

# UltraRotaScreen UVSF



Vers. 02  
2006  
13. Mar

UV screen printing ink for Corona pre-treated or top-coated polyethylene (PE) and polypropylene (PP), self-adhesive foils, top-coated polyester PET foils, 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 from Gallus Screeny® and Stork Screens Rotamesh®

## Field of Application

### Substrates

UltraRotaScreen UVFS is a universal and highly resistant UV rotary screen printing ink, suitable for the following substrates:

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

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

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.

### Field of use

UltraRotaScreen 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/composition 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 is suited for printing speeds of up to 65 m/min. Preliminary trials prior to printing are indispensable.

## Characteristics

### Ink characteristics

In regard of viscosity and rheology, all UltraRotaScreen UVSF colour shades are press-ready, high-glossy, and brilliant at a best possible opacity.

Opacity of both the Opaque White UVSF 170 and 172 are particularly high with a best possible degree of white. It has a very homogeneous ink flow in full-area printing as well as a sharp-edged definition for dot or negative printing.

All UVSF shades can be embossed with suitable hot stamping foils. 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.

### Adjustment and handling of the ink

UltraRotaScreen UVSF is press-ready. However, please stir well before printing.

For a possible decrease in viscosity of the ink, Thinner UVV 5 (1 – 6%) can be used.

For the silicone-free UVSF, it is important to use only thoroughly cleaned stencils, squeegees, ink pumps, as well as tubes (in the case of an automatic ink supply), and injectors for the manual ink filling of the stencil, etc.

# UltraRotaScreen UVSF



If cleaning is carried out with automatic screen washing systems, we recommend prior to printing an additional manual cleaning with a fresh cleaner not having had any contact with ink residues containing silicone.

It is essential that a silicone contamination is avoided! If ink flow problems may nevertheless arise, please clean once more stencil and squeegee with a fresh cleaner.

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.

## Curing

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 belt speed of 25 - 65 m/min (UVSF 170 up to 85 m/min).

Generally, the hardening speed of the ink depends on the type of UV dryer (reflector), number, age and capacity of the UV tubes, printed ink film thickness, colour shade, substrate, and belt speed of the UV dryer.

UltraRotaScreen UVSF is a post-curing UV ink. The ink film should pass a tape test after exiting the curing unit and cooled to room temperature.

It achieves its maximum chemical and physical resistance (e.g. abrasion resistance) after 24 h due to the given post-curing process of radically curing UV printing inks.

## Fade resistance

Depending on the colour shade, pigments of low to high fade resistance are used for UVSF. This means that an outdoor use is generally not recommended. Highly fade-resistant shades are available on request.

## 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.

## Stencils, Yield

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).

Yield is about **60-90 m<sup>2</sup>** per kg ink depending on mesh and substrate selected.

## Range

### Basic shades

(13 colour shades acc. to System Ultracolor)

|          |              |          |                |
|----------|--------------|----------|----------------|
| UVSF 922 | Light Yellow | UVSF 952 | Ultramarine    |
| UVSF 924 | Medium Yell  |          | Blue           |
| UVSF 926 | Orange       | UVSF 956 | Brilliant Blue |
| UVSF 932 | Scarlet Red  | UVSF 960 | Blue Green     |
| UVSF 934 | Carmine Red  | UVSF 962 | Grass Green    |
| UVSF 936 | Magenta      | UVSF 970 | White          |
| UVSF 940 | Brown        | UVSF 980 | Black          |
| UVSF 950 | Violet       |          |                |

All shades are intermixable. To maintain the special characteristics of this outstanding ink range, UVSF should not be mixed with other ink types either containing silicone or free of it.

All basic shades are stored in our Marabu-ColorFormulator (MCF). They build the basis for the calculation of individual formulas, as well as colour matches according to the common reference systems Pantone®, and HKS®. All formulas are stored in the Marabu-ColorManager 2 (MCM 2) software.

# UltraRotaScreen UVSF



The pigments used in the above mentioned standard shades, based on their chemical structure, correspond to the EEC regulations EN 71/part 3, safety of toys - migration of specific elements. We **do not recommend** printing onto labels for toys and food containers for small children due to possible direct mouth contact as we cannot exclude the potential content of unpolymerized monomers and reduction products of photoinitiators even if the ink is totally cured.

## Opaque Whites

Both the opaque white products are high-opaque and excel due to a best possible degree of white.

### UVSF 170 Opaque White

High-gloss rotary white with a low viscosity and excellent ink flow characteristics for maximum printing speeds of up to 85 m/min.

### UVSF 172 Opaque White

High-gloss rotary white with a higher viscosity (compared to UVSF 170) and excellent ink flow characteristics for maximum printing speeds of up to 65 m/min. The higher viscosity adjustment ensures that the ink does not easily drip through the screen in the case of machine stops. UVSF 172 is not suited as a mixing white for colour matches.

## Opaque Black

### UVSF 180 Opaque Black

Opaque Black with high opacity and a deep degree of black for speeds of up to 65m/min .

## Additives

### UVSF 904 Special Binder

- as a binder for high-gloss bronze pastes
- to extend the ink
- to accelerate curing (if UV radiation is too low)

An addition of UVSF 904 (1-15% parts by weight) accelerates the curing speed of colour shades and reduces opacity at the same time. UVSF **cannot** be recommended as a printing varnish since its transparency is not sufficient.

### UVSF 910 Print Varnish

High-glossy and transparent overprint varnish for the varnishing of labels.

### High-Gloss Bronze Pastes

Three high-gloss bronze pastes are available to be mixed with UVSF 904 Special Binder. The mixing ratio can be varied as to the required opacity, ink price, and curing characteristics.

S-UV 191 High-gloss Silver (4:1-7:1)

S-UV 192 Rich Pale Gold (4:1-7:1)

S-UV 193 Rich Gold (4:1-7:1)

All figures in brackets are guidelines. The ratios in brackets refer to the mixture Special Binder UVSF 904 to bronze paste whereas the first figure standing for parts by weight of special binder.

For more details, please see our technical data sheet "High-gloss Bronze Pastes".

## Auxiliaries

### UVV 5 Thinner

Due to its low viscosity, UVSF is press-ready and does not require any further adjustments prior to printing. If necessary, however, or in the case of printing bronze shades, 1-6 % of Thinner UVV 5 can be added to the ink.

UVV 5 is bonded chemically in the ink film during UV-curing. If an excessive amount has been added, however, curing speed may be reduced and the ink film will remain soft and tacky.

# UltraRotaScreen UVSF



## Cleaning

For manual cleaning of screen printing stencils, our Cleaners UR 3 (flame point 42°C) or UR 4 (flame point 52°C) can be used.

## Shelf life

Shelf life depends very much on the formula/ reactivity of the ink system as well as the storage temperature. It is one year for an unopened ink can if stored in a dark room at a temperature of 15 to 25 °C.

Under different conditions (particularly higher storage temperatures), shelf life will be reduced. In such cases, Marabu's warranty expires.

## Labelling

For our ink type UltraRotaScreen and its additives and auxiliaries there are current Material Safety Data Sheets according to EC-regulation 91/155, covering in detail all relevant safety data including the labelling according to the present EC regulations as to health and safety labelling requirements.

Such health and safety data may also be obtained from the respective label.

## Safety Regulations for UV Screen Printing Inks

We recommend that UV screen printing inks and auxiliaries should be handled with particular care.

Follow the instructions given on the labels and in the Material Safety Data Sheets.

## 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 selection and testing of the ink for specific application is exclusively your responsibility.

Should, however, any liability claims arise, such claims 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.