Technical Data Sheet

VitroCure SVC Series Inks

SunVetro® family of Screen Inks for glass and ceramics

1. Description

VitroCure SVC series organic UV inks have been specifically formulated to meet the rigorous demands of hollow glassware printing. VitroCure SVC series organic UV inks are ideally suited for the decoration of drinking glasses, glass bottles, jars and vials. VitroCure SVC series organic UV inks can also be used in a number of flat glass applications.

2. Product features*

- Superior adhesion to glass
- Excellent solvent resistance
- Dishwasher resistance
- High degree of abrasion resistance
- Rapid cure
- High gloss appearance
- Strong, bright full colour range
- Heavy metal free
- Excellent Intercoat adhesion
- Foil blockable

*Specific application performance data, where available can be provided by your Sun Chemical representative.

3. Product Suitability*

3.1 Applications

VitroCure SVC series organic UV inks are suitable for use on both flat and hollow glass for applications such drinking glasses, glass bottles, gaming machines, architectural panels, furniture, bathroomware and mirrors.

3.2 Substrates

VitroCure SVC series organic UV inks can be printed onto clean, pure glass substrates and exhibit excellent adhesion. Adhesion can be improved by pre-treatment such as flame treating, or commercial treatments such as Pyrosil or UVitro.

When printing glass containers, any cold end coating must be removed with flame treatment prior to decoration to ensure a high level of adhesion.

3.3 Product Suitability

Prints made and cured using VitroCure SVC series organic UV inks have been fully tested under a number of commercial testing procedures including:

Alcohol resistance
Dishwasher resistance (DIN 12875-1, detergent type A, 250 Cycles)
Solvent resistance (including L'Oreal test)
Freeze thaw resistance

To ensure peak product resistance, the use of pre-treatment, adhesion promoter and a post UV cure thermal cure is recommended.

However, customers should always satisfy themselves of full suitability for specific final use under their print conditions prior to commencing full production runs.

3.4 Durability
VitroCure SVC series organic UV inks are recommended for internal or short term outdoor use only and are not recommended for prolonged outdoor exposure.

3.5 Overprinting
VitroCure SVC series organic UV inks exhibit excellent intercoat adhesion and can be superimposed successfully, especially on multi head print lines. On single colour lines, long intervals between printing superimposed layers should be avoided and the glass should not be retreated, as this can lead to poor intercoat adhesion. Intercoat adhesion should be checked under the intended conditions before full production runs are commenced.

3.6 Foil Blocking
VitroCure SVC series organic UV inks have been formulated to accept foil blocking, with the base SVC/E50 being particularly useful as a foil blocking adhesive / primer for glass bottles. Care should be taken as this process can be influenced by a number of factors including cure, age of print, etc. Testing of foil blocking is recommended before commencing a production run.

*Please refer to your local Sun Chemical representative for specific details.

4. Colour Range

VitroCure SVC Series Products			
C-Mix 2000 Base Colours			
Primrose	SVC/Y34	Violet	SVC/V50
Golden Yellow	SVC/Y54	Blue	SVC/B50
Orange	SVC/O54	Green	SVC/G50
Scarlet	SVC/R24	Black	SVC/N50
Mid Red	SVC/R54	White	SVC/W50
Magenta	SVC/M50	Base / Varnish	SVC/E50
Opaque White and Dense Black			
Opaque White	SVC/60-HD	Dense Black	SVC/65-HD
Process Colours			
Process Yellow	SVC/180	Process Black	SVC/N50
Process Magenta	SVC/181	Transparent Paste	SVC/TP
Process Cyan	SVC/182		
Hardener, Thinner and Additives			
Adhesion Promoter	SVC/H	Viscosity Modifier	UV/V
Thickening Agent	Verdickungspulver	Photoinitiator Solution	LAB-N 551564

4.1 Colour Range
VitroCure SVC series organic UV inks are available in the C-Mix 2000 colour range of 9 strong, bright mono-pigmented shades which together with black, white and base form a complete ink blending and mixing system. The C-Mix 2000 blending system allows mixing of practically any colour, including Pantone®*, RAL and HKS and is fully compatible with both Formulator and Formulator IDS ink and colour match management systems. Special effects and metallic shades are also available on request.

Should an over print clear be required the base SVC/E50 can be used. The SVC/E50 is also ideal for use as a foil adhesive.

For further information on Pantone®* (and other colour specification systems) or Formulator ink management products, contact your local Sun Chemical branch.

* Pantone Inc.'s check standard trademark for colour.

5. General Handling

5.1 Storage and shelf life

VitroCure SVC series organic UV inks should be stored in sealed light safe containers at temperatures between 5 – 30 °C. They have a minimum shelf life of 12 months, but can remain usable for longer periods depending on storage conditions.

Note that when mixed with adhesion promoter, the mixed ink has a pot-life of approximately 4 to 8 hours depending on the storage temperature.

For more specific handling advice refer to the Safety Data Sheet.

6. Printing Conditions

6.1 Adhesion Promoter

Prior to printing 5% adhesion promoter VitroCure SVC/H should be added to the ink and mixed thoroughly. The mixed ink has a pot-life of approximately 4-8 hours depending on the working temperature. Once opened, the SVC/H container must be re-sealed tightly between uses as the adhesion promoter reacts with humid air and may become unusable. Gelled or crystallized adhesion promoter has to be disposed off.

6.2 Curing

VitroCure SVC series organic UV inks dry by exposure to UV light. When using a 150-31 mesh a cure energy of 200-300mJ/cm² (measured with a Kühnast UVintegrator) has proven reliable, however print conditions and UV lamp efficiency can vary significantly and therefore cure level should be assessed before commencing a full production run.

As with many UV curing inks, VitroCure SVC series organic UV inks will post-cure after initial UV curing and full resistance might not be achieved until 24-72 hours after initial cure.

Should improved cure speed be necessary, reactivity can be increased with addition of liquid photo initiator solution LAB-N 551564 (3-5% maximum addition).

6.3 Thermal Post Cure Treatment

To meet highest resistance demands a thermal post drying step is recommended. Printed and UV cured parts should by dried in an oven for 10 minutes at 120°C. After cooling prints will exhibit close to full resistance properties.

It is always advisable to determine optimum curing and post drying schedules under specific conditions before starting full production runs.

6.4 Screen Stability

VitroCure SVC series organic UV inks will not under normal circumstances cure in the screen causing blockages. It is recommended that the screen is covered during stoppages to avoid dust contamination and exposure to direct sunlight or strong artificial light sources should be avoided at all times.

6.5 Viscosity Reduction

VitroCure SVC series organic UV inks are supplied press ready, and do not usually require thinning. However, if deemed necessary, 5 to 10% UV thinner additive, UV/V may be added. Excessive additions of UV/V will affect the cure, adhesion and final resistance properties of the cured ink.

To increase the inks gel structure (i.e. make the inks more thixotropic), the powdered thickening agent Thickening powder can be added using an agitator (maximum addition 1-2%).

6.6 Printing materials

High quality stencil materials such as those in the SunCoat range are recommended for best results. Product data sheets and detailed specialist advice on choice of emulsions, films and all related stencil products can be obtained from your local Sun Chemical branch. Fine nylon or polyester mesh with a mesh count of 140 to 180 threads/cm and a medium/hard sharp polyurethane squeegee should be used.

6.7 Coverage

Up to 80 m^2/kg may be expected, but coverage is dependant on a number of printing factors including, mesh choice, stencil thickness, squeegee, etc.

6.8 Washing up

Commercial screen cleaners, such as those in the SunCoat range are recommended for best results. Product data sheets and advice on the SunCoat range of screenwashes is available from your local Sun Chemical branch.

7. End-use safety

7.1 Handling

VitroCure SVC series organic UV inks should be used in accordance with normal standards of industrial hygiene. Please refer to the information provided on product labels and relevant safety data sheets.

7.2 Toys (Safety) Regulations EN71-3: 1995

These inks have been formulated to exclude heavy metal based pigments. However, inks are supplied without warranty due to risk of contamination throughout the many processing steps from raw materials to finished toy. To ensure conformity analysis is therefore essential. The inks may be analysed or alternatively the finished toy (note however that the legislative limits apply to the toy itself and not to the wet ink as supplied). Please refer to our company statement concerning inks for toys.

8. Technical Assistance / Contacts

For further information, please contact your local Sun Chemical team.

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