

Libragloss LIG



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Screen Printing Ink for PVC self-adhesive foils, rigid PVC, polystyrene, ABS, SAN, polycarbonate, acrylics, paper, paste-board, cardboard, wood

Glossy, medium opaque, fast drying, block resistant, PVC-free, low odour, mild, good printability

Field of Application

Libragloss is a universal solvent-based screen printing ink in standard and 4-colour-process shades for the daily tasks of graphic screen printing.

Substrates

The following substrates have successfully been tested and approved in practice:

Plastics: PVC self-adhesive foils, rigid PVC, polystyrene (PS), ABS, SAN, acrylic (PMMA), polycarbonate (PC)

Further: paper, pasteboard, cardboard, wood

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

Field of use

The Libragloss LIG is highly suitable for the production of PVC-stickers, advertising panels, displays, and lettering of all kinds.

LIG can also be processed with a spray gun, but preliminary trials are necessary for this process. We recommend to filter the thinned ink (25 µm screen) before processing, as otherwise there could be bubbles in the ink film.

Characteristics

Printability

-Very good mesh opening for standard and 4-colour process shades, i.e. printability of the LIG is very simple and easy.

-LIG can be processed by hand printing, with semi-automatic machines up to fully automatic machines.

-In simple printing, the LIG is suited for printing speeds up to 1000 prints/h.

Drying

Physically fast drying, dries at 20 °C air temperature within 15-20 min. to be overprinted, at 50 °C in a tunnel drier stackable after 30-40 sec. In overprinting, the drying speed and block resistance will be reduced by approx. 20 %.

With high dryer capacity and good ventilation provided, the drying temperature can be lowered to 40 °C, for less material distortion. The times mentioned above vary according to the substrate, the ink film thickness, drying conditions and the auxiliaries used. An extended drying time is necessary when softener WM 1 (2-5 %) is added to the ink.

Gloss level

Libragloss LIG is considered glossy with the following measured values (angle 60 °, fabric 120-34, white self-adhesive foil). The value 100 is high-glossy and the value 1 is deep-matt.

Standard shades:	65 gloss units
Printing varnish LIGL:	65 gloss units
4-colour process shades:	50 gloss units

If a higher gloss level is required, we recommend - after a preliminary test - to overcoat with a high gloss varnish such as SR 910 or a UV-curing varnish.

Opacity

The colour shades of the LIG are brilliant with medium to good opacity.

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Ink odour

All solvents used for the LIG and other auxiliaries are very mild and neutral in odour. This significantly reduces the polluting solvent odour in the printing shop.

Fade resistance

We are using pigments of excellent fade resistance (blue wool scale 7-8) for all shades of our Libragloss LIG ink type. Therefore, all basic shades of System 21 and the standard shades (Euro-Yellow LIG 450 92 429) are suitable for outdoor use for 3 years when placed vertically, in reference to the tempered middle European climate.

A requirement is the appropriate and professional processing as well as a max. addition of 50 % of varnish or white to the standard shades.

A coat of printing varnish LIG 910 onto the whole surface will extend the possible time for outdoor use to 4 years.

In countries with higher exposure to sunlight (between the 40th parallel north and 40th parallel south) the outdoor resistance decreases to 2 years.

We recommend to use highly fade-resistant ink types plus over-varnish such as e.g. the Marastar SR or Libraspeed LIS for an extended outdoor use.

The LIG PANTONE® basic shades are more transparent than the basic shades of System 21, due to the required brilliance, and, therefore, do not achieve the same high fade resistance but maximum 2 years. The pigments used are resistant to solvents and plasticizers.

Stress resistance

After proper and thorough drying, the ink film of the standard shades exhibits outstanding adhesion as well as rub, scratch, and block resistance and can be moulded (caution with 4-colour process shades, please use the LIS 4-colour process shades!). LIG exhibits a normal chemical resistance of 20 double rubs to alcohol and other popular cleaners (e.g. window cleaner).

For a higher rub resistance to dry abrasion at the colour shades, we recommend to overcoat with printing varnish LIG 910. For a higher chemical resistance, we recommend coating with printing varnish SR 910/911 or a suitable UV-curing varnish.

Yield

One litre of Libragloss LIG yields about 70 m² of printed surface, when diluted by 15 % and using a 120-34 (T) mesh.

Range

Marabu-ColorFormulator (MCF) and Marabumix colour matching systems includes the basic shades of System 21 and PANTONE®. All shades are intermixable. The Libragloss LIG ink should not be mixed with other types of ink, to maintain the special characteristics of this outstanding ink range.

The pigments used in the below mentioned standard shades, (based on their chemical structure) correspond to the EEC regulations EN 71/part 3, safety of toys - migration of specific elements. All colours are suited for printing onto toys.

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Basic shades for Colour Matching System HKS, RAL, and System 21

See shade card Libragloss LIG or System 21

LIG 020 Lemon	LIG 055 Ultramarine Blue
LIG 021 Medium Yellow	LIG 056 Turquoise Blue
LIG 022 Yellow Orange	LIG 057 Brilliant Blue
LIG 026 Light Yellow	LIG 058 Deep Blue
LIG 031 Scarlet Red	LIG 059 Royal Blue
LIG 032 Carmine Red	LIG 064 Yellow Green
LIG 033 Magenta	LIG 067 Grass Green
LIG 035 Bright Red	LIG 068 Brilliant Green
LIG 036 Vermilion	LIG 070 White
LIG 037 Purple Red	LIG 073 Black
LIG 045 Dark Brown	

By using these 21 basic shades in accordance with the mixing ratios given in the Marabu-ColorManager (MCM2) software, it is possible to produce all shades of the ink systems Marabu System 21 and RAL.

Mixed shades according to PANTONE®

see PANTONE colour fan from Marabu

LIG 829 PANTONE®*	Yellow
LIG 832 PANTONE®*	Rubine Red
LIG 836 PANTONE®*	Warm Red
LIG 839 PANTONE®*	Rhodamine Red
LIG 850 PANTONE®*	Purple
LIG 851 PANTONE®*	Violet
LIG 852 PANTONE®*	Reflex Blue
LIG 859 PANTONE®*	Process Blue
LIG 868 PANTONE®*	Green
LIG 070	White
LIG 073	Black
LIG 910	Printing Varnish

*PANTONE, Inc.'s checkstandard trademark for color reproduction and color reproduction materials.

By using these 9 LIG PANTONE basic shades together with LIG 070, LIG 073, and printing varnish LIG 910, 1147 colour shades of the PANTONE Color Formula Guide can be mixed (see also text inside the PANTONE colour fan).

The mixing formulas as per PANTONE are stored in the Marabu-ColorManager software (MCM2).

Standard shades according to EURO scale

Four shades for 4-colour process printing

LIG 429	Yellow,	density 1.3
LIG 450 92 429	Yellow,	density 1.3
	highly fade resistant	
LIG 439	Magenta,	density 1.4
LIG 459	Cyan,	density 1.5
LIG 473	Process Black,	density 1.8

The density values mentioned are for a fabric of 150-31 (S) at a dilution of 10 %. By adding transparent base LIG 409, the ink density can be reduced. An increase of density is achieved by adding ink concentrate for 4-colour process shades (Yellow 429, Magenta 439 and Cyan 459) or by using a coarser fabric. For 4-colour process prints for long-term out-door use, the highly fade-resistant Yellow LIG 450 92 429 must be used.

Additives

LIG 910	Bronze binder and printing varnish
LIG 409	Transparent base

Bronze shades

(to be mixed with bronze binder LIG 910)

All bronze shades are shown in a special bronze shade chart.

S 181 Aluminium (6:1)	S 184 Pale Gold (4:1)
S 182 Rich Pale Gold (4:1)	S 186 Copper (3:1)S
183 Rich Gold (4:1)	S 190 Aluminium
	(rub-resistant, 8:1)

Bronze mixtures cannot be stored and must be processed in the course of 12 hours. Due to their chemical structure, Pale Gold S 184 and Copper S 186 further reduce the processing time to 8 hours. All figures in brackets are guidelines which can be varied, according to opacity and ink price.

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The ratio figures in brackets refer to the mixture bronze binder LIG 910 to bronze powder or bronze concentrate, the first figure standing for the parts by weight of bronze binder LIG 910. Due to the larger grain size of bronze pigments, we recommend a fabric of 120-34 (T) or 120-31 (S) or coarser.

High-gloss bronzes

Furthermore, 3 high-gloss bronze concentrates are available, to be used by mixing them with bronze binder LIG 910 (see separate Technical Data Sheet "High-Gloss Bronze Concentrates").

S 291 High-gloss Silver	(5:1 - 10:1)
S 292 High-gloss Rich Pale Gold	(5:1 - 10:1)
S 293 High-gloss Rich Gold	(5:1 - 10:1)

Due to the smaller pigment size compared to bronze powders, it is possible to print using finer fabrics of 140-31 (S) to 150-34 (T) for an acceptable price. Bronze shades of high-gloss bronze concentrates exhibit a high weather resistance and only a small dry abrasion.

Auxiliaries

Thinner, slow:	LIGV
Thinner:	UKV 2
Thinner, fast, mild:	PSV(for polystyrene and substrates sensitive to solvent corrosion)
Spray Thinner:	PSV
Retarder, mild:	SV 1
Retarder, slow:	SV 9
Retarder Paste:	VP
Cleaner:	UR3
Matt paste:	ABM (1-20 %)
Matting powder:	MP (1-4 %)
Plasticizer:	WM 1 (2-5 %)
Printing modifier:	ES (0.5-1 %)

To adjust the printing viscosity, it is generally sufficient to add 10-15 % thinner LIGV or UKV 2 to the ink. For use on polystyrene or other

plastics sensitive to tension corrosion, we recommend the mild thinner PSV.

To produce a retarding effect for slow printing sequences, retarder is added to the thinner proportionately (e.g. 50 % of the quantity of solvent).

For the printing of very fine details, it is possible to use retarder paste VP (5-20 %) or retarder SV 9 proportionately (5 % max.). For an ink mixture containing retarder, only pure thinner without retarder should be used for additional thinning.

For spray varnishing, our fast thinner PSV should be used (by adding approx. 30-40%) after preliminary trials. By adding ABM matting paste (1-20 %) or MP matting powder (1-4 %, for white LIG 070, 2 % max.), the glossy effect of the LIG can be reduced, decreasing the opacity at the same time.

Plasticizer WM 1 (2-5 %) is recommended for especially flexible ink films. This is important for thin substrates tending heavily to curl, as well as for PVC self-adhesive foils with removable backing (danger of edge curling) and in case of cutting or die-cutting the printed surface.

For the production of double-sided labels, the use of WM 1 is indispensable. The use of plasticizer WM 1 reduces the drying speed.

Printing modifier ES contains silicone. It can be used to rectify flow problems on critical substrates by adding 0.5 to 1 % max. by weight to the ink. If an excessive amount of printing modifier is added, flow problems are increased, and adhesion may be reduced, especially when overprinting.

Cleaning

The appropriate cleaner is UR3. We generally recommend to clean the tools immediately after printing.

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Fabrics and Stencils

All types of commercially available polyester fabrics and solvent-resistant stencils can be used.

Recommendation

The ink is to be stirred well and homogeneously before printing. The additives will separate in the ink, especially when stored for a longer time and getting inhomogeneous.

Shelf life

Shelf life depends very much on the formula/reactivity of the ink system as well as the storage temperature. It is 3 years for an unopened ink 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.

Labelling

For our ink type Libragloss LIG and its additives and auxiliaries there are current Material Safety Data Sheets according to EC-regulation 91/155, covering in detail all relevant safety data including the labelling according to the present EC regulations as to health and safety labelling requirements. Such health and safety data may also be obtained from the respective label.

The ink has a flash point between 55 °C and 100 °C. Any specific regulations for the handling of flammable liquids do not apply for the ink.

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.