UNFOLDED

A PAPER ABOUT CARTONBOARD

MM KARTON

CARTONBOARD

Packaging
from Nature,
Packaging
for Nature.

NO. 2/2019

CARTONBOARD – THE MATERIAL OF THE FUTURE

Ladies and Gentlemen,
Dear business partners,

Changing demands require a changing industry. Consumer attitudes towards sustainability have shifted significantly in recent years, with packaging playing a key role.
How products are packed is becoming a critical factor in the purchasing decision for more and more consumers. A consumer survey carried out by Pro Carton in mid-2018 in the seven largest European countries confirms this: Three quarters of all consumers are opting for products with environmentally friendly packaging. People have become aware that our resources are finite; hence, packaging must be converted into a circular economy. While the discussion on green packaging is far from new, it has reached a new pitch due to the contamination of our oceans with plastic waste and continuous public debates concerning every-day plastic usage. Legislative measures at a European level – EU Circular Economy Package, Single Use Plastic Directive – have boosted the development of sustainable alternative packaging. In addition to legislation, industry initiatives (e.g. Alliance to End Plastic Waste, The New Plastics Economy) with the aim of putting an end to plastic waste are increasingly being developed.

One thing is clear: tomorrow's packaging must be sustainable, offer maximum functionality with optimum product protection, have a minimal environmental impact and is as circular as possible. Cartonboard is the first choice in this case: versatile to use, renewable, recyclable, biodegradable, and thus a pillar of a modern circular economy.
It is thus capable of replacing other packaging materials when the opportunity arises. Our MMK barrier qualities (e.g. migration barriers, moisture barriers) provide a natural alternative to many existing plastic packaging materials. The success stories of our customers are the best proof. We have also developed a selection of natural cartonboard qualities, our Natural Range, in order to visually communicate naturalness on the shelf. To ensure that sustainable cartonboard packaging can also take the form of sustainable folding boxes with maximum recycling potential, it is vital to plan such packaging holistically from the beginning. In principle, any paper-based packaging can be recycled effectively after use, but some components hinder the recycling process. In order to address this, new guidelines offer guidance for circular product design.

Consumers want to be able to buy packaged products with a clear conscience. They expect packaging to have a second, third, or even 25th life, thus saving resources and the environment. What's more, customers are calling for retailers and the branded goods industry to take responsibility. We give you the means to take part in this development with sustainable cartonboard solutions from MM Karton.
Sustainable solutions for our customers. Sustainable products for our environment.

Horst Bittermann
Head of Marketing and Enduser / Retail Sales Mayr-Melnhof Karton

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THIS EDITION OF UNFOLDED IS BASED ON MULTIPLE SOURCES.
IF YOU HAVE ANY QUESTIONS, PLEASE CONTACT MARKETING@MM-KARTON.COM

CIRCULAR ECONOMY: A PARADIGM SHIFT

IMPORTANT FOR THE INDUSTRY FOR A LONG TIME, NOW A KEY CONCERN FOR CONSUMERS.

Consumers see sustainability as vital and fundamentally important for brands, business and politics alike. An active and functioning circular economy is a crucial component of sustainability. Initiatives such as the EU Circular Economy Package and the Single-Use Plastics Strategy provide specific deadlines and legally binding targets aiming for a sustainable future. Packaging plays a central role in this and is therefore gaining strategic importance for leading companies.

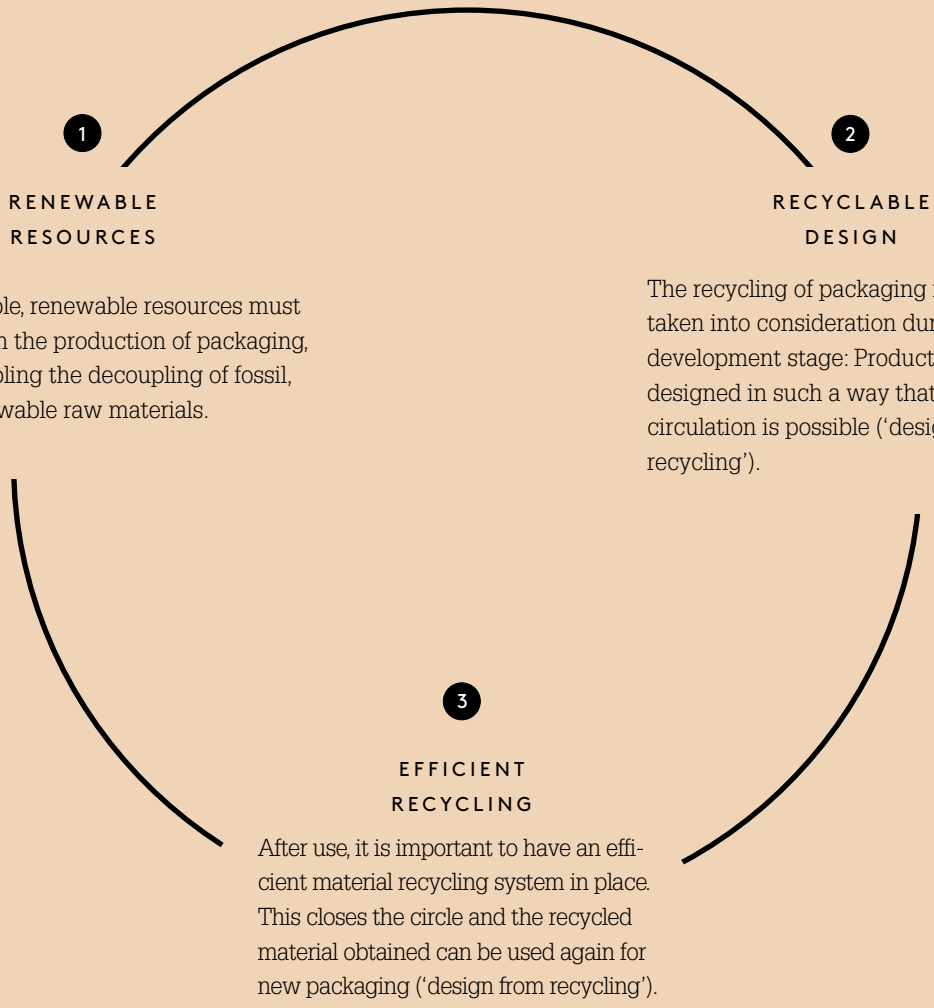
ESTABLISHING A NEW MINDSET: FROM LINEAR TO CIRCULAR

Our previous linear approach to growth was based on the assumption that resources are abundant and can be disposed cost-effectively. However, this approach is not suitable to cover the current and, above all, future needs of mankind, while also preventing the further contamination of the oceans with plastic. A circular economy is a more sustainable, renewable system of closed product, material and energy cycles that have been created by minimising the use of resources and energy, as well as waste and emissions. As a paradigm shift, the circular economy means constant rethinking of the use of resources (e.g. renewable), products (e.g. via design optimisation, long-lasting construction) and business models (e.g. based on reuse, recycling and repair) across the board.

The circular economy represents a remarkable opportunity to protect the environment while also generating economic power: Forecasts for Europe alone envisage that it will account for 1.8 trillion euros by 2030.

CIRCULAR ECONOMY FORMS THE BASIS FOR SUSTAINABLE PACKAGING

There are three key elements to the principle of the circular economy for packaging:



1 RENEWABLE RESOURCES

Sustainable, renewable resources must be used in the production of packaging, thus enabling the decoupling of fossil, non-renewable raw materials.

2 RECYCLABLE DESIGN

The recycling of packaging must be taken into consideration during the development stage: Products must be designed in such a way that optimal circulation is possible (‘design for recycling’).

3 EFFICIENT RECYCLING

After use, it is important to have an efficient material recycling system in place. This closes the circle and the recycled material obtained can be used again for new packaging (‘design from recycling’).

The concept of the circular economy thus forms the foundation for the targeted optimisation of packaging in accordance with these starting points.

THE EU CIRCULAR ECONOMY PACKAGE AS A BINDING SET OF PRINCIPLES

The European Commission adopted the EU Circular Economy Package in late 2015 with the aim of establishing a more sustainable and competitive circular economy in Europe. This is intended to keep waste to a minimum in order to prevent further contamination of the oceans, while raw materials and the resulting added-value should be retained within the EU, with the aim of promoting growth, innovation and creating jobs.

In doing so, the EU is committing to three principles to achieve the goal of a circular economy:

RE-USE AND RECYCLING

The EU Circular Economy Package sets ambitious recycling targets for all packaging materials. According to Eurostat, the targets for cartonboard packaging (2025: 75 %, 2030: 85 %) have already been achieved, although some countries (Portugal 70 %, Poland 74 %) still have potential for improvement. The recycling targets for plastic packaging (2025: 50 %, 2030: 55 %) pose the biggest challenge: double the current amount of plastic packaging must be recycled by 2025.

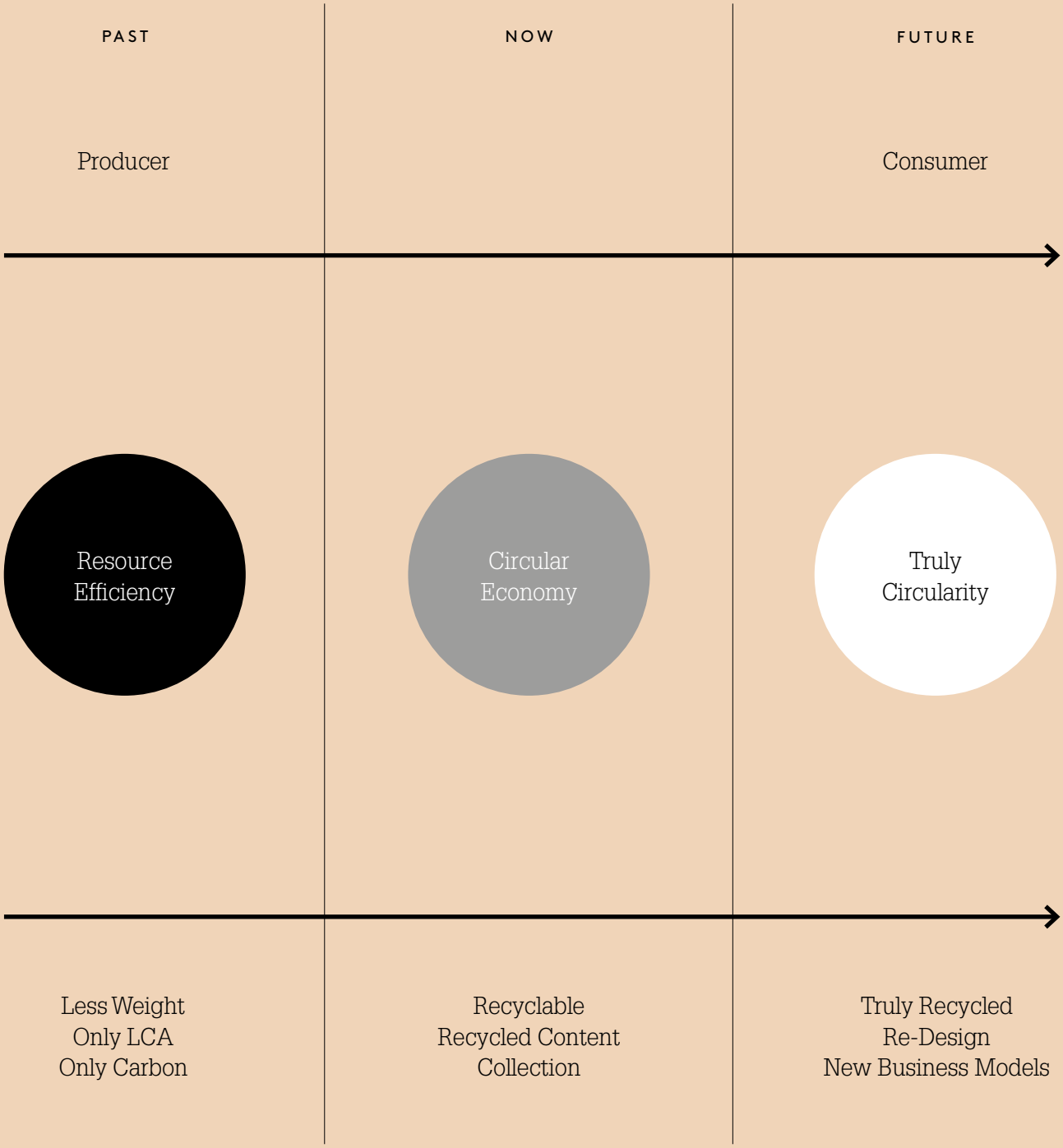
MARKET BAN AND RESTRICTIONS

To comply with the Single Use Plastic Strategy, disposable items are to be reduced or replaced by existing, more sustainable alternatives by 2021 at the latest.

POLLUTER PAYS

A true-cost pricing approach is important in achieving a circular economy. If all distributing companies placing packaging on the market had to bear the costs of disposal themselves, some packaging, especially that made from fossil resources, would become considerably more expensive. Manufacturers of the products affected by the Single Use Plastic Strategy must therefore bear some of the costs of cleaning measures, waste management and awareness-raising campaigns within the framework of Extended Producers' Responsibility (EPR).

The packaging and consumer goods industry as well as the retail trade are facing major challenges due to the new legal regulations. Overcoming these can be achieved only by stepping up cooperation within the industry and between all stakeholders along the entire value chain – suppliers of raw materials, packaging manufacturers, the food and consumer goods industries, retail and wholesale trade, collection systems and recycling companies.
Consumers must be given the means to live up to their responsibilities.



BY INTRODUCING THE EU CIRCULAR ECONOMY PACKAGE, THE EU HAS MARKED OUT A CLEAR PATH TOWARDS A NEW CIRCULAR MODEL.

TIMELINE FOR THE EU CIRCULAR ECONOMY PACKAGE

IMPORTANT MILESTONES AND THE NEXT STEPS IN THE EU CIRCULAR ECONOMY PACKAGE AND THE EU PLASTICS STRATEGY.

PREVIOUS ACHIEVEMENTS

JULY 2014

EU COMMISSION PUBLISHES FIRST EU CIRCULAR ECONOMY PACKAGE

The first circular economy package, 'Towards a circular economy: a zero-waste programme for Europe' is published by the EU Commission under its president, José Manuel Barroso, with a view to transforming the EU into a circular economy. Following the arrival of the new President of the EU Commission, Jean-Claude Juncker, the decision was taken to rework the circular economy package and make it more ambitious, drawing upon extensive dialogue between the EU commission,the EU Parliament, Member States, interest groups and leading companies.

DECEMBER 2015

EU COMMISSION ADOPTS REVISED EU CIRCULAR ECONOMY PACKAGE

The Circular Economy Package 2015 is divided into two parts, with legislative proposals on waste (known as the Waste Package) and a plan of action. In the Waste Package, the EU Commission examines four proposals for directives to revise existing waste directives. In terms of content, the Waste Package is in line with the initial proposal from 2014 but is supplemented by quantified objectives. The key new feature is the extensive action plan, which, together with over 50 measures for the entire product lifecycle – from production and consumption through to waste management and the market for secondary raw materials – also includes a schedule for the ultimate implementation and monitoring of these measures. The transition to the circular economy is to be expedited in five priority areas (plastics, food waste, critical raw materials, biomass and bio-based materials).

JANUARY 2017

EU COMMISSION PRESENTS THE FIRST REPORT ON THE IMPLEMENTATION OF THE ACTION PLAN

A number of measures proposed in the action plan have already been enforced. However, the Commission aims to ensure that all of the measures envisaged in the action plan will be implemented under the current mandate – until 31 October 2019.

JANUARY 2018

EU COMMISSION ADOPTS EU PLASTICS STRATEGY

The EU Plastics Strategy in the circular economy is the first EU-wide political framework concept to focus on the material-specific lifecycle, with the aim of integrating cycle-oriented product design, use and re-use of materials and recycling into the plastics value chain. The Plastics Strategy contains clear objectives with quantified targets at an EU level.

JUNE 2018

EU COMMISSION CALLS FOR A CAMPAIGN OF SELF-COMMITMENT AS PART OF THE EU STRATEGY FOR PLASTICS

The EU commission asks brand owners to voluntarily commit to increase recycled plastics in their products. The aim is to introduce 10 million tonnes of recycled plastics in new products on the EU market by 2025. By the end of 2018, 70 companies and trade associations had made voluntary commitments.

JULY 2018

THE FOUR AMENDING DIRECTIVES TO THE EU WASTE PACKAGE COME INTO EFFECT

– EU Waste Framework Directive (Directive (EU) 2018/851 – amending Directive 2008/98/EC)
– EU Directive on Landfill Waste (Directive (EU) 2018/850 – amending Directive 1999/31/EC)
– EU Directive on Packaging and Packaging Waste (Directive (EU) 2018/852 – amending Directive 94/62/EC)
– EU Directives on End-of-Life Vehicles, Waste Batteries and Waste Electrical and Electronic Equipment (Directive (EU) 2018/849 – amending Directives 2000/53/EC, 2006/66/EC, 2012/19/EU)

The first three of the mentioned directives are relevant to the packaging sector. Member States have 24 months to transpose the directives into national law.

DECEMBER 2018

EU COMMISSION FOUNDS THE CIRCULAR PLASTICS ALLIANCE

The EU Commission founds the Circular Plastics Alliance in order to promote the market for recycled plastics in Europe. Initiatives and alliances are also devised by global companies involved in the plastics and consumer goods value chain that are looking to advance solutions relating to plastic waste (e.g. Alliance to End Plastic Waste, The New Plastics Economy).

MARCH 2019

EU COMMISSION SUBMITS REPORT ON THE SELF-COMMITMENT CAMPAIGN

The EU Commission looks at the level of self-commitment to the terms of the Plastics Strategy with the aim of identifying any gaps that may exist between supply (recycling companies) and demand (manufacturers, distributors) for the different types of plastics. The report concludes that although the supply is sufficient to meet the target of 10 million tonnes of recycled plastics in new products by 2025, the demand is only at around 6.4 million tonnes.

MARCH 2019

EU COMMISSION PRESENTS A FURTHER REPORT ON THE IMPLEMENTATION OF THE ACTION PLAN

All 54 actions set out by the plan, such as the EU Plastics Strategy and the new targets for waste recycling and landfill, have already been started or completed.

MARCH 2019

EUROPEAN PARLIAMENT ADOPTS BAN ON SINGLE-USE PLASTIC PRODUCTS FROM 2021

The European Parliament votes for a ban on single-use plastic products, which are especially likely to end up in the environment (e.g. party plates, cutlery or straws) by adopting the Single Use Plastic Directive (Directive (EU) 2019/904). The ban will come into effect from 2021.

LOOKING AHEAD

UNTIL JULY 3RD 2020

THE EU COMMISSION ...

– publishes, in consultation with the Member States, guidelines containing appropriate examples of what should be considered as single-use plastic items for the purposes of the Single Use Plastic Directive.
– adopts an implementing act to determine the methodology for evaluating and verifying the objectives for separate collections.
– adopts an implementing act laying down harmonised requirements for the labelling of single-use plastic products with a certain plastic content.

UNTIL JANUARY 3RD 2021

THE EU COMMISSION ...

adopts an implementing act to determine the methodology for evaluating and verifying the means of reducing consumption of single-use plastic items.

UNTIL JULY 3RD 2021

MEMBER STATES ...

adopt laws and regulations that are necessary in order to comply with most of the provisions of the Directive. For some provisions, longer deadlines apply, e.g. for single-use beverage containers with caps and lids made of plastic that can only be placed on the market if the caps and lids remain attached to the containers during the period of intended use for the product.

UNTIL JULY 3RD 2027

THE EU COMMISSION ...

carries out an assessment of the Single Use Plastic Directive and evaluates further measures. The report will include an assessment of the need to review the list of single-use plastic items.

GOING IN CIRCLES: WORLDWIDE LEGISLATION ON PLASTIC BAGS

The ban on single-use plastic adopted by the EU is a sign of the changing international mindset regarding resource-saving packaging solutions. Legislation on plastic bags is being enacted all over the world, indicating that the opposition to plastic is rapidly crossing national borders and traditional political boundaries.

AFRICA

RWANDA

The importing, production, sale and possession of plastic bags has been banned in Rwanda since 2008. Infringements are punishable by high fines and prison sentences. The last Saturday of every month has been designated a day for cleaning up.

KENYA

In 2017, the Kenyan government passed a law prohibiting plastic bags. A violation is punishable with a fine. However, there has been criticism, since Kenya is the biggest exporter of plastic bags in the region. It is feared that this will lead to economic damage and job losses.

ASIA

BANGLADESH

In 2002, Bangladesh was the first country to ban thin polyethylene plastic bags, as plastic waste was clogging up the drainage system in the capital, Dhaka.

CHINA

Free plastic bags and the manufacture of bags thinner than 0.025 millimetres were banned in 2008.

INDIA

Thin plastic bags have been banned in New Delhi, the Indian capital, since 2009, and single-use bags followed in 2012. The prohibition was further tightened in early 2017, when all types of single-use plastic were banned. Additionally, certain types of plastic are also banned in other Indian cities and districts, which, however, vary from region to region.

NORTH AND SOUTH AMERICA

SAN FRANCISCO (USA)

Plastic bags have been banned in San Francisco since 2007, and plastic bottles since 2014. However, there are a few little loopholes: for instance, sporting events are exempt from this law.

CHILE

In August 2018, Chile became the first country in Latin America to ban shops from giving out plastic bags. Supermarket chains were given a period of six months to implement the rules, and small shops two years.

WORLDWIDE GOVERNMENTS BAN SINGLE-USE PLASTICS

JUNE 2017

COSTA RICA announced its intention to completely ban single-use plastics by 2021

JANUARY 2019

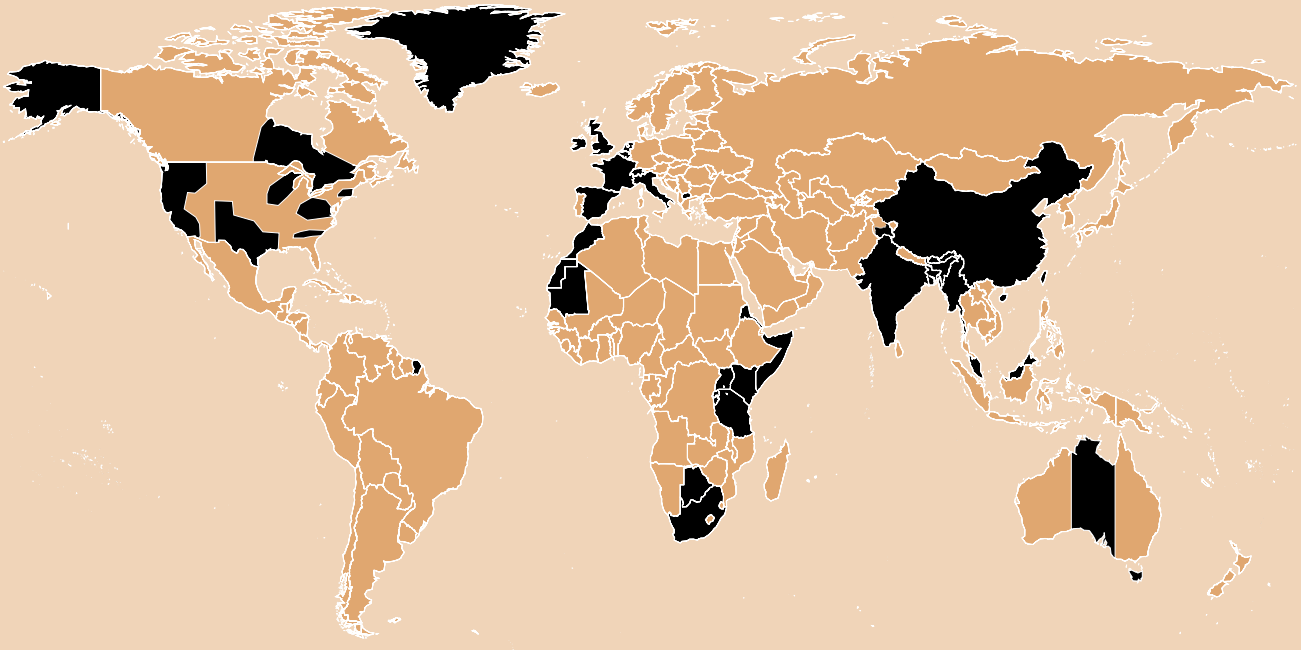
D.C. (USA) plastic straw ban begins

JANUARY 2019

SAN DIEGO (USA) bans styrofoam food and drink containers

LEGISLATION AGAINST PLASTIC BAGS

2017



● Countries with legislation against plastic bags

JANUARY 2019

PERU
restricts single-use plastics

MARCH 2019

EU
aims to ban single-use plastics by 2021

JUNE 2019

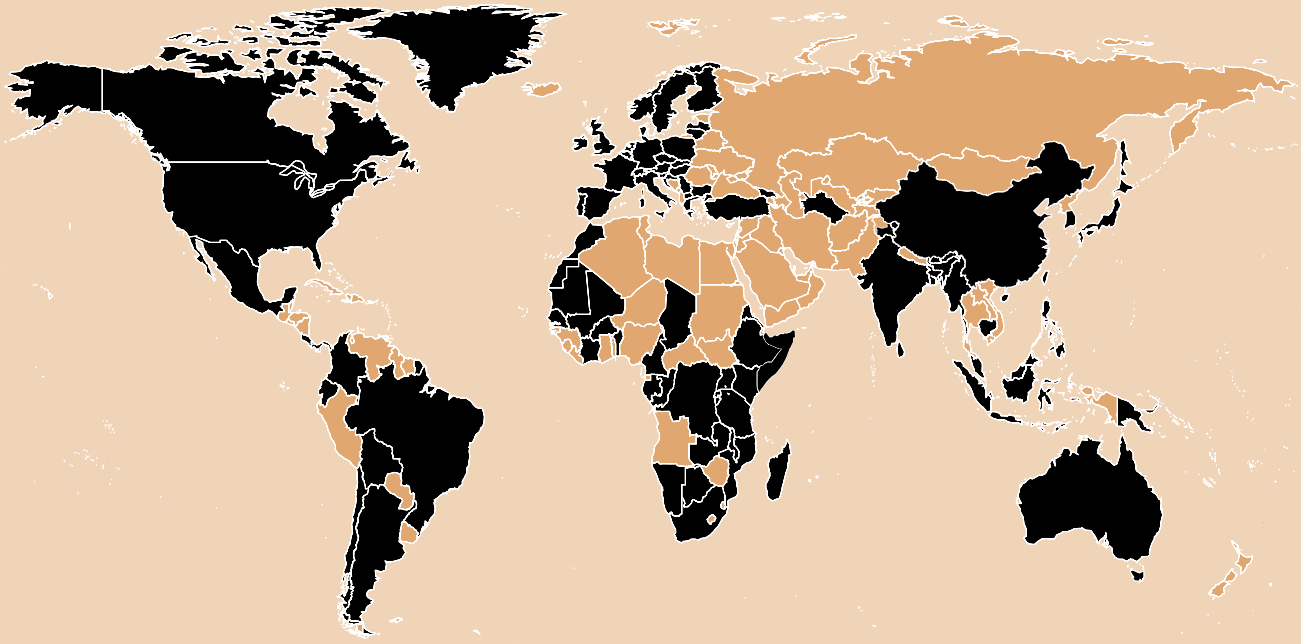
INDIA
announced all single-use plastics will be banned by 2022

JUNE 2019

CANADA
aims to ban single-use plastics by 2021

LEGISLATION AGAINST PLASTIC BAGS

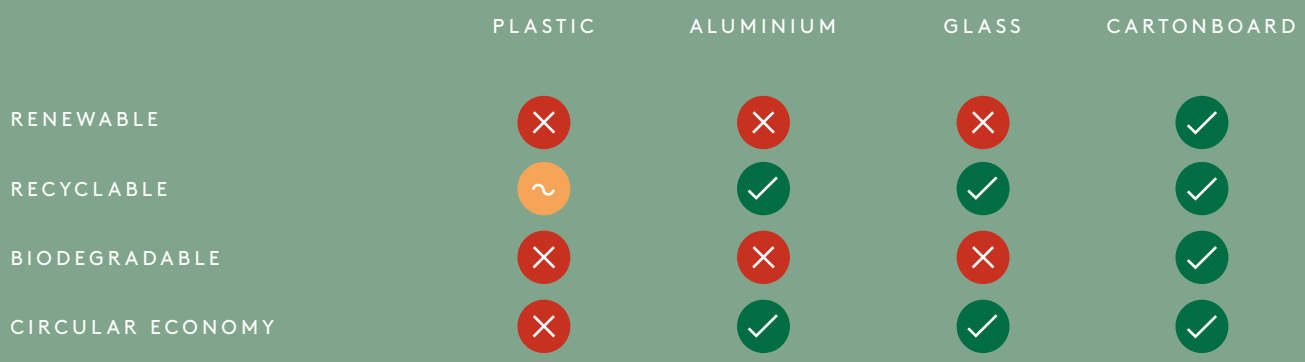
2019



A COMPARISON BETWEEN 2017 AND 2019 REVEALS THE RAPID INCREASE IN LEGISLATION AGAINST PLASTIC BAGS.

COMPARING PACKAGING MATERIALS — A CLEAR WINNER

RENEWABLE, BIODEGRADABLE, RECYCLABLE – WHICH PACKAGING MATERIALS MEET THE REQUIREMENTS OF A FUNCTIONING CIRCULAR ECONOMY?



COMPARING PACKAGING MATERIALS IN TERMS OF THE MOST IMPORTANT SUSTAINABILITY PARAMETERS RESULTS IN A CLEAR WINNER.

RENEWABLE

PLASTIC

Plastics for the packaging industry (PE, PP, PET) are mainly produced from fossil raw materials (crude oil), which are finite by nature. Only an insignificant proportion is made from renewable raw materials.

BIOPLASTIC

Bioplastics or biopolymers may be based on renewable or petrochemical raw materials; however, a definition has not been clearly defined yet.

ALUMINIUM

Aluminium is among the metallic raw materials extracted from bauxite ore, so it is not renewable. Still, it is one of the most commonly used metals across the globe.

GLASS

Glass is produced by melting quartz sand, which is not organic and therefore non-renewable.

CARTONBOARD

Cartonboard is completely natural. It is made from wood, a renewable raw material that comes from sustainably managed forests, or it is produced from recycled paper. Certifications for fibre from responsibly managed forests are standard in the cartonboard industry.

RECYCLABLE

PLASTIC

Plastics can technically be recycled, but in practice, accurately separating out sufficient quantities is difficult. In most cases, mixed plastic waste cannot be recycled to the same level of quality, so experts talk about down-cycling instead of recycling.

BIOPLASTIC

Bioplastics disrupt the recycling process used for mineral oil-based plastics. A separate recycling stream for bioplastics is not economically viable today.

ALUMINIUM

Aluminium is completely recyclable, but difficult to recover from composite packaging (e.g. coffee packaging) during the recycling process. As such, these secondary materials are usually treated as waste and used in cement production, for example.

GLASS

Glass can undergo the melting process as many times as required, allowing it to be processed to form new products. Despite the high recycling rate for glass, producing a single bottle requires a huge amount of energy.

CARTONBOARD

Cartonboard can be recycled many times over; according to a study conducted at the Technical University of Darmstadt, cellulose fibre can be recycled over 25 times. Used paper and cartonboard packaging has the highest recycling rate of any packaging material in the EU (85 %) and forms the basis for manufacturing the most environmentally friendly packaging material of all – recycled cartonboard. Cartonboard is born again. And again.

BIODEGRADABLE

PLASTIC

Plastic has an extremely long lifecycle when exposed to the environment. Plastic packaging takes decades or even centuries to break down. Even oxo-degradable plastics, which are treated with additives so that they dissolve after a certain time, do not completely decompose, but rather disintegrate into microplastic.

BIOPLASTIC

All of the key associations in the German waste management industry have fundamentally opposed the composting of biodegradable plastics in a policy paper. There is no opposition to bio-based, certified biodegradable plastic bags for collecting organic household waste.

ALUMINIUM

Aluminium is a metal, and metals are not biodegradable.

GLASS

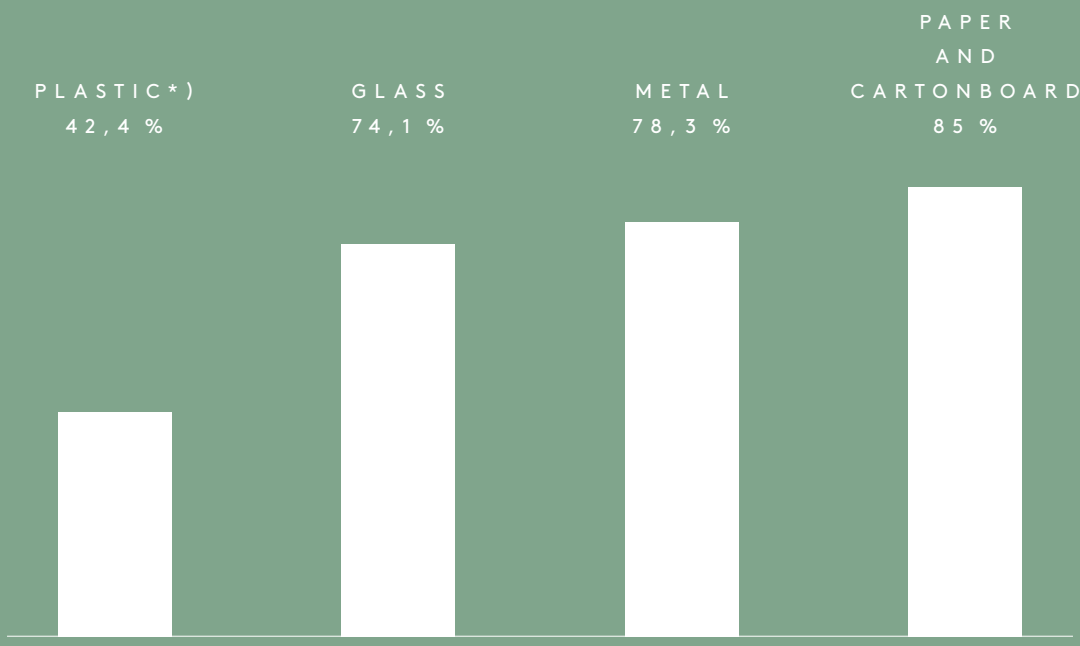
The production process for glass uses quartz sand, which is not organic and therefore not biodegradable. A glass bottle can last for up to 1 million years.

CARTONBOARD

Once it is exposed to the elements, paper-based packaging will break down within a few weeks. It comes from nature and returns to nature.

THE PACKAGING OF TOMORROW IS RENEWABLE, RECYCLABLE, BIODEGRADABLE AND THUS ENVIRONMENTALLY FRIENDLY. A MINIMUM OF ENERGY AND RESOURCES ARE CONSUMED BY PRODUCING IT.

FOR ALL THESE REASONS, FOLDING CARTONS REPRESENT THE BEST CHOICE OF PACKAGING IN THE INTERESTS OF A CIRCULAR ECONOMY NOW AND IN THE FUTURE.



PAPER AND CARTONBOARD HAVE THE HIGHEST RECYCLING RATES IN EUROPE OUT OF ALL AVAILABLE PACKAGING MATERIALS.

FOLDING BOX	ALUMINIUM CAN	PLASTIC BOTTLE	GLASS BOTTLE
2 MONTH	200 YEARS	450 YEARS	UNKNOWN

OUT OF ALL POSSIBLE PACKAGING MATERIALS, PAPER AND CARTONBOARD DECOMPOSE FASTEST, WITHOUT LEAVING ANY RESIDUES.

*) *"The uptake of recycled plastics in new products is very low, around 6 %, concentrated in low-value or niche applications,"* Karmenu Vella, European Commissioner for Environment, Maritime Affairs and Fisheries.

BARRIER CARTONBOARD

from MM Karton

In addition to a variety of standard cartonboard grades, MM Karton also offers a wide range of special products. These 'high-tech' cartonboard qualities, which include cartonboard with migration, moisture and grease barrier, are specially treated for their individual application. They represent a natural alternative to many existing types of plastic packaging.

MMK CARTONBOARD CAN ...

PREVENT MIGRATION

FOODBOARD™
FOODCART™

STOP MOISTURE

MMK cartonboard qualities with freeze barrier

BLOCK GREASE

MMK cartonboard qualities with grease barrier

APPLICATIONS

– Dry foods like rice, cereals, pasta, tea
– Chocolate and confectionery

– Chilled foods
– Frozen foods

– Greasy foods
– Slightly greasy pet food
– Greasy technical products

NATURAL ALTERNATIVE TO

– Compound foils, PET bags
– PE, PP, PE and PP bags do not offer adequate protection

– Plastic bags
– PE-laminated cartonboard

– Plastic or polystyrene clamshells and plates
– Cartonboard with lamination (e.g. PE)

MMK CARTONBOARD CAN ...

PRESERVE TASTE AND FRESHNESS

MMK cartonboard qualities with freeze and grease barrier

PROVIDE SHAPE

MMK cartonboard qualities with deep drawing treatment

PROTECT IN ANY CLIMATE

MMK cartonboard qualities with fungicide treatment

APPLICATIONS

– Greasy frozen products (e.g. pastry dough), baked or breaded foods, bouillon cubes

– Cheese cartons
– Party plates

– Soap packaging

NATURAL ALTERNATIVE TO

– Cartonboard with lamination (e.g. PE, aluminium)
– Plastic bags

– Plastic

– PE coating

NATURAL-LOOK CARTONBOARD

from MM Karton

First impressions count at the point of sale as in day-to-day life. As such, packaging materials that convey sustainability at first glance are key. MM Karton offers a broad range of products that convince naturally on supermarket shelves.

RECYCLED BOARD

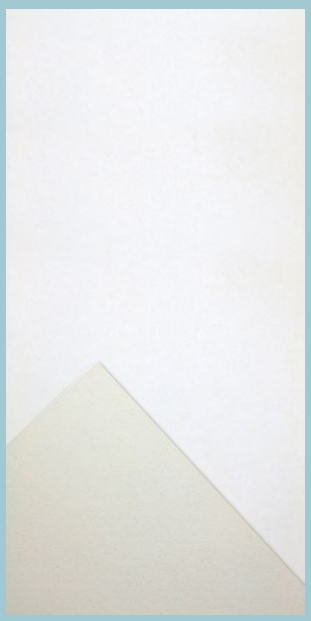
GRAFOPAK KRAFT™
GT4 / Kolicevo mill

UD BROWN
UD2 / Hirschwang mill

BROWNCOLOR
UT4 / Kolicevo mill

UT TRAY BLACK
UT4 / Hirschwang mill

VIRGIN FIBRE BOARD



ACCURATE™
TOP NATURAL
GC2 / Eerbeek mill

EXCELLENT TOP™
KRAFT
Coated Kraft / Kolicevo mill

EXCELLENT TOP™
BROWN
Uncoated Kraft / Kolicevo mill

CUSTOMER STORIES

The following successful customer examples clearly show that our barrier and natural-looking cartonboard qualities can substitute plastic, as well as visually communicate sustainability on the sales' shelf.

1

MESSMER TEA / OTG
Product: Tea
Converter: H.O. Persiehl
Cartonboard: FOODBOARD™, GT1, Frohnleiten mill

2

ITALIAN RETAILER
Product: Party plates
Producer: Ecoplast
Cartonboard: Accurate™ Freeze Grease, GC2, Eerbeek mill
Substituted: Cartonboard with PE-lamination

3

AUSTEIN GÅRD
Product: Strawberries
Converter: Norstamp Etikett & Emballasje
Cartonboard: UT Tray Black, UT4, Hirschwang mill
Substituted: Plastic container

4

MIGROS
Product: Tomatos
Converter: Zalpak & Straatman
Cartonboard: Excellent Top™ Kraft, Coated Kraft, Kolicevo Mill

5

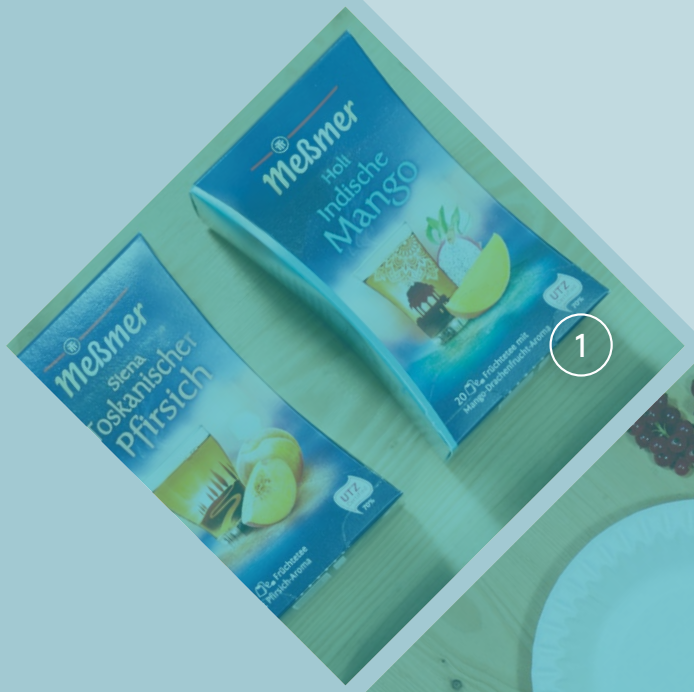
CULT CAFFÉ
Product: Coffee beans
Folding box manufacturer: Mayr-Melnhof Packaging
Cartonboard: Excellent Top™ Kraft, Coated Kraft, Kolicevo mill
Replaces: Plastic and aluminium composite packaging

6

BARILLA
Product: Bio-Pasta
Converter: De Robertis & Figli
Cartonboard: Accurate™ Top Natural, GC2, Eerbeek mill

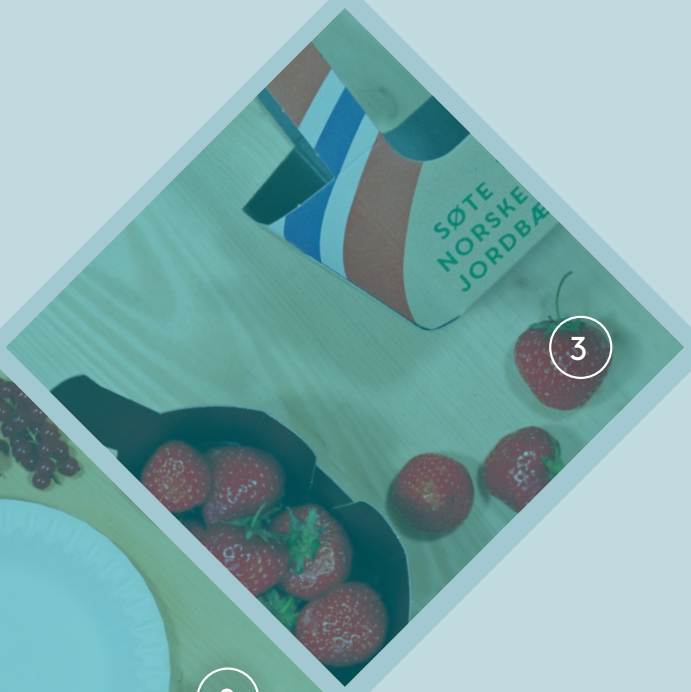
7

dm / alverde NATURKOSMETIK
Product: Toothbrush
Converter: CAG
Cartonboard: Excellent Top™ Brown, Uncoated Kraft, Kolicevo Mill

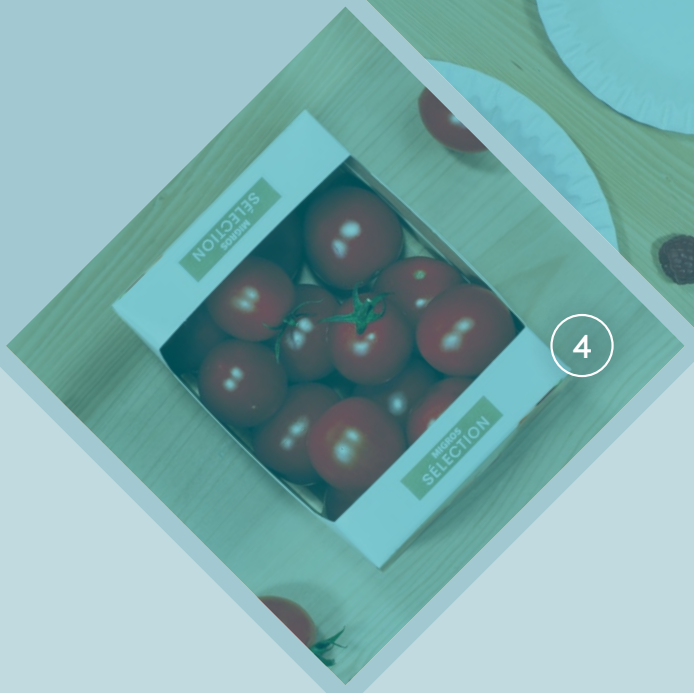

Meßmer
Holi
Indische
Mango
Meßmer
Siena
Toskanischer
Pfirsich

1

2


SØTE
NORSKE
JORDBÆ

3


SELECTION
MIGROS
SÉLECTION

4


CULT.
CAFFÈ
BARISTA

5


BIO
fusilli
Barilla
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6


NEU
MEDIUM
alverde
ZAHNBÜRSTE
AUS HOLZ

7

FOODBOARD™ PREVENTS MIGRATION

MESSMER TEA FROM OTG

The Ostfriesische Teegesellschaft (OTG), one of Europe's leading tea suppliers, attaches huge importance to an authentic taste experience, food safety and sustainability. With this in mind, OTG has converted its entire product range, which includes the Meßmer, Milford and OnnO Behrends brands, to FOODBOARD™, our barrier cartonboard. The new 'Teas of the World Collection' from the Meßmer brand family looks particularly eye-catching on store shelves.

"OTG has long striven for the utmost product safety. FOODBOARD™ features barrier properties that protect against mineral oil migration and other unintended substances. Our choice of barrier cartonboard was based on its effectiveness, as well as sustainability considerations: by opting for FOODBOARD™, we have ruled out any switch to packaging made of plastic or composite materials. Our natural products are sustainably packaged in cartonboard. This sends out the right message and contributes towards a functioning circular economy," Kevin Kunth, Team Leader for Cartonboard Purchasing at OTG.

OTG IS A PIONEER IN PRODUCT SAFETY

Product safety is OTG's top priority: back in 2016, it became the first tea company in Europe to opt for FOODBOARD™. This was the result of discussions over mineral oil migration, in which their raw and packaging materials and internal supply chain were all thoroughly scrutinized. Secondary packaging and cross-contamination were found to be sources of mineral oils. The sustainable solution: FOODBOARD™, our functional barrier cartonboard, which protects tea from unintended substances such as mineral oils, phthalates and bisphenol A, while preserving its original taste and aroma.

FOODBOARD™: SUSTAINABLE PROTECTION AND VISUAL APPEAL

Tests conducted at OTG and in independent external laboratories proved that our barrier cartonboard provides protection against migration, while also possessing a particularly good aroma impermeability, thus guaranteeing the consumer the full taste experience of the tea. These properties make it possible to dispense with the cellophane wrapping, with the added environmental plus that FOODBOARD™ is completely recyclable and biodegradable. FOODBOARD™ is a mono-material – a pure cartonboard solution not an extruded or laminated compound.

The new packaging made from FOODBOARD™ for the 'Teas of the World Collection' from the Meßmer brand range is particularly striking. The high-quality packaging with 'surfboard' edges stands out from other tea brands on the shelves. Every flavour is typical of a particular country or region, such as Brazilian pineapple and lime, Indian mango and dragonfruit or Italian amarettini black tea. Thanks to the special pillow shape, the packaging is comfortable in the customer's hand, while the appealing design, featuring scenic landmarks and colourful fruits, is enticing and distinctive.

THE NEW FOODBOARD™ PACKAGING FOR MESSMER TEA FROM OTG OFFERS THE PERFECT COMBINATION OF SAFETY, SUSTAINABILITY AND UNIQUENESS.

ACCURATE™ FREEZE GREASE KEEPS
PARTY PLATES STABLE AND CLEAN

ITALIAN RETAILER

No need for plastic when partying! Today, environmentally friendly solutions for food service packaging are in great demand, not least because of the EU regulation. One of the primary Italian retailers gets the party started by switching their party plates to our Accurate™ Freeze Grease – the sustainable alternative to plastic plates, styrofoam as well as polyethylene (PE) coatings. These sustainable plates are manufactured by Ecoplast.

MILLIONS OF PLATES WITHOUT PLASTIC COATING

The respective Italian retailer was the first supermarket chain in Italy to introduce online shopping and own-manufactured organic products. For its highly demanded private label products, the retailer needs many millions of environmentally friendly packaging items every year and here also, breaks new ground: As part of its sustainability strategy, the family-owned company is working with packaging experts on solutions without plastics. For their party plates, the retailer now switched from cartonboard with PE coating to MM Karton´s Accurate™ Freeze Grease, which is completely recyclable and biodegradable.

ACCURATE™ FREEZE GREASE – STABLE AND CLEAN

Packaging solutions in the fast food and food services segments all have the same requirements – high stability and no discoloration. Sausages, fries, cakes and other foods can leave their natural fats on the packaging; so it is imperative to guarantee stability and prevent discoloration as well as annoying grease stains. Thanks to its combined moisture and grease barrier, Accurate™ Freeze Grease satisfies these requirements perfectly. Accurate™ Freeze Grease also shows flexibility and formability and can be deep drawn in the desired shape.

The move to Accurate™ Freeze Grease is an important step to fulfill the "Single Use Plastic Strategy" regulation, which aims to substitute single use plastic products, and is essential for the retailer's sustainability strategy.

PARTY PLATES MADE OF ACCURATE™ FREEZE GREASE ENSURE A STABLE AND CLEAN PRESENTATION OF FAST FOOD AND FOOD SERVICE PRODUCTS.

GOING NATURAL WITH UT TRAY BLACK
FOR STRAWBERRY BASKETS

AUSTEIN GÅRD

Minimise waste, maximise the product impression – this could be the slogan of Austein Gård´s new cartonboard packaging for their strawberries. The new packaging design made out of UT Tray Black completely replaces the formerly used plastic container whilst being an eye-catcher at the point of sale. It is produced by Norstamp Etikett & Emballasje.

"We love our new packaging for strawberries! It fits our products perfectly: Strawberries are a natural product, cartonboard is the natural form of packaging," Sondre Austein, fourth generation at Austein Gård.

TRADITION MEETS INNOVATION

The successful combination of tradition and progress is the foundation of Austein Gård, a Norwegian farm with a long history. Since 1934 they have been producing strawberries, raspberries and different cereals. The farm may be old, but the owners are constantly breaking new ground in order to grow and improve – packaging is one aspect. For their plastic containers for strawberries, they were looking for a sustainable and recyclable alternative conveying the freshness and quality of their products. They found the natural answer in a new cartonboard packaging made of UT Tray Black, which completely replaces the previously used plastic packaging. The new packaging design has the form of a basket, which can be considered as the traditional type of fruit packaging.

UT TRAY BLACK FOR A SUSTAINABLE AND EYE-CATCHING PRESENTATION

With its black top side and brown reverse side, UT Tray Black from the Austrian mill Hirschwang presents perfectly the strawberries:

The contrast of black cartonboard and red strawberries is a real eye-catcher at the point of sale. The brown reverse side underscores the natural character of the packaged fruits and is appealingly printed in the colours of the Norwegian flag. As fruits release moisture and are also generally washed prior to packing, form stability in humid conditions is highly important. Thanks to a special sizing, UT Tray Black is water resistant and thus maintains its stable form.

AUSTEIN GÅRD´S NEW PACKAGING OUT OF UT TRAY BLACK PRESENTS STRAWBERRIES IN AN ENVIRONMENTALLY FRIENDLY AND SALES-PROMOTING WAY.

GOING NATURAL WITH EXCELLENT TOP™ KRAFT
FOR TOMATO PACKAGING

MIGROS

The world‘s most sustainable retailer Migros from Switzerland counts on cartonboard packaging for fruits and vegetables.

MIGROS COMMITTED TO SUSTAINABILITY

Sustainability is for Migros lived reality: In 2018, an independent ratings agency analysed the social and environmental commitment of the Migros Group in detail. Of 151 retail companies assessed worldwide, Migros achieved the best result throughout the industry. This made it the world's most sustainable retailer in the reporting year. As part of its „Generation M" sustainability initiative, Migros has been working intensively on the subject of packaging.
For their cherry tomato packaging, they have chosen our virgin fibre Kraft cartonboard Excellent Top™ Kraft.

EXCELLENT TOP™ KRAFT FOR A SUCCESSFUL BALANCE OF HIGH-CLASS PRESENTATION, SUSTAINABILITY AND PRODUCT PROTECTION

The new packaging for cherry tomatoes ensures a strong brand image, excellent product protection and stands out in the fresh produce department: The clever packaging design, a miniature version of a fruit and vegetable tray, conveys perfectly the freshness and character of the packaged products.

The premium appearance of the cherry tomatoes is achieved by the premium cartonboard quality Excellent Top™ Kraft and – compared to standard tomato trays – the high-quality printing: The outstanding white cartonboard surface offers a good contrast to the tomatoes, while the brown reverse side takes up the sustainability idea. Excellent Top™ Kraft ensures maximum stability, tear resistance and safety, thus providing a successful balance between sustainability and product protection.

MIGROS' NEW PACKAGING FOR CHERRY TOMATOES IS MADE FROM EXCELLENT TOP™ KRAFT AND PERFECTLY STAGES THE CONTENT.

GOING NATURAL WITH EXCELLENT TOP™ KRAFT
FOR COFFEE BEANS PACKAGING

CULT CAFFÉ

A real delight: Since 2002, the Austrian coffee roasting company Cult Caffé has maintained its passion for coffee, striving to serve only the best products of the highest quality. At the same time, the company is constantly looking to improve even further. Cult Caffé is breaking new ground when it comes to optimising its product packaging to be as environmentally friendly as possible, which means actively cutting out plastic and aluminium.

"Climate protection and sustainability are terms we encounter every day. We want to make our contribution. Our new, pure cartonboard packaging is 100 % recyclable without compromising product protection or quality," Silvia Lasselsberger, owner and managing director of Cult Caffé.

CULT CAFFÉ CARES FOR THE ENVIRONMENT AS MUCH AS FOR COFFEE

Freshly roasted coffee develops its special aroma after 24 hours and reaches its peak after approximately 14 days. This aroma lasts 8-12 weeks – regardless of whether the coffee is packed airtight or not! Coffee should therefore be consumed during this period. After that time, the beans' natural aroma begins to slowly decline, but can still last for another two years.
With this in mind, Cult Caffé is now using a new type of packaging without plastic or aluminium: the 1000 g, 500 g and 250 g packs meet all of the food market's functionality and legal requirements, and clearly inform consumers about the possibility of packing the coffee beans loose.

This is a perfect implementation of design-for-recycling – the new packaging is recyclable and therefore represents a valuable contribution to the circular economy of cartonboard.

EXCELLENT TOP™ KRAFT FOR A SUCCESSFUL BALANCE BETWEEN SUSTAINABILITY AND PRODUCT PROTECTION

With coffee, odour and taste neutrality is one of the central requirements for the cartonboard. Excellent Top™ Kraft meets the highest sensory requirements and is thus perfectly suited to this application. The white top side is high-quality printed; the brown reverse side attractively matches the beans and reflects its organic and natural aspects. The virgin fibre Kraft quality guarantees maximum stability and tear resistance, representing a successful balance between sustainability and product protection.
The new packaging stimulates purchasing without neglecting environmental aspects. This is how sustainability works.

THE NEW PACKAGING FOR COFFEE BEANS MADE FROM EXCELLENT TOP™ KRAFT IS SUSTAINABLE AND EMITS A DELICATE COFFEE AROMA.

GOING NATURAL WITH ACCURATE™ TOP NATURAL

BARILLA

The new global “Bio” line by the famous Italian pasta producer Barilla is addressing consumers who care about their health, love good food and want to act in a sustainable manner. The packaging material of choice, Accurate™ Top Natural, emphasizes the organic pasta with its natural surface and the rough haptic feeling.

THAT´S A MATCH: NATURAL PASTA MEETS NATURAL PACKAGING

Summed up in its "Good for you, good for the planet" mission, Barilla, world leader in the markets of pasta, has outlined its principles for a sustainable supply chain from field to fork: They seek excellent ingredients for their recipes, ensuring a high quality responsible production and looking after the planet's resources. Packaging plays an important part in this context.

For their new "Bio" line, which is certified with the organic seal and produced without genetically modified ingredients, Barilla was searching for a cartonboard quality that matches the brand identity, expresses naturalness and connects to Barilla´s tradition and expertise. Barilla found the answer in Accurate™ Top Natural. The naturalness of the content is conveyed by the "rustic", natural look of the cartonboard with a standout visual and tactile experience on the shelf.

ACCURATE™ TOP NATURAL FOR A NATURAL, MATT SURFACE

With its special matt surface Accurate™ Top Natural provides a differentiating visual as well as tactile feature on the store shelf. In the past, this look was achieved by printing on the reverse side of the cartonboard. Accurate™ Top Natural convinces by being perfectly printability and the advantages this brings with it: No set-off of the printing ink, the print image is reproduced perfectly. Equally, top efficiency in the converting process is ensured by high printing speed and savings in ink consumption by printing on the coated top side.

BARILLA´S NEW PACKAGING OUT OF ACCURATE™ TOP NATURAL FOR ITS BIO-LINE MATCHES THE CONTENT PERFECTLY.

GOING NATURAL WITH EXCELLENT TOP™ BROWN
FOR TOOTHBRUSH PACKAGING

dm / alverde

Natural, from the inside out – this could be the slogan for the new wooden toothbrush from alverde NATURKOSMETIK, which comes in Excellent Top™ Brown packaging.

"The emotional boost is important to our customers – they are also buying the 'feelgood' factor. As such, it's also vital for us to ensure that our packaging emphasises the essence and properties of our natural products. alverde has stood for beauty and self-care for 30 years, following nature's example. As a result, we also strive to use cartonboard, a natural packaging material, for our products whenever we can," Alexander Diefenbacher, Brand Manager for alverde NATURKOSMETIK.

NATURE AS MODEL FOR PRODUCT AND PACKAGING

alverde NATURKOSMETIK combines the themes of beauty and personal care with nature. The brand stands for the conservation of resources, as is evident in everything from its product ingredients through to its packaging: all alverde products are free of mineral oil-based ingredients and synthetic dyes, fragrances and preservatives. The raw materials are organically grown, and where possible the brand avoids animal products. The vegan seal on many of its product packaging attests to this principle.

The new alverde wooden toothbrush is no exception, featuring a toothbrush handle made of beech wood that comes from sustainably managed Swiss forests. The bristles are made of up to 100 % renewable organic resources.
The Excellent Top™ Brown cartonboard packaging is completely recyclable and biodegradable, in line with the company's sustainability concept.

EXCELLENT TOP™ BROWN ENSURES SHELF APPEAL

The packaging not only evokes positive feelings and stirs curiosity and interest, but also creates a unique selling point: Toothbrushes are normally packed in blister packaging (cartonboard and plastic). The cartonboard packaging used for alverde wooden toothbrushes thus stands out against other toothbrushes. The natural brown kraft top and reverse sides of Excellent Top™ Brown reflects the product's and the brand's connection to nature. The successful combination of a natural product and recyclable packaging convey quality and sustainability in their purest form.

THE EXCELLENT TOP™ BROWN PACKAGING FOR alverde's NEW WOODEN TOOTHBRUSH IS A REAL EYE-CATCHER ON THE SHELVES.

PUSHING THE BOUNDARIES

INNOVATION AT MM KARTON

Nothing is as constant as change. Not only have our customers' requirements changed, but we are also constantly refining our production processes and cartonboard qualities. We are also concentrating on product and technological innovations with the aim of bringing innovations to the market quickly and generating added value from them. Sustainability is of crucial importance for MM Karton and drives the onward development of future packaging solutions. Günter Halmschlager, Managing Director Technology Cartonboard Division, and Clemens Stockinger, Managing Director Sales & Marketing Cartonboard Division, discuss innovations at MM Karton.

PRODUCT INNOVATIONS – CLEMENS STOCKINGER

HOW IMPORTANT IS THE ASPECT OF SUSTAINABILITY FOR THE DEVELOPMENT OF NEW PRODUCTS?

Product innovations are important to us for two reasons: firstly, new and functional packaging ideas can excite customers; and secondly, environmentally friendly packaging can replace ecologically harmful options. As part of the overall discussion about substituting plastics, we are stepping up our efforts to investigate new options for the use of cartonboard and are also continuously improving existing cartonboard features. We are convinced that cartonboard packaging can be used for lots of new applications!

CAN YOU TELL US ABOUT MM KARTON'S MOST IMPORTANT PRODUCT INNOVATIONS OVER RECENT YEARS? HOW ARE THEY CONNECTED TO SUSTAINABILITY?

There are two products or product groups that are particularly worthy of note: barrier board grades such as FOODBOARD™ and natural types of cartonboard in the form of MM Karton's 'Natural Range'.

FOODBOARD™ is a cartonboard with functional barrier, which protects the packaged food against mineral oils and unintended substances, thus ensuring the highest possible product safety. FOODBOARD™ is available as recycled cartonboard with a brown reverse side (GT4) or bright reverse side (GT1), or as a virgin fibre cartonboard (GC). This makes MM Karton the only cartonboard producer to offer a comprehensive range covering all product classes. FOODBOARD™ represents a sustainable alternative to composite film and plastic bags, not least because of its additional properties (e.g. aroma impermeability).

Food protection in the form of functional and sustainable packaging is rightly demanded by the general public, NGOs and official bodies. Recognising consumer trends and turning them into products quickly provides a firm footing for further growth. Food trends are centred around organic produce and naturalness. Our Natural Range of cartonboard has been specially developed in order to communicate this visually on the shelf. The brown qualities (Excellent Top™ Brown, UD Brown, Browncolor) reflect this trend. With their special top side rough, matt surfaces, the bright qualities (Accurate™ Top Natural, Supra™ Natural) provide a visual and haptical distinguishing feature. Our Kraft qualities, with a white top and sales-boosting brown reverse side (Excellent Top™ Kraft, Grafopak Kraft™, Multicolor Kraft™), impress with a perfect surface, high tearing resistance and great stability. Our latest product innovation, UT Tray Black, featuring a black top and brown reverse side, enables an excellent presentation of fruit and vegetables and is an attractive, recyclable alternative to the customary plastic bowls or polystyrene trays.

WHAT SUSTAINABLE PRODUCT INNOVATIONS CAN WE EXPECT FROM MM KARTON IN THE NEAR FUTURE?

The sustainable use of raw materials is becoming increasingly important to customers. One of our current innovation projects involves developing a standard recycled cartonboard made of 100 % recycled fibres. This takes account of consumers' desire for sustainable alternatives in the interests of a functioning circular economy.

TECHNICAL INNOVATIONS – GÜNTER HALMSCHLAGER

WHAT DOES THE INNOVATION PROCESS LOOK LIKE AT MM KARTON?

Innovation comes from various sources. As such, it is important to open up to all potential sources of ideas and to steer these in a targeted way. This is happening within MMK's own management structures, but also externally through its customers, suppliers, universities, and so on.

The ideas gathered in this way are fed into an innovation process that ensures professional management from the initial evaluation of the idea all the way through to the market launch of a new product, while also making sure that the necessary resources are in place.

Depending on the nature and requirements of the project task in question, experts from a wide range of disciplines work together and draw upon in-house expertise and, if necessary, the knowledge of external specialists and research institutions. Key topics are examined in our R&D competence centre at the Frohnleiten mill in Austria, which is unparalleled worldwide in terms of equipment and expertise. Three departments – Research & Development, Product Safety and Analytical Chemistry – conduct research into improvements in cartonboard design, including cartonboard properties and convertability. There is a particular focus on both the surface properties and the development and application of functional barriers as part of the R&D work.

HOW IMPORTANT IS THE ASPECT OF SUSTAINABILITY IN TECHNICAL INNOVATIONS?

Sustainability is one of the key features that sets cartonboard apart from other packaging materials, as cartonboard production uses almost exclusively renewable and naturally occurring raw materials. The raw materials themselves provide the basis for sustainable production.

But we also adhere to best practice when it comes to the production process and cartonboard design. Our day-to-day work is shaped by our constant striving for lower consumption of raw materials, energy and water. In concrete terms, we achieve this by rebuilding and renovating our facilities so that they are always at the technological cutting edge, while also opting for more efficient raw materials and methods of processing.

Automation and digitisation can also contribute towards sustainability, not only in production processes, but also when it comes to interacting with our customers. Indeed, MMK digital, our innovative digital sales and service channel, allows our customers to check warehouse stocks online at any time. Consignments can be optimised in terms of size and weight in order to consolidate and pool shipments. This can save on transport costs and reduce transport emissions.

CAN YOU TELL US ABOUT MM KARTON'S MOST IMPORTANT TECHNICAL INNOVATIONS OVER RECENT YEARS? HOW ARE THEY CONNECTED TO SUSTAINABILITY?

The Curtain Coater technology for applying a pigment coating on the cartonboard web was utilised for the very first time worldwide at the Mayr-Melnhof Karton mill in Frohnleiten, in 24 hours of continuous operation. Since then, this technology has well and truly proven its value in paper and cartonboard production, not only for applying pigment coating, but also for the addition of other important board-making ingredients.

When applying the coating, there are no parts in contact with the cartonboard; the pigment coating or other medium fall like a curtain onto the board machine, which moves beneath it at high speed. This results in an improved cartonboard surface, which can be calibrated with precision, with the advantage of a better coverage and opacity, and thus a higher product quality. One significant asset is that the applied coating can be significantly thicker, so that it contains less water and thus requires less energy to dry.

Following its successful use at the Frohnleiten mill, Curtain Coaters have also been installed at the Gernsbach and Kolicevo mills.

EXPERT INTERVIEW

RECYCLED PAPER AS AN ECONOMIC RESOURCE

The circular economy is a vital part of the raw material concept for cartonboard and paper production. This process allows packaging and paper to be transformed into an economic resource. In addition to EU legislation, the drastic reduction in the amount of recovered paper and waste plastic being exported from Europe to China and now to the whole of Asia is radically speeding up such processes. An interview with Stefan Hennigs, Fibres Category Manager at MM Karton and Chairman of the Working Group "Quality Issue Group" in the Recycling Committee of CEPI.

Recycled paper is subject to strict quality requirements. The different varieties are precisely defined in the EN643 standard. MM Karton obtains its raw materials exclusively from verified sources, predominantly from European urban centres that are within proximity to our mills. The grades used are subject to strong quality checks in line with the ISO 9001 quality management system implemented at MM Karton. Our procurement division is geared towards ensuring optimal origin and quality control, as well as the utmost security of supply.

There is no shortage of recycled paper as a raw material. Around 60 million tonnes of paper are collected in Europe every year. Some 50 million tonnes of this is recycled, with packaging as the main product, and the rest has previously been mostly exported to Asia.

CHINESE IMPORT RESTRICTIONS ARE CAUSING SHIFTS IN WASTE TRADE FLOWS ALL OVER THE WORLD. WHAT IS HAPPENING AND WHAT CAN WE EXPECT TO HAPPEN IN FUTURE, ESPECIALLY WHEN IT COMES TO RECOVERED PAPER?

China has issued quality specifications and awarded volume licences at the same time. In addition, it has clearly stated that by the end of 2021 it plans to no longer be importing wastepaper and is looking to achieve greater independence. There has been a clear shift in export volumes from China to other countries such as Vietnam, Indonesia, India and so on in 2018. Since then, however, those countries have come to the realisation that these recycled paper grades often don't meet the ever-growing demand. In the past, these grades were simply used to move waste to the Far East for high prices but without any real quality requirements.

As such, countries from that region are increasingly drawing up clearly defined quality specifications for wastepaper or limiting import volumes. There is a call for better quality, with fewer foreign substances, which in turn requires clean collection and sorting in Europe and the US. The focus is on single-origin, high-quality recovered paper, which constitutes a highly valuable raw material in the paper industry. As has repeatedly been stated in the press, "Asia doesn't want to be a dumping ground for the US or EU".

IS THIS HAVING OR MIGHT IT SOON BE LIKELY TO HAVE AN EFFECT ON THE CONSUMER?

For countries that already collect single-origin recovered paper, such as Germany or Austria, I currently can see very little change on the horizon. In other places, where recovered paper is collected together with plastic, milk or juice packaging (aseptic cartons) and perhaps glass or textiles, which can contaminate the wastepaper with liquids, I certainly expect changes that will end up having an impact on the general public.

But thanks to increased media coverage, there is now much greater public awareness. The industrial side of recycling, including the exporting of carefully separated waste to other countries, however largely remains under the radar. We have also sparked a process of reflection on our relationship with waste, the environment and our own responsibility.

WHAT MEASURES SHOULD BE TAKEN AT A POLITICAL LEVEL – BOTH NATIONALLY AND INTERNATIONALLY – TO BOOST RESIDUAL WASTE/OLD MATERIALS AS AN ECONOMIC RESOURCE?

Conserving resources requires appropriate legal and economic framework conditions. At a political level, we can raise the rate of recycling, but we also have to create the conditions for the collected volumes of residual waste to find a sales market. I am talking about tax incentives, tax ratio stimuli, facilitation and minimum baseline requirements for the use of old materials. What's more, developing countries must be supported to establish better collecting, sorting and multi-use systems.

SUSTAINABILITY IN MMK CARTONBOARD PRODUCTION

Our cartonboard product is eco-conscious: renewable, recyclable, biodegradable and climate-friendly. Mayr-Melnhof Karton puts emphasis on this factor through its responsible use of resources and ongoing optimisation of all of its systems and environment-related processes.

RESOURCES

FIBRE, ENERGY AND WATER ARE THE MOST IMPORTANT RESOURCES IN CARTONBOARD PRODUCTION.

FIBRE MATERIAL – RECOVERED PAPER AND FRESH FIBRE

In principle, a distinction is made between reprocessed fibres in the form of recycled paper, on the one hand, and fresh fibres (cellulose or groundwood pulp), on the other. As a leading manufacturer of coated recycled cartonboard and recycled liners, recycled fibres (secondary fibres) play the biggest role for us: of the approximately 1.5 million tonnes of fibrous raw material used in production every year, roughly 75 % comes from recycled fibre and 25 % from fresh fibre from sustainably managed and controlled forests.

The stock preparation, which requires the separation and cleaning of individual fibres, is more energy-efficient for recycled fibres than it is for fresh fibres. Paper and cartonboard fibres can be recycled almost indefinitely, thus achieving a closed product cycle. The wood primarily used for virgin fibre board, especially timber from thinnings, removes CO_2 from the atmosphere and 'captures' it. Cartonboard stores the CO_2 for its entire lifespan. Functioning closed-loop circulation keeps the CO_2 captive for a long time.

The renewable raw material wood used by MM Karton for the production of pulp, comes exclusively from responsibly and sustainably managed forests. Since 2009, all Mayr-Melnhof Karton mills are FSC® (MMK licence code: C003336) and PEFC™ certified. This brings the utmost transparency to our use of fibre material.

We produce mechanical pulp at the MMK FollaCell A.S. pulp mill in Norway and at certain selected cartonboard mills.

ENERGY

The production of Mayr-Melnhof Karton is fed by clear power and energy from renewable sources. Natural gas is the predominant source of energy. Modern combined heat and power units in the cartonboard mills use natural gas highly efficiently to generate steam and electricity for cartonboard production.

The other sources of energy are hydropower, the thermal use of residual material from production (rejected material and fibre sludge) and biogas from anaerobic sewage wastewater treatment.

The long-term objective of MM Karton is a sustained increase in energy efficiency and a reduction in the specific energy input per tonne of cartonboard produced. Since 2006, all of the cartonboard mills work has been ongoing to optimise production processes as part of the long-term internal 'e.fficiency' project. The projects include all areas of cartonboard production, from material processing and operating the cartonboard machine all the way through to equipment and the factory's own power plants and wastewater treatment systems.

WATER

Water is treated several times in an internal cycle, whereby the extracted groundwater is used first as cooling water and then as process water in several stages of production. The total water consumption is constantly being reduced through circulation switching and efficiency enhancements. The water is used several times in the production process and then cleaned and processed in modern treatment facilities before leaving the mill. MM Karton mills employ biological water treatment.

It is vital to be clear on the difference between water use and water consumption. Most of the water is used only for a short period in production (e.g. as cooling water), before it is treated and then fed back into the cycle. Only a relatively small amount of the water used remains, either as necessary residual moisture in the product or it evaporates.

RESIDUES AND EMISSIONS

When it comes to waste management, MM Karton abides by the hierarchy of 'avoidance before recycling before disposal'. Disposal is always carried out by authorised waste collectors, recyclers or management companies. The largest proportion of waste is made up of residual substances from recycling, for which a thermal process is used.

EXHAUST AIR EMISSIONS

No environmentally harmful exhaust air emissions are generated in the cartonboard production process. The direct exhaust air from the cartonboard machines essentially consists of water vapour. Emissions in the form of CO_2, NOx and CO mainly come from the combustion of natural gas to generate energy. As such, they are continuously monitored in line with the legal regulations in order to ensure that the threshold values are always adhered to. MM Karton strives to minimise exhaust gas emissions using the very latest technology. Energy consumption during the production process is constantly being evaluated for that purpose.

TRANSPORT AND LOGISTICS

Short delivery times, high delivery quality, delivery flexibility and an ongoing exchange of information form the pillars of our logistics approach. The strategically favourable location of our cartonboard mills in the centre of Europe is advantageous, allowing our products to be transported by rail, lorry or ship. Wherever possible, we choose rail over road.

The MultiMill concept really sets MM Karton apart in terms of efficiency and flexibility. Market-proven and highly-valued cartonboard qualities such as Multicolor Mirabell™, Excellent Top™ and MM Liner™ are produced at different sites, with consistently high quality. The continual expansion of the MM MultiMill concept aims to meet market demands.

PROVEN SUSTAINABILITY – OUR CERTIFICATIONS

When we talk about sustainability as an inherent part of our corporate culture, we are not talking about a merely subjective value. Successful certifications and continuous re-certifications underscore our adherence to sustainable principles. Our certificates are publicly available online: www.mm-karton.com

Forest management – FSC® / PEFC™
All MM Karton mills are certified according to the international forestry standards systems FSC® and PEFC™. This enables us to provide complete verification that all wood and pulp we use come from responsible and sustainable forestry, were harvested according to legal regulations, and purchased in compliance with the principles and criteria of the respective standards.

Quality management – ISO 9001
MM Karton was one of the first companies in the cartonboard industry to receive ISO 9001 certification, which stands for active quality management. It is now the standard for all MM Karton locations.

Environmental management – ISO 14001
In mills certified according to ISO 14001, regular internal and external audits guarantee the high environmental standard. Mills which are not directly certified use internal environment management systems for continuous improvement and take advantage of the synergies of the certified locations.

Environmental management – EMAS (Eco Management and Audit Scheme)
Together with ISO 14001, EMAS (Eco-Management and Audit Scheme) forms the basis for continued assurance of integrated environmental management at Mayr-Melnhof Karton.

Energy management – ISO 50001
The ISO 50001 standard is a systematic approach to energy management. An international comparison standard serves to measure and optimize the delivery, utilization, and consumption of energy, monitor progress, and determine further energy saving potential.

Hygiene management – EN 15593 (HACCP)
HACCP (Hazard Analysis and Critical Control Points) certifications underscore the high hygienic standards imposed on the product and on the production itself. These requirements apply particularly to cartonboard used for food and pharmaceuticals packaging.

Halal management – UAE.S 2055
Upon explicit request, MMK cartonboard can be ordered with a Halal certificate. It confirms that during production, there is no contact with objects or use of raw materials that are considered „haram“ (= forbidden) in the Muslim view.

WANTED

SUSTAINABILITY MYTHS UNCOVERED

All sorts of myths abound when it comes to cartonboard production. It is time to counter them with some facts.

MYTH 1

THE EUROPEAN PAPER AND CARTONBOARD INDUSTRY IS CONTRIBUTING TOWARDS DEFORESTATION.

TRUTH: The European forests used for the paper and cartonboard production are managed responsibly: every year, more wood grows than is harvested, with growth equivalent to a surface area of 1.5 million football pitches. Europe's forests are now 30 % bigger than they were in the 1950s. As such, forests are a natural and renewable resource with huge potential for the future. Wood chips created as a by-product in sawmills serve as a raw material for the production of paper and cartonboard, as does roundwood, which is a result of forest management measures and cannot be re-used for any other purpose due to its small diameter.

MYTH 2

TROPICAL RAINFORESTS ARE FELLED TO MAKE FOLDING CARTONS.

TRUTH: Tropical wood from rainforests is not, must not and, indeed, cannot be used cost-effectively to produce paper and cartonboard in Europe. Single-origin timber is required to enable efficient pulping. This is simply not possible in tropical forests. Moreover, tropical wood would never be transported to Europe for cost reasons. Generally, transport distances of more than 200 km mean that using timber is no longer profitable. That's why cartonboard boxes are made from sustainably managed, domestic forests. Predominantly spruce, pine and birch are used to produce cartonboard in Europe.
The real threat to the rainforests comes from the clearing of forests for conversion into farmland and the use of timber as firewood.

MYTH 3

FELLING TREES TO PRODUCE PAPER AND CARTONBOARD IS HARMFUL TO THE ENVIRONMENT.

TRUTH: Cartonboard has one unique advantage as a product based on this renewable resource: forests constitute a vast carbon reservoir. Trees absorb and store CO_2 from the atmosphere, thus 'capturing' it. A study by the IVL environmental research institute reveals that the use of cartonboard removes 1,708 kg of biogenic CO_2 from the atmosphere for every tonne. The brilliant thing about this is that cartonboard boxes also go on storing the CO_2 for their entire lifespan. When a cartonboard box is recycled at the end of its period of use, the CO_2 remains stored and does not escape back into the atmosphere. The figure of 1,708 kg of biogenic CO_2 absorption per tonne can be offset against the fossil CO_2 emissions per tonne of cartonboard that is produced and processed: at 326 kg CO_2 eq/t, cartonboard has very low CO_2 values within the value chain, making it the packaging material with the smallest environmental impact.

SUSTAINABILITY IN PACKAGING PRODUCTION

In order to ensure that cartonboard, as a natural packaging material, is also sustainable, the cartonboard industry is constantly striving to optimise its use of materials (cartonboard, printing ink, glue) and transport routes.

OPTIMISED DESIGN

As much as required, but as little as possible – when it comes to cartonboard production, the focus is on the material usage and its optimisation. Packaging sizes adapted to the product save on both materials and space. This is not only economically efficient, but also a good decision for the environment. When making cartonboard, millimetre precision is important to ensure that no more cartonboard is used than necessary. The design and printing are also taken into consideration in order to make sure that the packaging will be completely recyclable at the end of its cartonboard lifecycle. Features such as UV or PE coatings can disrupt the circularity process. New guidelines (see page 56) support a circular approach to product design.

OPTIMISED INKS, FINISHING MATERIALS AND GLUES

In addition to the optimisation of the design, consideration is also given to the inks used, the finishing techniques and the glues, in order to achieve the greatest possible efficiency. Only low-migration inks and coatings are used for food packaging, and these must comply with all the corresponding legal requirements. In Europe, for example, these are EU regulations no. 1935/2004 and no. 2023/2006 that covers this. Mineral oil-free inks are also used for other packaging, as recommended by the European Printing Ink Association (EuPIA), as these are more environmentally friendly in the recycling loop and beyond.

OPTIMISED TRANSPORT ROUTES

Thinking globally, processing regionally – short transport routes reduce transport emissions and thus contribute towards protecting the environment. Keeping things local applies to both the delivery of the finished folding boxes to customers and to the delivery of the cartonboard material for processing in the first place. The strategic location of our seven MMK cartonboard mills in continental Europe ensures that transport routes are kept as short as possible, while also allowing for a flexible delivery service. This results in particularly high sustainability.

RECYCLABLE-FRIENDLY DESIGN OF FOLDING CARTONS

Sustainable packaging is characterised not only by the use of renewable or recycled materials, but also by design and printing that allows complete recycling of the materials used in existing closed loop systems. Generally, any paper-based packaging can be recycled effectively after use. There are, however, some components that complicate the recycling process. New guidelines support packaging designers with circular product design.

Packaging must be designed for sustainability from the beginning in order to meet the requirements of product safety and sales promotion as well as recyclability to the greatest possible extent. In order to reach the goals of the EU's circular economy package and to provide guidance to retailers, producers and designers, new recycling recommendations for paper-based packaging have been and are still being implemented:

While CEPI (Confederation of European Paper Industries) is working to conceive a European Guideline by the 4th quarter of 2019, CPI (Confederation of Paper Industries in UK) and WRAP (The Waste and Resources Action Programme) have already published their versions of future design recommendations (see table). At the same time, labelling systems on the packaging will provide orientation for consumers.

EXCERPT FROM THE GUIDELINE BY CPI AND WRAP:

RECYCLABILITY	FULL COMPATIBILITY No negative effects on the waste streams from recycling plant	MODERATE COMPATIBILITY Limited negative effects on the waste streams from recycling plant	LOW COMPATIBILITY Negative effects on the waste streams from recycling plant
FILMS AND LAMINATES	– Less than 3 % by weight – Removable, peelable – Material density less than 0.95 or greater than 1.15 g/cm³ – Soluble barrier systems	– Less than 5 % by weight	– More than 5 % by weight – Two-sided lamination – Oxodegradable materials, PVC – Materials with a density between 0.95 and 1.15 g/cm³
COATINGS AND ADDITIVES	– Water-soluble – Metallic inks (as long as not UV cured)	—	UV inks and varnishes
TRANSLUCENT PAPERS	Tracing paper	Glassine without silicone	Greaseproof, wax/wax coated, silicone
FOIL BLOC PRINTING	—	Under 30 % of external surface area	Over 30 % of external surface area
ALTERNATIVE FIBRES	—	With repulp certification	Incompatible with paper making
WRAPPING PAPER	Paper only	—	Foiled glitter or plastic based glitter
FOOD CONTAMINATION	No food marks	Visible impurities on the surface	Adhering food residues

ALL MMK CARTONBOARD QUALITIES, INCLUDING BARRIER QUALITIES LIKE FOODBOARD™ OR FREEZE GREASE, ARE (AFTER PRODUCTION)

100 % RECYCLABLE IN THE PAPER CYCLE.

MM KARTON FULFILS THE EN 13430 STANDARD (EUROPEAN STANDARD FOR REQUIREMENTS FOR PACKAGING RECOVERABLE BY MATERIAL RECYCLING).

Recycling-friendly packaging saves resources during production, simplifies collection, re-use and recycling, and represents a valuable secondary resource in the material cycle. Ecological aspects must therefore be included early in the entire planning, development, and design process of packaging solutions.

WE WILL BE HAPPY TO SUPPORT YOUR CREATIVE PROCESS TOWARDS A MORE SUSTAINABLE PACKAGING.

EXPERT STATEMENT ON DOS AND DON'TS

Dr. Manfred Feichtinger, Head of MMK Technology WLC and representative of the cartonboard / folding carton industry in the CEPI working group "Recycling guidelines for paper-based packaging" on…

UV printing inks
UV inks and coatings are fused by means of UV-induced polymerisation. After hardening they form a solid, chemically and mechanically stable layer – comparable to plastic adhesive foil. The printing ink is therefore difficult to remove during deinking.

Plastic coatings like MetPet
Plastic coatings can cause a loss of recyclability. During the dissolving process, plastics can disintegrate into micro-plastics due to high shear forces. When micro-plastics have the same density as fibres (0.95 to 1.15 g/cm^3), they cannot be separated by the sorting equipment during materials recycling.

Double-sided plastic coatings – regardless of thickness – should be avoided in any case, as they inhibit the careful separation of paper fibres with water and centrifugal force. When plastic is coated onto the top and reverse side, water cannot penetrate the spaces between the fibres and therefore cannot separate them. Packaging with double-sided coatings are out sorted as rejects and must be disposed of.

Coatings and barriers
When coatings or barriers are used, it must be ensured that they can be easily separated from the fibres in water. Water-soluble coatings and additives are accordingly preferable. The applicable principle is: When barriers are applied directly online on the cartonboard machine, they can dissolve without difficulty.

Alternative fibres
Packaging papers and cartonboard essentially consist of different wood fibres that are prepared and cleaned in appropriate processes before being re-used. Alternative fibre materials like for instance straw, grass or coconut fibres can inhibit the sorting processes because of their different fibre structures and should therefore be avoided whenever possible, unless it is ensured during their production that they will be suitable for commonly used recycling processes.

A general principle is that offline coatings with non-paper materials applied after conversion should be kept to a minimum, in order to negatively impact the recycling process as little as possible.

EXPERT INTERVIEW

SUSTAINABLE PACKAGING DESIGN

Three experts on packaging design give their view on current trends, challenges and sustainability.

SUSANNE LIPPITSCH

HAS BEEN WORKING AS A FREELANCER IN THE FIELD OF STRUCTURAL PACKAGE DESIGN SINCE 2001 AND TEACHES PACKAGING DESIGN AT THE JOANNEUM TECHNICAL UNIVERSITY IN GRAZ, THE WERBE & DESIGN AKADEMIE IN SALZBURG AND ON THE PACKAGING TECHNOLOGY COURSE AT THE TECHNICAL UNIVERSITY OF VIENNA.

HOW DO THE MANUFACTURER AND THE BRAND THEMSELVES BENEFIT FROM SUSTAINABLE PACKAGING?

It's really a matter of who can afford to carry on with non-sustainable packaging and products over the long term. Luckily, movements like 'Fridays for Future' are having a major impact around the world, and the coming generations, our future consumers, clearly understand that lots of things must change and that we cannot carry on behaving and consuming as we have been.

HOW CAN DESIGN CONTRIBUTE TOWARDS SUSTAINABLE PACKAGING?

It can play a massive role. Design4Recycling is vitally important for the future and will see increasing demand.

WHAT DO BUZZWORDS LIKE ECO-DESIGN OR DESIGN4RECYCLING MEAN TO YOU?

They mean using materials sensibly, ensuring that they are easy to separate out and recycle, sourcing them locally wherever possible and taking account of the carbon footprint when planning transport routes.

'SECOND LIFE' IS ANOTHER KEY TERM IN PACKAGING DESIGN. CAN YOU GIVE SOME SPECIFIC EXAMPLES OF THIS?

One example is the packaging produced by MAM Schnuller (a baby dummy manufacturer), which not only presents the product to optimal effect for sales purposes, while also protecting it, but is designed in such a way that the boxes can also be used to sterilise the dummies. The Ottakringer beer crate is another great idea, as it ensures that you can always take the coolest bottle of beer from the bottom, while filling it up with new ones from the top. This is fantastic packaging that is tailored to the product and target group.

WHAT GENERAL CHALLENGES ARE YOU SEEING IN PACKAGING DESIGN?

Raising awareness among consumers – and producers – that sustainable products are simply going to cost a bit more. If nothing changes from a political or tax point of view, products from countries where production is cheap will often win the race due to economic considerations.

HAVE THE REQUIREMENTS OF THE CONSUMER GOODS INDUSTRY AND TRADE CHANGED AT ALL OVER RECENT YEARS WHEN IT COMES TO PACKAGING AND ITS DESIGN? WHAT ARE THE CURRENT TRENDS?

Sustainability and the circular economy are becoming increasingly important for clients. However, meeting these requirements often clashes with the aim of keeping the packaging solution as low-cost as possible, as well as being in conflict with the existing production facilities.

GERLINDE GRUBER

STUDIED INFORMATION DESIGN AT JOANNEUM TECHNICAL UNIVERSITY IN VIENNA AND BECAME A FREELANCE PACKAGING DESIGNER AFTER GRADUATING IN 2011. SHE TEACHES PACKAGING DESIGN AND PROTOTYPING AT THE HIGHER GRAPHICAL FEDERAL EDUCATION AND RESEARCH INSTITUTE IN VIENNA.

WHAT DO BUZZWORDS LIKE ECO-DESIGN OR DESIGN4RECYCLING MEAN TO YOU?

I try to ensure that no one is irritated by my packaging designs. Nothing about my packaging should prove cumbersome, whether it's being transported, stowed away, used, kept or disposed of.
The right design can help the customer to use the packaging correctly, and also dispose it properly after use. Cartonboard packaging that can easily be folded flat increases the chance that the packaging will be sorted out and put in the right bin. Dual systems like the Green Dot in Germany offer tips and guidelines under the Design4Recycling scheme. As designers, we can do our bit by ensuring that we make labels easy for customers to detach from glass, or by designing plastic packaging in light colours, as this makes it easier to recycle. Wherever we can, we should try to avoid composite materials. In the best-case scenario, packaging is more than just a pretty wrapping, but instead, when coupled with the possibility of recycling it, encourages a second life.

CAN YOU GIVE SOME EXAMPLES OF SUCCESSFUL DESIGN4RECYCLING THAT HAVE LED TO AN INCREASE IN SALES OF THE PRODUCT ITSELF?

The start-up company Zirp Insects has set itself the task of making insects palatable to consumers as a future source of protein. Initially, the freeze-dried insects were packaged in standard paper spice packets. I redesigned the product presentation and was responsible for the new punched packaging contours. Now the products are packaged in individual cartonboard boxes that are tailored to the brand's image.
This design approach addresses consumers at an emotional level: the charming packaging appeals to your inner child and reminds you that it is fun to try something new. To emphasis the brand's authenticity, we also committed to sustainability with the packaging design. The custom punched contours allow low-grammage cartonboard to be used. As the packaging does not require any glue, the insides can be devoted to useful facts about edible insects, cooking tips and recipes, and extra information.
Since the redesign, Zirp Insects has literally been on everyone's lips!

WHAT KINDS OF PACKAGING ARE YOU EXPECTING TO SEE IN THE FUTURE?

I always get annoyed when I have to struggle with opening blister packaging. This is an example of plastic being used to excess; it's really not necessary to hermetically seal a basic pencil, say, from the outside world. There are other ways of achieving anti-theft protection, too. And do ice cream parlours really need to serve their products in coated cups? The fact is that we are far too wasteful with packaging material, and often it isn't even nice to look at.

That's why I believe that the design aspect will become increasingly important in future. It's not just about standing out from the competition and presenting yourself in the right way for your target group, but, more than anything, about developing resource-saving packaging with a view to easy disposal and recycling. Smart solutions will be in greater demand than ever!

ANDREW STACK

IS STRATEGIC CONSULTANT AT PACPROJECT, A PACKAGING CONCEPTS AND SOLUTIONS AGENCY BASED IN HAMBURG.

HAVE THE REQUIREMENTS OF THE CONSUMER GOODS INDUSTRY AND TRADE CHANGED AT ALL OVER RECENT YEARS WHEN IT COMES TO PACKAGING AND ITS DESIGN? WHAT ARE THE CURRENT TRENDS?

Over recent years there has been a big focus on trends that boost the consumer's subjective wellbeing:

— Convenience: Handling has become even more important for consumers.

— On the go: As consumers are increasingly short of time and always on the go, they tend to eat and drink more often when they're out and about.

— Personalisation: Digital printing machines have now made it possible for companies to offer personalised packaging to their customers.

— Convenience vs. sustainability: The topic of 'sustainability' has always been around, but the shocking images of littered beaches and plastic in seas have made consumers increasingly aware of the consequences of endless consumption. This is particularly evident in movements like 'Fridays for Future', in which the younger generation has taken to the streets to demonstrate against climate change. Consumers are calling for more sustainable packaging and prefer this to plastic packaging.

WHAT CURRENT CHALLENGES ARE YOU SEEING IN PACKAGING DESIGN?

Packaging development is currently focused on the R-strategies: Recycle – Reuse – Reduce. The aim is to reduce or avoid plastic in every respect.

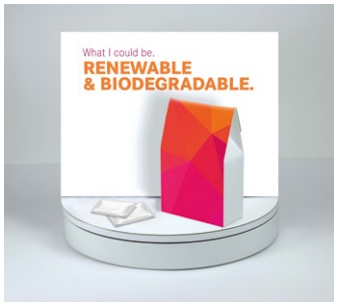
HOW DO THE MANUFACTURER AND THE BRAND THEMSELVES BENEFIT FROM SUSTAINABLE PACKAGING?

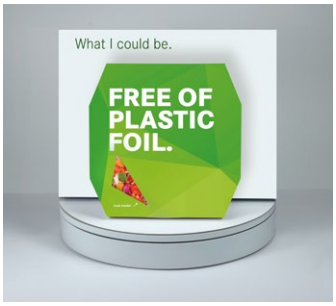
Having a clear position or statement can add to a brand's value. This gives it the chance to be a pioneer. Sustainable packaging can set a brand apart from the competition much more effectively. Added to that is the fact that more sustainable packaging may lead to an upturn in sales, as consumers would rather buy more sustainable packaging than a non-sustainable alternative. Despite this, many producers are still hanging back and failing to opt for more sustainable packaging solutions due to their higher cost.

PACKAGING RE-DESIGN

OUT OF PLASTIC, INTO THE BOX

When it comes to making the switch to sustainable packaging, it is often worth re-examining existing packaging designs or making the most of the cartonboard barrier features that are currently available (see page 22). As the following examples show, there's lots of potential!

	WHAT I AM	WHAT I COULD BE	GOOD TO KNOW
FAST FOOD	 expanded polystyrene container	 cartonboard clamshell	From 2021, the EU Directive on single-use plastic products will prohibit oxo-degradable materials such as fast food containers made of expanded polystyrene. Clamshell packaging made of cartonboard represents a proven sustainable alternative.
CHOCOLATE & CONFECTIONERY	 PP or PET bag	 smart cartonboard packaging	Plastic is based on crude oil, not biodegradable. The cartonboard is made of renewable or recycled raw materials and is biodegradable. Nature will thank you.
CHOCOLATE & CONFECTIONERY	 aluminium can	 round cartonboard box	Metal cans are energy-intensive to produce and heavy to transport. Round cartonboard boxes constitute a lightweight alternative and save on CO_2 emissions.
DRY FOOD	 paper sachet fully PE-coated	 monomaterial	The original packaging is completely PE-coated and is not a monomaterial. The proposed solution has only partial sealing wax and is deemed to be a monomaterial, as the wax makes up less than 5 % of the total weight. Total recyclability is guaranteed.

	WHAT I AM	WHAT I COULD BE	GOOD TO KNOW
FRUIT & VEGETABLE	 fruit containers made of PS, PET or PP	 smart cartonboard packaging	Plastic trays tend not to be recycled, especially if they are black in colour. Near-infrared spectroscopy is not capable of sorting black plastic. Cartonboard is born again. And again.
FROZEN FOOD	 plastic shrink wrap around pizza	 pizza without inner film	The shrink wrap does not serve as a barrier, but rather ensures that the pizza toppings do not come off. Cartonboard with a freeze barrier and a suitable design positioned closer to the product represents a sustainable alternative.
LIQUIDS	 tin can with plastic pourer	 bag-in-box packaging	Reducing non-sustainable packaging material is an important first step. In this case, the weight is also reduced.
COSMETICS AND PERSONAL CARE	 PS deep-drawing part with MetPet cartonboard partition	 smart cartonboard packaging	Complex plastic trays, that are difficult to recycle, can be replaced by smart cartonboard packaging designs.

	WHAT I AM	WHAT I COULD BE	GOOD TO KNOW
COSMETICS AND PERSONAL CARE	 tissue box with plastic membrane	 tissue box with paper membrane	The plastic membrane in tissue boxes can be substituted by a paper membrane. A tissue box made of one single material offers better recyclability.
COSMETICS AND PERSONAL CARE	 PP injection-moulded box with paper label	 smart cartonboard packaging	From 2021, the EU Directive on single-use plastics will prohibit cotton buds with a plastic handle. Cartonboard packaging compliments the concept for future cotton buds.
DETERGENTS AND CLEANING PRODUCTS	 plastic bag	 complex material	The plastic bag is replaced by multi-layered cartonboard. This is recyclable, as cartonboard layers are on the outside and the fibres can be stripped away.

A smart packaging design can provide the same functionality as plastic, avoid inefficiency in waste management and conserve resources. We are happy to examine any products that you are already marketing in terms of potential for optimising and improving them for the recycling process. The aim is always to be able to re-use the resources deployed in production and thus keep them in circulation.

COMMUNICATING SUSTAINABILITY EFFECTIVELY WITH PACKAGING LABELS

Consumers are increasingly aware of packaging sustainability and some are prepared to pay more for it. They want to do the right thing but often lack the understanding of this complex topic. Package labelling can be helpful here and inform consumers of environmental effects throughout the lifecycle.

In order to communicate the sustainability of packaging made of MMK cartonboard effectively from a marketing viewpoint, there are well-established labels and terms which make clear that renewable, recyclable and biodegradable raw materials have been used.

LABELS FOR PRODUCTS FROM RESPONSIBLE AND SUSTAINABLE FOREST MANAGEMENT

Proof that all fresh fibre for the cartonboard production come from responsible and sustainable forest management and are harvested in line with valid statutory provisions can be provided by the following globally leading standards: FSC® (Forest Stewardship Council) and PEFC™ (Programme for the Endorsement of Forest Certification Systems).

All Mayr-Melnhof Karton mills are certified in line with both international systems. If a company wants to use the FSC® or PEFC™ logo, on their packaging for instance, this requires a logo usage licence. The precondition for this is possession of a valid chain of custody certificate.

Our range of MMK cartonboard qualities are available to customers with FSC Mix Credit Claim, for liner qualities from Neuss we offer FSC Recycled.
Whilst the on-product logo "FSC Recycled" on packaging indicates exclusive use of recycled paper, the logo "FSC Mix" stands for a mixture of certified or controlled fresh fibres and a possible portion of recycled fibres.

Customers can also buy our cartonboard qualities as 100 % PEFC certified. The available on-product logos are the packaging logos "PEFC certified" and "PEFC recycled". The former is used when the proportion of certified fresh fibres in the packaging is at least 70 %. The latter when the packaging consists of recycled fibres to at least 70 % and the rest of the material is PEFC certified or comes from PEFC controlled sources.

RECYCLING LABELS

PAP21 is the correct recycling code all over Europe for packaging made of cartonboard (solid board). The code is shown in a recycling loop and conveys that the packaging can be recycled. The designations of the various packaging materials are based upon a decision of the European Commission contained in 97/129/EC.

The **Grüne Punkt (Green Dot)** established the first dual system in the world, which recycles used sales packaging and recovers raw materials for the economic cycle. The collection, sorting and recycling of used sales packaging is financed via a licence fee paid by the manufacturers and distributors of goods for their participation in the dual system. The pictogram with the intertwining arrows is a protected trademark and is offered in most European states with dual collection systems.

OTHER LABELS

Besides the above-mentioned labels other claims can be printed on cartonboard packaging in line with national and international regulations:

The recycling symbol **"Mobius loop"** is probably one of the best-known environmental logos in the world. The Mobius logo is not protected and can therefore be used without restrictions. The additional text states the proportion of recycled material contained in a packaging or whether it is reusable.

In order to indicate a functioning circular economy, stating the **recycling proportion** is one possibility. PIW (Post Industrial White Recycled Fibres) are fibres from industrial materials (e.g. printing paper, paper waste). PCW (Post Consumer White and Grey Recycled Fibres) describes fibres from household collection (e.g. packaging, flyers).

After production our cartonboard, incl. barrier qualities like FOODBOARD™ or Freeze-Grease, are **100 % recyclable in the paper cycle**. All cartonboard qualities are also **industrially compostable in accordance with EN 13432**. The biodegradability of our products has been tested by independent and recognised institutes. For both statements it must of course be ensured that the design and printing of the folding carton must not restrict the full recyclability (see page 56).

Companies who want to use FOODBOARD™, our cartonboard with a functional barrier against the migration of unintended substances, to package their products safely and sustainably and clearly communicate their commitment to product safety and thus improve consumer trust, can print the **FOODBOARD™** logo on their packaging. There is a guideline to help with implementation – for further information please contact: marketing@mm-karton.com.

Consumers demand that we, the whole industry, take responsibility for our environment, and they want to be informed of what contribution they themselves can make.

It certainly makes sense to design country-specific communication and to emphasise aspects such as recyclability, biodegradability or the use of recycled fibres in production to take account of different consumer preferences: according to a study by the Nuertingen-Geislingen University (HfWU) in Germany there are considerable variations in consumer perceptions of sustainable packaging. Whilst consumers from France and the USA see packaging from recyclable materials as the most environmentally friendly packaging option, for German consumers the recyclability of packaging is foremost.

Package labelling gives consumers a clear picture on which to base their purchase decision; brand articles or traders acquire credibility in environmental issues.

GLOSSARY

Below glossary explains terms, often used in connection with sustainability, packaging materials, important regulations and central associations.

TECHNICAL TERMS

BIODEGRADABLE / COMPOSTABLE

The term "biodegradable" describes a chemical process by which micro-organisms present in the environment convert organic material into natural substances like water, carbon dioxide and compost. No artificial additives are required. The process depends on the environmental conditions (e.g. place, temperature) of the material and the applications.
According to the standard EN 13432 a material is compostable if at least 90 % of it can be biodegraded in an industrial composting plant within 6 months.

BIOPLASTICS

Plastics from renewable raw materials are often called bioplastics or biopolymers, although these and other terms – for instance "bio-based" – have not been clearly defined up to now and often lead to misunderstandings when associated with biodegradability. Biodegradable plastics can be based on both renewable raw materials and petrochemical raw materials. The degradability of the materials is in the end determined by their chemical and physical microstructure and not the origin of the raw materials or manufacturing process involved. Bioplastics are bio-based, can be biodegradable but are not necessarily so.

Disadvantages of bioplastics are industrial farming which has a negative effect on the environment, genetic engineering, food competition (e.g. bags made of corn or potato starch) and limited recyclability or industrial composting. In a position paper all the relevant associations of the German waste economy fundamentally rejected the composting of biodegradable plastics. Bioplastics can impair the quality of the compost since it cannot be ensured that within the available period, they can actually biodegrade so that there are no remaining particles larger than one millimetre, which would be defined as foreign objects.

RECYCLED PLASTICS

Although plastics can technically be recycled, in practice collection as well as careful separation of sufficient quantities are difficult. Mixed collection plastic waste can generally not be recycled to the same high quality. Recycled plastics are therefore inferior in terms of quality, operability and safe availability as new goods. Whether recycled plastics are cheaper than those produced new from oil depends on the price of the oil. Therefore "environmental friendliness" is generally the only motive for using it.

SINGLE USE PLASTICS

This describes certain plastic products designed to be used only once. Over 50 % of plastic waste on European beaches consists of single use plastics. Of this around 86 % falls into ten common product groups. With its Single Use Plastic Strategy the EU will from 2021 therefore ban single use plastic products for which there is already a more eco-friendly alternative, such as plastic cutlery, plastic plates, straws, cotton buds made of synthetic material, plastic balloon sticks, oxo-degradable plastics and food containers and cups made of expanded polystyrene.

MICROPLASTICS

Microplastics are very small particles (<5 mm) of plastic. They are found increasingly in oceans and inland waters, but also in food and drink. There are many sources of microplastic. Either it is consciously added to commercial products (primary microplastics e.g. in washing powders, toiletries and cosmetics) or it is created in the degradation of larger plastics (secondary microplastics e.g. tyre abrasion while driving, washing of synthetic textiles, degraded plastic packaging) by UV radiation or weathering processes.
An estimate by the International Union for Conservation of Nature (IUCN) assumes that annually 3.2 million tons of microplastics find their way into the environment. Microplastic can get into the soil through, e.g. sewage sludge. Via rivers, waste water or municipal waste water channels microplastic particles are washed out into the oceans. In our food chain we absorb microplastic through fish or sea salt. No details are yet known about the actual effects on humans.

MONOMATERIAL

Monomaterial is made primarily from just one type of packaging material. This applies not only to the different kinds of packaging (plastic or paper), but also the different types of material within the same kind of packaging (such as PP and EVOH from the group plastics). Here several layers of the relevant material can be used. The use of just one basic material enables later sorting and recycling. The German Packaging Act sets a proportional rule of 95/5, i.e. monomaterials must consist of a main material to at least 95 %.

COMPOSITE MATERIAL / COMPOSITE PACKAGING / MULTILAYER

Composite packaging consists of a combination of two or more different packaging materials which cannot be separated by the final consumer and which – according to the German Packaging Act – do not exceed a mass proportion of 95 %. Paper coated on both sides and paper coated on one or both sides with paraffin or wax or impregnated paper are also termed composite materials.

OXO-DEGRADABLE PLASTICS

Oxo-degradable plastics are treated with additives like cobalt so that they will dissolve after a certain period of time. However, they do not dissolve completely but instead degrade into “microplastics” whose particles are smaller than 5 mm. Under the EU Single Use Plastics Directive products made of oxo-degradable plastics will be banned from 2021.

POLYSTYRENE

Polystyrene is a transparent, foamed white, amorphous or partly crystalline thermoplastic. Expanded polystyrene is primarily known under the trade name styrofoam and is used mainly for food packaging and – in its foamed form – for sound and heat insulation. In the course of the Single Use Plastic Directive polystyrene packaging for food and drink will be banned from 2021.

STANDARDS / REGULATIONS / DIRECTIVES

EN 13430 – RECYCLABILITY

EN 13430 describes the possibility of material recyclability. Packaging should be designed in such a way that the raw materials used can be recycled via the standard sorting systems or standard stock preparation systems. Packaging consisting of several materials must be constructed so that the consumer can separate them. Cartonboard is simply collected with paper waste and is born again as cartonboard in a recycling facility.

EN 13432 – COMPOSTABILITY

EN 13432 describes the requirements and procedures for compostability. Besides basic biodegradability in laboratory testing, the aerobic fermentability of the individual packaging materials must be proven in practice. The packaging components must not have any negative effects on the quality of the compost.

EU CIRCULAR ECONOMY PACKAGE

At the end of 2015 the EU Commission passed the EU Circular Economy Package. Its goals were on the one hand to reduce waste to a minimum in order to prevent further pollution of the oceans with plastic and on the other hand to preserve the raw materials and associated created value within the Union and thus strengthen global competitiveness. In order to achieve the goal of a circular economy the EU is relying on three principles:

1. Reuse and recycling
2. Market bans and market restrictions
3. Polluter pays

The Circular Economy Package is divided into two parts with the legislative proposals on waste (what is known as the Waste Package) on the one hand and the action plan on the other. In the Waste Package the EU Commission examines four directive proposals to revise existing waste directives. The Action Plan, alongside over 50 measures for the whole product life cycle (from products and consumption to waste disposal and the market for secondary raw materials), also contains a time schedule for final implementation of these measures and accompanying supervision. In five primary areas (plastics, food waste, critical raw materials, building and demolition materials, biomass and bio-based substances) the transition to the circular economy is to be accelerated.

SINGLE USE PLASTIC STRATEGY (DIRECTIVE (EU) 2019/904)

In March 2019 the European Parliament agreed with the Member States to a restriction of single use plastic products: at the latest by 2021 products made of single use plastics for which there are already more eco-friendly alternatives, such as plastic plates, plastic cutlery, food and drinks packaging made of styrofoam (expanded polystyrene), straws, stirring sticks, balloon sticks, cotton buds, all products from oxo-degradable plastics – are to be replaced by more eco-friendly alternatives. The use of plastic food containers for takeaway or fast food products (e.g. burger packaging) and plastic cups should be significantly reduced and replaced by more eco-friendly packaging.

DIRECTIVE 94/62/EC ON PACKAGING AND PACKAGING WASTE

Directive 94/62/EC has the goal of harmonising various measures by the Member States in the field of packaging and packaging waste management and securing a high level of environmental protection. Packaging waste should primarily be reduced and unavoidable waste reused in order to achieve a reduction in the packaging waste discarded.

PACKAGING ACT (GERMANY)

The German Verpackungsgesetz implements into German law the European Packaging Directive 94/62/EC. The Act replaced the existing Packaging Ordinance in 2019 and applies to all packaging brought into circulation in Germany.
The most important new rules of the Packaging Act are higher recycling rates and incentives (lower participation fees) for the design of recyclable packaging, the use of recycled materials and renewable raw materials.

Here the German Packaging Act distinguishes between packaging which typically ends up with a private consumer after use (B2C), for which there is an obligation to participate in the system, and packaging in the commercial sector (B2B). Manufacturers, traders and importers who act as initial distributors in Germany for B2C packaging for which there is an obligation for system participation, must become part of a (dual) system to ensure the comprehensive return and reutilisation of the corresponding packaging waste and register with the Central Agency Packaging Register (ZSVR). Initial distributors and secondary distributors (traders) of B2B packaging must take back similar packaging waste free of charge and add this to a proper recycling system.

The level of the participation fee is established by "ecological" criteria. If the packaging is easily recyclable or if it consists of (partly) recycled materials, then the participation fee is lower. The ZSVR together with the German Environment Agency has issued a (provisional) guide. This defines criteria for recyclable design and thus describes a development framework for how recyclability can in future be quantified within the context of the Packaging Act.

DIRECTIVE 2008/98/EC ON WASTE

The Waste Directive 2008/98/EC establishes the legal framework for waste legislation in the Member States. The directive sees its goal as "preventing or reducing the adverse impacts of the generation and management of waste by reducing overall impacts of resource use and improving the efficiency of such use." In the Framework Waste Directive a 5-step hierarchy is established for dealing with waste which prescribes the Member States a priority scale for the measures to be established nationally:

1. Avoidance
2. Preparation for reuse
3. Recycling (materials)
4. Other reuse
5. Disposal

DIRECTIVE 1999/31/EC ON THE LANDFILL OF WASTE

The directive contains strict company-related and technical requirements for waste disposal sites and waste. The intended measures, procedures and guidelines should go as far as possible towards avoiding or reducing all negative influences on the environment and the associated risks to human health which can occur through landfilling.

ASSOCIATIONS

CEPI – CONFEDERATION OF EUROPEAN PAPER INDUSTRIES

The CEPI is a non-profit organisation with its headquarters in Brussels. The CEPI represents approx. 500 companies of the cellulose and paper industry within the European Union. The aim is to improve the image and perception of the paper industry and its associated industries and to combine competitiveness with sustainability.

PRO CARTON

Pro Carton is the European association of the carton and folding box industry. Its goal is to encourage cartonboard and folding boxes as a packaging medium in the fields of brand items in industry and retail, as well as in design, media and politics.

ECMA – EUROPEAN CARTON MAKERS ASSOCIATION

ECMA is an European network of folding box manufacturers, cartonboard producers, national associations and suppliers of the carton industry. ECMA offers several network platforms for the exchange of information and publishes among other things industry guidelines such as the ECMA Good Manufacturing Practice Guide.

VDP – VERBAND DEUTSCHER PAPIERFABRIKEN

The Association of German Paper Factories is the industrial umbrella association for the German cellulose and paper industry and represents the interests of its members regarding energy, environment, technology and research on a national level.

FFI – FACHVERBAND FALTSCHACHTEL-INDUSTRIE

The Professional Association of the Folding Box Industry represents producers of folding boxes with sites in Germany in discussions with the supplier industry, politics and business and also represents their interests on the international stage.

CPI – UK'S CONFEDERATION OF PAPER INDUSTRIES

CPI represents British paper and cartonboard industry companies. Goals include securing the provision of energy at competitive prices, efficient use of resources and a sustainable British paper industry. Together with WRAP, the CPI has published a guideline for the design of recyclable packaging.

WRAP – WASTE RESOURCE ACTION PROGRAM

WRAP is an international programme for avoiding waste and saving resources or using them efficiently. In order to achieve these goals WRAP works together with governments, companies and local governments in the fields of design, production and sales, utilisation and consumption, as well as reutilisation and recycling.

CARTONBOARD

Packaging from Nature,
Packaging for Nature.

Renewable:
Cartonboard is made from Wood.

Recyclable:
Cartonboard is born again and again as Recycled Cartonboard.

Biodegradable:
Cartonboard does not harm the Environment.

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