

**Pad printing ink for ABS, polystyrene, SAN, rigid PVC, polycarbonate, acrylic glass, and varnished surfaces**

**Glossy, very fast drying 1 or 2 component system, resistant to alcohol and petrol, for closed and open systems**

Vers. 20  
2022  
26. Apr

## Field of Application

### Substrates

Tampa® Plus TPL is particularly suited to print onto

- Polystyrene (PS)
- ABS / SAN
- Polycarbonate (PC)
- Acrylic (PMMA)
- Rigid PVC
- Some types of soft PVC
- Wood, paper, and cardboard

By adding hardener, Tampa® Plus TPL adheres excellently to other substrates such as

- Varnished surfaces
- Thinly anodized aluminium
- Some thermosetting plastics

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

This glossy and very fast drying pad printing ink particularly distinguishes itself by a very good printability even in a closed ink cup system. It is therefore especially suited for printing onto high-quality products such as cosmetic packaging, housings, and other items requiring a high resistance, but is also commonly used for industrial applications and promotional items.

## Characteristics

Tampa® Plus TPL is formulated without the use of aromatic solvents and features lowest PAH values.

### Ink Adjustment

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

#### Use as 2-component ink

Depending upon the substrate and the requirements, hardener can be added to the ink before printing.

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 8-10 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

Tampa® Plus TPL is a very fast physically drying ink and it is, therefore, immediately overprintable when printing on multi-colour machines (wet-on-wet).

The drying times vary according to substrate, depth of cliché, drying conditions, and the auxiliaries used.

### Fade resistance

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



The pigments used are resistant to solvents and plasticizers.

## Stress resistance

After proper and thorough drying, the ink film exhibits outstanding adhesion as well as rub, scratch, and block resistance, and is also resistant to alcohol and petrol.

In some cases, surface stability as well as adhesion and resistance to solvents may be improved by adding 10 % Hardener.

Even if TPL seems to be dry already few minutes after printing, it is recommended to carry out resistance tests no earlier than 24 hours after printing.

## 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

### 4-Colour Process Shades Standard

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

### High Opaque Shades

122	High Opaque Light Yellow
130	High Opaque Vermilion
152	High Opaque Ultramarine Blue
162	High Opaque Grass Green

### Press-Ready Metallics

191	Silver
192	Rich Pale Gold

193	Rich Gold
291	High Gloss Silver

### Further Products

270	High Gloss White
910	Overprint Varnish

The colour shades 922, 930, 936, 950, 956, and 962 are semi-transparent/ transparent.

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®, PAN-TONE®, and RAL®. All formulas are stored in the Marabu-ColorManager software.

Additionally there are high-opaque formulas available marked with + + behind the reference name. These formulas have been developed by using the System Tampacolor formulas for basic and high-opaque shades excluding the semi-transparent, resp. transparent shades.

## Metallics

### Metallic Powders

S 181	Aluminium	12.5-17%
S 182	Rich Pale Gold	17-33%
S 183	Rich Gold	17-33%
S 184	Pale Gold	17-33%
S 186	Copper	33-50%

These metallics are to be added to TPL 910 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 bigger pigment size of Metallic Powders we

recommend the use of a halftone cliché with a minimum depth of 25-30 µm.

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

\*Please note:

Hardener H 1 is not suitable for applications in the toy / baby sector

TPV	Thinner, standard	10-25%
TPV 2	Thinner, fast	10-25%
TPV 3	Thinner, slow	10-25%
TPLV	Thinner, standard	10-25%
TPV 8	Thinner, slow	10-20%
H 1	Hardener, *	10%
H 2	Hardener	10%
HX	Hardener	10%
H 4	Hardener	10%
SA 1	Surface Additive	3-5%
SV 11	Retarder	0-15%
VP	Retarder Paste	0-10%
MP	Matting Powder	0-3%
UR 4	Cleaner (flp. 52°C)	
UR 5	Cleaner (flp. 72°C)	

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. For an additional thinning of the ink containing retarder, only pure thinner should be used.

All hardeners are sensitive to humidity and always to be stored in a sealed container. They can be added for increased resistance and adhesion and must be stirred well and homogeneously into the undiluted ink shortly before use. The mixture ink/hardener is not storable and must be processed within pot life.

Hardener H 1 dries slowly, forms a flexible ink film, is non-yellowing and therefore suitable for outdoor applications.

Hardener H 2 dries quickly, forms a rigid ink film, and is not suitable for outdoor applications.

Hardener H 4 is used for significantly increased requirements concerning resistance to water

and humidity and is suitable for outdoor use.

Hardener HX has the same properties as Hardener H 1, but is manufactured without the use of aromatic hydrocarbons.

The addition of Surface Additive SA 1 can increase the resistance against abrasion and other mechanical stress. At the same time, it may improve the ink transfer from pad to substrate (recommended addition 3-5 %, max. 10 %).

By adding Matting Powder MP the ink film can be matted individually (preliminary trials in terms of adhesion and resistance are essential, white shades addition max. 2 %).

Cleaner UR 4 is recommended for manual cleaning of the working equipment. Cleaner UR 5 is recommended for manual or automatic cleaning of the working equipment.

## Printing Parameters

### Clichés

All commercially available clichés made of ceramic, photopolymer, thin steel, and chemically hardened steel (10 mm) can be used. The recommended cliché depth is 18-28 µm.

### Printing pads

As per our experience, all common printing pads consisting of materials cross-linked by condensation or addition can be used.

### Printing machines

Tampa® Plus TPL is suitable for closed ink cup systems as well as for open ink wells. Depending on type and usage of the machine, it is to accordingly adjust type and amount of the thinner used.

## Shelf Life

Shelf life depends very much on the formula/ reactivity of the ink system as well as the storage temperature. The shelf life for an unopened ink container if stored in a dark room at a temperature of 15 - 25 °C is:

- 2.5 years for the TPL Metallics 191 - 291
- 3.5 years for all other TPL standard products

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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® Plus TPL 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.