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**Screen Printing Ink for glass, ceramic, metal, aluminium, chrome-plated parts, coated substrates**

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**High gloss, high brilliance, medium opacity, silicone free, fast curing 2-component-ink**

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## Field of Application

### Substrates

The screen printing ink Maraglass MGL is excellently suited to print onto

- Glass
- Ceramics
- Metals (incl. thinly anodised aluminium)
- Chrome-plated parts
- Varnished surfaces

Since all the print substrates mentioned may be different in their printability even within an individual type, preliminary trials are essential to determine suitability for the intended use.

### Field of use

Maraglass MGL is designed for indoor decoration prints onto promotional items of glass or ceramics such as e.g. imprinted glass panes, bottles, tiles and a variety of metals, such as chrome-plated writing instruments or panels.

Maraglass MGL is also suitable for the lamination of glass.

### Printing conditions

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. Furthermore, 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.

For the silicone-free MGL, it is important to use only thoroughly cleaned stencils, squeegees, ink pumps, as well as tubes (in the case of an automatic ink supply), and injectors for the manual ink filling of the stencil, etc.

If cleaning is carried out with automatic screen washing systems, we recommend prior to printing an additional manual cleaning with a fresh cleaner not having had any contact with ink residues containing silicone.

## Characteristics

### Mixing ratio

Before the ink is printed, it is essential to add Hardener MGLH in the correct quantity. This ink/hardener mixture must be stirred homogeneously and adjusted to the right printing viscosity by adding thinner and/or retarder in a correct quantity (stir again).

The mixing ratio is as follows:

MGLH    5 % parts by weight  
(20 parts by weight ink : 1 part by weight hardener)

If the drying/curing process takes place at room temperature, the water- as well as the chemical resistance will generally be reduced. Preliminary trials are essential.

### Pot life (processing period)

The pot life of the ink/hardener mixture is chemically reactive and must be processed within a few hours after the addition of the hardener. Higher temperatures reduce the pot life.

# Maraglass MGL



20° C room temperature: 8 h pot life  
 30° C room temperature: 4 – 6 h pot life

If the room temperature (> 30° C) or the mentioned times are exceeded, the ink's adhesion and chemical resistance may be reduced even if the ink is still fluid and therefore seems processable.

## Drying/Hardening

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 standard values concerning progressive cross-linking reactions (hardening) of the ink film (thickness 5-12µ) are as follows:

Extent of drying	temperature	time
touch-dry:	20° C	30 min
ready for overprinting:	20° C	60 min
final hardness:	20° C	6 days
	140° C	30 min

For multi-colour printing, please note that the previously printed ink films should not be entirely cured before the consecutive ink film is printed on it. Only after all ink films have been applied, they should be baked.

The processing and curing temperature should not be lower than 15° C within the first 12 hours as irreversible damage can occur.

After the print, until the hardening of the ink film, high air humidity (> 60%) or direct contact with water (rain) must be prevented categorically for otherwise the linkage between the ink and the substrate will be impaired significantly.

## Fade resistance

Only pigments of high fade resistance are used in the Maraglass MGL range. Please note, however, that MGL is not suited for outdoor applications with direct sun irradiation or humidity contact as the epoxy resin tends to

chalk and as a consequence, the shades will change their original colour soon. 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, and scratch resistance.

If a high chemical resistance is required (e.g. rub resistance 450 g – 50 double rub strokes with chemical fluids such as Ethanol, Butanone or Acetone), or water resistance, the printed ink film must be tempered for 30 min at 140°C.

After proper and thorough drying, the ink film will withstand 400 household dishwasher cycles (65° C main program, with customary cleaner Type B/ low alkaline detergent).

In order to increase the mechanical resistance, we recommend an overprint with varnish MGL 910.

## 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

# Maraglass MGL



## Further products

180	Opaque Black
188	Deep Black
191	Silver, press-ready
192	Rich Pale Gold, press-ready
193	Rich Gold, press-ready
910	Varnish
914	satin-gloss, transparent
916	structured

All shades are intermixable. To maintain the special characteristics of this outstanding ink range (e.g. silicone free), Maraglass MGL should not be mixed with other ink types or other auxiliaries.

## Auxiliaries

MGLH	Hardener	5 %
MGLV	Thinner	2-5 %
SV 11	Retarder	2-5 %
MP	Matting Powder	1-3 %
VM 2	Levelling Agent	1-3 %
UR 3	Cleaner (Flp. 42°C)	
UR 4	Cleaner (Flp. 52°C)	
UR 5	Cleaner (Flp. 78°C)	

Shortly before use, the hardener should be stirred into the ink. MGLH is sensitive to humidity and is always to be stored in a sealed container.

Thinner MGLV is added to the ink/hardener mixture 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).

Printing Modifier VM 2 (silicone-free) can be added to rectify flow problems. An excessive amount reduces the intercoat adhesion.

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. For a good opacity on coloured substrates, we recommend a mesh count between 68-64 and 90-48, for printing fine details 100-40 to 120-34. A suitable mesh count for thin ink films is 165-27.

## 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 selection and testing of the ink for specific application is exclusively your responsibility.

Should, however, any liability claims arise, such claims 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 our ink type Maraglass MGL and its additives and auxiliaries, there are current Material Safety Data Sheets available according to EC-regulation 1907/2006 informing in detail about all relevant safety data including the labelling according to the present EEC regulations as to health and safety labelling requirements. Such health and safety data may also be obtained from the respective label.