

Ultra RotaScreen UVSF



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UV-curable screen printing ink for Corona-pre-treated or top-coated polyethylene (PE) and polypropylene (PP), self-adhesive films, top-coated polyester PET films, PVC, and paper labels

Silicone-free, high gloss, very fast curing, good opacity, high chemical resistance, for UV rotary screen printing with cylindrical screen printing stencils like Gallus Screeny® and Stork Screens Rotamesh®

Field of Application

Substrates

Ultra RotaScreen UVSF is a universal and highly resistant UV rotary screen printing ink, suitable for the following substrates:

- PE, PP self-adhesive films, Corona pre-treated or top-coated
- polyester PET films, top-coated
- PVC, paper labels

For PE foils, we generally recommend high-frequency Corona pre-treatment to increase the surface tension to at least 42-44 mN/m. PP foils should exhibit surface tensions of at least 48 mN/m after high-frequency Corona-pre-treatment for optimum wetting and adhesion of the UV screen printing ink.

Since all the print substrates mentioned may be different in printability even within an individual type, preliminary trials are essential to determine the suitability for the intended use.

Field of use

Ultra RotaScreen UVSF is silicone-free and has been developed particularly for UV rotary screen printing with cylindrical printing stencils from Gallus Screeny® or Stork Screen Rotamesh® used in label printing with modern hybrid/combination printing machines.

Owing to the silicone-free adjustment of UVSF, the receptivity of flexo, offset, or letterpress inks when overprinted or pre-printed as well as of thermotransfer has clearly been improved. All UVSF colour shades can further be embossed with suitable hot stamping foils.

UVSF 173, UVSF 174, and UVSF 179 whites are best suited as an opaque and full-area basic

layer for combination labels over-printed with UV flexo printing inks on transparent foils. UVSF is suited for printing speeds of up to 65 m/min. Preliminary trials are essential.

This ink series is not suitable for direct food contact nor for printing on food contact materials as substances contained in the formulation or introduced by contamination may migrate under certain conditions. Materials that constitute a natural migration barrier are excluded.

If this ink series is nevertheless used for printing on permeable food contact materials, the manufacturer of the printed product is responsible for ensuring that its products comply with legal or industry-specific requirements.

For printing on permeable food contact materials (= without appropriate migration barrier), we recommend our specially designed Ultra Pack UVFP.

Characteristics

In regard of viscosity and rheology, all Ultra RotaScreen UVSF colour shades are press-ready, and brilliant at high gloss and best possible opacity. All shades can be embossed with suitable hot stamping foils.

The opaque whites feature a high opacity as well as a very high homogeneous flow for solid areas and exact dot reproduction when printing finest motifs or letters.

The printed and totally polymerised ink film has a high chemical and mechanical resistance and offers a good flexibility for die-cutting by means of flat bed or rotary tools.

For silicone-free products it is important to use only thoroughly cleaned stencils, squeegees, ink pumps, tubes (in the case of an automatic ink supply), and injectors for the manual ink filling of the stencil, etc. If cleaning is carried out with automatic screen washing systems,

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we recommend prior to printing an additional manual cleaning with a fresh cleaner not having had any contact with ink residues containing silicone.

Care should be taken with some adhesive tapes, used to protect the outer areas of the print region, as the release agent of the tape may be silicone.

Ink Adjustment

The ink should be stirred homogeneously before printing and if necessary during production.

In case the viscosity needs to be decreased, Thinners UVV 5/6 can be used.

To avoid a disturbing orange peel structure in the printed ink film, it is to ensure that the ink level in the stencil must be rather high.

Drying

Ultra RotaScreen UVSF is a very fast curing UV rotary screen printing ink. A UV drying unit with one or two medium pressure Mercury Vapour Lamps (capacity 150-200 W/cm) cures all colour shades at a web speed of 25 - 65 m/min.

The curing speed of the ink is generally dependant upon the kind of UV-curing unit (reflectors), number, age, and power of the UV-lamps, the printed ink film thickness, colour shade, substrate in use, as well as the printing speed.

Ultra RotaScreen UVSF is a post-curing UV ink which will achieve its final adhesion and resistances after 24 hours. The adhesion of the ink is usually tested by a tape test after the ink film has cooled down to room temperature (approx. 20° C).

As with all UV-curable printing inks, the presence of residual monomers and photoinitiators' decomposition products cannot be completely ruled out even after sufficient curing. If these traces are relevant for the application, this must be taken into account in individual cases, as this depends on the actual printing and curing conditions.

Please make sure that waste prints are also completely cured, otherwise they are subject to the same disposal rules as liquid ink residues (hazardous waste).

Fade resistance

Pigments of low to high fade resistance are used for Ultra RotaScreen UVSF. This means that an outdoor use is generally not recommended.

Stress resistance

After proper and thorough drying, the ink film exhibits outstanding adhesion as well as rub, scratch, and block resistance, and is highly resistant to solvents, alcohol, finger sweat, water, and other usual fillers.

Range

High Opaque Shades

173	Opaque White
179	Opaque White

Further Products

904	Special Binder
910	Overprint Varnish

UVSF 173 is a highly productive premium Opaque White with best possible degree of white.

UVSF 179 is the standard Opaque White with best performance at reasonable pricing.

All shades are intermixable. Mixing with other ink types or auxiliaries must be avoided in order to maintain the special characteristics of this ink.

Metallics

Metallic Pastes

S 191	Silver	15-25%
S 192	Rich Pale Gold	15-25%
S 193	Rich Gold	15-25%
S-UV 191	Silver	15-25%

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S-UV 192	Rich Pale Gold	15-25%
S-UV 193	Rich Gold	15-25%
S-UV 291	High Gloss Silver	10-25%
S-UV 293	High Gloss Rich Gold	10-25%
S-UV 296	High Gloss Silver	12-17%
S-UV 297	High Gloss Rich Pale Gold	12-17%
S-UV 298	High Gloss Pale Gold	12-17%

These Metallics are added to UVSF 904 in the recommended amount, whereas the addition may be individually adjusted to the respective application. We recommend preparing a mixture which can be processed within a maximum of 8 h since metallic mixtures usually cannot be stored. Owing to the smaller pigment size of Metallic Pastes it is possible to work with finer fabrics like 140-31 to 150-31. All metallic shades are displayed in the Marabu "Screen Printing Metallics" colour chart.

Auxiliaries

UVV 5	Thinner	1-6%
UVV 6	Thinner	1-5%
STM	Thickening Agent	0.5-2%
UR 4	Cleaner (flp. 52°C)	
UR 5	Cleaner (flp. 72°C)	

The addition of thinner reduces the ink viscosity if necessary. An excessive addition of thinner will cause a reduction of the curing speed, as well as of the printed ink film's surface hardness. The thinner becomes part of the cross-linked matrix when UV-cured and may slightly change the inherent odour of the printed and cured ink film. The thinners are not suitable for UVSF 174!

The Thickening Agent STM enhances the ink's viscosity without significantly influencing the degree of gloss. Please stir well, the use of an automatic mixing machine is recommended.

Cleaner UR 4 is recommended for manual cleaning of the working equipment. Cleaner UR 5 is recommended for manual or automatic cleaning of the working equipment.

Printing Parameters

UVSF has been developed for rotary screen printing meshes such as Gallus Screeny®

(types KS, KM) or Stork Screens Rotamesh® (RM 305 with 17, 13 or 11% of open surface).

Shelf Life

Shelf life depends very much on the formula/reactivity of the ink system as well as the storage temperature. The shelf life for an unopened ink container if stored in a dark room at a temperature of 15 - 25 °C is:

- 1 year for Opaque White 173
- 2 years for the other UVSF standard products

Under different conditions, particularly higher storage temperatures, the shelf life is reduced. In such cases, the warranty given by Marabu expires.

Note

Our technical advice whether spoken, written, or through test trials corresponds to our current knowledge to inform about our products and their use. This is not meant as an assurance for certain properties of the products nor their suitability for each application.

You are, therefore, obliged to conduct your own tests with our supplied products to confirm their suitability for the desired process or purpose. The foregoing information is based on our experience and should not be used for specification purposes. All characteristics described in this Technical Data Sheet refer exclusively to the standard products listed under "Range", provided that they are processed in accordance with their intended use and only when used with the recommended auxiliaries. The selection and testing of the ink for specific applications is exclusively your responsibility. Should, however, any liability claims arise, they shall be limited to the value of the goods delivered by us and utilised by you with respect to any and all damages not caused intentionally or by gross negligence.

Labelling

For Ultra RotaScreen UVSF and its auxiliaries, there are current Material Safety Data Sheets

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available according to EC regulation 1907/2006, informing in detail about all relevant safety data including labelling according to EC regulation 1272/2008 (CLP regulation). Such health and safety data may also be derived from the respective label.

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Safety rules for UV printing inks

UV-inks contain some substances which may irritate the skin. Therefore, we recommend to take utmost care when working with UV-curable printing inks. Parts of the skin soiled with ink are to be cleaned immediately with water and soap. Please read the notes on labels and safety data sheets.