

# SunVetro™ VTGL Technical Data Sheet

SunVetro VTGL Series screen inks are a two-component system designed for printing onto glass, coated metals and ceramics. These inks are suitable for mirroring applications.

## typical characteristics and features

SunVetro VTGL inks are formulated to have the following properties:

- Excellent adhesion to glass substrates
- High Gloss
- Excellent abrasion and chemical resistance
- 100% solids with no heavy metals or VOC's
- Formulated to cure on both mercury vapor and LED UV sources
- Color Matching system available with smart scale and ink dispensing systems
- Variety of additives provides numerous special affects

## technical information and handling

### Substrates

SunVetro VTGL can be used on:

- Sheet glass, such as for cell phones, computer screens, gaming machines, and decorated mirrors
- Glass containers, such as wine/beer/beverage bottles, drinkware, cosmetic and medical vials
- Ceramic objects, such as drinking mugs

### Color matching

SunVetro VTGL inks are supplied as eleven SunMatch™ blending colors which can be blended together to match virtually any color.

### Clear bases

- Sun Vetro VTGL-E50 is a Mixing Clear, used in color blends
- SunVetro VTGL-MC1 is a matte base for achieving matte colors effects
- SunVetro VTGL-C50 is a Non-yellowing Clear that is recommended for overprint applications
- SunVetro VTGL-STF is a frost clear designed to simulate acid etch and sandblasting effects
- SunVetro VTGL-FAD is a foil adhesive for applying metallic foils
- SunVetro VTGL-TPS is a transparent clear base used to adjust SunVetro SWOP Process colors to the desired density

### Opaque Colors

To achieve opaque colors without the need of a white base, D5 pigment concentrates are available. Contact a Sun Chemical representative for list of D5 concentrates.

SunVetro VTGL-HD Colors may also be used as a substitute to their standard color counterparts when matching opaque colors.

Product Code	Description	SAP Number
SunVetro VTGL-Y30	Primrose	91264726
SunVetro VTGL-Y50	Golden Yellow	91264689
SunVetro VTGL-O50	Orange	91264723
SunVetro VTGL-R20	Scarlet	91264721
SunVetro VTGL-R50	Red	91264724
SunVetro VTGL-Y38	HD Yellow	91562665
SunVetro VTGL-Y58	HD RS Yellow	91562761
SunVetro VTGL-O58	HD Orange	91562716
SunVetro VTGL-R28	HD Scarlet	91562719
SunVetro VTGL-R58	HD Red	91562770
SunVetro VTGL-M50	Magenta	91264728
SunVetro VTGL-V50	Violet	91264688
SunVetro VTGL-B50	Blue	91264725
SunVetro VTGL-G50	Green	91264727
SunVetro VTGL-N70	Opaque Black	91264687
SunVetro VTGL-W70	Opaque White	91264686
SunVetro VTGL-N50	Blending Black	91264722
SunVetro VTGL-E50	Mixing Clear	91264685
SunVetro VTGL-FAD	Foil Adhesive	91319420
SunVetro VTGL-C50	Overprint Clear	91320494
SunVetro VTGL-MC1	Matte Clear	91320501
SunVetro VTGL-STF	Satin Etch	91321702
SunVetro VTGL-W50	Blending White	91349319
SunVetro VTGL-S235	SWOP Pro Cyan	91350983
SunVetro VTGL-S240	SWOP Pro Magenta	91350963
SunVetro VTGL-S231	SWOP Pro Yellow	91350981
SunVetro VTGL-S271	SWOP Pro Black	91350985
SunVetro VTGL-TPS	Trans Clear Base	91350974
SunVetro VTGL-36003	Bright White	91428836
Modifiers	Description	SAP Number
SunVetro ST-319	Viscosity Modifier	90020039
SunVetro ST-399	Adhesion Promoter	91373356
SunVetro ST-395	Hardener	91277795
SunVetro ST-4	VL Wash	90020081
SunVetro ST-380	Flow Promoter	90020077
SunVetro ST-405	Anti-Stat Additive	91474016
Glass Prep	Description	SAP Number
SunVetro Glass Prep A	Glass Prep	91123027
SunVetro Glass Prep B	Glass Prep	90922773
Post Coat	Description	SAP Number
SunVetro D572	Duracote (15 Gal)	90037086
SunVetro D863	Duracote (55 Gal)	90037087

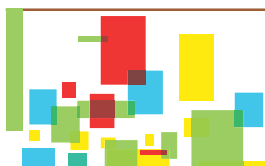
In accordance with information received from suppliers, the full VTGL series is formulated without heavy metals and complies with: 16 CFR, Part 1303; ANSI Z66, 1-1964; ASTM F 963; CONEG packaging regulations; EC Packaging Waste Directive EC/94/62; EN71m section 3; RoHS 2002/95/EC; WEEE 2002/96/EC; E2003/11/EC.

### Metallic inks

SunVetro VTGL inks are capable of printing a wide variety of special effects decorative inks. Brilliant metallic shades; chrome silvers; thermo-chromic; photochromic; iridescent; color shift; tactile; glitters effects are all possible and available upon request.

### Modification

If viscosity reduction is required, SunVetro ST-319 Viscosity Modifier can be added, 5% by weight is recommended. Filler 13 Thickening Powder can be added to desired viscosity. Filler 33 Matting Powder can be added to desired finish. If conditions during printing present static issues, add 1-3% of SunVetro ST- 405 Anti-Static Additive.



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## Additives

SunVetro VTGL requires modification prior to printing. SunVetro ST-399 Adhesion Promoter is added at 3–5% by weight to enhance adhesion and hardness. ST-395 Hardener can be used at 3% by weight with 3% of ST-399 when heat post-cure is utilized to achieve superior chemical resistance. Oven at temperatures above 284°F (140°C) for 30 minutes is recommended. Once an additive(s) is mixed, the uncured ink will remain active for up to 8 hours, after which time it will lose its enhanced resistance properties. This will not affect cured ink films, which will retain the enhanced resistance properties indefinitely. Full resistance is achieved after 24 hours.

## Pre-treatment

A uniform surface tension of  $> 40\text{mN} / \text{m}$  is required to achieve good adhesion. It is recommended to flame treat surface area to be printed prior to application to remove any dust, dirt or grease, and enhance adhesion. In addition, for optimum adhesion, mechanical and chemical resistance, SunVetro Glasprep chemical pre-treatment is recommended. SunVetro Glasprep is applied by spray and dried prior to printing. Other pre-treatment systems such as Uvitro® and Pyrosil® may also be used. Refer to SunVetro Glasprep Technical Data Sheet for detailed processing instructions.

## Curing

Generally, a typical 12–14 $\mu$  ink deposit with 355 / inches (140 / centimeters) mesh will require a UV exposure of a minimum 250–350 mill joules (mJ), as measured with an IL390 International Light Radiometer. Opaque Blacks and Whites usually require significantly more UV irradiation to successfully cure. Actual cure speeds will vary depending on color and opacity of the ink, screen mesh, and other printing parameters that affect ink deposit, as well as the UV curing unit used. SunVetro VTGL inks will cure under mercury vapor 300–450 w/in and LED wavelengths of 365/375/385/395/405 nm.

## Mechanical and chemical resistance\*

- Domestic Dishwasher : 250+ cycles @ 65°C
- Alcohol Resistance: 200+ double rubs
- Alkaline Resistance: 5% NaOH @ 70°C for 30 min.
- Acetone Resistance: 100+ double rubs
- Perfume Resistance: 24 hour immersion
- Water & Ice Resistance good @ -18°C
- Pencil Hardness  $>3\text{H}$

\*Note: Processing, and the use of pre-treatment and/or post treatment can affect the physical and chemical resistance characteristics, it is recommended to test prior to production.

## Post-treatment

For optimum abrasion, chemical resistance, and lubricity, a post-treatment with SunSpec Duracote is recommended. This is a polyethylene emulsion spray applied after printing. Temperature of glass must be 250–280°F (121–137°F) when applied. Refer to SunSpec Duracote Technical Sheet for detailed processing instructions.

## Coverage

When printed through 355 / inches (140 / centimeters) mesh, one gallon of SunVetro VTGL will cover approximately 2,500–3000 square feet (55–70 meters squared (m<sup>2</sup>) / kg depending on printing variables.

## Screen mesh

Recommended screen mesh of 305–420 / inches (120–165 / centimeter) monofilament polyester mesh, depending on design and effects.

## Squeegee

Sharp urethane squeegee of approximately 70–85 durometer is recommended.

## wash-up

SunVetro VTGL misprints during processing can be cleaned from glass with Isopropanol prior to curing. Screens may be cleaned with SunVetro ET-5 Retarder, SunVetro VL Wash, or many commercial screen washes.

## packaging

SunVetro VTGL series inks are supplied by the kilo.

## storage considerations

If SunVetro VTGL inks are stored in temperatures between 40°–90°F (5–32°C), these coatings have a shelf-life of twenty-four (24) months.

## safety, health and environment

SunVetro VTGL inks should be used in accordance with normal standards of industrial hygiene and good manufacturing practice. Please refer to the supplied Safety Data Sheet for specific information. Safety Data Sheets will be supplied.

Printing inks, coatings and printing residues should be disposed of in accordance with local and national regulations.

The information contained in this technical data sheet is only a recommendation and may need to be altered to suit the conditions and efficiency of the equipment employed. Our products are not designed for use in conjunction with those of any other ink maker or similar supplier unless agreed to in writing.

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11.2017

