Maqua® *Pad* MAP

Marabu

Water-based pad printing ink for textiles and wood, ABS, PS, PVC, PC, PA, pretreated PP, and coated substrates

Satin gloss, good opacity, medium-fast drying speed, for textiles ("tagless printing") and sensitive applications

Vers. 4
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Field of Application

Substrates

Maqua® *Pad* MAP is particularly suited to print onto textiles such as

- Cotton
- Stretch fabrics
- Artificial leather
- Coated fabrics
- Polyester
- Blended fabrics

Furthermore, Maqua® *Pad* MAP adheres very well to other substrates such as:

- Wood, coated or uncoated
- ABS
- PS
- PVC
- PC
- PA

and after pre-treatment / cleaning to

- PP
- Coated substrates

When printing onto PP, please note that the surface of the substrate must be pre-treated by flaming or corona discharge. Experience has shown that good adhesion can be achieved with a surface tension of at least 48 mN/m.

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

Textiles:
Maqua® *Pad* MAP is flexible with good opacity and highly resistant against washing and ironing. It is destined for pad printing applications on natural or synthetic textiles, especially as cost-effective alternative to transfer or sew-in labels ("tagless printing").

Non-textile applications:
Maqua® *Pad* MAP is also suited for single and multi-color printing, particularly on toys made of absorbent materials.

Characteristics

Maqua® *Pad* MAP is suited for applications compliant with the directive 2009/48/EG ("toys directive DIN EN 71/3"). It is made without the use of BPA/BPS, and features lowest PAH and VOC values.

Ink Adjustment

The ink must be stirred homogeneously before use. The viscosity must be kept on a steady level during production.

Maqua® *Pad* MAP is press-ready and can be adjusted with Retarder WV 1, if required.

Use as 2-component ink
When printing onto textiles, it is essential to add Hardener HW 1 in the correct quantity to the undiluted ink and to stir homogeneously.

Pot life
The ink/hardener mixture is chemically reactive and must be processed within 48 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

Maqua® *Pad* MAP is a medium-fast drying, water-based ink system.

Drying properties **cannot** be compared with

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that of solvent-based ink systems! During machine stops, the etching of the cliché must always be covered with ink in order to prevent the ink from drying up in the etching. Generally, the drying must always be checked before further processing in order to see if the implementation of an intermediate or final drying process may be necessary. Especially for multicolour printing, adequate air drying is necessary to print multiple ink layers.

Maximum printing speed 1200 parts/hour.

When using Hardener HW 1 for textile printing, the actual hardening of the ink film is caused by the chemical cross-linking reaction between ink and hardener, parallel to physical drying. This reaction can be accelerated by higher temperatures.

Fade resistance

Pigments of medium to high fade resistance are used for the Maqua® *Pad* MAP range (blue wool scale > 6).

Stress resistance

Textiles:
Maximum washing resistance is reached if prints are allowed to dry for 2 days at 20 °C.
The ironing resistance of Maqua® *Pad* MAP is excellent, therefore the temperature resistance of the substrate is crucial. The textile substrates do not require any special pre-treatment. For materials that are treated with a finishing, preliminary tests are mandatory.

Non-textile substrates:
After proper and thorough drying, the ink film exhibits outstanding adhesion as well as rub, scratch, and block resistance. It is characteristic for water-based ink systems that the chemical and mechanical resistance of the ink film will rise significantly with time. Resistance tests should be carried out after 7 days at the earliest.

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

High Opaque Shades

170	Opaque White
180	Opaque Black

Further Products

910	Overprint Varnish

All color shades are intermixable. Mixing with other ink types or auxiliaries must be avoided in order to maintain the special characteristics of this ink.

Auxiliaries

HW 1	Hardener, for textiles	10%
AR	Anti-Rust Additive	5%
WV 1	Retarder	3-10%
UR 3	Cleaner (flp. 42°C)	
PLR	Cleaner	
WR 1	Cleaner	

Prior to printing onto textiles, Hardener HW 1 must be added to the undiluted ink and stirred homogeneously. HW 1 is always to be stored in a sealed container. The mixture ink/hardener is not storable and must be processed within pot life.

To adjust the ink, Retarder WV 1 (max. addition 3-10 %) may be added.

Rusting of low-quality steel clichés can be prevented by adding a maximum of 5 % Anti-Rust Additive AR.

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It is recommended to use Cleaner WR 1 for cleaning the working equipment, or alternatively Cleaner PLR or UR 3.

Printing Parameters

Clichés
All commercially available clichés made of ceramic, photopolymer, thin steel (springsteel quality), and chemically hardened steel (10 mm) can be used. The recommended cliché depth is 20-35 µm. A fundamental requirement is the absolute flatness of the base plate when using photopolymer or thin steel clichés. In general, all cliché types must be screened. Photopolymer clichés should be re-exposed with a 120 l/cm halftone with a density of approx. 85 %. For thin steel or steel clichés, an 80 l/cm halftone should be chosen if technically possible.

Printing pads
Experience has shown that best results are achieved with dry or super dry printing pads with a minimum of 8 shore. The pads should be made of materials cross-linked by condensation or addition. The steeper the form of the tampon, the better the printing result.

Printing machines
Maqua® *Pad* MAP is suited for closed ink cup systems. As for solvent-based ink types, auxiliaries can be added during longer print runs in order to control the ink's viscosity.

Printing conditions
Air humidity must not be lower than 40 % r. F. and should be regulated with an air humidifying system. For best results, the room temperature must be maintained at 20-25°C.

Shelf Life

Maqua® *Pad* MAP is a water-based ink system and in order to avoid frost damages, it should under no circumstances (not even shortly) be exposed to temperatures lower than 5 °C during transport and storage.
If permanently stored at a temperature range of 15–25 °C, the shelf life of the unopened ink container is 1.5 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 Maqua® *Pad* MAP 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.

Water-based products typically contain isothiazolinone biocides, including methyl isothiazolinone, as in-can preservatives. Such biocides may cause allergic skin reactions in already sensitised individuals.

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