



Baking ink for high temperature applications (up to 330 °C)

High temperature-resistant screen printing ink, high opacity, single component ink system

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Field of Application

Substrates

MGHT was designed for high temperature applications on special glass materials such as:

- Soda-lime glass
- Borosilicate glass
- Gorilla® glass
- Xensation® glass

After proper final drying, MGHT withstands 330°C for 30 min. without impairing the essential ink features!

Other materials with high temperature resistance are also being tested and in some cases used, for example:

- Metal Compounds
- Enamel Compounds

Ideal printing conditions include a room temperature of 20-25° C and 45-60% humidity, and equal surface tension of at least 40 mN/m ensures good adhesion. Further-more, the glass surface must be clean and absolutely free of graphite, silicone, dust or grease (e.g. finger prints). Flame pre-treatment right before the start of the printing process generally improves adhesion.

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.

Characteristics

Recommendation

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

Drying

Parallel to physical drying, i. e. the evaporation of the solvents used, the actual hardening of the ink film is caused by the self-crosslinking reaction of the ink. The standard values concerning progressive cross-linking reactions of the ink film (thickness 5-12µ) are as follows:

	Temperatur	Time
Overprintable:	180° C	5 min.
Final drying: (min-max)	250 - 330° C	30 min.

Stress resistance

The ink film exhibits outstanding adhesion, as well as rub, and scratch resistance after proper final drying (30 minutes at min. 250°C).

The following resistances were tested:

- Cross Hatch Test: DIN EN 2409, ASTM 3359-02
- Heat Soak Test: Dwell 72 h at 65 °C / 95 % RH
- Boiling Water / 30 min.
- Thermal Cycling Test: 20 cycles (High: 2 h at 80°C / 30 min. at 35°C, Low : 2 h at -20°C / 30 min. at 35°C)
- 100 double rub strokes (850 g): Ethanol 96%
- Film hardness: > 3 H
- Electrical Resistance: > 10¹¹, EN61340-5-1: 2008-07
- Adhesion after acid/alkali resistance tests

Range

High Opaque Shades

170	Opaque White
180	Opaque Black

Further Products

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

Auxiliaries

YV	Thinner, medium	4-8%
GLV	Thinner, slow	4-8%
SV 3	Retarder	4-8%
MP	Matting Powder	1-3%
STM	Thickening Agent	1-2%
ES	Printing Modifier	0.5-1%
UR 3	Cleaner (flp. 42°C)	
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.

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%).

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.

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 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 polyester fabrics and solvent-resistant stencils can be used. A suitable mesh count for thin ink films is 120-34 - 165-27.

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 years for 170 & 180
- 1 year for varnish 910

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.

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.

Mara® Glass MGHT



Labelling

For Mara® Glass MGHT 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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