

UNFOLDED

A PAPER ABOUT CARTONBOARD



IN MY
NEXT LIFE
I WANT TO BE
YOUR
PHARMA
PACKAGING.

STARCOLOR
MIRABELL™
GD2

N O . 2 / 2 0 1 5

CUSTOMER VALUE AND EFFICIENCY INCREASED



Dear ladies and gentlemen,
Dear colleagues,

Our objective for long-term technology and cost leadership is predicated on the principle of continually adopting new ways to enhance customer benefits and efficiency across the Group. This is demonstrated in the present issue multiple times.

Our German mill in Neuss has been producing Starcolor Mirabell™ since the beginning of August 2015 – our ecological, economic answer to the rising demand in the pharmaceutical industry for sustainable packaging solutions. With its high brightness and best surface quality in the GD2 market to go with its good inkjet and laser coding properties, Starcolor Mirabell™ is tailor-made for the high requirements of the pharmaceutical industry and also highly attractive for other areas of application. The cover of our newsletter will convince you.

Due to the upcoming implementation of the EU Falsified Medicines Directive it will be mandatory in the future to mark each pharmaceutical packaging with an individual identifying feature. All MMK virgin fibre qualities are ideal for 2D matrix codes because of their optimum laser and inkjet coding properties and therefore are the first choice for pharmaceutical applications.

With the installation of a state-of-the-art curtain coater in our Slovenian mill in Kolicveo, MM Karton is now employing this modern coating method on a broad front. High-quality cartonboard solutions for the most demanding applications and moreover the potential for significant energy savings are features that never fail to impress.

Speaking of impressing: our acquisition of the wood pulp mill, MMK FollaCell A.S. in Norway, has proved a complete success: two years ago it started producing BCTMP and CTMP wood pulp. This is not only used for our virgin fibre and recycled qualities but also sold on the free market. Since starting production on September 2, 2013, MMK FollaCell has been producing at full capacity with consistent quality.

Looking ahead to the fast approaching new year, I wish you a successful conclusion to 2015, happy holidays and much success in facing the challenges of 2016!

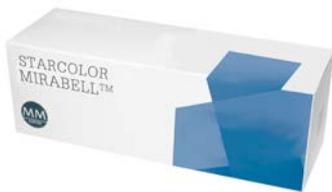
A handwritten signature in black ink, appearing to be 'FR' with a large, sweeping flourish above it.

Franz Rappold
Member of the Board

3

EDITORIAL
FRANZ RAPPOLD

6



STARCOLOR MIRABELL™ (GD2) –
TAILOR-MADE FOR THE
PHARMACEUTICAL MARKET

8

MMK ON LOCATION – THE MOST IMPORTANT
INDUSTRY EVENTS, 2ND HALF 2015



11

CURTAIN COATER NOW ALSO
IN THE MILL KOLICEVO KARTON



1 2

EXPANSION OF MULTIMILL CONCEPT:
MULTICOLOR SPEZIAL™ NOW ALSO FROM
THE GERNSBACH MILL



1 4

CONFIRMED BY EXTERNAL INSTITUTE:
GC2 QUALITIES FROM EERBEEK –
THE PERFECT CHOICE FOR PE COATINGS

1 6

MULTICOLOR BELVEDERE™ FLEXXO –
THE NEW SPECIAL QUALITY
FOR DOUBLE-WALL CUPS
AS WELL AS FLEXXO PRINT



1 8

MMK FOLLACELL A.S.
CELEBRATES SECOND ANNIVERSARY

STARCOLOR MIRABELL™ (GD2) – TAILOR-MADE FOR THE PHARMACEUTICAL MARKET

Starcolor Mirabell™ from our German mill in Neuss is expanding Mayr-Melnhof Karton's "Mirabell" product family: the for the pharma market necessary, outstanding surface quality and a bright grey reverse meet high visual standards and shows excellent performance both in converting and packing. This opens up new areas of application for the best GD2 recycled cartonboard.

Best surface quality, ideal converting performance

In order to reflect the trend towards sustainable packaging materials but also to meet the pressure on costs, the pharmaceutical industry is demanding a tailor-made solution from recycled cartonboard. With Starcolor Mirabell™, we have developed a high-quality GD2 product which meets this demand from the pharmaceutical sector in full: high brightness (84 %), best surface quality on the GD2 market, excellent printing and converting performance, ideal results with Braille embossing as well as suitability for digital printing, good inkjet and laser coding properties – and all of with the best environmental scores.

The Neuss mill is strategically located in Western Europe: short transport routes guarantee flexible service and contribute towards achieving sustainability goals. The mill

meets the latest technical standards and has the most modern recycled cartonboard machine in Europe. Due to the special purity of the fibres the outstanding surface quality of Starcolor Mirabell™ is achieved. The cover of this newsletter was printed on the new GD2 quality and it offers an impressive illustration of this property.

New challenges – a reliable answer

The requirements of the pharmaceutical industry are among the most demanding in the packaging sector, and the challenges will continue to increase in the future: the individualisation and ageing of society require products which are tailor-made to customers. As well as user-friendliness and sustainability, it is primarily safety aspects that are growing

in importance and demanding the highest standards from cartonboard and packaging producers.

With optimised coating, Starcolor Mirabell™ meets FFPI (Forschungsgemeinschaft Faltschachteln für die Pharmaindustrie, engl.: Research Group Folding Boxes for the Pharmaceutical Industry) standards defined for inkjet and laser coding, and it is ideally suited to the use of 2D matrix codes. These codes can give additional information, guarantee reliable counterfeit protection or supply information on transport and storage time ("track and trace"), thereby enabling seamless product tracking. The particular challenge with inkjet codes is that they have to dry and be wipe resistant within less than 0,3 seconds in order to be correctly legible in accordance with ISO standard 15415.

Leading manufacturers of pharmaceutical products around the world rely on MMK qualities: Starcolor Mirabell™

has been tested successfully for pharmaceutical applications with K+D AG. Ivo Kassel, Head of Purchasing K+D: "Starcolor Mirabell™ guarantees the best possible printing results with its special optical properties, and thereby gives the packaged product ideal presentation."

With its tailor-made solutions, Mayr-Melnhof Karton offers the answer to highly individual customer needs and specific product requirements. We will be happy to support you in realising your goals and look forward to your enquiries!

E-mail: sales.vienna@mm-karton.com
Tel.: +43 1 50136-0

You will find product details at www.cartonette.com



1

STARCOLOR MIRABELL™ IS AVAILABLE
IN GRAMMAGES OF 280-350 GSM.

2

THE FS-KARTON MILL IS STRATEGICALLY LOCATED
IN WESTERN EUROPE.

MMK ON LOCATION – THE MOST IMPORTANT INDUSTRY EVENTS, 2ND HALF 2015

Autumn served up an exciting mix of events, offering the chance to discuss the latest trends and identify current opportunities.



ECMA CONGRESS

9TH TO 12TH SEPTEMBER 2015,
BUCHAREST

"Embrace Multiple Realities" – the motto and at the same time working programme of this year's ECMA Congress in the Rumanian capital of Bucharest, focused on differences and similarities in Europe, from a cultural, historical and economic viewpoint. The contribution from geneticist and best-selling author, Markus Hengstschläger, attracted particular attention. He posited a renunciation of mediocrity: following the model of the "most successful experiment in the world" – evolution – industry should show greater courage, support individuality and foster creativity. The packaging supply chain can also learn from this principle. Our presentation entitled "Europe's Cartonboard Industry – Success Factors to Compete" provided evidence to back up the following claim: in order to meet the challenges of the future successfully, and to carry the brand message to the consumer, one thing above all others will be decisive: tailor-made innovations which capture the spirit of the times. As every year, creativity was honoured in the presentation of the ProCarton ECMA Awards – we sincerely congratulate the winners.



ANUGA

10TH TO 14TH OCTOBER 2015,
COLOGNE

The world's leading food fair for retail and gastronomy offered diverse inspiration this year with ten specialist fairs under one roof: What will we soon be able to buy and where? What global or regional developments are to be expected?

One conclusion was particularly evident: the trend towards bio foods is picking up pace – in 2014 more than 7 % of all new product launches contained a bio claim. This naturalness is also to be reflected in the choice of packaging material. There was therefore considerable interest in our new development, UD Brown. This single coated duplex cartonboard combines with its brown top side and brown reverse side a natural look with pleasant tactility, thereby reflecting the trend towards naturalness.



FACHPACK

29TH SEPTEMBER TO 1ST OCTOBER
2015, NUREMBERG

Around 1,600 exhibitors presented their products and services on the subject of innovative packaging solutions at this year's FachPack over three days. The MM stand acted as a port of call for many interested parties and as a meeting point for new and existing business contacts. The valuable exchange of experiences and knowledge with our customers and partners from the folding carton industry provides an important basis for the early detection of market trends and the continued development of high-quality cartonboard for sustainable packaging solutions. Our new customised cartonboard products, UD Brown, Starcolor Mirabell™ and Multicolor Belvedere™ Flexo offer the best proof: well-conceived solutions for current social trends.



LUXEPACK

21ST TO 23RD OCTOBER 2015,
MONACO

This year, too, the leaders of the packaging industry and materials in the service of high-quality luxury products such as cosmetics, perfume and spirits met in the Grimaldi Forum on the occasion of LuxePack Monaco.

Elaborately designed, ingenious packaging which impressively communicates the quality of the packaged product, constitutes a must for premium brands. At the same time, the issue of sustainability is becoming increasingly important, also for luxury products, as the consumer expects packaging not only to look good but also to satisfy ecological principles. This is where MMK can score with its sustainable production of environmentally friendly and attractive packaging solutions.

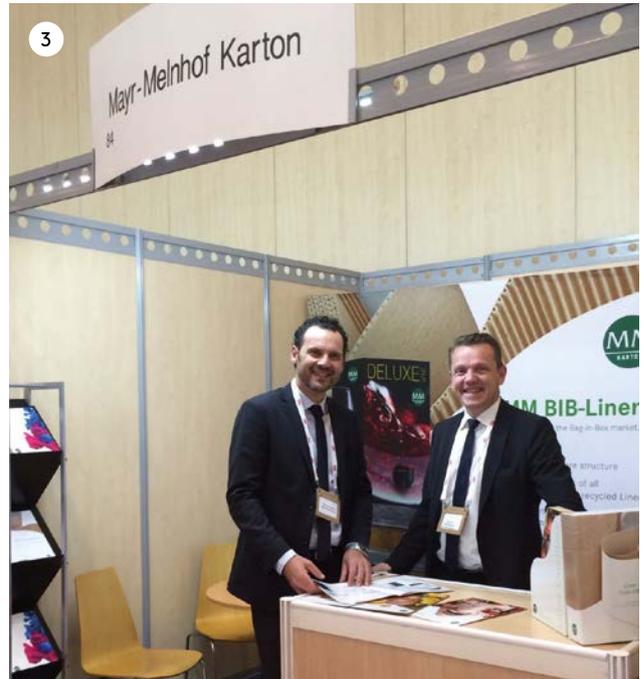
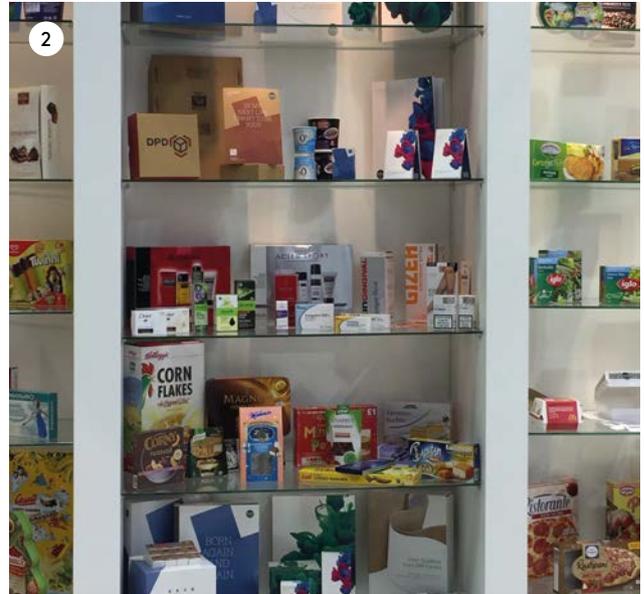


FEFCO TECHNICAL SEMINAR

28TH TO 30TH OCTOBER 2015,
BARCELONA

The annual conference of FEFCO, the European Corrugated Packaging Association, was held in 2015 under the motto, "Corrugated 4.0: Smart Factories for Flexibility and Efficiency". The focus was on the question of how the fourth industrial revolution is changing the corrugated industry and what challenges are to be expected.

MM Karton was represented with its impressive liner product range, and attracted attention in particular with its newly developed MM BIB Liner™, the tailor-made product for the growing bag-in-box market. Because of its innovative fibre structure, MM BIB Liner™ shows the best BCT values (Box Compression Test) of all white top coated recycled liner products – meaning that the highest converting performance and attention on the shelf are guaranteed.



①

STAND AT FACHPACK

②

MMK DISPLAY CASE WITH
CUSTOMER SAMPLES

③

MMK BOOTH AT THE FEFCO SEMINAR

YOU CAN MEET US AT THE FOLLOWING UPCOMING TRADE FAIRS:
RISI's European Conference | 29th February to 2nd March 2016, Berlin
DRUPA 2016 | 31st May to 10th June 2016, Düsseldorf

CURTAIN COATER NOW ALSO IN THE MILL KOLICEVO KARTON

With its installation in our Slovenian mill in Kolicevo in July 2015, curtain coaters are now working successfully in three MMK mills. A new blade aggregate and pope-roller have also been installed. Product performance, energy balance and productivity benefit.

Improvement in product performance and energy footprint

The investment is to be seen primarily as an answer to the needs of the market and the increased statutory requirements that cartonboard has to meet. In future it will be obligatory to code every pharmaceutical packaging with a so-called "unique identifier". The virgin fibre cartonboard qualities, Excellent Top™ and Kromopak™ from Kolicevo, have excellent inkjet and laser coding properties. This has been confirmed by PTS (Papiertechnische Stiftung, German research and service institute specialised in fibre-based solutions). The prerequisites laid down in the EU directive against counterfeit drugs (EU Falsified Medicine Directive, 2011/62/EU), the FFPI guidelines and the criteria contained in ISO standard 15415 can be met in full.

The new coating technology also offers significant energy-saving potential as the lower water content of the coating leads to lower energy expenditure in the drying process. As a result the CO2 footprint and the already high environmental sustainability of Kolicevo Karton have been further improved.

Increase in productivity with new pope-roller

The sharp rise in demand for our products from Kolicevo also necessitated a corresponding increase in the productivity of the pope-roller. The new machine roller which also makes an outstanding visual impression with a diameter of 3.8 m and a mass of 34 t, is capable of producing a significant increase in performance.

With this all-round investment, our Kolicevo mill which celebrates its 95th anniversary this year, is ideally equipped to face the challenges of the global market.



①

CURTAIN COATER ENSURES OPTIMISED ENERGY FOOTPRINT.

②

NEW MACHINE ROLLER BRINGS PRODUCTIVITY INCREASES.

EXPANSION OF MULTIMILL CONCEPT: MULTICOLOR SPEZIAL™ NOW ALSO FROM THE GERNSBACH MILL

At the beginning of August 2015, the MMK mill in Gernsbach, Germany, started production of Multicolor Spezial™ (MCS). This reflects the large demand for this GD3 quality which is also produced in Frohnleiten and Hirschwang (Austria).

The production of Multicolor Spezial™ in Gernsbach once again extends MMK's MultiMill concept which has already been very well received in the market. The focus is on producing a specific grade of cartonboard in various locations. For our customers, Multicolor Spezial™ combines economic and ecological benefits in a particularly effective way: the favourable location of the Gernsbach mill in terms of transport to western European markets guarantees short routes and flexible service. Production in three locations guarantees maximum supply security – even with exceptionally short lead times and in times of high demand.

Multicolor Spezial™ is primarily in demand for non-food applications such as in the car industry or for DIY products. It is also popular as secondary packaging for chilled or frozen food (e.g. frozen pizza).

Multicolor Spezial™ is produced in grammages of 250–450 gsm and like all other MM Karton cartonboard qualities; it is available with FSC® or PEFC™ and also Halal certification.



①

MCS - AVAILABLE IN THE FROHNLEITEN, HIRSCHWANG
AND NOW ALSO GERNSBACH MILLS

②

THE GERMAN MILL IN GERNSBACH

CONFIRMED BY EXTERNAL INSTITUTE:
GC2 QUALITIES FROM EERBEEK –
THE PERFECT CHOICE FOR
PE COATINGS

The Belgian Packaging Institute (BVI) confirms the excellent adhesion of polymer coatings (PE, polyethylene) on our virgin fibre cartonboard qualities, Silvaboard™ and Linoplex™, from our Dutch mill in Eerbeek.

Plybond strength and surface strength crucial for best possible adhesion

Depending on the product requirements, specific polymers (e.g. LDPE, HDPE, PP) are used in PE lamination or extrusion techniques in order to achieve a functional coating on the cartonboard and in this way to protect the packaged product from moisture or grease.

Important prerequisites for the best possible adhesion of a compound consisting of folding carton material and foil include the plybond strength of the cartonboard and its surface strength as well as optimum processing climate (23° C, 50 % humidity).

GC2 qualities from Eerbeek: excellent test results

The comprehensive comparative tests to ASTM F88, a standard testing method to determine the seal strength of flexible materials, confirm the high plybond and surface strength of Silvaboard™ and Linoplex™ as well as the perfect adhesion of the foil on the reverse side of board.

The reverse side of our cartonboard qualities is pigmented and the desired perfect adhesion of PE is therefore on the pigmentation. The quality of adhesion is verifiably comparable with grades without backside pigmentation where normally fibre tear occurs (cf. info box).

The GC2 qualities from the Eerbeek mill are therefore converters' first choice for packaging solutions where a PE coating is used.

①

GC2 MMK EERBEEK:
NO FIBRE TEAR DUE TO PIGMENTATION
BUT PERFECT BOND

②

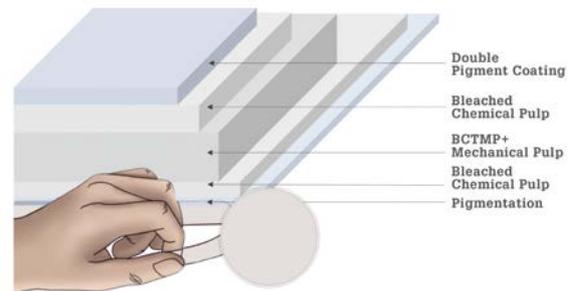
GC2 WITHOUT "BACKSIDE TREATMENT":
FIBRE TEAR

Tape test – standard practice but unscientific

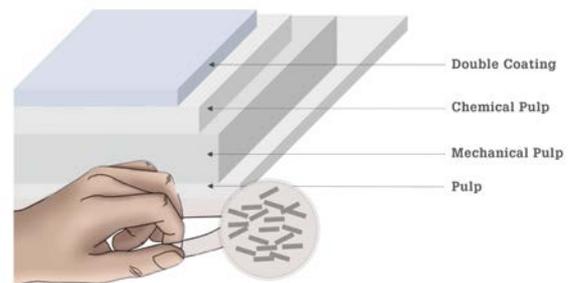
The so-called tape test is frequently used to test the strength of PE lamination on cartonboard and in doing so to identify possible weaknesses.

An adhesive strip approx. 10 cm in length is applied to the surface to be tested with defined pressure and then removed again with constant force. The fibres stuck to the tape are supposed to allow conclusions to be drawn on the bonding strength. A good coating leads to a complete fibre tear – as the widespread misbelief. While fibre tear will occur on the reverse of untreated cartonboard qualities, in the case of those with pigmentation on the reverse, the pigmentation will come off (cf. Fig.). The necessary force is important, not the fibre tear.

① GC2 MMK EERBEEK:



② GC2 WITHOUT "BACKSIDE TREATMENT":



MULTICOLOR BELVEDERE™ FLEXO – THE NEW SPECIAL QUALITY FOR DOUBLE-WALL CUPS AS WELL AS FLEXO PRINT

Multicolor Belvedere™ Flexo (MCB Flexo) is MMK's tailor-made solution for the growing take-away trend: With a special surface, this GT2 recycled cartonboard quality is particularly well suited to double-wall cups as well as to flexo print.

To-go trend booming

On the way to work, on a shopping trip, in the underground – many drink their coffee on the move. "Coffee-to-go" is booming and the global victory march of the caffeine kick to take away is unstoppable. Besides the taste, one other factor is crucial: the temperature of the drink must be kept warm for a constant period of time and comfortable handling guaranteed.

Innovative technologies from the packaging industry are adapting to this special market trend: Double-walled cups ensure optimum temperatures on the inside and allow consumers to carry the cups for longer periods with no problem. And the flexo print method is a key factor in the cup industry.

MCB Flexo meeting the trend

Multicolor Belvedere™ Flexo is ideally suited to the outer layer of double-wall cups. The special surface allows perfect flexo printing: fast ink absorption and optimum colour reproduction are guaranteed by the double coating. The outer sleeve thereby

becomes an ideal advertising surface and mobile advertising medium. The improved top coating ensures a pleasantly tactile feel.

MCB Flexo is based on the proven Multicolor Belvedere™ quality from the Frohnleiten mill in Austria. By means of ongoing investment in research and development – our central R&D Centre in Frohnleiten is the largest of its kind in the cartonboard industry in the world – we always succeed in taking market trends into account at an early stage. Multicolor Belvedere™ Flexo is an impressive testimony to this ability.

MCB Flexo is available in grammages of 250–350 gsm. You will find product details at www.cartonette.com



①

THE COFFEE-TO-GO TREND IS BOOMING.

② + ③

M C B F L E X O : T A I L O R - M A D E T O M E E T
T H E T R E N D .

MMK FOLLACELL A.S. CELEBRATES SECOND ANNIVERSARY

The Norwegian pulp mill, MMK FollaCell A.S. has been part of MM Karton for the last two years. The aim of the acquisition was to ensure the provision of consistent high-quality raw materials to our cartonboard mills for the long term – a decision which has turned out to be successful and sustainable.

Ideal infrastructure due to geographical location

The location of Follafoss on the Trondheim fjord offers ideal infrastructure: supplies and deliveries can arrive and depart reliably by ship thanks to its own port, which is free of ice. The wood processed mainly comes from spruce trees, firs and pines. This region is of advantage not just because the raw materials grow in the vicinity. The energy balance is also especially favourable due to the numerous hydroelectric power stations.

Very good utilisation

With an annual capacity of currently 140,000 t, high-quality wood pulp such as BCTMP and CTMP (Bleached and Unbleached Chemo Thermo Mechanical Pulp) is produced which stands out on account of its excellent absorption capability and high bulk. The wood pulp is used both for MMK's virgin fibre and its recycled cartonboard qualities, and it is also sold on the free market.

The pulp is produced on the basis of current insights from research and development, both in terms of the quality of the raw material and with regard to its sustainability. Like MM Karton's cartonboard qualities, the pulp products from MMK FollaCell are available with FSC® or PEFC™ certification.

If you are interested, please contact:
sales.follacell@mm-karton.com



1

MMK FOLLACELL A.S.

2

THE PULP IS MAINLY USED IN THE
 PAPER AND CARTONBOARD INDUSTRY
 AS WELL AS THE PRODUCTION OF
 TISSUES.

The cover of this issue was printed on Starcolor Mirabell™ 300 gsm:

- Pantone colours
- Hot foil embossing
- Embossing
- Dispersion varnishing, full surface, satin finished

THE NEXT ISSUE WILL BE PUBLISHED IN FEBRUARY 2016.

PUBLISHER AND OWNER
MAYR-MELNHOF KARTON GESELLSCHAFT M.B.H.
BRAHMSPLATZ 6
1041 VIENNA
AUSTRIA
WWW.MM-KARTON.COM

EDITOR
ELISABETH STOCKER
TEL: +43 1 50136 91342

CONTRIBUTORS
CHRISTOPH BATHOLT, IRENA RUPNIK

PICTURE CREDITS
MAYR-MELNHOF KARTON GESMBH

GRAPHIC CONCEPT
RIEBENBAUER DESIGN