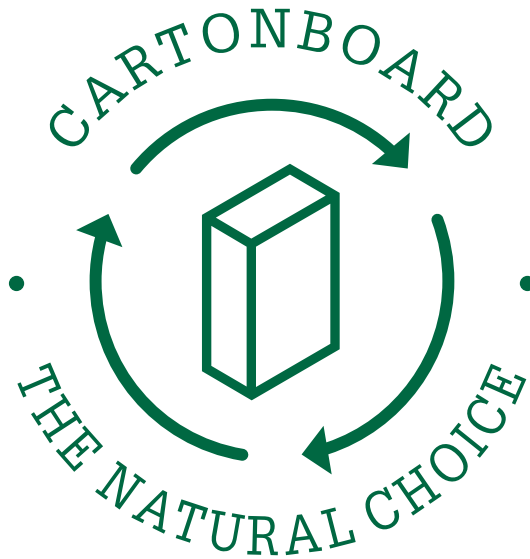




A P A P E R A B O U T

ADVANCED CARTONBOARD

for sustainable
packaging solutions



Renewable: Cartonboard is made of wood

Recyclable: Cartonboard has the highest recycling rate of all packaging materials

Biodegradable: Cartonboard will become nature again in a few weeks

A Real & Functioning Circular Economy

Cartonboard is Born Again. And Again.

CARTONBOARD – THE NATURAL CHOICE

The decision for a particular packaging material impacts the environment as well as consumers' buying decisions. Cartonboard is the natural choice.

Ecological benefits of cartonboard

Packaging made of cartonboard is an important factor when it comes to resource efficiency. It protects the packaged product, extends its shelf-life, makes for easier storage, and thus preserves many times more resources than it consumes. Cartonboard is ecologically smart, because it has a very low environmental impact and embodies the principles of a truly functional recycling economy:

RENEWABLE

due to the use of wood, an organic, renewable resource, from sustainable forestry. Certifications for fibres from responsibly managed forests are considered standard in the cartonboard industry.

COMPOSTABLE/BIODEGRADABLE

as cartonboard is biodegradable up to 100 % in a short period and is a valuable energy source at the end of its life cycle, all in accordance with EU-directive EC 94/62.

RECYCLABLE

as cartonboard can be used several times. Cartonboard is turned back into cartonboard. Used cartonboard packaging has the highest recycling rate (> 80 %) of all packaging materials, and forms the basis for producing the environmentally-friendly packaging material – recycled cartonboard. One cellulose fibre can be recycled up to seven times.

CLIMATE-FRIENDLY

because forests represent significant carbon reservoirs that are bound in the cartonboard. Compared to many other packaging materials, cartonboard production consumes low energy, which in Europe is obtained primarily from renewable sources. Cartonboard therefore has very low CO₂ values within its value chain.

Improved product perception at the point of sale

Packaging has a huge impact on the shopping experience of consumers: 70 % of all buying decisions are taken at the point of sale. Consumers have been developing ever higher awareness of the social and ecological impact of their product decisions, and this is reflected in their (buying) decision-making process. According to a study conducted by the corporate consultancy PricewaterhouseCoopers, nearly one third of buyers would decide against buying a product because it is not packaged sustainably or uses too much packaging. The trend is clearly turning to cartonboard: While plastics are still widely used particularly in the low-price segments, upscale segments are reaching for cartonboard. Renewable and recyclable materials also have substantial influence on brand perception. Cartonboard packaging is considered to be of higher quality, individual brand and product messages can be communicated with excellent printing.

Packaging solutions made of cartonboard are environmentally-friendly, strengthen the sustainable image of a product, and can ultimately contribute to the success of a company. It is important to package smartly, and use sustainable materials whenever possible.

NEW PACKAGING IDEAS MADE OF CARTONBOARD

Organically-grown strawberries in plastic trays, bananas in plastic bags, mushrooms shrink-wrapped in plastic, and batteries in blister packs – many products on supermarket shelves are unnecessarily packaged in plastic, when in fact smart cartonboard packaging can replace plastic without compromising on the protective function. MM Karton has conducted a Europe-wide analysis in supermarkets, and found or developed sustainable packaging alternatives.

Asparagus with cartonboard sleeves

Fruits and vegetables that are peeled before consumption or whose peel provides them with “natural packaging” are often additionally packaged in plastic. Simple packaging concepts made of cartonboard would be a sustainable alternative: Asparagus with a cartonboard sleeve instead of shrink-wrapped in plastic, mandarin oranges or organically-grown apples in biodegradable cartonboard trays instead of plastic nets and plastic wrapping.

Pasta in cartonboard packaging as an eye-catcher

Pasta, rice, lentils, or couscous do not need to be packaged in plastic. Cartonboard packaging is an excellent natural alternative. Thanks to high-quality printing and finishing techniques, attention is guaranteed, and viewing windows allow for a look at the product. A sustainable look, that is.

Non-food products with cartonboard packaging or wrap-around packaging

Feminine hygiene products, batteries, lightbulbs, hoses, shower heads, cleaning sponges, etc., can all be given a premium presentation with cartonboard solutions – additional plastic foil is not necessary. The cartonboard surface offers excellent printing and plenty of space for advertising the brand and product. Cut-outs let consumers see the product without compromising the protective function of the package.

Contact us if you are looking for sustainable packaging solutions for your products. Based on decades of experience, we develop tailor-made solutions for individual requirements and nearly any area of application in close collaboration with our customers:

MM Karton finds cartonboard solutions!

HIGH-TECH PACKAGING SOLUTIONS FROM SUSTAINABLE FIBRES

There are no limitations to the development of innovative, recyclable cartonboard packaging concepts whose possible applications go far beyond the original function. Apart from a variety of standard qualities, MM Karton also offers a comprehensive range of specialty products. These “high-tech” cartonboard qualities – e.g. cartonboard with migration, moisture, and grease barrier, are specially treated for their individual application. They represent a natural alternative to many existing plastic packaging solutions.

Like all of our cartonboard products, these cartonboard qualities ...

ARE THE ENVIRONMENTALLY- FRIENDLY SOLUTION

Even our specially treated qualities are fully recyclable and biodegradable. They comply with international packaging guidelines as well as statutory food regulations for their intended purpose.

CAN BE CONVERTED UNDER STANDARD CONDITIONS

Our special qualities have high functionality and excellent runnability in the conversion process – both during finishing and packing. This guarantees best printing results and high converting performance.

On the following pages, you will find out what MMK cartonboard can do.

MMK CARTONBOARD CAN PREVENT MIGRATION

MIGRATION BARRIER

Consumer safety is the top priority. Cartonboard qualities with functional barrier by Mayr-Melnhof Karton are the solution for the challenge of mineral oil migration and ensure the highest level of product safety.

Good to know

The ways in which mineral oils or other unintended substances can enter food items (migration) are many: The 185-page EFSA report (European Food Safety Authority) names an endless list of sources for the origin of mineral oils in foods. Only a functional barrier can provide comprehensive protection from migration. Using FOODCART™ limits MOAH migration (Mineral Oil Aromatic Hydrocarbons) into the packaged food to max. 0.5 mg/kg. This complies with the draft of the German directive “22 Amended Ordinance regarding the Commodities Regulation” (Mineral Oil Regulation). FOODBOARD™, the cartonboard with the ultimate functional barrier, goes one step further. When using this quality, no MOAH migration (detection limit = 0.15 mg/kg) can be detected. Both cartonboard qualities protect packaged foods not only from mineral oils but also from a number of other defined unintended substances like phthalates and bisphenol A, and against cross-contamination.

NATURAL ALTERNATIVE TO

- ALUMINIUM FOILS, PLASTIC COMPOUNDS
- THICK BAGS OF POLYETHYLENTEREPHTHALATE (PET)
- BAGS OF POLYETHYLENE (PE), POLYPROPYLENE (PP), POLYOLEFIN (PE AND PP) ALSO DO NOT OFFER ADEQUATE PROTECTION AGAINST MIGRATION OF MOAHS

APPLICATIONS

- DRY FOODS LIKE RICE, CEREALS, PASTA, TEA
- CHOCOLATE AND CONFECTIONARY

OUR CARTONBOARD QUALITIES

- FOODBOARD™, GT1 AND GT4, FROHNLEITEN MILL
- FOODBOARD™ VIRGIN FIBRE, GC, BAIERSBRONN MILL
- FOODCART™, GD2, FROHNLEITEN MILL



CARTONBOARD WITH FUNCTIONAL BARRIER SUSTAINABLY
PROTECTS PACKAGED FOODS FROM MIGRATION OF DEFINED
UNINTENDED SUBSTANCES

MMK CARTONBOARD CAN STOP MOISTURE

MOISTURE BARRIER

Good taste is no longer enough – products also have to look highly decorative. To ensure that the packaging of chilled or frozen foods is not damaged by moisture, we offer cartonboard or liner with a moisture barrier (freeze barrier) that guarantee highest packaging stability even at low temperatures.

Good to know

The term freeze quality refers to those cartonboard products whose layers are sized to protect against moisture. The Cobb value provides information about the water absorption capacity of cartonboard. The lower the Cobb value (low water absorption), the more stable the packaging remains even in high relative humidity. To achieve certain Cobb values, cartonboard must be treated. During the freeze treatment, starch or additives are added to the mass of the carton fibres.

NATURAL ALTERNATIVE TO

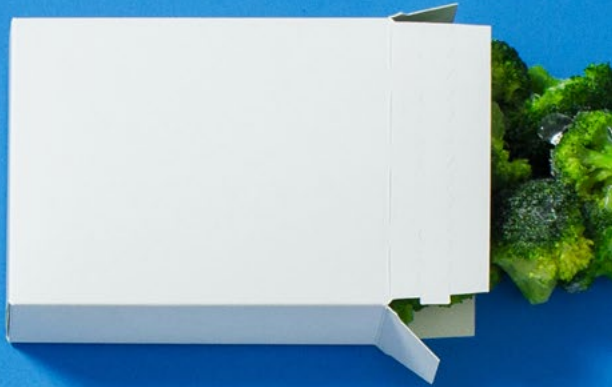
- PLASTIC BAGS
- CARTONBOARD WITH PE LAMINATION

APPLICATIONS

- CHILLED FOODS
- FROZEN FOODS

OUR CARTONBOARD QUALITIES (EXTRACT)

- ACCURATE™ FREEZE, GC2, EERBEEK MILL
- ACCURATE™ TOP NATURAL FREEZE, GC2, EERBEEK MILL
- ACCURATE™ TOP STRONG FREEZE, GC2, EERBEEK MILL
- EXCELLENT TOP™ FREEZE, GC2, BAIERSBRONN MILL
- MM X-LINER AQUA-FIT™, LINER, NEUSS MILL
- MULTICOLOR BELVEDERE™ FREEZE, GT2, HIRSCHWANG MILL
- MULTICOLOR MIRABELL™ FREEZE, GD2, HIRSCHWANG AND GERNSBACH MILLS
- PRINTA™ FREEZE, GD2, GERNSBACH MILL
- SILVABOARD™ FREEZE, GC2, EERBEEK MILL
- SUPRA™ FREEZE, GT2, GERNSBACH MILL
- VENO™ FREEZE, GD2, HIRSCHWANG MILL



CARTONBOARD WITH ENVIRONMENTALLY-FRIENDLY
MOISTURE BARRIER PROVIDES THE HIGHEST LEVEL OF
PACKAGING STABILITY EVEN AT LOW TEMPERATURES

MMK CARTONBOARD CAN BLOCK GREASE

GREASE BARRIER

Food packaging in store shelves has to be decorative and appetizing. It should symbolise quality and good taste. Without annoying grease spots and discolourations! Cartonboard with a grease barrier makes for an ideal presentation.

Good to know

Depending on how greasy the packaged product is, the fat-repellent protection is applied either only to the reverse side of the cartonboard or also to the additional layers. The value defines the degree of grease repellence and ranges between 1 (weak) and 12 (strong). The rating results from the intensity of the cartonboard treatment. MM Karton produces grease qualities with grease barriers up to a value of 11. The qualities with grease barrier are of course used in packaging with direct food contact. They are also suitable for greasy non-food applications.

NATURAL ALTERNATIVE TO

- CARTONBOARD WITH LAMINATION (E.G. PE, ALUMINIUM)

APPLICATIONS

- GREASY FOODS (E.G. BAKED GOODS AND PASTRIES, SNACKS, FAST FOOD)
- COSMETICS (E.G. MOIST TISSUES)
- SLIGHTLY GREASY PET FOOD
- GREASY TECHNICAL PRODUCTS (E.G. BALL BEARINGS)

OUR CARTONBOARD QUALITIES (EXTRACT)

- EXCELLENT TOP™ GREASE KIT 5-7, GC2, BAIERSBRONN MILL
- OPTIMUS TOP™ GREASE KIT 9-11, GC1, BAIERSBRONN MILL
- TOPCOLOR™ GREASE 5-7, GT1, FROHNLEITEN MILL



CARTONBOARD WITH SUSTAINABLE
GREASE BARRIER PROTECTS PACKAGING
FROM ANNOYING GREASE STAINS

MMK CARTONBOARD CAN PRESERVE TASTE AND FRESHNESS

MOISTURE AND GREASE BARRIER

For packaging very greasy products, the special cartonboard qualities “Freeze & Grease” are most suitable. They combine the technology of the moisture barrier “Freeze” with the grease barrier “Grease”.

Good to know

Thanks to the use of special additives, the cartonboard becomes moisture repellent and at the same time grease repellent. That way, we can guarantee high packaging stability even at low temperatures, while at the same time the package surface is protected against annoying grease spots and discolourations.

NATURAL ALTERNATIVE TO

- CARTONBOARD WITH LAMINATION (E.G. PE, ALUMINIUM)

APPLICATIONS

- GREASY FROZEN PRODUCTS (E.G. PASTRY DOUGH), BAKED OR BREADED FOODS, BOUILLON CUBES

OUR CARTONBOARD QUALITIES (EXTRACT)

- ACCURATE™ FREEZE GREASE KIT 7-9, GC2, EERBEEK MILL
- ACCURATE™ FREEZE GREASE KIT 9-11, GC2, EERBEEK MILL
- ACCURATE™ TOP STRONG FREEZE GREASE 7-9, GC2, EERBEEK MILL
- ACCURATE™ TOP STRONG FREEZE GREASE 9-11, GC2, EERBEEK MILL
- EXCELLENT TOP™ FREEZE GREASE KIT 9-11, GC2, BAIERSBRONN MILL
- EXCELLENT TOP™ FREEZE QUICK RELEASE, GC2, BAIERSBRONN MILL
- TRIUMPH™ FREEZE GREASE KIT 9-11, GC2, BAIERSBRONN MILL



CARTONBOARD WITH COMBINED MOISTURE AND
GREASE BARRIER PROTECTS AGAINST MOISTURE
AND ANNOYING GREASE STAINS

MMK CARTONBOARD CAN PROVIDE SHAPE

DEEP DRAWING CARTONBOARD

The requirements placed on packaging solutions are many. It is not always just about producing classic folding cartons. Often, manufacturers require round shapes or special folds that impose particular demands on the flexibility and formability of the cartonboard. For these applications, MM Karton provides cartonboard qualities that can be deep drawn.

Good to know

Cartonboard for deep drawing has a smooth surface resulting from a special treatment. Thanks to the added flexibility and formability, it is possible to “deep draw” the carton and thus provide the desired shape. Of course, deep drawing cartonboard complies with the strict legal requirements for direct food contact.

NATURAL ALTERNATIVE TO

- PLASTIC

APPLICATIONS

- CHEESE CARTONS
- PARTY PLATES

OUR CARTONBOARD QUALITIES (EXTRACT)

- MULTICOLOR BELVEDERE™ DEEP DRAWING, GT2, FROHNLEITEN AND HIRSCHWANG MILLS
- UT SKIN, UT2, HIRSCHWANG MILL



CARTONBOARD FOR DEEP DRAWING IS
ESPECIALLY FORMABLE THANKS TO ITS
SMOOTH SURFACE

MMK CARTONBOARD CAN PROTECT IN ANY CLIMATE

FUNGICIDE TREATMENT

Even in extreme relative humidity and high temperatures, MM Karton offers special fungicide-treated cartonboard for long-term and effective protection of the packaged goods.

Good to know

This special treatment is used for example on cartonboard for soap packaging. The reason is that soaps contain up to 15 % residual water. In contact with an untreated cartonboard reverse side, this can cause fungal spores to form. Cartonboard qualities with a fungicide treatment stop this process and offer optimum safety. Particularly in tropical countries, soap packaging is equipped with a high level of protection – more than 1,000 ppm (parts per million) anti-fungal agent are applied to the cartonboard reverse side.

NATURAL ALTERNATIVE TO

- PE COATINGS

APPLICATIONS

- SOAP PACKAGING

OUR CARTONBOARD QUALITIES

- MULTICOLOR BELVEDERE™ FUNGIZID, GT2, HIRSCHWANG MILL
- MULTICOLOR MIRABELL™ FUNGIZID, GD2, FROHNLEITEN MILL



FUNGICIDE-TREATED CARTONBOARD GUARANTEES
PROTECTION FOR THE PACKAGED ITEMS EVEN IN
CLIMATE CONDITIONS OF EXTREME RELATIVE HUMIDITY
AND HIGH TEMPERATURES

