make our pasta packaging more sustainable has been on our minds for a very long time," says Oliver Freidler, a member of the management team at ALB-GOLD Pasta, one of Germany's largest pasta producers. MM Graphia Innovaprint Bielefeld provided the solution in the form of paper packaging, thus helping ALB-GOLD to have a unique selling point on the German market. The environmentally friendly paper bags are flexographically printed by MMP using special water-based inks, which are delivered to ALB-GOLD in rolls. In addition to printing the packaging, MMP also provided ALB-GOLD with technical consulting services to ensure that the best possible processing methods could be used on the existing packaging equipment. "We've received a lot of positive feedback since we introduced our paper packaging," Oliver Freidler reports.



## Sustainable packaging for cool protein bars

The Austrian start-up Frozen Power produces ice cream snacks as semi-frozen bars using locally sourced, healthy ingredients. The snacks are packed with high-quality protein, are low in fat and have no added sugar. "We believe that a healthy lifestyle, quality and regionality are paramount. Sustainability was therefore also essential when it came to choosing the right packaging," explains Constantin Haas, Managing Director of Frozen Power. So, MMP Austria set about creating customised multipack packaging for the bars, consisting of a barrier cartonboard developed by MM Board & Paper specially for frozen food that is 100 per cent recyclable.



Susanne Haase coordinates the cross-industry initiative that promotes more sustainable packaging.

## Recycling starts with design

Paper and cartonboard packaging are already considered particularly environmentally friendly; however, they still hold the potential to help protect the environment even more in the future, as Susanne Haase, head of the 4evergreen initiative, explains.

**Ms Haase, you are Programme Director of 4evergreen at CEPI, the Confederation of European Paper Industries. Can you explain what is driving this initiative?**

We looked at the overall picture across the industry and found that many companies have set ambitious sustainability goals – including using more paper and cartonboard packaging. In fact, 4.5 million tonnes of plastic could be replaced with paper and cartonboard alternatives. 4evergreen aims to support this transition by developing climate-neutral, fibre-based packaging alternatives. To achieve this, we are taking a scientific approach, with the primary aim of increasing the recyclability of packaging to 90 per cent by 2030.



Photo Haase/CEPI

**Most people would already describe paper and cartonboard packaging as environmentally friendly. Where is there still room for improvement in terms of recyclability?**

Fibre-based packaging already accounts for the largest share of the EU's recycling rate by volume. Eurostat calculates that 83 per cent of paper and packaging is recycled. For metal it is 81 per cent, for glass 76 and for plastic only 40 per cent. However, we have recognised that different levels of performance can be expected from fibre-based packaging. The aim of 4evergreen is therefore also to ensure that performance is consistently high. And if we want to achieve a better recycling loop – for all packaging that is on the market – we must ensure that the idea of circularity is already incorporated into the packaging design.

**“Circularity by Design” is one of the four focus areas you have identified as part of the 4evergreen initiative. The other three areas are the Recyclability Assessment Protocol, packaging collection and sorting guidelines, and innovations. Can you announce any progress that has been made in these areas?**

In terms of the Recyclability Assessment Protocol, 52 types of packaging have already been tested and evaluated based on their recyclability. And we also have explicit implementation proposals on the table with regard to design. As for the collection

*“If we want to achieve better recycling rates, we must ensure that the idea of circularity is already incorporated into the packaging design.”*

SUSANNE HAASE

and sorting of packaging, specific examples of best practice are already available here, which even take future regulatory challenges at EU level into account. In addition, we are supporting three innovation projects that focus on novel recycling and sorting technologies.

**Can consumer goods manufacturers already draw specific recommendations for their packaging from these findings?**

We will be sharing our findings in detail with the public shortly. Until then, our unequivocal recommendation – especially for manufacturers – is to have recycling in mind during the design process. If there is any uncertainty about this, it is possible to refer to the guidelines we have published.

**Is 4evergreen open to new members?**

Absolutely, we are always keen to understand new perspectives from the industry. The more companies get involved in our work, the better our results will be. Our members already cover the entire paper and cartonboard packaging value chain. Start-ups, which we have been actively targeting since summer 2021, are also particularly welcome. This is because we need to beat new paths and focus on fresh, disruptive and challenging ideas and thought processes. ●



# Paper fibres last longer than expected

How many times can you recycle cartonboard? Practitioners and researchers have been looking for the answer to this question by tolerance testing waste paper fibres. The result dispels a widespread myth.



This is no ordinary screen: it is actually a sheet former, a high-tech research tool which can produce a finished sheet of paper from the smallest fragments of waste paper. The Institute of Bioproducts and Paper Technology at the Graz University of Technology is one of the few places that would need this kind of device. This puts the institute in a strong position to get to the bottom of an enduring myth – the myth of the seven recycling cycles.

**THE SEVEN-CYCLE MYTH.** “There is a vehemently held notion in the paper industry that paper fibres can only be recycled a maximum of seven times before they break down into tiny fragments and can no longer be recycled. However, practical experience has led us to suspect that this figure is far too low. Now we have scientific evidence to prove it,” explains Manfred Feichtinger of MM Board & Paper. His department has worked in partnership with the TU for a long time. Together they launched an experiment to



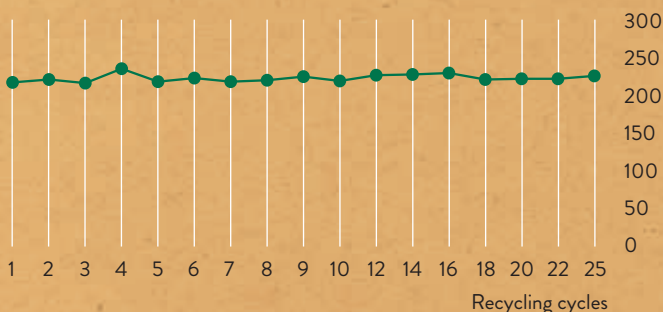
investigate the recyclability of folding cartonboard packaging in more detail. The scientists have been working in the laboratory for a whole year on this very time-consuming experiment. And the result: “Cartonboard can be recycled as waste paper any number of times, losing only a small part of its original strength properties,” Manfred Feichtinger reports.

**LARGER FIBRES IN FOCUS.** The team at TU Graz led by research manager Rene Eckhart passed folding cartonboard packaging through the recycling cycle 25 times. They started with an uncoated, unprocessed cartonboard made from various types of waste paper, such as writing and printing papers, corrugated board and paper from household collections. After the cartonboard was dissolved, it was first pretreated to separate it from mineral components that would have distorted the test result. The researchers accepted the fact that a considerable amount of the fibre particulates would be lost in this step. They were primarily interested in the behaviour of the larger paper fibres after several cycles.

The raw material produced in this way was “beaten”, i.e. broken down into its smallest components. The aforementioned sheet former was then used to produce and test new sheets of paper. The screened water that runs towards the

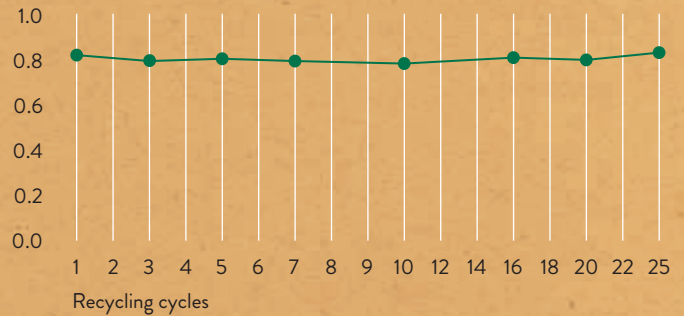
## Stability does not reduce

Bending index in Nm/kg<sup>3</sup>



## Remains just as drainable

Water retention capacity in g/g



channel as part of the sheet forming process was collected and used to dissolve the sheets as part of the continuing recycling process. This meant that no additional fresh water was used in subsequent recycling processes, which also kept the loss of fibre material to a minimum. “Nevertheless, it is impossible to avoid losing around one per cent of the fibre material because the screen can’t capture everything,” Rene Eckhart from TU explains.

**TO INFINITY AND BEYOND!** This process does not have a negative impact on the fundamental properties of the recycled material. The cartonboard does not lose its drainage capacity or its strength. According to the final report co-authored by Manfred Feichtinger and Rene Eckhart, “The latest study has basically clearly shown that the pulp itself allows over 25 cycles of recycling without any problems. And we do not envisage that it will be a delimiting trend either.” The results would show that folding cartons are a very sustainable packaging solution. It appears that they can be recycled as often as desired. The process is only limited by the amount of waste paper that can be collected and any damage or loss that occurs when the source material is cleaned.

This does not change anything in practice. “We have always recycled as much and as often as possible, but now we have proof that there is no loss of quality associated with it,” Manfred Feichtinger explains. The elaborate experiment was definitely worth all the effort. ●

# Cutting edge – like an advanced course in cookie cutting

We used a die cutting process to create the cover of this issue of reshape magazine. According to Andreas Macku, this is actually a simple technique; however, you need a lot of experience to get perfect results.

Die cutting is a key finishing technique in packaging production. It is usually performed in one process (inline) directly after printing together with the creasing operation.

“It’s like cutting cookies out of dough at Christmastime,” explains Andreas Macku, Head of Innovation at MMP. The razor-sharp edges of the customised die cutter separate the outer edges of the product from the printed sheet. To prevent

the punched-out section from getting stuck in the cutter – something most of us have experienced when cutting out cookies – a rubber is placed outside the cutting lines to push away the paper. The blanks are only broken out of the punched cartonboard sheets by hand or machine during the next step. The scraps of cartonboard can be recycled.

**WHAT MAKES A GOOD DIE CUTTING PROCESS?** This sounds like a simple question. “To get the best results, you need experienced professionals,” Andreas Macku continues. A lot of knowledge and skill are required, starting with the right choice of material and tool. During production, the die cutter must be set up very carefully to suit the type and thickness of the cartonboard so that the parts are cleanly separated from each other. But you also need to keep an eye on factors such as material storage methods and wear and tear on the cutting die.

**WHAT ARE THE LIMITATIONS OF DIE CUTTING?** “It is not possible to cut and emboss in the same place,” Andreas Macku explains. Minimum distances are required to the creasing and cutting lines, and to deep and shallow embossing. The rounded corner of this magazine is actually cut and not die cut. “You could die cut this in theory; however, the finished magazine won’t fit through a standard stamping machine,” Andreas Macku continues. ●



High-precision work: the machine must be carefully set up to ensure the parts are cleanly separated.

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