

Product Data Sheet

Screen Printing Ink

SunChemical[®]
Coates Screen Inks

PK

Solvent Based Screen Ink Range, 1-Component

APPLICATION

Screen printing inks for printing on thermoplastics, especially PMMA (acrylic glass), cellulose acetobutyrate, also rigid and plasticized PVC, polystyrene (PS) and its copolymers.

PROPERTIES

- Screen inks PK are solvent based 1-component screen printing inks. They dry by evaporation of solvents and result in a semi-gloss to satin gloss finish.
- Screen inks PK are quick drying and show a good printability.
- PK inks show good weather resistance.
- For outdoor applications PMMA (acrylic glass) materials should be printed on the reverse side. Prints on front side of PMMA materials should be overprinted with varnish PK 70/36.
- Prints applied with PK inks on PMMA (acrylic glass) show good thermal forming properties (deep drawing). Highly pigmented colours (e.g. white) may require addition of 5% elastifying agent W 1 (plasticizer).
- PK screen inks can also be applied to PMMA by spray coating.
- Note: When printing thermoplastics or plastic injection moulds, which are sensitive to tension cracks, pre-tests are absolutely essential.

COLOUR SHADES - OVERVIEW

- Opaque: Standard Colour shades with medium to good opacity.
- Special Varnish: PK 70/36 Protective varnish, resistant to alcohol and benzine
- Phosphorescent Colours: PK 96 See separate product data sheet: PK 96 range
- 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 PK 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 PK are suitable for outdoor applications.

ADJUSTMENT FOR SCREEN PRINTING

- Screen printing inks PK are not supplied in a ready-to-print adjustment.
- Depending on local conditions the ink is adjusted for printing by addition of 10 to 20 % by weight 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

For adjustment of screen inks PK, the following products are available:

Thinner:	■ VD 50	Standard thinner
	■ VD 60	Standard thinner (mild odour)
Retarder:	■ VZ 10	Quick retarder
	○ VZ 20	Medium retarder
	○ VZ 30	Very slow retarder
	○ VZ 40	Very slow retarder

■= Preferred ○= Suitable

Depending on printing conditions, the products listed above 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
Retarder paste	VP/K	Max. 10%	Possibly slightly reduced gloss
	LAB-N 111420/VP	Max. 10%	Gloss slightly reduced
Viscosity increase	Thickening powder	Max. 3%	Stir with mixer
Matting	Matting powder	Max. 5%	Stir with mixer
Flow agent	VM 1	3 - 5%	Do not overdose!
Plasticizer	W 1	3 - 5%	Longer drying times.
Anti floating agent	LAB-N 561248	1 - 1.5%	Stir with mixer

OVERPRINTING

Generally, it is not necessary to overprint PK inks with varnish. However, if required overprinting with PK 70, PK 70/MT or PK 70/36 is possible.

BRONZE COLOURS, MIXING OF BRONZE INKS

Bronze colours 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. For examples of colour shades please refer to our Bronze Colour Card.

These "B" bronze pastes and "B" bronze powder are mixed with bronze binder PK/B prior to processing.

Mixing ratios in parts by weight:

Gold bronze paste/powder	to	PK/B	=	1 : 3 - 4
Silver bronze paste	to	PK/B	=	1 : 4 - 6

Bronzes B 75 to B 79 are prone to oxidation (exception B 78-POWDER). Therefore, they should be overprinted, e.g. with PK 70 or PK 70/36. B-bronzes are not recommended for long-term outdoor applications.

B 78-POWDER does not tend to oxidation. The pale copper shade will not darken with time. Colour of inks mixed with B 78-POWDER is similar to colour 78/AB as shown on our "bronze colour card".

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). Possibly mixing ratio needs to be changed to a higher varnish ratio (between 10 – 30%).

DRYING

PK screen printing inks dry physically, i.e. by evaporation of solvents.

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; number of overprinted ink layers.
- Rack drying or tunnel dryer.
- Temperature, air supply, speed of air stream.
- Type of substrate/material printed.

Depending on local conditions, drying time in a drying frame (rack) is approx. 10 minutes at room temperature (20°C). Drying time using an efficient tunnel dryer (e.g. 2 hot air and 1 cold air section) is about 60 - 80 seconds at a temperature of 50°C.

Note: Addition of retarders may result in much longer drying times!

SCREEN FABRIC / STENCILS

PK inks have been formulated for printing with fabrics ranging from 77 to 140 threads/cm. Suitability for printing with coarser or finer fabrics should be determined by corresponding pre-trials.

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

CLEANING

Stencils and tools can be cleaned with our universal cleaning agents URS or URS 3.

PACK SIZE

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

SHELF LIFE

In closed original containers, PK inks generally have a shelf life of 5 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 Screen Printing HM

Brochures: Solvent Based 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

STANDARD Colour Range (medium opacity) According to colour card STANDARD 1 for screen printing inks Availability of further standard shades upon request			
citric yellow	PK 10/NT-NEU	light blue	PK 30/NT-NEU
medium yellow	PK 11/NT-NEU	fir green	PK 41/NT-NEU
orange	PK 15/NT-NEU	white	PK 60/NT-NEU
bright red	PK 21/NT-NEU	black	PK 65/NT-NEU
STANDARD Colour Range HD (high opacity) According to colour card STANDARD HD for screen printing inks Availability of further standard HD shades upon request			
white, highly opaque	PK 60/HD-NT-NEU	black, highly opaque	PK 65/HD-NT-NEU
SPECIAL PRODUCTS: Special Colour Shades, Varnishes, Pastes Information about availability upon request			
phosphorescent colours "96" range	see PDS: PK 96 range	overprint varnish, resistant to alcohol and benzine	PK 70/36
bronze binder	PK/B	overprint varnish, matt	PK 70/MT
obliterating grey	PK 74	transparent paste	PK/TP
4 COLOUR PROCESS INKS (CMYK) According to colour card STANDARD 1 for screen printing inks			
Upon request.			

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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