


Technical Product Information			
ROTOSTAR UV/LED FPG Flexo Ink Series			
<b>Article-No.:</b>		<b>Product name:</b>	
024759..		ROTOSTAR UV/LED FPG 730 871 FLEXO INK	
026994..		ROTOSTAR UV/LED FPG 730 873 FLEXO INK	
026991..		ROTOSTAR UV/LED FPG 730 875 FLEXO INK	
024757..		ROTOSTAR UV/LED FPG 730 877 FLEXO INK	
<b>REVISION: 2</b>	<b>EDITION: OCTOBER 2021</b>	<b>IDENT-NO.: 00544.E</b>	<b>PAGE 1 OF 2</b>

### Product description:

ROTOSTAR UV/LED FPG 730 87x printing inks are radical curing, solvent-free; stable one-component UV-Flexo inks based on bronze or aluminium pigments for paper, board and appropriate non-absorbent substrates. These inks are equally suitable for classic UV curing (mercury vapor lamps) and for the LED sector (LED lamps).

### Migration:

- The formulation is specifically developed for food packaging applications; under selected test conditions migration limits are underscored
- All ingredients are listed on Swiss Ordinance 817.023.21 appendix 1 or 6.
- Raw materials are selected with preference for high purity materials.
- White spirit and mineral oil are excluded from the production of pigments.
- GMP compliant production of ROTOSTAR UV/LED FPG 730 87x products (minimized risk of cross contamination).

The above fundamentally differentiates ROTOSTAR UV/LED FPG 730 87x series from standard UV or UV/LED Flexo inks.

Therefore, ECKART recommends this ink series for selected production of packaging for food, beverages and tobacco (indirect food contact). Nevertheless, the customer must proof the suitability of this ink series for the specific application via a migration test or other measures (e.g., use of functional barriers in the packaging design). The inks are don't recommended for direct food contact.

FPG = Food Packaging Grade

### Background information on migration into foodstuff:

In article 3 of the framework regulation (EC) 1935/2004 on materials and articles intended to come into contact with food, the following is required: Materials and articles must not release any substance into the packed food in concentrations that could endanger human health, change the food's organoleptic properties or its composition to a significant extent. Consequently, the global migration must not exceed 60 ppm. Any non-evaluated substance must either not exceed 10 ppb or 50 ppb in case it is non-genotoxic according to the EFSA guideline (EuPIA Guideline on Printing Inks applied to the non-food Contact Surface of Food Packaging Materials and Articles). For evaluated substances, the listed specific migration limit applies.

Whether these limits will be exceeded or not depends on several aspects as follows:

- type and thickness of substrate
- printing speed
- transferred ink volume
- lamp power

Since the aforementioned printing parameters are beyond the control of ECKART, the fulfillment of the requirements of regulation 1935/2004 when using ROTOSTAR UV/LED FPG products has to be proven by the manufacturer of the food packaging material. However, according to our migration test results, migration limits are undercut under the applied printing and test conditions. Further information on potential migrants is to be found in the „Statement of Composition“, which is available on request.

In all cases, the printed material / package has to test to ensure that the migration properties satisfy the packaging specification.

### Application:

ROTOSTAR UV/LED FPG 730 87x is a UV curing inks for flexo printing on paper, board and different film substrates, for labels, flexible. Suitable for packaging and carton folders as well as for narrow-web as well as wide-web applications.

These inks can also print onto PE, OPP and PET.

As with all metallic inks, the substrate has a big influence on the final result. High absorbent or uneven substrates often cause poor pigment orientation resulting in inferior brilliance. This is true not only for optical properties as brilliance and hiding power, but also for printing properties such as adhesion, transfer and curing. In some cases, the use of primers for an improvement of the substrate surface is advantageous.

### Product properties:

#### Curing:

Migration is depending on many factors, e.g. not fully cured ink lay down is a migration risk.

Strong absorbent and transparent substrates can have a negative impact to the curing properties of the inks.

#### Migration limits will not be kept with insufficient curing.


#### Rub resistance:

Completely cured ROTOSTAR UV/LED FPG 730 87x provide good rub resistance on almost all substrates. To meet high demands on rub resistance an overprint varnish should be applied, ideally in-line with additional curing. However, any finishing will reduce the metallic effect.

#### Adhesion:

ROTOSTAR UV/LED FPG 730 87x show good adhesion to on coated label papers, PE and OPP films, with excellent results. Corona treatment is recommended, also by using coated papers. Maximum adhesion takes effect after around 24 hours.

#### Organoleptic properties (taint and odour):

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ROTOSTAR UV/LED FPG 730 87x are not optimized for properties such as odour and taste (Robinson Test). Testing of the final packaging with regard to sensory requirements is necessary in any case.

In all cases, the printed material / package has to test to ensure that the organoleptic properties satisfy the packaging specification.

**Additional product properties:**

ROTOSTAR UV/LED	FPG 730 871 FPG 730 873 FPG 730 875	FPG 730 877
<b>Pigment type</b>	Cornflake	Silver dollar
<b>Pigment content</b>	approx. 30 %	approx. 10 %
<b>Pigment size (D<sub>50</sub>)</b>	approx. 3.0 µm	approx. 5.0 µm
<b>Solvent content</b>	0 %	0 %

*For specifications of our products, please refer to the technical data sheet.*

**Recommended printing parameters:**

**Anilox configuration:**

The metallic effect depends on the ink lay down. The more hiding power, the higher the brilliance. The following parameters have shown to be useful:

	L/cm	L/inch	Volume cm <sup>3</sup> /m <sup>2</sup>	Volume BCM/in <sup>2</sup>
<b>Full areas &amp; coarse lines</b>	80-120	200-300	12-15	8.0-10.0
<b>Fine lines</b>	140-170	360-440	7-10	4.5-6.5

**Printing viscosity:**

ROTOSTAR UV/LED FPG 730 87x are supplied with printing viscosity.

**Dilution:**

The inks are already adjusted to printing viscosity. It's not recommended to add reactive diluents, as a negative impact to optical effect, curing speed and stability and the low migration properties of the ink could occur.

If it is necessary to adjust the viscosity, this can be achieved by a low addition of diluents.

**Migration properties have to be re-checked as dilution of the ink might influence curing properties and thus migration.**

**Cleaning recommendations:**

ROTOSTAR UV/LED FPG inks can be cleaned by using conventional UV cleaning agents. Also, with esters or

ester/alcohol mixtures, the uncured inks can be removed easily from the cylinders.

Please refer to the safety data sheet and the safety guidelines given there.

**Handling:**

ROTOSTAR UV/LED FPG inks are stable, brilliant one-component inks with low migration characteristics. Blending of ROTOSTAR UV/LED FPG inks with other components should only be done on Eckart's recommendation. Please contact Eckart Technical Support for further advice.

Metallic inks tend to settle because of the high specific gravity of the pigment. This is normal and not due to a lack of quality. The inks can easily stir up and homogenised again. This should be done before viscosity is checked. No pigment settling should be left on the bottom of the container.

When handling with UV-inks, please refer to the safety data sheet and the safety guidelines given there.

**Storage and transportation:**

ROTOSTAR UV/LED FPG inks should be stored at temperatures below 25°C. Direct sunlight should also be avoided.

High temperatures can lead to gelling. Low temperatures can result in the separation of low soluble binder components. Opened containers should never be exposed to the direct sunlight, since these results in a preliminary polymerisation.

**Shelf life:**

6 months

Important: ECKART cannot guarantee shelf-life stability for used products. Often enough used inks are printed again; we recommend optical tests prior to commercial use.

Additionally, used ink should be stored in a drum with air vent valve as possible contaminations (e.g., water content in solvents) can lead to gassing.

For further information or samples, please contact:

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