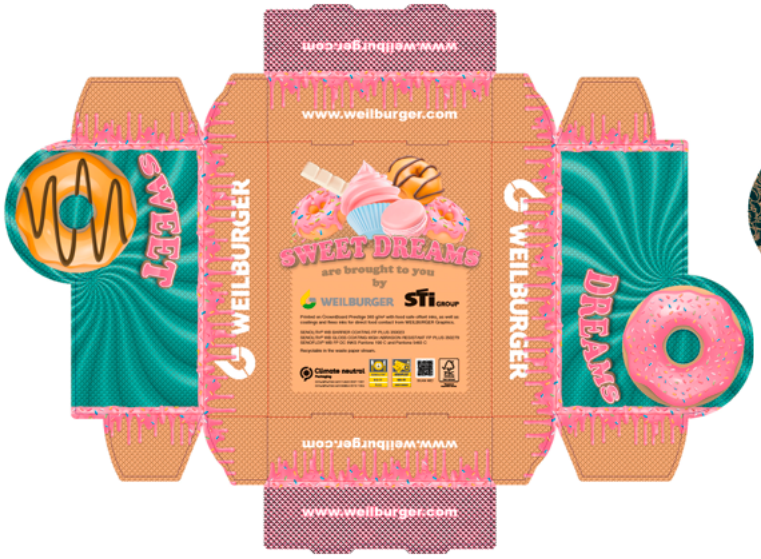
TUTORIAL – FOOD PACKAGING BARRIER COATING



USP:

Folding boxes for use in food packaging with fully recyclable food direct contact barrier coating applied on the inside to replace conventional PE coatings.

Machine requirements:

7c offset sheetfed press with at least one coating unit

Project description:

For the presentation of the low-migration SENOLITH® WB BARRIER COATING FP PLUS 350023 developed by WEILBURGER Graphics GmbH in combination with the new and also food-safe SENOFLEX® WB INKS FP DC, a demo project was realised together with the STI Group. The project involved the production of a total of four different To-Go folding boxes, as used for the packaging of donuts and similar confectionery at the POS. The PE coating usually used on the inside of such packaging, which is intended to protect the packaging from grease and moisture penetration, was replaced in this project by SENOLITH® WB BARRIER COATING FP PLUS 350023. Furthermore, in addition to 7 low-migration offset inks (CMYK, P190C, P7471C and Gold) for the outside, two new SENOFLEX® WB INKS FP DC suitable for direct food contact were used for the inside printing. The outside of this packaging was then given a protective coating of SENOLITH® WB GLOSS COATING SCUFF COAT FP PLUS 350279, which is also low-migration and suitable for direct food contact. Finally, the packaging was successfully certified by the Technical University of Darmstadt for testing according to PTS RH021/97 Cat.1 for recyclability. Tests based on the final packaging show an excellent barrier performance of the barrier coating used. Moisture or grease penetration of the substrate could not be detected under laboratory conditions. For design and marketing reasons, the side flaps on the inside of these demo packs were also printed. In real productions, these would have to be kept free of ink and coating to be on the safe side, as they do not have the necessary coating barrier.

The blank of these mono-material folding boxes is designed as a one-piece blank with a top-side snap closure. This must be optimised for fit and mechanical properties on the basis of white samples on the original substrate before design and printing. In addition, sufficient surface area and filling height must be ensured to accommodate the planned confectionery. The print sheet, which is planned in 3B format, is to be utilised to the best possible extent with four panels.

Requirements graphic design:

Different styles are to be implemented in the graphic design. On the one hand, an appealing, modern and slightly playful exterior and interior design is to be realised, which also reflects the planned contents – donuts and similar snacks. On the other hand, a neutral, noble design without reference to the contents of the packaging is to be implemented. For both designs, it must be taken into account that the printing technique is offset on the outside and flexo printing on the inside using coating plates. This means that for the interior design, only line conversions with maximum line widths of 300 µm (positive and negative) are possible on the basis of the selected substrate with a single-coated reverse side.

Substrate:

CrownBoard Prestige 340g/m²

Notes:

As with all extensive print productions, clear project planning and coordination of all parameters with all companies involved in the production chain is indispensable. Materials as well as process steps must be defined and coordinated in advance.




Realization:

Based on the optimised die-cutting contour, the two outer sides of the boxes are designed first. Here, in addition to CMYK, the predefined spot colours are also used. In design variant 1, all three spot colours planned for straight printing – P190, P7471 and gold – are used, while in design variant 2 only gold and P190 are used. For all spot colours, care is taken to avoid moirés and to ensure that they do not correlate with the CMYK separations. The screen angles of the spot colours, some of which are also applied in halftones and gradients in straight printing, are now also already predefined and the necessary overfills and underfills are applied manually. Great attention must be paid to the two closing flaps on the top that overlap each other in the final packaging, as even the slightest design error or register fluctuation in print production and finishing would lead to ugly mismatches in the deliberately planned, flap-overlapping design elements. Therefore, the use of 3D visualisation software with correctly set substrate thicknesses is indispensable at this point in the design process in order to optimise all edge-overlapping design elements, especially on the top two flaps, but also on all side surfaces of the packaging.

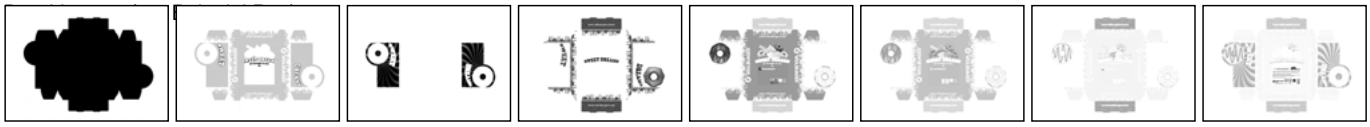
The two reverse printing sides are designed next. Since the two-colour reverse printing of both packages is to be carried out exclusively in flexographic printing using coating plates, the use of screened halftones is completely avoided. Based on the substrate used, which has only a single coating on the reverse side, the minimum line width to be used is defined as 300 µm, both positive and negative. This must therefore be taken into account for all design elements.

Products used:

Anilox rollers:

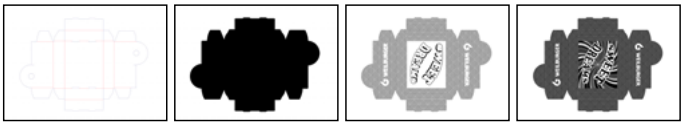
SENOLITH® GLOSS COATING SCUFF COAT FP PLUS 350279	Hashur	16 g/m²
SENOFLEX® WB INKS FP DC Pantone 190 C	Hexagonal	7 g/m²
SENOFLEX® WB INKS FP DC Pantone 5463 C	Hexagonal	7 g/m²
SENOLITH® WB BARRIER COATING FP PLUS 350023	Hashur	20 g/m²

Design variant 1 - front printing:



CU1: SENOLITH® WB GLOSS COATING SCUFF COAT FP PLUS 350279 | **PU7:** P Gold 874 2K | **PU6:** Pantone 7471C | **PU5:** Pantone 190C | **PU4:** Yellow | **PU3:** Magenta | **PU2:** Cyan | **PU1:** Black

Design variant 1 - reverse printing:

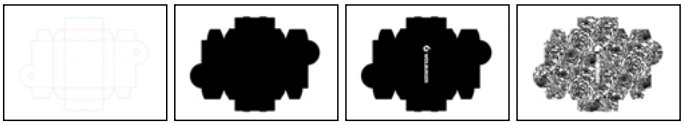


Die cut: | **CU3 offline:** SENOLITH® WB BARRIER COATING FP PLUS 350023 | **CU2 offline:** SENOFLEX® WB INKS FP DC Pantone 5463 C | **CU1:** SENOFLEX® WB INKS FP DC Pantone 190 C

Design variant 2 - front printing:

CU1: SENOLITH® WB GLOSS COATING SCUFF COAT FP PLUS 350279 | **PU7:** P Gold 874 2K | **PU6:** Pantone 7471C | **PU5:** Pantone 190C | **PU4:** Yellow | **PU3:** Magenta | **PU2:** Cyan | **PU1:** Black

Design variant 2 - reverse printing:



Die cut: | **CU3 offline:** SENOLITH® WB BARRIER COATING FP PLUS 350023 | **CU2 offline:** SENOFLEX® WB INKS FP DC Pantone 5463 C | **CU1:** SENOFLEX® WB INKS FP DC Pantone 190 C

WEILBURGER Graphics GmbH
Am Rosenbühl 5 | 91466 Gerhardshofen (Germany) | Tel.: +49 9163 9992-0 | **www.weilburger.com**