


Technical Product Information		
ROTOSTAR UV FPG 775 Gold Series		
Article-No.: 023361.. 023528.. 023529..	Product Name: ROTOSTAR UV FPG 77511 rich gold ROTOSTAR UV FPG 77512 rich pale gold ROTOSTAR UV FPG 77513 pale gold	

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Product description:

ROTOSTAR UV FPG 7751x gold products are radical curing, solvent-free; stable one-component UV-Flexo inks based on bronze pigments for paper, board and appropriate non-absorbent substrates based e.g. top-coated self-adhesive polyolefin.

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 FPG 7751x products (minimized risk of cross contamination).

The above fundamentally differentiates ROTOSTAR UV FPG 7751x series from standard UV 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 inks 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 FPG 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 (please refer to the information given in the appendix). 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 have to test to ensure that the migration properties satisfy the packaging specification.

Organoleptic properties (taint and odour):

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

Application:

ROTOSTAR UV FPG 7751x series are 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 printed 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 speed:

On many substrates, the ROTOSTAR UV FPG 7751x gold inks will exhibit good cure at printing speeds of 80 m/min (MEK-test), when using a UV-lamp with power of 140 Watt/cm.

Migration is depends 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 FPG 7751x gold inks 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 FPG 7751x inks 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.

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Additional product properties:

ROTOSTAR UV FPG	7751x gold
Pigment content	approx. 30.0 %
Pigment size (D₅₀)	approx. 2.5 µm
Solvent content	0 %
VOC	0 %
Brilliance	**
Hiding power	**

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 ³ /m ²	Volume BCM/in ²
Full areas & coarse lines	80-120	200-300	12-15	8.0-10.0
Fine lines	140-170	360-440	7-10	4.5-6.5

Printing speed:

At 140 Watt/cm UV-lamp capacity, 15 cm³/m² Anilox volume a printing speed of 90 m/min can be achieved. Dependent on substrate, the printing speed varies.

Printing viscosity:

ROTOSTAR UV FPG 7751x gold inks 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 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 FPG inks are stable, brilliant one-component inks with low migration characteristics. Blending of ROTOSTAR UV 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 stirred 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 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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