

# Product Data Sheet

# Screen Printing Ink

**SunChemical**<sup>®</sup>  
Coates Screen Inks

# 833UV-SF

UV(LED)-curing Screen Ink Range, 1-Component, silicone-free

## APPLICATION

Screen printing inks 833UV-SF are used for decorating plastic tubes made of pre-treated polyethylene (LD-PE) which are subsequently overprinted with varnish.

## PROPERTIES

- Solvent- and silicone-free UV-curing screen printing inks 833UV-SF have a very high reactivity.
- 833UV-SF 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.
- 833UV-SF is formulated for fast running screen printing equipment for container printing.
- The silicone-free formulation of 833UV-SF is ideal for combination with flexographic applications, overprinting of 2-component solvent or UV-curing varnishes as well as (foil) stamping.
- 833UV-SF inks can be cured with UV-LED technology as well as with commercial UV-Hg lamps.
- 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.
- 833UV-SF inks are suitable for indoor and short-term outdoor applications.
- **Conformity according to “EuPIA Suitability List of Photo-Initiators for Low Migration UV Printing Inks and Varnishes – June 2010”:**  
**The colours listed in this product data sheet are considered to be low-migration colours according to that list.**  
For further detailed information about this topic please refer to section “Conformity”.
- 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.  
852UV: Low migration. Higher viscosity than 80UV.

## COLOUR SHADES - OVERVIEW

- Mixing System: C-MIX 2000 12 colour shades for mixing of PMS, HKS and RAL 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 833UV-SF 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.

833UV-SF inks are suitable for indoor and short-term outdoor applications.

## ADJUSTMENT FOR SCREEN PRINTING

- Screen printing inks 833UV-SF 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**

<b>Application</b>	<b>Product</b>	<b>Addition in % by weight</b>	<b>Additional Information</b>
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 561912	1 - 3%	Photoinitiator
Flow agent	FX 286	1 - 2%	Silicone-free, do not overdose!

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

**OVERPRINTING**

It is advisable to overprint 833UV-SF inks with varnish as the silicone-free ink layer only shows a limited scratch resistance. Usually overprinting of the whole surface is made with suitable 2 component solvent or UV curing roller varnishes. For partial overprinting also varnish 833UV/E50-SF can be used.

**BRONZE COLOURS**

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

- Silver: 833UV 79-SF
- Gold: gold colours upon request.

**DRYING / UV-CURING**

- 833UV-SF inks only dry/cure under UV-radiation.
- Suitable UV-driers are required:
  - Conventional Hg medium-pressure lamps (250 – 400 nm) and an efficiency between 120 and 200 W/cm and reflectors with a focussed radiation.
  - UV-LED lamps with a wave length of 395 nm and an efficiency > 8 W/cm.
- 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.
- Intermediate and final curing of 833UV-SF prints is possible with UV-LED. Often a combination of UV-LED for intermediate curing and conventional UV-curing using UV-Hg lamps for final curing of the prints is preferred.
- **UV-curing energy guide values:**  
(printed with 150-31 fabric, white substrate)  
**UV-energy: approx. 100 mJ/cm<sup>2</sup>**  
(measured with Kühnast UV-integrator, 250 – 410 nm, max. 365 nm)  
**Printing speed: up to 100 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.
- 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

833UV-SF 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 833UV-SF are delivered in 1 litre containers. Other pack sizes are available upon request.

## SHELF LIFE

In closed original containers, 833UV-SF 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.

### Conformity according to EUPIA list “EuPIA Suitability List of Photo-Initiators for Low Migration UV Printing Inks and Varnishes – June 2010”:

The 833UV-SF colours listed in this product data sheet are considered to be low-migration colours according to that list.

We only use photoinitiators for the production of these screen inks complying with the requirements of the following groups of the EuPIA list:

- Group 1A:  
Low migration potential, toxicologically tested, approved specific migration limit values, mentioned in appendix 6 of Swiss Directive 817.023.21 (Lists of allowed substances for the production of packaging inks, and demands imposed on these substances)
- Group 1B  
Low migration potential and/or high molecular weight (> 1000 Dalton). Migration of these substances into food above the threshold of 10ppb is not expected. Some photo initiators from this group may contain traces of monomer photo initiators of group 1C (evaluated substances, approved specific migration limit values, partly non-use of those is required).

These screen printing inks can comply with the limit threshold values for photoinitiators when processed following good manufacturing practice. The printer is responsible for the properties of the finished ink film. We recommend to carry out a migration analysis of the printed parts.

## ADDITIONAL INFORMATION ABOUT OUR PRODUCTS

Product data sheets: Auxiliary Agents for UV-Curing Screen Printing Inks

Brochures: UV-Curing Screen Printing Inks

Internet: [www.coates.de](http://www.coates.de), Service & Support, Technical Articles

**FOR COLOUR RANGES, PLEASE REFER TO NEXT PAGE.**

**COLOUR SHADES**

<b>C-MIX 2000 BASE COLOUR SHADES</b>					
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	833UV/Y30-SF	red	833UV/R50-SF	green	833UV/G50-SF
golden yellow	833UV/Y50-SF	magenta	833UV/M50-SF	black	833UV/N50-SF
orange	833UV/O50-SF	violet	833UV/V50-SF	white	833UV/W50-SF
scarlet	833UV/R20-SF	blue	833UV/B50-SF	varnish	833UV/E50-SF
<b>4 COLOUR PROCESS INKS (CMYK)</b>					
According to colour card STANDARD 1 for screen printing inks					
process yellow	833UV 180-SF	process black	833UV/N50-SF		
process magenta	833UV 181-SF	transparent paste	833UV/E50-SF		
process cyan	833UV 182-SF				
<b>SPECIAL PRODUCTS: Special Colour Shades, Vanishes, Pastes</b>					
Information about availability upon request.					
white, highly opaque	833UV 60/997-SF	<b>Matching upon request:</b> fluorescent colours according to Pantone PMS C gold, stable shelf life			
silver, stable shelf life	833UV 79-SF				

**Matching of PMS, HKS, 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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**Coates Screen Inks GmbH**  
 Wiederholdplatz 1 90451 Nürnberg  
 Tel.: 0911 6422 0 Fax: 0911 6422 200  
<http://www.coates.de>