

Product Data Sheet

Screen Printing Ink

UV-650047

UV-curing Screen Ink Range, 1-Component

APPLICATION

Screen printing inks UV-650047 are used for decorating plastic tubes made of pre-treated polyethylene (LD-PE) which subsequently can be overprinted by roller-coating.

Printing of polypropylene (PP) and PET-G containers is also possible. However, for these materials pre-trials to confirm suitability are essential for each individual application.

PROPERTIES

- Solvent-free UV-curing screen printing inks UV-650047 have a very high reactivity. They contain silicone.
- UV-650047 inks are delivered in a ready-to-print adjustment and show medium viscosity. They cure quickly resulting in a high-gloss finish. Prints show good adhesion and high chemical resistance.
- UV-650047 is formulated for fast running screen printing equipment for container printing.
- To obtain proper ink adhesion on PE plastics, pre-treatment, preferably with flame, is imperative. Efficiency of pre-treatment also must be adjusted to the high printing cycles.
- UV-650047 inks are suitable for indoor and short-term outdoor applications.
- More UV ink ranges of the 80UV group for printing on PE/PP plastic containers:
 - 80UV: Medium viscosity, contains silicone.
 - 81UV: Higher viscosity than 80UV, contains silicone.
 - 831UV: Optimized for printing on tubes, UV-LED curable, silicone-free
 - 85UV: Further reduced migration potential, optimized for food packaging.

COLOUR SHADES - OVERVIEW

- Mixing System: C-MIX 2000 12 colour shades for mixing of PMS, HKS and RAL 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 UV-650047 ink range contain pigments with 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.

UV-650047 inks are suitable for indoor and short-term outdoor applications.

ADJUSTMENT FOR SCREEN PRINTING

- Screen printing inks UV-650047 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

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

OVERPRINTING

Generally, it is not necessary to overprint UV-650047 inks with varnish. Usually overprinting of the whole surface is made with suitable 2 component solvent or UV curing roller varnishes.

BRONZE COLOURS

- Not available

DRYING / UV-CURING

- UV-650047 inks only dry/cure under UV-radiation.
- Suitable UV-driers with Hg medium-pressure lamps (250 – 400 nm) and an efficiency between 120 and 200 W/cm have to be used
- 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: approx. 150 - 200 mJ/cm²
(measured with Kühnast UV-integrator, 250 – 410 nm, max. 365 nm)
Printing speed: up to 80 cycles/min. (with container printing equipment)
- **Note: Overprinting of several ink layers:**
Due to the very high reactivity and cross-linkage of the ink, it is possible to print with high cycle speeds. However, there is only a small period of time for safe overprinting (intermediate adhesion) of previously printed ink layers. Therefore, multicolour motives with overlapping ink layers should be printed "inline" in one pass on multicolour printing equipment with a corresponding number of inking units/print stations. Also, final roller coating should be made shortly after printing.
- 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.

Hardener:

Alternatively, screen inks range UV-650047 can be processed as 2-component ink with **hardener Additive UV/H** to improve adhesion, buckling strength and resistance.

UV-650047 and hardener Additive UV/H are mixed at a ratio of **ink : hardener = 20 : 1** (parts by weight).

Hardeners are sensitive to humidity. Therefore, containers always have to be tightly closed.

Pot life:

- Ink mixed with hardener may only be processed within a limited period of time (=pot life)
- **Pot life of UV-650047 + hardener is approx. 6 - 8 h (at 20°C).**
Higher temperatures will reduce pot life.
- We do not recommend processing the inks for longer than the pot life as adhesion and resistance properties will then continually deteriorate, even if the ink still seems to be liquid and processable.

Hardener Reaction

Basically, the increased adhesion properties influenced by the hardener are only achieved after photochemical UV curing by a further chemical cross linkage reaction between ink and hardener. This cross linkage reaction depends on time and temperature (reaction time). After UV curing, prints should be stored for at least 30 minutes at 80°C or 72 hours at a temperature > 15°C.

Resistance Tests

Resistances should not be checked before the ink has fully cured/cross-linked, 24 hours after UV curing at the earliest.

SCREEN FABRIC / STENCILS

UV-650047 inks are formulated for printing with fabrics of 120 – 150 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 UV-650047 are delivered in 1 litre containers. Other pack sizes are available upon request.

SHELF LIFE

In closed original containers, UV-650047 inks generally have a shelf life of 1 year 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 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", e.g.

80UV range – screen printing inks for container printing

Low migration and UV inks

FOR COLOUR RANGES, PLEASE REFER TO NEXT PAGE.

COLOUR SHADES

C-MIX 2000 GRUNDFARBEN			
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	UV/Y30-NV-650047	violet	UV/V50-NV-650047
golden yellow	UV/Y50-NV-650047	blue	UV/B50-NV-650047
orange	UV/O50-NV-650047	green	UV/G50-NV-650047
scarlet	UV/R20-NV-650047	black	UV/N50-NV-650047
red	UV/R50-NV-650047	white	UV/W50-NV-650047
magenta	UV/M50-NV-650047	varnish	UV/E50-NV-650047
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, highly opaque	UV 60/HD-1-650047	Upon request:	bronze colours
black, highly opaque	UV 65/HD-NV-1-650047		

Matching of PMS, HKS, 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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