

Librastar HF



Pad and Screen printing ink for polystyrene, ABS, PET, PETG, polycarbonate, acrylics.

Glossy, opaque, fast drying 1- or 2-component system, very good resistance against alcohol, halogen- and cyclohexanon free

Vers.02
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Field of Application

Substrates

Librastar HF is particularly suited to print onto halogen-free substrates like polystyrene (PS), ABS, PET, PETG, polycarbonate (PC), acrylic (PMMA). HF can be applied as one- or two-component ink (10% Hardener). By adding Hardener H 2, Librastar HF adheres excellently to many other substrates such as thinly anodized aluminium, or some thermosetting plastics.

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

Field of use

Librastar HF can be used as pad- or screen printing ink. All colour shades of Librastar HF are halogen-free. The opaque, glossy and fast drying ink Librastar HF is especially suited to decorate all kinds of electronic goods or toys.

Librastar HF may be used, by an appropriate printing process, to print onto the non food-contact surface of any material or article intended to come into contact with foodstuffs. However, full compliance with the regulation (EC) Nr. 2023/ 2006 must be ensured. In case of any queries please contact our Marabu product safety department directly.

Characteristics

Hardener and Pot life

10% hardener H 2 may be added to the ink to improve adhesion. Once the hardener has been

added and stirred homogeneously, the pot life (processing period) begins, which will last approx. 12-14 hours with Hardener H 2 (10%) at room temperature (approx. 20° C).

Higher temperatures will reduce the pot life.

Drying

Librastar HF (one-component system) is physically very fast drying. Following drying times can be taken into consideration:

Pad Printing (15%TPV, 22µm cliché depth)

20° C	about 60 sec.
30° C	about 30 sec.

Screen Printing (15%SV3, mesh 120-34)

20° C	about 15 min.
Hot air 60° C	about 45-60 sec.

With the addition of Hardener H 2, drying time will be extended for a few minutes. The times mentioned above vary according to substrate, depth of cliché, drying conditions, and the auxiliaries used.

Parallel to physical drying (i.e. to 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. Chemical cross-linking can be accelerated by higher temperatures.

The processing and curing temperature should not be lower than 15° C as irreversible damage can occur. Also avoid high humidity for several hours after printing as the hardener is sensitive to humidity.

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Fade resistance

Only halogen-free pigments of good or very high fade resistance are used for the Librastar HF range (Blue wool scale 6-8). The pigments used are resistant to solvents and plasticizers.

Stress Resistance

After proper and thorough drying, the single component ink film exhibits outstanding adhesion as well as rub, scratch, and block resistance, and has a very good resistance to alcohol. In some cases, surface stability as well as adhesion and resistance to solvents may be improved by adding 10% Hardener H 2.

Range

All shades are intermixable. Please do not mix HF with any other ink types in order to maintain its special characteristics and the halogen-free raw materials.

Color shades

HF 020	Lemon Medium
HF 021	Yellow
HF 035	Bright Red
HF 036	Vermillion Red
HF 055	Ultramarine Blue
HF 057	Brilliant Blue
HF 067	Grass Green
HF 070	White
HF 073	Black

These 9 basic color shades are the basis for color matching according to the common Pantone®, HKS®, RAL® systems. All formulas are stored in the Marabu-Color Manager 2 (MCM 2) software.

Further shades available

HF 191	Silver
HF 170	Opaque White

Clears

HF 910	Overprint Varnish, can also be used as bronze binder
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Bronzes

(to be mixed with HF 910)

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

Due to their chemical structure, Pale Gold S 184 and Copper S 186 have a reduced processing time. Please generally prepare mixtures for one working day only as they cannot be stored and must be processed within 8 h.

High-gloss Bronzes

There are 3 high-gloss bronze pastes available which can be mixed with HF 910 overprint varnish (see separate Technical Datasheet "High-gloss Bronzes").

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)

These high-gloss Bronzes are very resistant to weather and dry abrasion.

The pigments used in the previously 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.

Auxiliaries

For Pad Printing:

Thinner:	TPV	(standard)
	TPV 2	(fast)
	TPV 3	(slow)

For Screen Printing:

Thinner:	UKV 1	(very fast)
	UKV 2	(fast)
Retarder:	SV 1	(slow)
	SV 3	(very slow)
Retarder Paste:	VP	(5-20%)

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General Auxiliaries:

Hardener:	H 2	(fast)
Mixing ratio:	10 parts ink:	1 part hardener
Matting Powder:	MP	(1-4%)
Antistatic Paste:	AP	(10-15%)
Opaquing Paste:	OP 170	(5-10%)
Cleaner:	UR 3	
Printing Modifier:	ES	(max. 1%)
Plasticizer:	WM1	(2 – 5%)

To adjust printing viscosity, it is generally sufficient to add 10-20% Thinner /Retarder to the ink. Thinner TPV 2 (Screen Printing UKV 2) can be used for fast printing, TPV 3 (Screen Printing SV 1 or 3) for slow printing requirements.

For the printing of very fine motives, Retarder Paste VP may be added to the ink.

By adding Matting Powder MP, the glossy effect of the ink is reduced to a silky or semi-matt finish. The addition of 2-4% Matting Powder MP (in case of 170 White, max. 2%) will not significantly influence the resistances of the ink but reduce its opacity.

By adding Opaquing Paste OP 170, the opacity of colour shades may be further increased without influencing the chemical and dry abrasion resistance considerably. Maximum quantity to be added is 10%. OP 170 is not suitable for using it with white shades.

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

The addition of plasticizer WM 1 (2-5%) is recommended if the printed ink film must be extremely flexible. This may be important for thin substrates with a tendency to curl, or applications that require cutting or die-cutting of the ink film.

Recommendation

The ink should be stirred well before printing. All colour shades of Librastar HF are halogen-free. The entire printing equipment must be handled with utmost care to avoid accidental contamination with halogen residues during the production process.

Cleaning

To clean ink containers, clichés, and tools, please use our Cleaner UR 3.

Labelling

For our ink type Librastar HF and its additives and auxiliaries, there are current Material Safety Data Sheets according to EC-regulation 1907/2006 informing in detail about all relevant safety data including labelling according to the present EC regulations as to health and safety labelling requirements. Such health and safety data may also be derived from the respective label.

The ink has a flash point > 43 °C.

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 or 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 applications is exclusively your responsibility.

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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.