

Technical Information

16.P.043 | Conventional Sheet-fed Systems | Ink Series, Process Inks



MGA[®] CORONA 5200

Low-migration sheet-fed offset printing inks
for food packaging

Consumer protection demands that packed foodstuffs not be contaminated by packaging components.

Consequently, no substances are allowed to transfer from substrates, printing ink and coating films to the packaged food in quantities that exceed the legal limits.

As a responsible partner of the printing industry, the hubergroup has developed sheet-fed offset food packaging inks, known as MGA CORONA 5200, that are organoleptically neutral and offer low-migration properties.

Migration means any undesirable transfer of substances from packaging to foodstuffs, which can occur in the following ways:

- Invisible setoff in the stack or on the reel, that is, the transfer of invisible substances from the print to the unprinted reverse side above it (the food contact side) and in the end from there to the packed foodstuff
- Permeation (through-migration), that is, the transfer of substances from the printed image through the substrate to the packed foodstuff,
- The transfer of volatile substances in the enclosed air space of packaging.

For cost reasons, the share of primary packaging, in which the packaged food has direct contact with the unprinted inside of the packaging, has risen greatly over the years.

With MGA CORONA 5200 sheet-fed offset printing inks, carton and paper packaging for foodstuffs, confectionery and consumables (e.g. tobacco and tobacco products) can be made that comply with current European and national legislation as well as with brand owners' requirements.

The legal basis are European Regulations (EC) No 1935/2004 and No 2023/2006, the Swiss Ordinance on articles and materials (RS 817.023.21) and the German Foods, Consumer Goods and Feedstuffs Code (LFGB). Regulation (EC) No 1935/2004 governs the marketing of food contact materials and articles and lays down the fundamental guidelines:

Article 3 of Regulation (EC) No. 1935/2004 defines the General requirements for food packaging:

Materials and articles [...] shall be manufactured in compliance with good manufacturing practice so that, under normal or foreseeable conditions of use, they do not transfer their constituents to food in quantities which could:

- a) endanger human health, or
- b) bring about an unacceptable change in the composition of the food, or
- c) bring about a deterioration in the organoleptic characteristics thereof

Information on Good Manufacturing Practice (GMP)

MGA CORONA 5200 products are formulated and manufactured in compliance with the EuPIA GMP "Printing Inks for Food Contact Materials" published by the European Printing Ink Association (EuPIA).

MGA CORONA 5200 printing inks are formulated using only components that do either not migrate or which have been evaluated for contact with foodstuffs. Any traces of migrants from real life prints are far below the specific migration limits (SMLs). Possible impurities in raw materials as well as cross contamination ("non-intentionally added substances", NIAS) are also considered. This is a significant difference to standard sheet-fed offset printing inks.

Confusion of approved raw materials with non-approved ones is excluded by a special SAP based system.

MGA CORONA 5200 printing inks are produced in special production facilities to prevent contamination with non MGA products/raw materials.

All inks will be checked by a specific analytical quality control system.

Full traceability in the production of the inks is guaranteed back to the raw material batch.

Information on substances used or known to be present with the potential to migrate, including possible restrictions, is provided in the respective "Statement of Composition", to allow members of the packaging chain to assess compliance of the printed packaging with the Framework Regulation (EC) No 1935/2004 and/or Swiss Ordinance 817.023.21.

MGA CORONA 5200 printing inks are organoleptically neutral and low-migration. They facilitate the manufacture of packaging that meets legal requirements as well as the requirements of big-name and reputable brand owners. With the innovative MGA CORONA 5200 printing ink formulation, the hubergroup succeeded in satisfying the two main requirements for food packaging with one offset ink system, namely:

- Avoiding changes in odour and taste of the package contents
- Keeping migration within accepted limits

Colours available

Process inks

MGA CORONA 5200		Fastness properties per ISO 2836/12040			
		Light WS	Alcohol	Solvent mixture	Alkali
Yellow	41MGA5200	5	+	+	+
Magenta	42MGA5200	5	+	+	-
Cyan	43MGA5200	8	+	+	+
Black	49MGA5200	8	+	+	+

Spot Colours

In addition to the process colours, we can also formulate any shade you would like on the basis of **MGA CORONA 5200**.

Properties

- Sheet-fed offset printing ink series for printing the non-food contact surface of food packaging made of paper and board
- Printing ink for food contact materials (FCM ink) according to the EuPIA definition
- Very low migration with average setting speed
- For applications at higher temperatures we recommend to test the migration with the actual conditions.
- Results of taint and odour testing of printed products are excellent ("Robinson tests" EN 1230 Part 1 and Part 2)
- Allows printed food packaging to meet the requirements of Regulation (EC) No 1935/2004 as well as of US FDA provisions for food contact materials
- For articles intended to be filled, treated or stored for a longer period of time at temperatures higher than 200 °C, special inks of our MGA CORONA series (MGA5220) must be used. Microwave heated applications with susceptors, local temperatures of well over 200 °C are possible. Domestic oven thermostats show significant variations. For these applications we recommend the use of special heat-resistant inks (MGA5220).
- Stable ink/water balance in the press
- Good setting speed
- The fact that the inks do not dry by oxidation means no substances develop that are organo-leptically objectionable like short-chain aldehydes. Printed products made using MGA CORONA 5200 inks therefore also have a low hexanal content
- Mineral oil-free

Technical application

MGA CORONA 5200 inks have very good, trouble-free printing characteristics. Since they do not dry by oxidation, finishing with water-based coating is essential. Without a coating, an adequate degree of rub resistance will not be obtained.

ACRYLAC MGA water-based overprint varnishes have been developed to meet the requirements of the production of food packaging printed with MGA CORONA 5200 inks. The same is true for fount concentrates and printing auxiliaries.

MGA CORONA 5200 inks can be used in a similar way to conventional inks and are suitable for use in all sheet-fed offset presses and on all absorbent stocks. The applied single film thickness should not exceed 2 g/m²

Application instructions

Fount solution delivery and composition

Delivery of the fount solution on the press must be kept to an absolute minimum - particularly when the level of ink application is low - in order to prevent excessive emulsification and the poor coating quality associated with this. The isopropanol concentration in the fount solution, when using MGA COMBIFIX 8060, must not exceed 10 % at a pH value of 5.0 - 5.4.

The hubergroup has developed fount concentrates for use specifically with these products:

- MGA COMBIFIX 8060 (for printing with IPA)
- MGA SUBSTIFIX 8360 (for printing without IPA)

ACRYLAC MGA water-based overprint varnishes

The following water-based overprint varnishes have been developed specifically for finishing MGA CORONA 5200 inks:

- Glossy and rub-resistant coating for single-sided coating: **ACRYLAC MGA Gloss 58MGA1100**
- Wet-blocking-resistant and rub-resistant coating: **ACRYLAC MGA Gloss 58MGA1000**

If required, other ACRYLAC MGA types with additional special properties can be supplied.

Printing auxiliaries / Ink mixtures

To reduce ink tack, use only **Print oil 10MGA1405C** or **Paste reducer 10MGA9998C**. Standard printing oils, paste reducers or the like shall not be used, under no circumstances.

- MGA NATURA Print oil - 10MGA1405C

The recommended concentration of additive to use is max. 3%.

With an additional quantity of 3%, the tack of the ink is reduced by approximately 2 points.

- MGA NATURA Thixoprint - 10MGA9998C

The recommended concentration of additive to use is max. 5%.

With an additional quantity of 5%, the tack of the ink is reduced by approximately 2 points.

MGA CORONA 5200 inks may only be mixed with other MGA inks. Driers or drying accelerators shall not be added, under no circumstances, because this would lead to the generation of strong-smelling decomposition products.

Post-print finishing

The waiting time before the print sheets can be further processed is similar to that for conventional inks. It depends on the quality of the substrate. Tests should be carried out in specific cases prior to beginning a production run.

Roller treatment / Wash-up

Due to the negative effect on printed packages with respect to odour and taste, the press rollers shall not be sprayed with ANTISKIN 10T1200 or INKFIT 10T3303. After washing the rollers, leave them to dry well.

Classification

According to the Ordinance on Hazardous Substances: none

According to the Ordinance on Flammable Liquids: none

MSDS is available upon request. Please refer to the contact of your local supplier.