

Pad printing ink for natural or synthetic fabrics, and other substrates like polypropylene, thermoplastic elastomers, and varnished substrates

2-component system, flexible, very high opacity, very good resistance, made without the use of BPA, with lowest PAH values, tested and certified according to ECO PASSPORT by OEKO-TEX®

Vers. 9
2020
04. Aug

Field of Application

Substrates

Tampa® Tex TPX is particularly suited to print onto

- Cotton
- Nylon
- Polyester
- Polyamide (PA)
- Spandex
- Blended fabrics

Furthermore, Tampa® Tex TPX adheres very well to other substrates such as

- polypropylene (PP)
- polyurethane (PU)
- thermoplastic elastomers (TPE)
- triphenyl methane
- Leather / artificial leather
- varnished substrates

Before printing, please keep in mind that the substrate surface must have a surface tension of 42 - 48 mN/m, usually achieved by pretreatment by flaming, corona, or plasma.

When printing on recycled materials, it is mandatory to particularly confirm the adhesion with preliminary tests.

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

Tampa® Tex TPX is destined for pad printing applications on natural or synthetic textiles requiring high resistance against washing and ironing.

Tampa® Tex TPX has also equally proved itself for printing on plastic substrates. Very good re-

sistance and adhesion, and the making without the use of BPA makes Tampa® Tex TPX particularly suitable for sensitive applications like baby items.

Characteristics

Ink Adjustment

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

Tampa® Tex TPX is a 2-component ink system. Prior to printing, it is essential to add hardener 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.

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 following values concerning progressive cross-linking (hardening) of the ink film can be assumed:



Hardener HX:

stackable	20°C	20 sec
washable	20°C	2 days
final hardness	20°C	7 days

Hardener H 2:

rub-resistant	20°C	1 min
stackable	60°C	30 min
final hardness	20°C	4 - 6 days

Chemical cross-linking can be accelerated by higher temperatures, for example by using a continuous dryer.

The times mentioned vary according to substrate, depth of cliché, drying conditions, and the auxiliaries used. For quick printing sequences, we recommend forced air drying (max. 200°C for 2-3 sec) of the surface after each colour (depending on the substrate!).

For multiple colour printing we point out that the previously printed ink film should not be entirely cured before the consecutive ink film is printed on top of it.

If drying takes place at room temperature, the consecutive print should be carried out within 48 h (HX) / 12 h (H 2).

Fade resistance

Only pigments of high fade resistance are used in the Tampa® Tex TPX range. Shades mixed by adding overprint varnish or other colour shades, especially white, have a reduced fade and weather resistance depending on their mixing ratio. The fade resistance also decreases if the ink film thickness is reduced.

The pigments used are resistant to solvents and plasticizers.

Stress resistance

Textiles:

Maximum washing resistance is reached if prints are allowed to dry for 2 days at 20°C. This can be accelerated with forced drying like oven or hot air.

The resistance of Tampa® Tex TPX against ironing is very good. Therefore, the resistance against ironing of the printed product depends more on the temperature stability of the sub-

strate. Pre-treatment of the textiles is not necessary. For textiles treated with a finishing, preliminary trials are mandatory.

Non-textile substrates:

After proper and thorough drying, the ink film exhibits outstanding adhesion as well as rub, scratch, and block resistance, and is resistant to finger sweat, water steam, various chemical products, oils, greases, and solvents.

Range

Basic Shades

920	Lemon
922	Light Yellow
924	Medium Yellow
926	Orange
930	Vermilion
932	Scarlet Red
934	Carmine 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

4-Colour Process Shades Standard

429	Process Yellow
439	Process Magenta
459	Process Cyan
489	Process Black

High Opaque Shades

170	Opaque White
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Press-Ready Metallics

191	Silver
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Further Products

904	Special Binder
910	Overprint Varnish

Since the substrate range often includes dark materials, TPX basic shades feature a high opacity except for TPX 922, 936, 950, and 956. This combination allows the mixing of colour shades according to common mixing systems



as well as the Pantone Textile Color Guide. The appearance of the colour shades may vary significantly depending upon the substrate used (especially TPX 970/170). The output of inks that are filled by weight may vary considerably owing to the specific density of the respective colour shade. This must be considered especially for white and mixtures with white.

All shades are intermixable. Mixing with other ink types or auxiliaries must be avoided in order 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.

ECO PASSPORT by OEKO-TEX® Certification

The Tampa® Tex TPX basic shades 920-980 as well as Opaque White 170, Silver 191 and Overprint Varnish 910 are tested and certified according to ECO PASSPORT by OEKO-TEX®.

Auxiliaries

*Please note:

- Hardener HX: for textiles
- Hardener H 2 and H 4: only suited for non-textile applications
- Thinner TPV 3 and Retarder SV 1 are not suitable for applications in the toy / baby / medical sector

HX	Hardener, xylene-free, for textiles*	20%
H 4	Hardener, highly resistant	20%
H 2	Hardener, not for textiles*	15-30%
TPV	Thinner, standard	10-30%
TPV 2	Thinner, fast	10-30%
TPV 7	Thinner, fast	10-30%
TPV 8	Thinner, slow	10-30%
TPV 9	Thinner, fast	10-30%
GLV	Thinner, slow	5-15%
TPV 3	Thinner, slow*	5-15%
SV 1	Retarder, slow*	2-10%

STM	Thickening Agent	1-2%
UR 5	Cleaner (flp. 72°C)	

Hardeners are sensitive to humidity and are always to be stored in a sealed container. Shortly before use, the hardener must be added to the ink and stirred homogeneously. The mixture ink/hardener is not storable and must be processed within pot life.

Thinner is added to the ink/hardener mixture to adjust the printing viscosity. The choice of thinner and the amount added are highly dependant upon the local climate and the printing speed. Preliminary trials are essential. The thinners TPV, TPV 2 and TPV 9 can be used for most applications.

The Thickening Agent STM enhances the ink's viscosity without significantly influencing the degree of gloss. Please stir well, the use of an automatic mixing machine is recommended.

Cleaner UR 5 is recommended for manual or automatic cleaning of the working equipment.

Printing Parameters

Clichés

All commercially available clichés made of photopolymer (35-55 µm), ceramic, thin steel, and hardened steel (thickness 10 mm) can be used. The recommended cliché depth for ceramic, thin steel, or hardened steel clichés is approx. 30 µm (full area), or 55 µm (half tone). Laser engraved clichés have particularly proved themselves because the cliché depth can be controlled precisely. Therefore, it is easy to produce several clichés with highest accuracy for exact reproductions.

Printing pads

As per our experience, all common printing pads consisting of materials cross-linked by condensation or addition can be used. Depending on the substrate, we recommend a hardness of 3 - 12 Shore.

Printing machines

Tampa® Tex TPX is suitable for closed ink cup systems, as well as for open ink wells. Depend-

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ing on type and usage of the machine, it is to accordingly adjust type and amount of the thinner used.

safety data may also be derived from the respective label.

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Shelf Life

Shelf life depends very much on the formula/reactivity of the ink system as well as the storage temperature. It is 3.5 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. 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 Tampa® Tex TPX 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