Technical Product Information

METALSTAR UV/LED FPG 726 INK series

Article-No:	Product name:
025877..	METALSTAR UV/LED FPG 726 871
025879..	METALSTAR UV/LED FPG 726 872
025880..	METALSTAR UV/LED FPG 726 873
025784..	METALSTAR UV/LED FPG 726 874
025878..	METALSTAR UV/LED FPG 726 875
024917..	METALSTAR UV/LED FPG 726 877

Product description:

METALSTAR UV/LED FPG 726 Pantone inks are radical curing, solvent free, stable one-component inks, based on aluminium and gold bronze pigments. Suitable for paper, board and various 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
- Raw materials are selected with preference for high purity materials.
- White spirit and mineral oil are excluded from the pigment production process.
- GMP compliant production of METALSTAR UV/LED FPG 726 products (minimized risk of cross contamination) is guaranteed.

The above fundamentally differentiates METALSTAR UV/LED FPG 726 series from standard UV or UV/LED Offset inks.

Therefore, ECKART recommends this ink series for selected production of packaging for food, beverages and tobacco (indirect food contact). Nevertheless, the customer has to 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 not recommended for direct food contact.

What is LED curing

UV-curing methods can be differentiated by the light source which is used. Mercury vapor lamps are the industry standard for curing products with ultraviolet light. These lamps emit a spectral output in the UV region of the light spectrum. The light intensity occurs in the 240 nm-270 nm and 350-380-nm. This intense spectrum of light is what causes the rapid curing of the standard UV inks
In the last few years an emerging type of UV curing technology called UV LED curing has entered the marketplace. This technology is growing rapidly in popularity as it is less energy consuming than mercury vapor lamps. LEDs used to be much more expensive but last up to 10 times longer and can be cycled on and off frequently as they require no startup or cool down period.
As LED lamps are only emitting one decent wavelength, inks with a curing especially optimized for this curing method are necessary.

Organoleptic properties (taint and odor):

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

Application:

METALSTAR UV/LED FPG 726 products are UV curing inks for offset printing on paper and board, e.g., folding cartons.

As with all metallic inks, the substrate has an influence on the final result. Very absorbent or uneven substrates often cause poor pigment orientation resulting in inferior brilliance. This is true not only for optical properties such 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.

The inks are suitable to be overprinted in-line. It's recommended to cure before varnish is applied to preserve the metallic effect.
Over lacquering reduces the metallic effect. This influence, as well as the cohesion depend very much on the lacquer and should be tested prior to any commercial use.

Product properties:

Rub resistance:

METALSTAR UV/LED FPG 726 inks are based on leafing pigments and provide good brilliance. The rub resistance is acceptable. Use UV lacquer for protection, however any finishing reduces the brilliance.

Intercoat adhesion:

The leafing properties of the metallic pigments can cause problems with all kind of finishing. Every surface finishing (lacquers, laminates …) will decrease the metallic brilliance.

In each respective case, individual tests are necessary because of the multiple factors influencing the final result.

Chemical resistance:

The different shades of gold bronze pigments are based on an alloy of copper and zinc (brass) in different ratios. It's possible then can react with chemicals or natural materials and might change color shade up to complete decomposition of the metal pigments. Carefully testing of all materials involved in the whole production process, although not directly involved in the printing process, is absolutely necessary before commercial print runs.

Additional product properties:

METLSTAR UV/LED FPG 726 xxx	871 - 875	877
Color shade	Gold	Silver
Pigment type	Cornflake	Silver dollar
Pigment content	appr. 40%	appr. 20%
Pigment size (D_{50})	appr. 2,0 µm	appr. 5,0 µm

For technical specifications please refer to the technical data sheet.

Recommended printing parameters:

Print Density:

Measurements need to be taken with a densitometer including polarisation filter. The guiding values might change depending on press conditions, substrates, etc.

METALSTAR UV/LED FPG	Colour density (cured)	Filter
726 87x gold series	1.4 – 1.6	Yellow
877 silver	1.0 -1.1	Cyan

Printing speed:

The maximum printing speed depends on press conditions, conditions of the UV lamps, substrate and chosen design. Press speeds up to 12.000 sheets per hour are possible.

Fountain solution:

METALSTAR UV/LED FPG inks can be used with most commercially available fountain solutions. An ideal pH in the range of 5 - 5.5 avoids drying problems and tarnishing. High pH levels may lead poor printability.
Alcohol in damping units can be beneficial to metallic inks (up to 10%). METALSTAR UV/LED FPG inks print perfect with a wide range of alcohol-free fountain solutions. For best printing results please contact your press chemical supplier.

Printing plates:

Polymer layers of printing plates are sensitive to mechanical influences. Differences in the chemical nature of the polymers show significant variances in sensitivity, e.g., CTP plates are known to be more sensitive than conventional plates.
All metallic inks are abrasive by nature and might reduce the plate life circle, depending on pigment grade, the kind plate and the number of impressions.
We recommend baking the plate to prolong its life.

Dilution:

METALSTAR UV/LED FPG inks are press ready and should not be diluted. It's not recommended to add reactive diluents, as a negative impact to optical effect, curing speed and stability of the ink could occur.

Additives:

Not recommended. Any modification might impact the stability or the optical properties of the ink and is taken on own risk.

Cleaning recommendations:

METALSTAR UV/LED FPG inks can be cleaned by using commercial UV cleaning products.

Contamination of the ink with cleaning agents should be avoided in order to maintain stability and optical properties. Please refer to the safety data sheet for safety instructions.

Handling:

METALSTAR UV/LED FPG inks are stable, one-component, press ready inks - no modifications are needed nor recommended. However, blending of UNIPAK UV inks with other components should only be done per ECKART's recommendations in order to avoid a possible decrease in quality.

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

Storage and transportation:

METALSTAR UV/LED FPG inks should be stored at temperatures below 25°C. Direct sunlight has to be avoided.

High temperatures can lead to gelling. Low temperatures can result in the separation of low soluble binder components.

Open containers should never be handled in the direct sunlight, since this results in a preliminary polymerisation.

Shelf life: 6 months

Important: ECKART strongly recommends disposing of used ink after running on press, as the shelf-life of this material can be greatly reduced due to various factors such as light, heat, contaminants etc.
ECKART cannot guarantee the shelf life of printing ink which has been previously used or modified, nor for inks that have been stored outside the above conditions.

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