

UV-curable screen printing ink for corrugated board, cardboard, paper, self-adhesive foils, rigid & plasticised PVC, and polystyrene

Satin gloss, very fast curing, suited for single or multi-colour lines, press-ready, excellent detail printing, high chemical resistance, flexible ink film for post-processing steps like folding, stamping, grooving

Field of application

UVBR is a UV-curable screen printing ink for printing on displays and packaging. The ink is highly reactive und suitable for single- or multi-colour lines.

Substrates

UVBR is suited for the following substrates:

- Corrugated board, cardboard, and paper
- Self-adhesive PVC foils
- Rigid PVC
- Plasticised PVC (preliminary trials essential)
- Polystyrene PS

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. Especially plasticised PVC requires suitable preliminary trials, owing to the diversity of qualities offered.

Characteristics

Ink characteristics

All UVBR basic shades are satin gloss (printed on non-absorbent substrates). On absorbent substrates, such as corrugated board or cardboard, the ink film appears matt. The printed ink film is very flexible so that it is ideal for post-processing.

Colour adjustment

Ultraboard UVBR is press-ready but must be stirred homogeneously before printing.

Curing

UVBR is a very fast curing UV-ink. A UV-curing unit with two medium-pressure mercury lamps (80-120 W/cm) cures UVBR at a belt speed of 40 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 layer thickness, colour shade, substrate in use, as well as belt speed of the UV-curing unit.

UVBR is a post-curing ink. The ink film will withstand a cross-cut tape test after having cooled down to room temperature.

Fade resistance

Displays and cardboards are suited for indoor use. Therefore, the light fastness of the UVBR basic shades is limited for permanent outdoor exposure of 4 weeks and 3 months in show-cases with a direct daily exposure to the sun.

In addition to the two highly fade resistant 4-colour process shades (process blue and process black), suitable for 2 years outdoor exposure, there are two standard colour shades available featuring 6 months fade resistance (process yellow & process red), referred to the middle European climate north of the forty-fifth degree of latitude.

Stress resistance

After proper and thorough drying, the ink film exhibits outstanding adhesion, as well as rub, scratch and block resistance. Furthermore, the UVBR is suited for the post-processing steps such as stamping, cutting, folding, and grooving.

Ultraboard UVBR



Range

Basic Shades - System Ultracolor

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

All shades are intermixable. Ultraboard UVBR should not be mixed with other types of ink to maintain the special characteristics of this outstanding ink range.

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-Color Manager software.

Further shades available

170	Opaque White
180	Opaque Black

Shades for 4-colour process printing

(satin gloss for white substrates)

Basis for the density values is a 150-34 mesh whereas many further printing parameters may also influence this value.

4-colour process shades with medium fade resistance

(6 months, middle European climate)

424	Process Yellow	density 1.4-1.5
434	Process Red	density 1.4-1.5

Highly fade-resistant 4-colour process shades

(2 years, middle European climate)

455	Process Blue (Cyan)	density 1.4-1.5
485	Process Black	density 1.8-1.9

4-colour process shades acc. to “Fogra” are available upon request. For further information please see our detailed TechInfo „Fogra“.

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.

Due to possible direct contact with the mouth, **we do not recommend** to use this ink neither for baby bottles, toys, nor for food packaging in direct touch with food since the possible presence of residual monomers and decomposition products of the photo-initiators cannot be excluded even when sufficiently cured.

When printing onto exterior packaging for food or similar goods, we recommend a migration test of the final product.

Additives

Transparent Base UVBR 409

Thixotropic auxiliary for 4-colour process printing, fine details, and reverse printing.

By adding transparent base to the 4-clr. process shades, the ink’s density will be reduced and can be adjusted according to the print copy.

Special Binder UVBR 904

Addition: 1 - 25% parts by weight

Special Binder UVBR 904 can be used as bronze binder or as extender for basic shades. An addition of UVBR 904 will accelerate the curing speed reducing, however, the opacity at the same time.

Marabu

Ultraboard UVBR



Bronzes

Various bronze pastes are available which can be mixed with UVBR 904. They can be chosen according to the required opacity, cost limit, visual impression, and curing characteristics. Due to the bigger pigment size of bronze powders, we recommend a coarser fabric, e. g. 120-31.

Bronze Powder

S 181	Aluminium	6:1
S 182	Rich Pale Gold	5:1
S 183	Rich Gold	5:1
S 184	Pale Gold	5:1
S 186	Copper	4:1
S 190	Aluminium, rub-resistant	6:1

Bronze mixtures cannot be put into storage for later use. Therefore, prepare fresh mixes daily (to be processed within 8 h).

By over-varnishing, it is also possible to enhance the rub resistance.

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

24h pot life, excellent 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

Due to the smaller pigment size compared to the bronze powders, it is possible to work with finer fabrics of 140-31 to 150-31.

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 Bronze Binder UVBR 904 to bronze powder or paste whereas the first figure is standing for the parts by weight of Bronze Binder UVBR 904.

Auxiliaries

Accelerator UV-B1

Addition: 1-2% parts by weight

Accelerates the curing reaction of the ink and increases the adhesion to the substrate owing to a better depth curing.

Thickening Agent STM

Addition: 0.5-2% parts by weight

Auxiliary to enhance the ink viscosity without influencing significantly the degree of gloss. Please stir well, the use of an automatic mixing machine is recommended.

Thinner

The addition of thinner reduces the ink viscosity. These two thinners can be used:

Thinner UVV 2, standard recommendation

Addition: 1-5% parts of weight

Thinner UVV 6, for better flexibility

Addition: 1-5% parts of weight

The addition of UVV 6 increases the flexibility of the printed ink film but reduces the ink's reactivity at the same time.

An excessive addition of thinner will cause a reduction of the curing speed, as well as of the printed ink film's surface hardness. UVV 2 and UVV 6 are chemically bound in the ink film when UV-cured.

Ultraboard UVBR



Levelling Agent UV-VM

Addition: max. 0.5% parts by weight

Helps to eliminate flow problems (e. g. bubbles, etc.) which may arise due to residuals on the substrate's surface or incorrect adjustment of the machines. A higher proportion may reduce the ink's adhesion when overprinting. UV-VM is to be stirred well und homogeneously before printing.

Cleaning

For manual cleaning of screen printing stencils and tools our cleaner UR 3 (flash point 42° C) or UR4 (flash point 52°C) can be used.

We generally recommend to clean the tools immediately after printing.

Fabrics, stencils

Control and reduction of the printed ink film are fundamental for 4-colour process printing with UV-curable inks. We recommend a mesh count (plain weave) between 150-27 and 180-31 threads. A uniform screen tension (>16 N) of all fabrics used is further important.

UVBR can be processed with all commercially available stencil techniques such as capillary films (15-20 μm) or solvent-resistant photo emulsions.

Shelf life

Shelf life depends very much on the formula/ reactivity of the ink system as well as the storage temperature. It is 1 year for an unopened ink 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.

Labelling

For our ink type Ultraboard UVBR and its additives and 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 the present EEC regulations as to health and safety labelling requirements. Such health and safety data may also be derived from the respective label.

Safety rules for UV screen printing inks

UV-inks contain some substances which may irritate the skin. Therefore, we recommend to take utmost care when working with UV-curable screen printing inks. Parts of the skin dirtied with ink are to be cleaned immediately with water and soap. Please pay also attention to the notes on labels and 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, they shall be limited to the value of the goods delivered by us and utilized by you with respect to any and all damages not caused intentionally or by gross negligence.