



## CORONA Label MGA®

Low-migration, oxidative-drying, sheet-fed offset inks for the manufacture of food packaging on non-absorbent materials

The manufacture of food packaging on non-absorbent substrates poses particular problems in the sheet-fed offset process. Conventional, low-odour and low-migration ink series dry purely by means of setting and are therefore totally unsuitable for this printing process.

Thanks to their good oxidative drying characteristics, CORONA Label MGA sheet-fed offset inks exhibit good adhesion on non-absorbent substrates. As a result of the special care taken when selecting the raw materials used, this new ink series has no tendency to swell, making it especially suitable for printing on polyolefin films (based on polyethylene (PE) or polypropylene (PP)) and therefore for the "in-mould labels" or IML segment. Other application areas include printing on non-absorbent substrates, such as aluminium-laminated materials and PE-coated card stocks, and the production of print products that are subject to high levels of mechanical stress during postprint finishing. As such, this ink series is capable of being used with a wide variety of substrates, from extremely thin 50- $\mu\text{m}$  plastic films up to heavy card stocks with a weight per unit area of 1000 g/m<sup>2</sup>.

The oxidative drying properties of these inks guarantee a flexible, stable ink film such as that required when finishing packaging for foodstuffs, confectionery and consumables. Examples of the types of stress these inks can withstand include those that arise when edging folding cartons.

As a responsible partner of the printing industry, the **huber**group has developed new sheet-fed offset inks – CORONA Label MGA – that not only dry quickly by oxidative means but also boast low-migration properties.

With CORONA Label MGA sheet-fed offset inks, confectionery and consumables packaging can be made that complies with the current European and national legal requirements.

### Printing inks for food packaging

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

In plain English, this means that substances are not allowed to pass from substrates, printing inks and coatings to packaged foods in quantities that exceed the legally stipulated limits.

An undesirable transfer of substances from packaging to foodstuffs can occur in the following ways:

- Invisible set-off in the stack or on the reel, that is, the transfer of invisible substances from the film of printing ink to the unprinted reverse side above it (food contact side) and in the end from there to the packaged foodstuff
- Migration (permeation), that is, the transfer of substances from the printed image through the substrate to the packaged foodstuff
- The transfer of volatile substances through the enclosed air space of packaging.

The legal basis is founded on European Regulations (EC) Nos. 1935/2004, 2023/2006 and 10/2011, the Swiss Ordinance on Materials and Articles in Contact with Food (Schweizer Bedarfsgegenständeverordnung) SR 817.023.21 and the German Foods, Consumer Goods and Feedstuffs Code (LFGB). The LFGB governs the marketing of food and consumer goods and lays down the fundamental guidelines for the design of food packaging.

**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,
- 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)**

CORONA Label MGA printing inks are formulated and manufactured in compliance with the following publications issued by the European Printing Ink Association (EuPIA): the *"EuPIA Guideline on Printing Inks applied to the Non-Food Contact Surface of Food Packaging Materials and Articles"* and *"Good Manufacturing Practices for the Production of Packaging Inks formulated for use on the non-food contact surfaces of food packaging and articles intended to come into contact with food"*.

CORONA Label MGA inks are formulated using only components that do either not migrate or which have been evaluated for contact with foodstuffs; the specific migration limits (SMLs) are clearly undershot in typical field application. Possible impurities in raw materials as well as cross-contamination ("non-intentionally added substances" or NIAS) are also considered. This is a significant difference to conventional, standard sheet-fed offset inks. The migration even of constituents that have been evaluated has been reduced to a minimum in the CORONA Label MGA ink series.

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

CORONA Label MGA are produced in accordance with good manufacturing practice (GMP) in special segregated production facilities to prevent contamination with non MGA products/ raw materials. All inks are inspected with regard to conformity and contamination using a specially developed analytical test method.

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 European Framework Regulation (EC) No. 1935/2004 and/or the Swiss Ordinance on Materials and Articles in Contact with Food, SR 817.023.21.

## Colours available

### Process inks

CORONA Label MGA		Fastness properties per ISO 2836 / 12040			
		Light WS	Alcohol	Solvent mixture	Alkali
Yellow	41MGL2000	5	+	+	+
Magenta	42MGL2000	5	+	+	-*
Cyan	43MGL2000	8	+	+	+
Black <sup>1</sup>	49MGL2000	8	+	+	+

1) varnish solvent-resistant

\*) not suitable for poster printing

### Spot colours

In addition to the process colours, any shade you would like can also be formulated on the basis of CORONA Label MGA.

## Properties

- CORONA Label MGA inks are formulated using only components that do not migrate or that have been evaluated for contact with foodstuffs.
- Ink series designed for use on the non-food contact side of food packaging.
- Minimal swelling characteristics when applied to polyolefin films → gives excellent flatness
- Good oxidative drying
- Smudge resistance achieved very quickly
- Excellent rub resistance
- Rapid adjustment of a stable ink/water balance
- **Owing to the products' oxidative drying properties, one should not expect CORONA Label MGA inks to be organoleptically neutral, because decomposition products form as they dry.**  
We urgently recommend that you test the organoleptic properties of your finished packaging. You may possibly have to ventilate the stack
- Mineral oil-free formulation

## Technical application

When printing on plastic films or plastic-coated stocks, the substrate must have a surface tension of at least 38 N/m in order to ensure adequate ink adhesion/Scotch tape resistance.

CORONA Label MGA inks have very good, trouble-free printing characteristics. Their special formulation is perfectly suited to printing on polyolefin films. They can be used with all conventional types of press and designs of dampening system. When working with a low ink application rate, we recommend that you also print additional ink take-off bars.

For IML applications, you will generally have to overcoat with a water-based coating. Substrates with a low level of absorptivity necessitate the use of special water-based coatings. Suitable water-based coatings have been developed specifically to meet the requirements of the production of food packages printed with CORONA Label MGA inks. The same is true for fountain concentrates and printing auxiliaries.

You should check the suitability of materials that are to be frozen or articles that are to be filled or finished at temperatures higher than 70°C in advance.

The application instructions that follow in the next section must be strictly obeyed if you want to use MGA inks and coatings to successfully manufacture food packaging that complies with the relevant legislation.

## Application instructions

### Ink consistency

Due to the raw materials used, the inks of the CORONA Label MGA series have a marginally higher viscosity and are therefore less free-flowing than conventional standard offset inks.

### Fount solution delivery and composition

It is best to keep the fount solution delivery setting low, particularly when the ink application rate is low. The **hubergroup** has developed fount concentrates for use specifically with these products:

**HYDROFIX-MGA®** 8014 (for printing with IPA)

### Printing auxiliaries / Ink mixtures

If you need to reduce ink tack, only ever use **Print oil 10MGL1405**.

To improve the drying speed, you can add **INK Active Drier 10MGL5002** in a concentration of no more than 1.5%. Inks to which 10MGL5002 has been added should be used up within 3 to 5 days.

Only those auxiliaries named above may be used and no others. Under no circumstances may printing ink oils, paste reducers or other auxiliaries from the standard offset product range be used with this ink series.

CORONA Label MGA inks may only be mixed with other CORONA Label MGA inks.

### Postprint finishing

The length of time before the print sheets can be converted must be tested on a case-by-case basis and depending on the type of the substrate. In the case of plastic films, this period can be anything up to 4 days. To improve the organoleptic properties, we recommend that you ventilate the stack prior to postprint finishing.

### Roller treatment / Washup

Due to the possible additional negative effect on printed packages with respect to odour and taste, the press rollers must only be sprayed with **CORONA Label MGA ANTISKIN 10MGL1200** or **CORONA Label MGA INKFIT 10MGL3303**. A washup solution that is suitable for use with MGA products must be used to clean rollers and blankets. After washing the rollers, leave them to dry well.

## Classification

According to the Ordinance on Hazardous Substances: none

According to the Regulation of Flammable Liquids: none

Material Safety Data Sheet available on request. Please refer to the contact of your local supplier.