

Product Data Sheet

Pad Printing Ink

SunChemical®
Coates Screen Inks

TP/UV-K

UV-Curing (Cationic) Pad Printing Ink Range, 1-Component

APPLICATION

Pad printing inks for printing of demanding substrates such as pre-treated polyolefines (PP and PE), duroplastics, metals and glass. Also suitable for polycarbonate (PC) and some other thermoplastics.

PROPERTIES

- Ink range TP/UV-K cures by cationic reaction initiated by UV-radiation. Contrary to commercial radical UV-curing, the cationic curing reaction is only started by UV-radiation. The final curing will then take place by further chemical reaction (acid curing), also after the prints have been passed through the UV-drier.
- For technical reasons TP/UV-K inks also contain organic solvents.
- TP/UV-K inks are especially suitable for technical/industrial applications requiring especially high resistances.
- TP/UV-K inks exhibit excellent chemical and mechanical resistances. The inks result in a glossy finish.
- Post-treatment by heat application, e.g. oven-curing at 140°C/20 minutes will speed up the chemical post-curing and may possibly further enhance resistances.
- Due to the binders (epoxy resins), TP/UV-K inks are not suitable for 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). Also check efficiency of UV-radiation

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 TP/UV-K 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 (epoxy resins), TP/UV-K inks are not suitable for outdoor applications.

ADJUSTMENT FOR PAD PRINTING

- Pad printing inks TP/UV-K are not supplied in a ready-to-print adjustment.
- TP/UV-K are UV-curing pad printing inks; however, they still have to be adjusted prior to printing by addition of thinner or retarder (stir with mixer, agitator).
- Prior to printing, the inks should be stirred well to obtain a homogeneous dispersion of all ingredients.

THINNERS / RETARDERS

Depending on local conditions, the ink is adjusted for printing by addition of 10 to 20 % by weight thinner or retarder.

Generally, the thinner suitable for TP/UV-K is Additive A!

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

For adjustment of pad inks TP/UV-K, the following products are available:

Thinner:	<input type="radio"/> Additive C	Extremely quick thinner, good solving power
	<input type="radio"/> Additive B	Quick thinner, good solving power
	<input checked="" type="radio"/> Additive A	Standard thinner
	<input type="radio"/> Additive U	Standard thinner, free of cyclohexanone
	<input type="radio"/> VD 60	Slow thinner
Retarder:	<input type="radio"/> TPD	Very slow retarder
	■ = Preferred ○ = If required	
Note:	For printing with thick and thin steel clichés sensitive to corrosion	
	<input type="radio"/> Additive A/00	Standard thinner with anti-corrosion additive
	<input type="radio"/> Additive B/00	Quick thinner with anti-corrosion additive

Depending on printing conditions, the products listed above can be mixed into the inks individually or as mixtures.

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	LAB-N 111420	Max. 10%	Possibly slightly reduced gloss
Adhesion promoter	Additive VH	Max. 5%	Improves adhesion on difficult substrates
Viscosity increase	Thickening powder	Max. 3%	Stir with mixer
Matting	Matting powder	Max. 5%	Stir with mixer
Flow agent	VM 1	1 - 5%	Do not overdose!

OVERPRINTING

Generally, it is not necessary to overprint TP/UV-K inks with varnish. Basically, overprinting to achieve an enhanced protection of ink layers is possible with TP/UV-K-E50.

BRONZE COLOURS, MIXING OF BRONZE INKS

For technical reasons bronze colours AB and MG are not available.

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 TP/UV-K-E50 prior to processing.

Mixing ratios in parts by weight:

Gold bronze paste/powder to TP/UV-K-E50 = 1 : 3

Silver bronze paste to TP/UV-K-E50 = 1 : 4

These bronze mixtures have no shelf life and have to be processed within 24 hours after mixing.

Bronzes B 75 to B 79 are prone to oxidation (Exception B 78-POWDER). Therefore, they should be overprinted, e.g. with TP/UV-K-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 / UV-CURING

- TP/UV-K inks only dry/cure under UV-radiation and following chemical reaction (acid curing).
- Suitable UV-driers with Hg medium-pressure lamps (250 – 400 nm) and an efficiency between 80 and 400 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.
- TP/UV-K inks cure with an energy of approx. 500 mJ/cm² (measured with Kühnast UV-integrator).
- The UV-energy required depends on the thickness of the printed ink layer, colour shade and type of substrate. Hence, printers should determine the exact required energy with their own UV-drier.
- Adhesion should only be checked after several minutes after curing. Due to the cationic post-curing process of the inks and depending on the substrate, sufficient adhesion may sometimes only be achieved after up to 24 hours. Post-treatment by heat application may further enhance adhesion properties, especially on difficult substrates.

Resistance Tests

Resistances should not be checked before completion of curing and cross-linkage. A waiting time of up to 24 hours after UV-curing may be required.

CLICHÉ

All commercial types of clichés (polymer, thin and thick steel, ceramic) are suitable for processing TP/UV-K inks. For TP/UV-K inks use clichés with a depth between 16 and 18µ.

CLEANING

If not exposed to UV-radiation clichés, ink pots and tools can be cleaned with our universal cleaning agents URS, URS 3 or thinner VD 40.

PACK SIZE

Pad printing inks TP/UV-K are delivered in 1 litre containers. Other pack sizes are available upon request.

SHELF LIFE

In closed original containers, TP/UV-K 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 for the production of 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 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

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	TP/UV-K-Y30	red	TP/UV-K-R50	green	TP/UV-K-G50
golden yellow	TP/UV-K-Y50	magenta	TP/UV-K-M50	black	TP/UV-K-N50
orange	TP/UV-K-O50	violet	TP/UV-K-V50	white	TP/UV-K-W50
scarlet	TP/UV-K-R20	blue	TP/UV-K-B50	varnish	TP/UV-K-E50
STANDARD Colour Range (medium opacity)					
According to colour card STANDARD 2 for pad printing inks or TP 218/ TP 300 ... Availability of further standard shades upon request					
white	TP/UV-K 60	black	TP/UV-K 65		
4 COLOUR PROCESS INKS (CMYK)					
According to colour card STANDARD 2 for pad printing inks or TP 218/ TP 300...					
Upon request					
AB – BRONZE INKS and MG – METAL GLOSS INKS					
According to Bronze Colour Card					
AB Bronze Inks*			MG Metal Gloss Inks		
For technical reasons not available			For technical reasons not available.		

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

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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