

Screen and Pad printing ink for untreated and pre-treated polypropylene

Satin gloss, 1-component ink system, good opacity, very flexible

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Field of Application

Substrates

Mara® Prop PP is particularly suited to print on to

- Pre-treated or untreated polypropylene (PP)

Owing to the production process, some polypropylene materials may show lubricant residues on the surface which can result in reduced adhesion of the ink film. In this case, please check if printing without pre-cleaning is possible.

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® Prop PP is mainly used for **pad printing** onto advertising products or to mark injection-moulded parts.

Mara® Prop PP is also suited for **screen printing** onto polypropylene sheet and foil materials (e. g. Priplak® or Akylux®) as well as on flexible materials used for book covers or banners.

Pre-treatment of the surface by flaming, Corona or Primer P 2 is not necessary in most cases.

Mara® Prop PP can also be processed with a spray gun, but preliminary trials are necessary for this process. In order to avoid surface irregularities, we recommend to filter the thinned ink (25 µm screen) before processing.

Characteristics

Drying

The drying characteristics of Mara® Prop PP can be adjusted with auxiliaries to the respective application (screen or pad printing).

The following times can be assumed:

Pad Printing: Touch-dry at 20 °C after 2-3 min, at 30 °C after 30-40 seconds.

Screen Printing: Can be overprinted after drying at 20 °C for 10-15 min, stackable after tunnel drying at 60 °C within 40-60 seconds.

The times mentioned above vary according to substrate, depth of cliché, the ink film thickness, drying conditions, and the auxiliaries used. An extended drying time is generally necessary in the case of multi-colour printing or printing onto front and reverse side.

Fade resistance

Pigments of medium to excellent fade resistance are used for Mara® Prop PP (blue wool scale 6 to 8). All basic shades are suited for an outdoor use of up to two years if placed vertically and referred to the middle European climate. Prerequisite for this is the appropriate and professional processing, as well as a max. addition of 50 % varnish or white to the basic shades.

A coat of PP 902 over the whole surface will stabilize outdoor prints further. In countries with higher exposure to sunlight (between 40th parallel north and 40th parallel south), outdoor resistance will decrease to one year.

The pigments used are resistant to plasticizers and solvents.



Stress resistance

After proper and thorough drying, the ink film's surface has an outstanding stability, is stackable and shows an excellent flexibility. The chemical resistance of Mara® Prop PP, the resistance to hand perspiration and abrasion are rather low, and PP is also only slightly resistant to mild fillers containing max. 50 % alcohol. Due to the reduced resistance against hand perspiration, we do not recommend to print Maraprop PP onto products which are subject to a steady contact with fingers (e. g. pens). If higher resistances are required, one of our 2-component ink systems should be used incl. appropriate pre-treatment of the substrate.

Although it is a physically drying ink, this special binder achieves its final resistance only after several days.

Range

Basic Shades

020	Lemon
021	Medium Yellow
022	Yellow Orange
033	Magenta
035	Bright Red
036	Vermilion
045	Dark Brown
055	Ultramarine Blue
058	Deep Blue
059	Royal Blue
067	Grass Green
068	Brilliant Green
070	White
073	Black

High Opaque Shades

170	Opaque White
180	Opaque Black

Further Products

902	Bronze Binder
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Due to the higher pigmentation, the adhesion of opaque shades onto untreated PP is reduced. Sufficient adhesion and scratch resistance can only be achieved if the surface tension is increased to at least 42 mN/m before printing by an appropriate pre-treatment.

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-Color Manager software.

Metallics

Metallic Powders

S 181	Aluminium	17%
S 190	Aluminium, rub-resistant	12.5%

These metallics are to be added to PP 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.

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

Gold Metallic Powders are not recommended because of their insufficient processing time of 2 h. Gold shades with a longer processing time can be ordered from our Colour Matching Department.

Mara® Prop PP is not compatible with our three high-gloss Metallics (S 291-293), so mixing is not recommended.

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

Auxiliaries

PPTPV	Thinner, fast	20-35%
UKV 1	Thinner, fast	15-35%
QNV	Thinner, slow	15-20%
MP	Matting Powder	1-4%
ES	Printing Modifier	0.5-1%
AP	Antistatic Paste	0-15%
UR 3	Cleaner (flp. 42°C)	
UR 4	Cleaner (flp. 52°C)	
UR 5	Cleaner (flp. 72°C)	
SV 1	Retarder	
P 2	Primer	

Thinner is added to the ink to adjust the printing viscosity (PPTPV or UKV 1 for pad printing, QNV or UKV 1 for screen printing). 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.

For spray varnishing, Thinner PPTPV is to be used.

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 %).

Printing Modifier ES contains silicone and can be used to rectify flow problems on critical substrates. If an excessive amount is added, flow problems are increased and adhesion may be reduced, especially when overprinting. The use of ES may reduce the degree of gloss.

The addition of Antistatic Paste AP reduces the impact of static charge on the ink. It lowers the viscosity of the ink and non-polar components help to avoid "stringy" behaviour when printing onto non-polar substrates.

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.

Special Primer P 2 is used for manual pre-cleaning and pre-treatment of PP substrates.

Printing Parameters

Screen Printing

All types of commercially available polyester fabrics (1:1 plain weave quality) and solvent-resistant stencils can be used.

Pad Printing

All commercially available clichés made of ceramic, photopolymer, thin steel, and chemically hardened steel (10 mm) can be used. The recommended cliché depth is 18-25 µm.

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

Mara® Prop PP 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.

It is 2 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

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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® Prop PP 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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