MGA® LABEL 2100

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

Sheet-fed offset printing on non-absorbent substrates for the manufacture of food contact materials poses particular problems. Conventional low-odour and low-migration printing inks which dry solely by absorption (setting) are unsuitable for this printing process.

Thanks to their good oxidative drying characteristics, MGA LABEL 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 the printed material, 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 cardboard stocks, and the production of print products that are subject to high levels of mechanical stress during post-print finishing. As such, this ink series is capable of being used with a wide variety of substrates, from extremely thin 50-µm plastic films up to heavy cardboard stocks with grammages of 1000 g/m².

The oxidative drying properties of these inks guarantee a flexible, stable ink film such as that required when finishing packaging for foodstuffs. 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 hubergroup has developed new sheet-fed offset inks – MGA LABEL – that not only show quick oxidative drying, but also boast low-migration properties.

With MGA LABEL sheet-fed offset inks, food packaging can be made that complies with the current European and national legal requirements.

Printing inks for food packaging

Food packages shall not transfer any substances to the packed foodstuff that

- endanger human health,
- influence the odour or taste of the packed food,
- influence the composition or appearance of the packed food.

Sheet-fed offset printing inks that are used in the manufacture of food packaging in which the packaged food is in direct contact with the unprinted inside of the packaging should therefore be of the low-migration type and have no adverse effect on either the odour or the taste of the packaged foodstuffs.

MGA LABEL is a low migration offset printing ink series for printing of food contact materials. The inks are formulated mineral oil free.

The inks are designed, formulated and manufactured, and the raw materials selected according to the EuPIA-GMP "Printing Inks for Food Contact Materials". All ingredients are listed in annex 2 or 10 of the Swiss Ordinance on materials and articles in contact with food (SR 817.023.21). The ink series is recommended for producing food packaging which is compliant to Regulation (EC) 1935/2004.

MGA LABEL printing inks are formulated using only components that do either not migrate or which have been evaluated for food contact. They are formulated such that in typical packaging applications, the specific migration limits (SMLs) will be met. Possible impurities in raw materials as well as cross-contamination (“non-intentionally added substances” or NIAS) have also been considered. This is a significant difference to standard, conventional sheet-fed offset inks. The migration of any ink component, even evaluated ones, has been reduced to a minimum in the MGA LABEL ink series.

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

MGA LABEL inks are produced in accordance with good manufacturing practice (GMP) in special production facilities to prevent contamination with non MGA products/ raw materials. Every ink batch is 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.

The manufacturer of the packaging has to do a risk assessment and appropriate quality control to ensure that any migration to the packed foodstuff will not exceed legal limits. 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.

Colours available

Process inks

MGA LABEL	Sales code	Fastness properties per ISO 12040 / ISO 2836			
		Light BWS	Alcohol	Solvent mixture	Alkali
Yellow	**41 ML 2100**	**5**	**+**	**+**	**+**
Magenta	**42 ML 2100**	**5**	**+**	**+**	**-***
Cyan	**43 ML 2100**	**8**	**+**	**+**	**+**
Black	**49 ML 2100**	**8**	**+**	**+**	**+**
Yellow light resistant	**41 ML 2100LF**	**6**	**+**	**+**	**+**
Magenta light resistant	**42 ML 2100LF**	**6**	**+**	**+**	**+**
Magenta alkali resistant	**42 ML 2100AR**	**5**	**+**	**+**	**+**

*) 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 MGA LABEL.

Properties

- Printing ink series designed for use on the non-food contact side of food packaging.
- Printing ink for food contact materials (FCM ink) according to the EuPIA definition
- Overall migration < 10 mg/dm²
- Minimal swelling characteristics when applied to polyolefin films → gives excellent flatness
- Good oxidative drying
- Smudge-proof print achieved very quickly
- Excellent rub resistance
- Rapid adjustment of a stable ink/water balance
- Mineral oil-free formulation
- Cobalt-free
- **During oxidative drying, volatile by-products are generated which may affect the organoleptic properties.** We urgently recommend that you test the organoleptic properties of your finished packaging. You may possibly have to ventilate the stack.
- The inks shall only be used for articles intended to be filled, treated, or stored for a longer period of time at temperatures below 200°C.
  Note that in microwave heated applications with susceptors, local temperatures may exceed 200 °C. Domestic oven thermostats show significant variations.
  Also, the odour of the printed samples or finished packaging will increase at higher temperature. For use at higher temperatures (>70°C) an organoleptic test as well as migration testing under actual conditions is recommended.

Technical application

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

MGA LABEL inks have very good, trouble-free printing characteristics. Their special formulation is perfectly suited to printing on polyolefin films. They can be used with any conventional type of press and design 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 MGA LABEL inks. The same is true for fount concentrates and printing auxiliaries.

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

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 MGA LABEL series have slightly 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:

- **MGA HYDROFIX 8014** (with 8-10 vol% IPA)

Printing auxiliaries / Ink mixtures
If you need to reduce ink tack, only ever use **MGA LABEL Print oil 10ML1405** in a concentration of not more than 3%.

To improve the drying speed, you can add **MGA LABEL INK ACTIVE DRYER 10ML5002** in a concentration of no more than 1.5%. Inks to which **10ML5002** 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.

MGA LABEL inks may only be mixed with other MGA LABEL 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
In order to avoid possible additional negative effects on printed packages with respect to odour and taste, the press rollers must only be sprayed with **MGA LABEL Antiskin 10ML1200** or **MGA LABEL Inkfit 10ML3303**. 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

Material Safety Data Sheet available on request.