

Product Data Sheet

Screen Printing Ink

UVX2

UV-curing Screen Ink Range, 1-Component

APPLICATION

UV-curing screen printing inks for printing on PVC, especially PVC adhesive foils.

PROPERTIES

- Solvent-free UV-curing screen printing inks UVX2 have a high reactivity.
- UVX2 inks are delivered in a ready-to-print adjustment. They cure quickly resulting in a glossy finish and high colour brilliance.
- Highly reactive UVX2 inks can be processed on fast-running one and multi-colour screen printing equipment.
- The cured ink film shows high flexibility with tough and elastic properties and high mechanical abrasion resistance. Impact strength and tear resistance of PVC materials are hardly affected.
- Using suitable transparent PVC self-adhesive foils, UVX2 inks can be used for the production of double-sided stickers.
- UVX2 inks show a good weather resistance.
- Note: Due to the variety of PVC materials, we recommend pre-tests to determine suitability of UVX2 inks.
- Note: Since November 2014, UVX2 has been the NVC-free successor product of ink range UVX.

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 UVX2 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 UVX2 are suitable for outdoor applications.

ADJUSTMENT FOR SCREEN PRINTING

- Screen printing inks UVX2 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
	MTR/V*	Max. 10%	Elastic thinner
Viscosity increase	Thickening powder	1 - 2%	Stir with mixer
Matting	Matting powder	5 - 10%	Stir with mixer. Additional thinning with Additive UV/V or MTR/V may be required.
Reactivity increase	LAB-N 551564	1 - 3%	Photoinitiator
Flow agent	Additive UV/VM	1 - 2%	Do not overdose!
	Additive UV/N	1 - 2%	Wetting agent, also promotes flow properties.

* Thinners Additive UV/V and MTR/V are reactive UV monomers, not commercial solvents!

OVERPRINTING

Generally, it is not necessary to overprint UVX2 inks with varnish. If required, however, overprinting with varnish UVX2/E50 is possible.

BRONZE COLOURS, MIXING OF BRONZE INKS

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

- Silver: UVX2 79/201
- Gold: UVU 75/25 (rich gold)

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 UVX2/E50 prior to processing.

Mixing ratios in parts by weight:

Gold bronze paste/powder to UVX2/E50 = 1 : 3 - 4

Silver bronze paste to UVX2/E50 = 1 : 4 - 5

- **Note: For technical reasons these mixtures only have a pot life of approx. 6 h! Afterwards ink will thicken and become solid.**
- **Note:** B bronzes are prone to oxidation (Exception B 78-POWDER). Therefore, overprinting with UVX2/E50 is recommended.
B 78-POWDER does not tend to oxidation. The pale copper shade will not darken with time.
- **Obliterating grey:** For the production of double-sided stickers, you need a light blocking layer. This can be produced adding 4% silver bronze paste B 79/13 to opaque white UVX2 60/688-HD. (Shelf life of this mixture: approx. 4 weeks)

DRYING / UV-CURING

- UVX2 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: **150-250 mJ/cm²**
 (measured with Kühnast UV-integrator, 250 – 410 nm, max. 365 nm)
Belt speed: **UV-radiator:** **1 x 120 W/cm: 15 - 20 m/min.**
 2 x 120 W/cm: 30 - 40 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

UVX2 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 UVX2 are delivered in 1 litre containers. Other pack sizes are available upon request.

SHELF LIFE

In closed original containers, UVX2 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	UVX2/Y30	red	UVX2/R50	green	UVX2/G50
golden yellow	UVX2/Y50	magenta	UVX2/M50	black	UVX2/N50
orange	UVX2/O50	violet	UVX2/V50	white	UVX2/W50
scarlet	UVX2/R20	blue	UVX2/B50	varnish	UVX2/E50
4 COLOUR PROCESS INKS (CMYK)					
According to colour card STANDARD 1 for screen printing inks					
process yellow	UVX2 180	process black	UVX2 65		
process magenta	UVX2 181	transparent paste	UVX2/TP		
process cyan	UVX2 182				
SPECIAL PRODUCTS: Special Colour Shades, Vanishes, Pastes					
Information about availability upon request.					
white, highly opaque	UVX2 60/688-HD	silver, stable shelf life	UVX2 79/201		
black, highly opaque	UVX2 65/HD	rich gold, stable shelf life	UVX2 75/25		

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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