Product Data Sheet
Screen Printing Ink

SunChemical®
a member of the DIC group
Color & Comfort

SunVetro NVTGL

UV-curing Screen Ink Range, 2- and (alternatively) 3-Component

APPLICATION
SunVetro NVTGL inks are organic UV curing screen inks for direct printing onto glass (container and flat glass), e.g. bottles, drinking glasses, cosmetic flacons and medical vials, ceramic mugs.

PROPERTIES
- UV curing organic screen printing inks, high reactivity.
- Processed as 2/3 component ink with adhesion promoter/hardener.
- Secondary heat post cure for optimum adhesion and resistance properties is recommended to achieve best possible resistances.
- High gloss.
- Excellent abrasion, chemical and dishwasher resistance.
- NVTGL inks are suitable for indoor and short term outdoor exposure.
- Note: Because of the variety of different glass and ceramic products and different methods of pre-treatment pre-tests to confirm suitability of NVTGL inks are essential.

COLOUR SHADES – OVERVIEW
- Mixing System: C-MIX 2000, 12 base colour shades for mixing of RAL, PMS and HKS colours.
- Opaque: 5 opaque colours as well as black and white.
- Process Inks: Process inks matched to SWOP process standard.
- Varnishes: Matt varnish, gloss varnish, relief varnish, etch imitations.
- Bronzes: Gold and silver.
- Special effects: Various effects upon request.
- Matching of special colour shades 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 NVTGL inks contain pigments with a medium 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.

Screen printing inks SunVetro NVTGL inks are not weather resistant. NVTGL inks are suitable for indoor and short-term outdoor applications.

PRE AND POST TREATMENT
For good adhesion and resistances the glass surfaces must be pre-treated (flame-treatment) to remove grease and dust. A uniform surface tension of > 40mN is required.

Additionally and for optimum adhesion, mechanical and chemical resistance commercial pre-treatment systems such as Uvitro® and Pyrosil® may also be used.

Please note that some pre-treatments may remove some cold end coatings already applied on glass bottles and containers. They may have to be reapplied after printing and curing process.

ADJUSTMENT FOR SCREEN PRINTING

- Screen printing inks NVTGL are not supplied in a ready-to-print adjustment.
- 2-component, alternatively 3-component screen printing inks NVTGL have to be mixed with adhesion promoter and possibly hardener at a specified ratio prior to processing.
- After addition of adhesion promoter and possibly hardener the ink is ready-to-print and can be processed within a specified period of time (=pot life).
- If necessary and depending on local conditions, addition of further 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
Adhesion promoter	NVTGL-ST-399	3–5%	**Mandatory addition, note pot life!**
Hardener	NVTGL-ST-395	1-3%	Alternative addition, note short pot life!!
Thinner	NVTGL-ST-319	up to 5%	Alternative addition*

*Thinner NVTGL-ST-319 is a reactive UV monomer, not a commercial solvent!

OVERPRINTING

Generally, it is not necessary to overprint NVTGL inks with varnish, if requested NVTGL inks can be overprinted with varnish NVTGL-C50.

BRONZE COLOURS, MIXING OF BRONZE INKS

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

- Silver: NVTGL-38004 PMS-877
- Gold: NVTGL-38003 PMS-971

DRYING / UV-CURING

- NVTGL inks only dry/cure under UV-radiation.
- We recommend additional oven curing 140°C/30 Min. after UV-curing to achieve very high resistance values.
- Suitable UV-driers with Hg medium-pressure lamps (250 – 400 nm) and an efficiency between 80 and 200 W/cm have to be used.
- NVTGL inks also cure with UV-LED systems, wavelengths 365/375/385/395/405 nm.
- Ensure an even radiation (intensity/distance to the lamps) of the whole printed image. This is especially important with prints on conical or convex containers.
- 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, on transparent glass)
  UV-energy: **approx. 250 - 300 mJ/cm²**
  (measured with Kühnast UV-integrator, 250 – 410 nm, max. 365 nm)

- **Note: Overprinting of several ink layers**:
  NVTGL inks are formulated for fast screen equipment for glass container printing. 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.

ADHESION PROMOTER / HARDENER

Screen inks NVTGL are not supplied in a ready-to-print adjustment.

- **Addition of 3-5% adhesion promoter ST 399 is mandatory** to achieve a good adhesion and high resistances.
- In combination with post-curing (140°C/30 Min.) **1-3% hardener ST 395** can be added **additionally** to further enhance the chemical resistances.

POT LIFE

- Note:
  - Ink mixed with ST 399 / ST 395 may only be processed within a limited period of time, i.e. the pot life. The information about pot life refers to a temperature of 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.

- **Adhesion promoter ST 399: Pot life up to 8h (at 20°C).**
  When using enclosed multi-colour printing equipment, ink should be changed after 4 hours, as often there are higher temperatures in such equipment.
- **Hardener ST 395: Pot life is reduced to only 2 h (at 20°C)**

MECHANICAL RESISTANCE / CHEMICAL RESISTANCE

Adhesion should only be checked after complete curing, cooling down of prints and complete cross-linkage of printing ink, at the earliest 24 hours after printing. Resistance values:

Commercial dishwasher	250+ cycles at 65°C	Acetone resistance:	100+ double rubs
Alcohol resistance :	200+ double rubs	Water and ice resistance:	Good at -18°C
Alkali resistance:	5% NaOH, 30 Min. at 70°C	Pencil hardness:	> 3H

SCREEN FABRIC / STENCILS / SQUEEGEE

SunVetro NVTGL 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.

High quality screen 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.

Sharp PU squeegees of approximately 65 – 85 Shore A are recommended.

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

SHELF LIFE

In closed original containers, NVTGL 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

Internet: www.coates.de, Service & Support, Technical Articles

COLOUR SHADES

C-MIX 2000 BASE COLOURS Mixing System for matching of PMS, HKS, RAL colours					
primrose	NVTGL-Y30	red	NVTGL-R50	green	NVTGL-G50
golden yellow	NVTGL-Y50	magenta	NVTGL-M50	black	NVTGL-N50
orange	NVTGL-O50	violet	NVTGL-V50	white	NVTGL-W50
scarlet	NVTGL-R20 Y/S RED	blue	NVTGL-B50	varnish	NVTGL-E50
OPAQUE COLOURS					
HD-yellow	NVTGL-Y38-HD	HD-red	NVTGL-R28-HD	HD-black	NVTGL-N70
HD-yellow	NVTGL-Y58-HD	HD-red	NVTGL-R58-HD	HD-white	NVTGL-W70
HD-orange	NVTGL-O58-HD				
4C-PROCESS INKS (CMYK according to SWOP-Scale)					
SWOP process yellow	NVTGL-S231			SWOP process black	NVTGL-S271
SWOP process magenta	NVTGL-S240			transparent paste	NVTGL-TPS
SWOP process cyan	NVTGL-S235				
Special Products					
Overprint varnish	NVTGL-C50			frost effect lacquer	NVTGL-63/00
Matt varnish	NVTGL-MC1			Brilliant white	NVTGL-36003
Clear varnish, thixotropic	NVTGL-70/00				

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. ***March 2025 - Version B2***

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