

Maraflo TK



Screen Printing Ink for textiles made of synthetic and natural fibres, foamed plastic made of polyurethane

Matt, semi-opaque, quick drying 2-component-ink, weather and wash resistant

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Field of Application

Substrates

The screen printing ink Maraflo TK is excellently suited to print onto textiles such as synthetic fibres, polyester, polyacrylic, polyurethane foamed plastic as well as cotton and blended fibres.

Since all the print substrates mentioned may be different in printability even within an individual type, preliminary trials are essential to determine suitability for the intended use. This is especially so if water-repellent and impregnated substrates are used.

Field of use

Maraflo TK is a two-component ink and very well suited for printing onto sun shades, casual jackets and working clothes made of synthetic fabrics which are not suitable for printing with water based textile inks.

Characteristics

Mixing ratio

Before printing, it is essential to add Hardener H 2 in the correct quantity and to mix it well. Immediately after that, the mixture ink/hardener must be adjusted to the right printing viscosity by adding thinner. Independent of the shade, the ratio is as follows:

10 parts of ink : 1 part of Hardener H 2

Pot life (processing period)

The pot life (processing period) at room temperature (approx. 20 °C) will be about 8 h with Hardener H 2. Higher temperatures reduce pot life, lower temperatures increase it.

If the mentioned times are exceeded, the ink's adhesion and resistance may be reduced even if the ink characteristics show no noticeable change.

Drying/Hardening

Parallel to physical drying i.e. to the evaporation of the solvents, the actual hardening of the ink film is caused by the chemical crosslinking reaction between ink and hardener.

The following guidelines for the successive crosslinking (curing) of the ink film can be assumed:

(single print, fabric 68 T)

Extent of drying	temp.	time
ready for overprinting	20°C	20 min
	60°C	5 min
	120°C	3 min
stackable	20°C	60 min
	60°C	20 min
	120°C	10 min
final hardness	20°C	5 days
pot life	20°C	8 hours

The times mentioned vary according to the substrate, the ink film thickness, the drying conditions and the selection of the auxiliaries used. Generally, an extended drying time is necessary when overprinting the ink.

For multiple printing, please note that the film is not completely cured before being overprinted. If cured at a room temperature of 20 °C, the ink film has to be overprinted within 24 hours. A heat-activated intermediate curing is possible at 60 - 80 °C for 5 min.

The processing and curing temperature of the prints should never be lower than 15 °C since the final characteristics might be changed to a negative, irreversible extent.

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We also recommend to avoid high air humidity during and immediately after the print since the hardener is sensitive to air humidity.

Fade resistance

Only pigments of very high fade resistance are used in the Maraflo TK range. Owing to this, the TK ink type is best suited for a long-term outdoor application.

Shades mixed by adding Bronze Binder TK 902 and other colour shades, especially white, mostly have a reduced fade and weather resistance.

The fade resistance of the ink also decreases if the density of the printed ink film is reduced. Therefore, we recommend a fabric between 48-70 and 68-64. The pigments used are resistant to plasticizers and solvents.

Stress resistance

After proper and thorough drying (at 20 °C for 5 days), the ink film exhibits good block and weather resistance and is resistant to a number of chemicals, oils, greases and solvents. Maraflo TK is wash-proof in a washing machine up to 60°C and resistant to chemical dry-cleaning.

Range

The basic shades according to Maracolor System are included in our computerized Marabu-ColorManager (MCM 2). All shades are inter-mixable.

Maraflo TK should not be mixed with other types of ink in order to maintain the special characteristics of this ink range.

Based on their chemical structure, all pigments used in the standard shades correspond to the EEC regulations EN 71/part 3, safety of toys - migration of specific elements. All basic shades are suited for printing onto toys.

Basic Shades

(Refer to shade card "System Maracolor, matt")

TK 920	Lemon	TK 950	Violet
TK 922	Light Yellow	TK 952	Ultramarine Blue
TK 924	Medium Yellow	TK 954	Medium Blue
TK 926	Orange	TK 956	Brilliant Blue
TK 930	Vermilion	TK 960	Blue Green
TK 932	Scarlet Red	TK 962	Grass Green
TK 934	Carmin Red	TK 970	White
TK 936	Magenta	TK 980	Black
TK 940	Brown		

By using these 17 basic shades in accordance with the mixing ratios given in the Marabu-ColorManager MCM 2, it is possible to produce shades of the ink systems Marabu System 21, RAL, and HKS®.

Further basic shades

TK 170 Opaque White

Bronzes

(to be mixed with bronze binder TK 902)

All bronze shades are shown in a separate shade chart.

S 181	Aluminium (6:1)
S 182	Rich Pale Gold (4:1)
S 183	Rich Gold (4:1)
S 184	Pale Gold (4:1)
S 186	Copper (3:1)
S 190	Aluminium, rub-resistant (8:1)

Bronze mixtures have a reduced processing time. They cannot be stored and must be processed within 8 h. Due to their chemical structure, S 184 Pale Gold and S 186 Copper have a further reduced processing time of 6 hours.

All figures in brackets are guidelines which can be varied according to the required opacity. The ratio figures in brackets refer to the mixture Bronze Binder TK 902 to bronze powder or concentrate whereas the first figure is standing for the parts by weight of Bronze Binder TK 902.

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Owing to the bigger pigment size of bronzes, we recommend to use a fabric of 120-34, resp. 120-31 or even coarser.

Shades made of bronze powders are always subject to an increased dry abrasion which can only be reduced by a suitable overvarnish with TK 902.

Additives

Bronze binder: TK 902
Thickening agent: STM

Bronze binder TK 902 can also be used as overprint varnish. By adding 1-2 % STM thickening agent to the ink, opacity of light shades on dark substrates can be improved somewhat.

Auxiliaries

Hardener: H 2, fast
Mixing ratio: 10 parts ink : 1 part H 2
Thinner: UKV 1
UKV 2, mild
Retarder: SV 1
Cleaner: UR 3

To adjust the printing viscosity, it is generally sufficient to add 5-15 % thinner to the ink. To produce a retarding effect for slow printing sequences, retarder is added to the thinner proportionately (about 50 %).

Cleaning

We recommend to clean the screens immediately after use with Cleaner UR 3.

Fabrics and stencils

All types of commercially available fabrics and solvent-resistant stencils can be used. We recommend a fabric between 48-70 and 68-64.

Recommendation

Please stir well before use. If the TK ink is stored at low temperature conditions (< 0° C) for a longer period, it might condense. In this condition, it cannot be processed. In order to prepare the ink for use again, it should be warmed up in an oven or a water bath (60 min - 50 °C).

Labelling

For our ink type Maraflo TK and its additives and auxiliaries, there are current Material Safety Data Sheets according to the EC-regulation 91/155 informing in detail about 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.

The ink has a flash point between 21 °C and 100 °C. Any specific regulations for the handling of flammable liquids do not apply for 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 are 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.