

Product Data Sheet

Screen Printing Ink

UVN

UV-curing Screen Ink Range, 1-Component

APPLICATION

UV-curing screen printing inks for printing on PVC. Especially rigid PVC, PVC fabric foils (banner material), plasticized PVC, primer-coated polyolefin and polyester foils, polycarbonate, paper and cardboard.

PROPERTIES

- Solvent-free UV-curing screen printing inks UVN have a high reactivity.
- UVN inks are delivered in a ready-to-print adjustment. They cure quickly resulting in a glossy finish and high colour brilliance.
- The cured ink film shows good flexibility with high mechanical abrasion resistance.
- We recommend pre-trials to check impact strength and tear resistance on PVC materials.
- UVN inks show a good weather resistance.
- Note: Due to the variety of different substrates, especially PVC materials, we recommend pre-tests to confirm suitability of UVN inks.

COLOUR SHADES - OVERVIEW

- Mixing System: C-MIX 2000 12 colour shades for mixing of RAL, PMS and HKS colours.
- Process Inks: "180" colours 4 transparent colour shades according to ISO 2846-4.
- 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 UVN 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.

Applied on suitable substrates screen printing inks UVN are suitable for outdoor applications.

ADJUSTMENT FOR SCREEN PRINTING

- Screen printing inks UVN are supplied in a ready-to-print adjustment. Generally, addition of auxiliary agents is not necessary.
- For some rare and special applications and depending on local conditions, addition of certain agents/additives is possible.
- Prior to printing, the inks should be stirred well to obtain a homogeneous dispersion of all ingredients.

AUXILIARY AGENTS

Application	Product	Addition in % by weight	Additional Information
Thinning	Additive UV/V*	Max. 10%	Standard thinner
Viscosity increase	Thickening powder	1 - 2%	Stir with mixer
Matting	Matting powder	5 - 10%	Stir with mixer
Reactivity increase	LAB-N 551564	1 - 3%	Photoinitiator
	LAB-N 560700	3 - 5%	Photoinitiator
Flow agent	Additive UV/VM	1 - 2%	Do not overdose!
	Additive UV/N	1 - 2%	Wetting agent, also promotes flow properties.

* Thinner Additive UV/V is a reactive UV monomer, not a commercial solvent!

OVERPRINTING

Generally, it is not necessary to overprint UVN inks with varnish. If required, however, overprinting with varnish UVN/E50 is possible.

BRONZE COLOURS, MIXING OF BRONZE INKS

The following bronze colours with a stable shelf life are available upon request:

- Silver: UVN 79/96
- Gold: rich gold UVN 75/22 and rich pale gold UVN 76/35

Printers can mix bronzes themselves 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 UVN/E50 prior to processing.

Mixing ratios in parts by weight:

Gold bronze paste/powder to UVN/E50 = 1 : 3 - 4

Silver bronze paste to UVN/E50 = 1 : 4 - 5

- **Note:** Depending on printing conditions, an addition of 2% photoinitiator LAB-N 560700 may be required to increase reactivity.
- **Note:** For technical reasons these mixtures only have a pot life of approx. 6 - 8 h! Afterwards ink will thicken and become solid.
- **Note:** B bronzes are prone to oxidation (Exception B 78-POWDER). Therefore, overprinting with UVN/E50 is recommended.

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

DRYING / UV-CURING

- UVN inks only dry/cure under UV-radiation.
- Suitable UV-driers with Hg medium-pressure lamps (250 – 400 nm) and an efficiency between 80 and 200 W/cm have to be used.
- Preferably, use reflectors with a focussed radiation.
- Ensure an even radiation (intensity/distance to the lamps) of the whole printed image.
- Curing parameter depend on thickness of printed ink layer, colour, substrate or substrate quality and temperature as well as construction and performance of the UV drier.
- Curing energy required depends on number of printed ink layers (check intermediate adhesion), printed layer thickness, colour and type of substrate. Hence, printers should determine the exact required energy with their own UV-drier.
- **UV-curing energy guide values:**
(printed with 150-31 fabric, white substrate)
UV-energy: 200-300 mJ/cm²
(measured with Kühnast UV-integrator, 250 – 410 nm, max. 365 nm)
Belt speed: UV-radiator: 1 x 120 W/cm: 10 - 15 m/min.
2 x 120 W/cm: 20 - 30 m/min.
- Adhesion should only be checked several minutes after curing. Due to the post-curing process of the ink and depending on the substrate, sufficient adhesion may sometimes only be achieved after up to 24 hours.

SCREEN FABRIC / STENCILS

UVN inks are formulated for printing with fabrics of 120 – 165 threads/cm. Printability and especially UV-curing properties with coarser or finer fabrics should be evaluated by corresponding trials.

All copy emulsions and capillary films suitable for solvent based and UV-curing screen inks can be used, such as our program of SunCoat or Murakami products.

CLEANING

Uncured UV inks can be removed from stencils and tools using our solvent based universal cleaning agents of the URS range.

Cleaning of cured UV inks is very time-consuming and hardly ever possible.

Note: As the acrylates contained in these UV inks may cause skin irritation, clean contaminated skin with water and soap immediately. Remove and clean contaminated clothing straightaway.

PACK SIZE

Screen printing inks UVN are delivered in 1 litre containers. Other pack sizes are available upon request.

SHELF LIFE

In closed original containers, UVN inks generally have a shelf life of 2 years from date of production. 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 to produce printing inks, which are banned according to the EUPIA (European Association of the Printing Inks Industry) exclusion policy. Further compliance confirmations are available upon request.

ADDITIONAL INFORMATION ABOUT OUR PRODUCTS

Product data sheets: Auxiliary Agents for UV-Curing Screen Printing Inks

Brochures: UV-Curing Screen 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

C-MIX 2000 BASE COLOUR SHADES					
Mixing system for matching of PMS, HKS, RAL colours (on white substrates)					
Start formulations available in data base „Formula Management C-MIX 2000“					
According to colour card C-MIX 2000					
primrose	UVN/Y30	red	UVN/R50	green	UVN/G50
golden yellow	UVN/Y50	magenta	UVN/M50	black	UVN/N50
orange	UVN/O50	violet	UVN/V50	white	UVN/W50
scarlet	UVN/R20	blue	UVN/B50	varnish	UVN/E50
4 COLOUR PROCESS INKS (CMYK)					
According to colour card STANDARD 1 for screen printing inks					
process yellow	UVN 180	process black	UVN 65		
process magenta	UVN 181	transparent paste	UVN/TP		
process cyan	UVN 182				
SPECIAL PRODUCTS: Special Colour Shades, Vanishes, Pastes					
Information about availability upon request					
white, highly opaque	UVN 60/HD	rich pale gold, stable shelf life	UVN 76/35		
white, highly opaque	UVN 60/88-HD-MT	fluorescent colours	colour shades 90 - 95 according to Pantone PMS C		
black, highly opaque	UVN 65/490-HD	fluorescent colours	UVN 96/39 (long glowing time)		
silver, stable shelf life	UVN 79/96	phosphorescent colours	UVN 96/46 (short glowing time)		
rich gold, stable shelf life	UVN 75/22				

Matching of PMS, RAL, NCS colours and special 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.

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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