

Product Data Sheet

Screen Printing Ink

UVP

UV-curing Screen Ink Range, 1-Component

APPLICATION

UV-curing screen printing inks mainly for technical and industrial applications. For printing on coated surfaces, aluminium, thermoplastics, wood as well as on thermoplastics such as polycarbonate (PC), PVC, polystyrene (PS) and ABS.

PROPERTIES

- Solvent-free UV-curing screen printing inks UVP have a medium to high reactivity.
- UVP inks are delivered in a ready-to-print adjustment with medium viscosity. They result in a glossy finish.
- The cured ink film shows medium flexibility with excellent mechanical abrasion resistance and high chemical resistance.
- UVP inks show a good weather resistance.
- To improve adhesion on difficult substrates, 3-4% adhesion promoter Additive UV/HA can be added to UVP.
- Because of the variety of substrates, pre-tests are essential to determine suitability of UVP inks.

COLOUR SHADES - OVERVIEW

- Mixing System: C-MIX 2000 12 colour shades for mixing of RAL, PMS and HKS colours.
- 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 UVP 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 UVP are suitable for outdoor applications.

ADJUSTMENT FOR SCREEN PRINTING

- Screen printing inks UVP 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.
Adhesion promoter	Additive UV/HA	3 - 4%	Stir with mixer

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

OVERPRINTING

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

BRONZE COLOURS. MIXING OF BRONZE INKS

Bronze colours with a stable shelf life are not available in ink type UVP.

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 UVP/E50 or UVP/B prior to processing.

Mixing ratios in parts by weight:

Gold bronze paste/powder to UVP/E50 or UVP/B = 1 : 3 - 4

Silver bronze paste to UVP/E50 or UVP/B = 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 UVP/E50 is recommended.
- B 78-POWDER does not tend to oxidation. The pale copper shade will not darken with time.

DRYING / UV-CURING

- UVP 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:	300-450 mJ/cm²
	(measured with Kühnast UV-integrator, 250 – 410 nm, max. 365 nm)
Belt speed:	UV-radiator:
	1 x 120 W/cm: 8 - 10 m/min.
	2 x 120 W/cm: 16 - 20 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.

Adhesion Promoter:

- To enhance adhesion on difficult substrates, add 3 - 4% adhesion promoter Additive UV/HA to UVP.
- Check ink adhesion after 24 hours at the earliest when using Additive UV/HA.
- UVP inks mixed with Additive UV/HA have no pot life. There is no time-limit for processing.

SCREEN FABRIC / STENCILS

UVP 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 UVP are delivered in 1 litre containers. Other pack sizes are available upon request.

SHELF LIFE

In closed original containers, UVP 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	UVP/Y30	red	UVP/R50	green	UVP/G50
golden yellow	UVP/Y50	magenta	UVP/M50	black	UVP/N50
orange	UVP/O50	violet	UVP/V50	white	UVP/W50
scarlet	UVP/R20	blue	UVP/B50	varnish	UVP/E50
4 COLOUR PROCESS INKS (CMYK) According to colour card STANDARD 1 for screen printing inks					
Upon request					
SPECIAL PRODUCTS: Special Colour Shades, Vanishes, Pastes Information about availability upon request					
white, opaque	UVP 60/HD	topcoat, matt	UVP 70/MT		
black, opaque	UVP 65/HD	window varnish	UVP 70/200		
bronze binder	UVP/B				
BRONZE INKS (ready-to-print, stable shelf life) According to Colour Card UV Metallic Effects					
Not available.					

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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