

Screen Printing System Ink

High gloss, high opacity, very fast drying, good resistance to petrol, weather-resistant, suitable for moulding and welding



Marastar SR

PVC self-adhesive foils, rigid PVC, ABS, SAN, acrylic, polycarbonate, pre-treated polyester foils, thermo-plastics, coated substrates

Field of Application

Substrates

The screen printing ink Marastar SR is designed for application onto rigid PVC, self-adhesive foils, ABS, SAN, acrylic, polycarbonate, pre-treated polyester foils, and heavy paper grades.

The adhesion of Marastar SR can be extended to many more substrates, such as coated substrates, thinly anodized aluminium or thermo-plastics (e.g. melamine resin), or polyamide (PA) and POM with after-treatment (flame) and by adding hardener PUH to achieve excellent adhesion.

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

Field of use

The high gloss Marastar SR is the ideal solution for printing high quality labels, stickers, displays, industrial lettering of all kinds, scales, and membrane switches.

Marastar SR is highly block-resistant, considering that it is a high gloss ink, and excellently suited for fast printing machines such as flat-bed presses or fully automatic cylinder machines, but can also be used for manual printing or on semi-automatic machines.

SR can also be processed with a spray gun, but preliminary trials are necessary for this process. We recommend to filter the thinned press-ready ink (25 µm screen) before processing, as otherwise there could be bubbles in the ink film.

Characteristics

Drying

Physically very fast drying, dries at 20 °C air temperature within 5-10 min to be overprinted, at 50 °C in a tunnel dryer and stackable within 20-30 sec. With high dryer capacity and good ventilation provided, the drying temperature can be lowered to 40 °C, for less material distortion. If the SR is mixed with hardener PUH, the drying time and block resistance of the ink is reduced.

The times mentioned above vary according to the substrate, the ink film thickness, drying conditions and the auxiliaries used. Generally an extended drying time is necessary when overprinting the ink. SR 270 High Gloss White dries slightly more slowly than the remaining SR colour shades.

Convection drying right after printing is recommended for multi-colour prints as well as for overvarnishing in order to achieve a high gloss.

An extended drying time is necessary when softener WM 1 (2-5 %) is added to the ink.

Gloss level

Marastar SR is considered high-gloss with the following measured values (angle 60 °, fabric 120-34, white self-adhesive foil). The value 100 is high-gloss and the value 1 is deep-matt.

Colour prints: 70 - 80 gloss units
Printing varnish SR 910: 80 - 90 gloss units

Fade resistance

We are using pigments of excellent fade resistance as per DIN 16525 (blue wool scale 7-8) for the shades of our Marastar SR ink type except SR 520, 536, 568, 832 and 839. Therefore, all basic shades as per System 21 are suitable for outdoor use for three years, in reference to the middle European climate. A requirement is the appropriate and professional processing as well as a max. addition of 50 % varnish or white to the standard shades.

A coat of printing varnish SR 911 onto the whole surface will extend the possible time for outdoor use to 4 or 5 years, especially when using the highly fade-resistant range of colour shades.

As Opaque White SR 170 is very highly pigmented, it is not suited for long-term outdoor use. For this purpose, please use SR 070.

In countries with higher exposure to sunlight (between the 40th parallel north and 40th parallel south) as well as thinner printed ink films (fabric 140-34 and finer), the outdoor resistance decreases.

The pigments used are resistant to plasticizers and solvents.

Stress resistance

After proper and thorough drying, the ink film exhibits outstanding adhesion as well as rub, scratch, and block resistance and is weldable (SR 173 Black). SR colour shades have a high chemical resistance to petrol (except SR 170). Due to its high pigmentation, Opaque White SR 170 is unsuitable for moulding. Please use White SR 070 or SR 270 instead. To achieve a maximum rub resistance, the SR can be overvarnished with printing varnish SR 910 or SR 911.

In all cases requiring higher surface stability, chemical resistance and adhesion, we recommend to add 10% hardener PUH. The pot-life (processing period) of the mixture is approx. 12 hours at room temperature (20 °C). Higher temperatures and addition of Opaque White SR 170 and White SR 070 reduce the pot life (approx. 6-8 h), therefore, we recommend White SR 270 for a maximum pot life. If the mentioned times are exceeded, the ink's adhesion and resistance may be reduced, even if the ink characteristics show no noticeable change.

SR plus hardener achieves its total chemical and mechanical resistance after 5 days when air-dried (20 °C), after 24 h when dried at 40 °C.



Marabu

Processing and hardening temperature must not be lower than 15 °C as irreversible damage may occur when the ink film is formed. Also avoid high humidity for 8 hours after printing as the hardener is sensitive to humidity.

Range

Marabu-mix colour matching system includes the basic shades of System 21, the range of highly fade-resistant shades, HKS and PANTONE.

All shades are intermixable. The Marastar SR ink should not be mixed with other types of ink, to maintain the special characteristics of this outstanding ink range. For mixtures with white, the SR 270 High Gloss White must be used, to maintain the high gloss of this ink type.

The pigments used in the below mentioned standard shades, (based on their chemical structure) correspond to the EEC regulations EN 71/part 3, safety of toys - migration of specific elements -. All colours are suited for printing onto toys.

Basic shades for Colour Matching System 21 and RAL, see Shade Card Marastar SR or System 21

SR 020 Lemon	SR 055 Ultramarine Blue
SR 021 Medium Yellow	SR 056 Turquoise Blue
SR 022 Yellow Orange	SR 057 Brilliant Blue
SR 026 Light Yellow	SR 058 Deep Blue
SR 031 Scarlet Red	SR 059 Royal Blue
SR 032 Carmine Red	SR 064 Yellow Green
SR 033 Magenta	SR 067 Grass Green
SR 035 Bright Red	SR 068 Brilliant Green
SR 036 Vermilion	SR 070 White
SR 037 Purple Red	SR 073 Black
SR 045 Dark Brown	

By using these 21 basic shades in accordance with the mixing ratios given in the Marabu-ColorManager (MCM) software, it is possible to produce all shades of the ink systems Marabu system 21 and RAL.

Range of mixed shades according to HKS®* see HKS screen printing colour fan K

SR 020 Lemon	SR 652 Medium Blue
SR 021 Medium Yellow	SR 058 Deep Blue
SR 022 Yellow Orange	SR 059 Royal Blue
SR 026 Light Yellow	SR 659 Cyan
SR 032 Carmine Red	SR 067 Grass Green
SR 033 Magenta	SR 068 Brilliant Green
SR 035 Bright Red	SR 270 White, high-gloss
SR 636 Red Orange	SR 073 Black
SR 651 Blueish Violet	

* registered trade-mark of HKS Trade-Mark Union (Hostmann Steinberg, K+E, Schmincke).

86 colour shades of the HKS colour fan K can be mixed from 13 SR basic shades and 4 additional SR-HKS shades plus printing varnish SR 910 (see Marabu's HKS colour fan). The mixing ratios according to HKS are included in our Marabu-ColorManager (MCM) software.

Range of mixed shades according to PANTONE® see PANTONE colour fan from Marabu

SR 829 PANTONE®*	Yellow
SR 832 PANTONE®*	Rubin Red
SR 836 PANTONE®*	Warm Red
SR 839 PANTONE®*	Rhodamine Red
SR 850 PANTONE®*	Purple
SR 851 PANTONE®*	Violet
SR 852 PANTONE®*	Reflex Blue
SR 859 PANTONE®*	Process Blue
SR 868 PANTONE®*	Green
SR 270	White, high-gloss
SR 073	Black
SR 910	Printing Varnish, high-gloss

*PANTONE, Inc.'s check-standard trademark for colour reproduction and colour reproduction materials.

By using these 9 SR PANTONE basic shades together with SR 270, SR 073, and printing varnish SR 910, more than 1000 colour shades of the PANTONE Color Formula Guide can be mixed (see also text in the inside of Marabu's PANTONE colour fan). The mixing ratios corresponding to PANTONE are included in our Marabu-ColorManager (MCM) software.

Range of highly fade-resistant shades

Shade range for high demand for long-term outdoor use. For this use, we recommend a finish with UV-absorber printing varnish SR 911 over the whole surface.

SR 720 Lemon	SR 055 Ultramarine Blue
SR 721 Medium Yellow	SR 056 Turquoise Blue
SR 722 Yellow Orange	SR 058 Deep Blue
SR 726 Light Yellow	SR 059 Royal Blue
SR 731 Scarlet Red	SR 764 Yellow Green
SR 732 Carmine Red	SR 067 Grass Green
SR 033 Magenta	SR 068 Brilliant Green
SR 735 Bright Red	SR 070 White
SR 036 Vermilion	SR 073 Black

The range of highly fade-resistant shades is included in the Marabu-mix system as a separate file.

Further basic shades

SR 170 High opaque White
SR 270 High Gloss White
SR 172 Offset base (opaque white)
SR 273 Opaque Black
SR 173 Welding Black
SR 182 Silver (Sandwich)



Recommendation

The ink should be stirred well before printing.

Labelling

For our ink type Marastar SR and its additives and auxiliaries there are current Material Safety Data Sheets according to EEC-regulation 91/155, informing in detail about all relevant safety data including the 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.

The ink has a flash point between 21 °C and 100 °C. Since the ink is not considered as a flammable liquid due to its pastous nature, any specific regulations for the handling of flammable liquids do not apply to the ink.

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.