

# UltraRotaScreen UVRS



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**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**

**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

UltraRotaScreen UVRS is a universal and highly resistant UV-rotary screen printing ink.

### Substrates

UVRS is suitable for the following substrates:

- PE, PP self-adhesive foils, corona pre-treated or top-coated
- polyester PET foils, 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 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.

### Field of use

UltraRotaScreen has been developed particularly for rotary screen printing with cylindrical printing stencils from Gallus Screeny® and Stork Screen Rotamesh® used in label printing with modern hybrid/combination printing machines.

The UVRS opaque white is best suited as an opaque and full-area basic layer for combination labels over-printed in UV letter press, UV

offset, or – with some restrictions - UV flexo printing inks on transparent foils.

Since all UVRS colour shades contain silicone flow-additives, a preliminary check for compatibility of the corresponding UV letter press, UV offset, or UV flexo printing inks is essential. Alternatively the silicone-free ink type UltraRotaScreen UVSF is available.

## Characteristics

### Ink characteristics

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

All UVRS 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 of the ink

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

UVRS exhibits a wide application field on different printing machines without the addition of any auxiliaries but can be modified by additives in its reactivity and viscosity if required. For more details, please see chapter "Additives and Auxiliaries".

### Curing

UVRS is a very fast curing UV-rotary screen printing ink. A UV-drying unit with one or two medium pressure mercury vapour lamps

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(150-200 W/cm power) cures all colour shades at a web speed of 25-85 m/min.

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

UltraRotaScreen UVRS 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 medium to good fade resistance are used for UVRS. This means an outdoor resistance of up to 6 months for shades within the critical yellow-red colour range. 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 common fillers.

## Range

### Basic Shades – System Ultracolor

922	Light Yellow	952	Ultramarin Blue
924	Med. Yellow	956	Brilliant Blue
926	Orange	960	Blue Green
932	Scarlet Red	962	Grass Green
934	Carmin Red	970	White
936	Magenta	980	Black
950	Violet		

## High-opaque shades

- 173 Opaque White
- 180 Opaque Black

### UVRS 173 Opaque White

Opaque white based on the most modern generation of raw materials, which can be overprinted very well with UV-curable letterpress- or offset-inks.

The UVRS opaque white exhibits a very high homogeneous flow for solid areas and exact dot reproduction when printing finest motifs or letters.

- high gloss finish
- high opacity
- web speed up to 80 m/min.
- excellent homogeneous ink flow
- best possible degree of whiteness

For overprinting with UV-curable flexo inks, we recommend the silicone-free UVSF opaque whites (see separate Technical Data Sheet UVSF).

### UVRS 180 Opaque Black

Opaque black with high opacity and a deep degree of black for web speed of up to 85 m/min.

All shades are intermixable. To maintain the special characteristics of this outstanding ink range, UVRS should not be mixed with other ink types.

The 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-Color Manager software.

We **do not recommend** printing onto labels for toys due to possible direct contact with the mouth as we cannot exclude the potential content of unpolymerized monomers and reduc-

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tion products of photoinitiators even if the ink is totally cured.

## Additives

### Special Binder UVRS 904

Addition: 1 - 15% parts by weight

Special Binder UVRS 904 can be used as bronze binder or as extender for basic shades. An addition of UVRS 904 will accelerate the curing speed reducing, however, the opacity at the same time. UVRS 904 **cannot** be recommended as a printing varnish since its transparency is not sufficient.

### Overprint Varnish UVRS 910

Highly reactive and transparent overprint varnish with a high gloss. UVRS 910 has non-yellowing features and is, therefore, best suited as a bronze binder, especially for silver shades.

### UVRS 912 Relief Varnish

Highly reactive, transparent, and flexible varnish, especially suited for relief printing by using a suitable stencil. For a best flexible adjustment of the varnish, UVV 6 thinner (1 - 6%) can be added.

### UVRS 913 Varnish, milky-matt

Milky-matt coating for an attractive no-label look on high quality cosmetic and wine bottles. UVRS 913 is very resistant, and in order to create coloured effects, it may also be coloured by adding UVRS basic shades.

For braille applications, we recommend to use the UVLB 1 varnish (see separate technical data sheet).

## Bronzes

Various bronze pastes are available which can be mixed with UVRS 904 / UVRS 910. They can be chosen according to the required opacity,

cost limit, visual impression, and curing characteristics.

### Versatile Bronze Pastes

1 month pot life, very good opacity

S 191	Silver	4:1 - 7:1
S 192	Rich Pale Gold	4:1 - 7:1
S 193	Rich Gold	4:1 - 7:1

### Low-priced, slightly structured Bronze Pastes

6 months pot life, fair opacity

S-UV 191	Silver	4:1 - 7:1
S-UV 192	Rich Pale Gold	4:1 - 7:1
S-UV 193	Rich Gold	4:1 - 7:1

### High-gloss fine pigmented bronzes

24 h pot life, good opacity

S-UV 296	High-gloss Silver (6:1-9:1)
S-UV 297	High-gloss Rich Pale Gold (6:1-9:1)
S-UV 298	High-gloss Pale Gold (6:1-9:1)

### High Opacity 'Metallic' Bronzes

Slightly structured, excellent rub resistance, max. 12h pot life

S-UV 291	High-gloss Silver	4:1 - 10:1
S-UV 293	High-gloss Rich Gold	4:1 - 10:1

All figures in brackets are guidelines which can be changed according to opacity and curing speed. The ratio figures in brackets refer to the mixture special binder UVRS 904/ overprint varnish UVRS 910 to paste whereas the first figure is standing for the parts by weight of UVRS 904/910.

## Auxiliaries

### Thinner UVV 5

Addition: 1 - 6 % parts of weight

Due to its low viscosity, UVRS 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% thinner UVV 5 can be added to the ink. In the

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case of UVRS 912, we recommend the thinner UVV 6 instead of UVV 5. UVV 5 is chemically bound in the ink film when UV-cured. An excessive addition of thinner may cause a reduction in curing speed, as well as in surface hardness of the printed ink film.

## Cleaning

For manual cleaning of screen printing stencils and tools our cleaner UR 3 (flash point 42° C) or UR 4 (flash point 52°C) can be used.

## Fabrics, stencils

UVRS has especially been developed for rotary screen printing meshes from Gallus Screeny® (types KS, KM, KF, and HS) and Stork Screens Rotamesh® e.g. RM 305 with 17, 13 or 11% open surface).

## Mileage

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

## 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:

- 2 years for the UVRS Basic Shades 922 – 962 + 980 and opaque black 180
- 18 months for white 970 & opaque white 173

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

## Labelling

For our ink type UltraRotaScreen and its additives and auxiliaries there are current Material Safety Data Sheets available according to EC-regulation 1907/2006, 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.