Ultra RotaScreen UVRS

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

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

Ultra RotaScreen 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 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.

Characteristics

In regard of viscosity and rheology, all Ultra RotaScreen 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.

Ink Adjustment

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

Drying

Ultra RotaScreen UVRS is a very fast curing UV-rotary screen printing ink. A UV-drying unit with one or two medium pressure mercury vapour lamps (150-200 W/cm power) cures all colour shades at a belt speed of 25-85 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 UVRS is a post-curing UV ink which will achieve its final adhesion and resistances after 24 hours. The ink film should pass a cross hatch tape test after having cooled down to room temperature.
**Fade resistance**
Depending on the colour shade, pigments of medium to good fade resistance are used for Ultra RotaScreen UVRS, so the critical yellow-red colour range has an outdoor resistance of up to 6 months.

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

**High Opaque Shades**
- 173 Opaque White
- 180 Opaque Black

**Further Products**
- 904 Special Binder
- 910 Overprint Varnish
- 912 Overprint Varnish (Relief)
- 913 Milky Matt Varnish

UVRS 904 cannot be recommended as a printing varnish since its transparency is not sufficient. Overprint Varnish UVRS 910 is a 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 is highly reactive, transparent, and flexible, suited especially for relief printing with a suitable stencil. For a more flexible adjustment of the varnish, UVV 6 thinner can be added. UVRS 913 Varnish is a 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 mixed with UVRS basic shades. For braille applications, we recommend UVLB 1 (see separate Technical Data Sheet).

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

All basic shades are included in our Marabu-ColorFormulator (MCF). They build the basis for the calculation of individual colour matching formulas, as well as for shades of the common colour reference systems HKS®, PANTONE®, and RAL®. All formulas are stored in the Marabu-ColorManager software.

We do not recommend this ink for toys due to the foreseeable contact with the mouth since the possible presence of residual monomers and decomposition products of the photo-initiators cannot be excluded even when sufficiently cured.

**Metallics**

**Metallic Pastes**
- S 191 Silver
- S 192 Rich Pale Gold
- S 193 Rich Gold
- S-UV 191 Silver
- S-UV 192 Rich Pale Gold
- S-UV 193 Rich Gold
- S-UV 291 High Gloss Silver
- S-UV 293 High Gloss Rich Gold
- S-UV 296 High Gloss Silver
- S-UV 297 High Gloss Rich Pale Gold
- S-UV 298 High Gloss Pale Gold

These Metallics are added to UVRS 904 or UVRS 910 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**

<table>
<thead>
<tr>
<th>Code</th>
<th>Name</th>
<th>Composition</th>
</tr>
</thead>
<tbody>
<tr>
<td>UVV 5</td>
<td>Thinner</td>
<td>1-6%</td>
</tr>
<tr>
<td>UVV 6</td>
<td>Thinner, only for UVRS 912</td>
<td>1-6%</td>
</tr>
<tr>
<td>UV-TA 1</td>
<td>Thickening Agent</td>
<td>0.1-0.5%</td>
</tr>
<tr>
<td>UR 3</td>
<td>Cleaner (Ip. 42°C)</td>
<td></td>
</tr>
<tr>
<td>UR 4</td>
<td>Cleaner (Ip. 52°C)</td>
<td></td>
</tr>
<tr>
<td>UR 5</td>
<td>Cleaner (Ip. 72°C)</td>
<td></td>
</tr>
</tbody>
</table>

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. For UVRS 912 we recommend the Thinner UVV 6 instead of UVV 5.

The liquid Thickening Agent UV-TA 1 increases the viscosity and improves the dot definition at higher processing temperatures.

The cleaners UR 3 and UR 4 are recommended for manual cleaning of the working equipment. Cleaner UR 5 is recommended for manual or automatic cleaning of the working equipment.

**Printing Parameters**

Ultra RotaScreen 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).

**Shelf Life**

Shelf life depends very much on the formula/reactivity of the ink system as well as the storage temperature. It is 2 years for an unopened ink container if stored in a dark room at a temperature of 15-25°C. 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.

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 UVRS and its auxiliaries, there are current Material Safety Data Sheets 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.

**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.