

Product Data Sheet

Pad Printing Ink

LAB-N 141893

Solvent Based Pad Printing Ink Range, 1- and (alternatively) 2-Component

APPLICATION

Special pad printing ink range LAB-N 141893 is suitable for printing on various thermoplastics, especially pre-treated polypropylene (PP) and polyethylene, ABS, polystyrene (PS), PMMA ("acrylic glass") and polycarbonate (PC).

In addition, as a 2-component system and/or after pre-treatment of substrates (flame, corona) LAB-N 141893 inks can also be printed on polyester, polyamide (PA) and some coated surfaces.

PROPERTIES

- Pad inks LAB-N 141893 are solvent based pad printing inks. They can be processed as 1-component and (alternatively) as 2-component ink with hardener
- **In line with current safety requirements pad printing inks LAB-N 141893 have been formulated with especially environmentally compatible raw materials.**
The inks are free of halogens according to DIN EN 61249-2-21*.
In addition, LAB-N 141893 inks do not contain aromatics, butyl glycolate (GB-Ester), cyclohexanone, Bisphenol A (BPA) and also no polycyclic aromatic hydrocarbons (PAH).
Exception: Black colours N50, 65 and 65-HD (PAH- containing pigments).
- **If the criteria to obtain the GS mark according to GS specification AfPS GS 2014:01 PAH have to be met, the following applies:**
Colour shade black: Only colour shades N58, 68 or 68-HD are suitable.
Thinner/Additives Only those products marked with symbol ☒ in this data sheet are suitable.
- Processed as 1-component ink LAB-N 141893 dries physically, as 2-component ink physically chemically-reactive
- LAB-N 141893 inks are quick drying and result in a satin gloss finish.
- This ink range can be used on flat pad printing and rotation printing equipment.
- LAB-N 141893 prints show good resistances against many cleaning solutions and disinfectants used for food packaging materials. These resistance properties can be further improved by processing LAB-N 141893 as a 2-component system, especially on PE/PP substrates.
- Due to the binders contained LAB-N 141893 inks are not suitable for medium or long-term outdoor applications.
- Note: Because of the variety of substrates, pre-tests are essential. It is also advised to check efficiency of possibly required pre-treatment of substrates (cleaning/degreasing, flame/corona/plasma treatment) or maybe even post-treatment (flame-drying).

COLOUR SHADES - OVERVIEW

- Only white and varnish (clear) are available.
- Special colour shades are available upon request.
- More information about available colour shades in the detailed tables in section Colour Shades.

CHOICE OF PIGMENTS AND LIGHT FASTNESS

Colour shades of LAB-N 141893 ink range contain pigments with a high light fastness. Light fastness and weather resistance will reduce if thinner layers are applied or if base colours are mixed with a high ratio of white or varnish.

Due to the binders contained LAB-N 141893 inks are not suitable for medium or long-term outdoor applications.

ADJUSTMENT FOR PAD PRINTING

- Pad printing inks LAB-N 141893 are not supplied in a ready-to-print adjustment.
- **Processed as 1-component ink (without addition of hardener):**
Ink is adjusted to printing consistency by addition of thinner or retarder (stir with mixer or agitator).
- **Processed as 2-component ink (with addition of hardener):**
As 2-component ink LAB-N 141893 inks have to be mixed with hardener at a specified ratio prior to processing. Thinner is added after addition of hardener.
The mixed ink should be allowed to pre-react for approx. 15 minutes prior to processing (recommendation). Processing is then possible for a specified period of time (=pot life).

Hardener:

Alternatively, pad inks range LAB-N 141893 can be processed as 2-component ink. The following hardeners are available:

- ☒ **TP 219** Reaction temperature: > 15°C
☒ **TP 219/12** Reaction temperature: > 15°C
TP 219/N Reaction temperature: > 20°C

Mixing ratio ink : hardener = 5 : 1 (parts by weight).

Hardeners are sensitive to humidity. Therefore, containers always have to be tightly closed.

Pot life:

- Ink mixed with hardener may only be processed within a limited period of time (=pot life)
- **Pot life of LAB-N 141893 + hardener is approx. 8 h (at 20°C).**
Higher temperatures will reduce pot life.
- We do not recommend processing the inks for longer than the pot life as adhesion and resistance properties will then continually deteriorate, even if the ink still seems to be liquid and processable.

THINNERS / RETARDERS

Depending on local conditions ink is adjusted to printing consistency by addition of 15 – 30 % by weight of thinner or retarder.

Generally, the thinner suitable for LAB-N 141893 inks is Additive U!

The additional products listed below should only be used if the required printing quality/ink transfer cannot be achieved using additive U (e.g. drying too slow or too fast).

For adjustment of pad inks LAB-N 141893, the following products are available:

Thinner:	☒ ☐ Additive C	Extremely quick thinner, good solving power
	☒ ☐ Additive D	Very quick thinner, good solving power
	☒ ☒ Additive U	Standard thinner, free of cyclohexanone
	☒ ☐ VD 60	Slow thinner
Retarder:	☒ ☐ VZ 35	Very slow retarder
	☒ = Product is free of aromatics, butyl glycolate, cyclohexanone, PAH ☒ = Preferred ☐ = If required	
Note:	For printing with thick and thin steel clichés sensitive to corrosion	
	☒ ☐ Additive U/00	Standard thinner with anti-corrosion additive
	☒ ☐ Additive D/00	Quick thinner with anti-corrosion additive

Depending on printing conditions, the listed products can be mixed into the inks individually or as mixtures. Please note that depending on evaporation rate of the thinner/retarder used drying times may be longer.

Thinner/retarder should be mixed into the ink thoroughly using a mixer or agitator. In addition, inks should be stirred well prior to each processing to obtain a homogeneous dispersion of all ingredients.

ADDITIONAL AUXILIARY AGENTS

Application	Product	Addition in % by weight	Additional Information
Antistatic paste	☑ STM-P1	Max. 10%	Possibly slightly reduced gloss
Retarder paste	LAB-N 111420/VP	Max. 10%	Possibly slightly reduced gloss
Viscosity increase	☑ Thickening powder	Max. 3%	Stir with mixer
Matting	☑ Matting powder	Max. 5%	Stir with mixer
Flow agent	☑ VM 11	1 - 5 %	Do not overdose!
Flow agent	VM 1	1 - 5%	Do not overdose!

OVERPRINTING

Generally, it is not necessary to overprint LAB-N 141893 inks with varnish. However, overprinting to achieve an enhanced protection of ink layers is possible with LAB-N 141893/E50.

BRONZE COLOURS

For technical reasons bronze colours are not available.

If compliance of PAH threshold values (e.g. AfPS GS 2014:01 PAH) is not required, bronze colours can be mixed using bronze pastes B 75, B 76, B 77 and B 79 as well as bronze powder B 78-POWDER.

These “B” bronze pastes and “B” bronze powder are mixed with varnish LAB-N 141893/E50 prior to processing.

Mixing ratios in parts by weight:

Gold bronze paste/powder to LAB-N 141893/E50 = 1 : 3 - 4

Silver bronze paste to LAB-N 141893/E50 = 1 : 4 - 5

Bronzes B 75 to B 79 are prone to oxidation (Exception B 78-POWDER). Therefore, they should be overprinted, e.g. with LAB-N 141893/E50.

B 78-POWDER does not tend to oxidation. The pale copper shade will not darken with time.

Note: When overprinting bronze colours with varnish or other colour shades it is essential to carry out pre-tests to check intermediate adhesion of the ink layers (fingernail test, tape test).

DRYING / HARDENER REACTION

1. **Processing WITHOUT addition of hardener:**
Ink dries physically, i.e. by evaporation of solvents.
2. **Processing WITH addition of hardener TP 219, TP 219/12 or TP 219/N:**
First, ink dries physically, followed by chemical cross-linkage reaction.
Drying and reaction temperature of hardener must be at least 15°C when using TP 219 and TP 219/12 and 20°C using TP 219/N!

Drying

Drying times below are only approximate as drying properties depend on various factors:

- Type and amount of thinners/retarders used.
- Thickness of printed ink layer (single print, multi-layer print).
- Drying temperature.

Drying time is approx. 30 – 60 seconds at room temperature (20 – 25°). Drying time with heat application (e.g. hot air fan) and air circulation is about 10 - 20 seconds.

Complete drying may take several hours, also depending on the substrate.

Hardener Reaction

Basically, the increased resistance properties of the printed ink film are only achieved after complete drying followed by chemical cross linkage reaction between ink and hardener. This cross linkage reaction depends on time and temperature.

The following are guide values only:

Temperature	Time approx.	Condition of ink	Additional information
<15°C air drying		Hardener TP 219 or 219/12 does not react!	Ink film will not achieve any resistance
<20°C air drying		Hardener TP 219/N does not react!	Ink film will not achieve any resistance
20°C air drying	20 min.	"Touch-dry"	No resistance yet
	>72 h	High degree of cross-linkage	High resistances achieved
	>5 days	Maximum degree of cross-linkage	Maximum resistances achieved
80°C oven curing	approx. 5 min.	Dry enough for overprinting	No resistance yet
	60 min.	High degree of cross-linkage	High resistance values achieved

Resistance Tests

Resistances should not be checked before the ink has fully cured/cross-linked:

Drying with 20°C/>72h; with 80°C/>60 minutes.

CLICHÉ

All commercial types of clichés (polymer, thin and thick steel, ceramic) are suitable for processing LAB-N 141893 inks.

CLEANING

The longer inks dry on clichés, pots and tools the harder will be their removal due to the chemical cross-linkage reaction. Therefore, always remove ink residues as soon as possible using our universal cleaning agents URS, URS 3 or thinner VD 40.

Note: When producing prints for end products to be evaluated for compliance with PAH threshold values (e.g. AfPS GS 2014:01 PAH) we recommend to clean with our products Additive C, U or VD 60.

PACK SIZE

Pad printing inks LAB-N 141893 are delivered in 1 litre containers. Other pack sizes are available upon request.

SHELF LIFE

In closed original containers, LAB-N 141893 inks generally have a shelf life of 5 years from date of production. Hardeners TP 219 and TP 219/N have a shelf life of 24 month, TP 219/12 has a shelf life of 18 months from date of production, also in closed original containers.

For exact date of expiry, please refer to the label.

SAFETY DATA SHEETS

Read safety data sheet prior to processing

Safety data sheets comply with Regulation (EC) No. 1907/2006 (REACH), Appendix II.

CLASSIFICATION AND LABELLING

Hazard classification and labelling comply with Regulation (EC) No. 1272/2008 (CLP/GHS).

CONFORMITY

Coates Screen Inks GmbH does not use any of the substances or mixtures for the production of printing inks, Further compliance confirmations are available upon request.

ADDITIONAL INFORMATION ABOUT OUR PRODUCTS

Product data sheets: Auxiliary Agents for Pad Printing HM

Brochures: Pad Printing Inks

Internet: Various technical articles are available for download on www.coates.de, section "SN-Online"

FOR COLOUR RANGES, PLEASE REFER TO NEXT PAGE.

COLOUR SHADES

STANDARD Colour Range HD (high opacity) According to colour card STANDARD HD or HD-P for pad printing inks Availability of further standard HD shades upon request		
white, highly opaque	LAB-N 141893/60-HD-NT	
SPECIAL PRODUCTS: Special Colour Shades, Varnishes, Pastes Information about availability upon request		
varnish	LAB-N 141893/E50	

Matching of PMS, RAL, NCS colours and special shades upon request.

All above information refers to the colour shades listed in this product data sheet and other standard shades of this pad printing ink range. Information about availability of further standard shades upon request.

In some individual cases the product characteristics of special colour shades and modifications of this ink type manufactured upon customer request may differ from the above properties.

Footnotes:

*Free of halogens according to DIN EN 61249-2-21

Chlorine content < 900 ppm, bromine < 900 ppm, total content of chlorine and bromine < 1500 ppm

The statements in our product and safety data sheets are based on our present experiences, however they are no assurance of product properties and do not justify a contractual legal relationship. We provide these details to inform customers about our products and their possible applications. However, on account of various factors influencing processing of our products it is absolutely essential to carry out printing trials under local production conditions. Choice of individual ink types and their suitability for the intended application is the sole and entire responsibility of the user. We do not assume any liability for any problems of technical or process-related nature. Any liability shall be limited to the value of the goods delivered by us and processed by the user.

All former product data sheets are no longer valid.

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