

Screen printing ink for textiles made of synthetic and natural fabrics, polyurethane foam material

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

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Field of Application

Substrates

Mara® Flor TK is excellently suited to print onto

- Textiles made of synthetic fabrics
- Polyester
- Polyacrylic
- Polyurethane foam material
- Cotton and blended fabrics

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.

Field of use

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

Characteristics

Ink Adjustment

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

Mara® Flor TK is a 2-component ink system. Prior to printing, it is essential to add hardener / adhesion modifier in the correct quantity and to stir homogeneously. When using hardener, the processing and curing temperature must not be lower than 15°C as irreversible damage can occur. Please also avoid high humidity for several hours after printing as the hardener is sensitive to humidity.

Pre-reaction time

It is recommended to allow the ink/hardener mixture to pre-react for 15 minutes.

Pot Life

The ink/hardener mixture is chemically reactive and must be processed within 8 h (referred to 20-25 °C and 45-60 % RH). Higher temperatures reduce the pot life. If the mentioned times are exceeded, the ink's adhesion and resistance may be reduced even if the ink still seems processable.

Drying

Parallel to physical drying, i. e. the evaporation of the solvents used, the actual hardening of the ink film is caused by the chemical cross-linking reaction between ink and hardener. The standard values concerning progressive cross-linking reactions (hardening) of the ink film are as follows:

overprintable	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

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 should not be completely cured before being overprinted.

If cured at a room temperature of 20 °C, the ink film has to be overprinted within 24 hours. Heat-activated intermediate curing is possible at 60 - 80 °C for 5 min.

Fade resistance

Only pigments of high fade resistance are used in the Mara® Flor TK range. Owing to this, TK is suited for medium-term outdoor applications.

Shades mixed with 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, so it is recommended to use a fabric between 48-70 and 68-64. The pigments used are resistant to plasticizers and solvents.

Stress resistance

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

Range

Basic Shades

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

High Opaque Shades

170	Opaque White
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Further Products

902	Bronze Binder
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Mara® Flor TK 902 can also be used as overprint varnish.

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.

Metallics

Metallic Powders

S 181	Aluminium	17%
S 182	Rich Pale Gold	25%
S 183	Rich Gold	25%
S 184	Pale Gold	25%
S 186	Copper	33%
S 190	Aluminium, rub-resistant	13%

These metallics are added to TK 902 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. Due to their chemical structure, the processing time of mixtures with Pale Gold S 184 and Copper S 186 is even reduced to 4 h.

Owing to the larger pigment size of Metallic Powders we recommend the use of a coarser fabric like 100-40.

Shades made of Metallic Powders are always subject to an increased dry abrasion which can only be reduced by overvarnishing.

All metallic shades are displayed in the Marabu "Screen Printing Metallics" colour chart.

Auxiliaries

H 2	Hardener	10%
UKV 1	Thinner	5-15%
UKV 2	Thinner	5-15%
SA 1	Surface Additive	3-5%
STM	Thickening Agent	1-2%
UR 3	Cleaner (flp. 42°C)	
UR 4	Cleaner (flp. 52°C)	
UR 5	Cleaner (flp. 72°C)	
SV 1	Retarder	

Hardener H 2 is sensitive to humidity and is always to be stored in a sealed container. Hardener H 2 is added for increased resistance and adhesion. The mixture ink/hardener is to be stirred well and homogeneously. The mixture ink/hardener is not storable and must be processed within pot life.

Thinner is added to the ink to adjust the printing viscosity. For slow printing sequences and fine motifs, it may be necessary to add retarder to the thinner.

The addition of surface additive SA 1 can increase the resistance against abrasion and other mechanical stress (max. addition 10%).

The opacity of light shades on dark substrates can be slightly improved by adding Thickening Agent STM to the ink.

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

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

Shelf Life

The ink system Mara® Flor TK is sensitive to cold. Temperatures lower than 5 °C during transport and storage may cause the ink to become solid. Slow heating (preferably overnight to a maximum of 50 °C) makes the ink printable again.

If permanently stored at a temperature range of 15–25 °C, the shelf life of the unopened ink container is 2.5 years. Under different conditions, particularly differing 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. All characteristics described in this Technical Data Sheet refer exclusively to the standard products listed under "Range", provided that they are processed in accordance with their intended use and only when used with the recommended auxiliaries. 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 Mara® Flor TK 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.

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