

Uviscreen Varnishes

SunPromo® Graphic Screen Printing Overprint Varnishes

1. Description

Uviscreen UV curing screen printable overprint varnishes are a comprehensive range of specially formulated overprint varnishes ideally suited for print finishing requirements.

Uviscreen varnishes can be printed over lithographic or screen-printed paper and board materials providing the inks used have been formulated to accept screen varnishing. Gloss and matt film lamination can also be overprinted to achieve designs with a contrasting decorative finish.

Uviscreen UV curing screen printable overprint varnishes are available in various finishes including gloss and matt effects.

2. Product Features*

- Suitable for litho, screen or laminate over printing
- Fully suited for paper and board substrates
- Suitable for some plastic substrates
- Matt and gloss effects

3. Product Suitability*

3.1 Applications

Uviscreen UV curing screen printable overprint varnishes are ideally suited for use as overprinting varnishes for lithographic print, screen print, film laminates, paper, board and some plastic materials.

Uviscreen UV curing screen printable overprint varnishes are not suitable for direct food contact, sensitive packaging (e.g. food packaging, tobacco packaging, pharmaceutical packaging) where there is no suitable functional barrier.

Uviscreen UV curing screen printable overprint varnishes are not suitable for foil blocking or foil stamping.

Before varnishing it is advisable to check the surface tension of the print, preferably on a print taken from the middle of the stack.

Surface tension is measured in dynes and the following figures can be used as a guide:

- Below 36 dynes: Too low and an indication of a high risk of overprinting problems occurring.
- 36-38 dynes: Intermediate, overprinting problems may occur.
- Above 38 dynes: Overprinting can be achieved successfully, subject to test confirmation.

It is also advisable to check the adhesion of any underlying print to the substrate. Over-varnishing will not correct poor adhesion and in some cases may exacerbate it.



3.2 Over varnishing lithographic print

The litho ink must be of a grade suitable for varnishing. This generally means that inks should contain either no wax or low levels of wax and in particular should not contain PTFE waxes.

Litho print should be adequately dried before varnishing. Many litho inks dry by oxidation, but volatile materials such as distillate, reducers, fountain solution and by-products of oxidation that remain trapped in the print surface may affect varnish adhesion or cause the varnish to reticulate unless prints are adequately aired.

Drying time is normally 24 to 72 hours but this may be delayed in cold conditions or if prints are insufficiently aired (for example, in a large shrink wrapped stack). Particular care should be taken with double sided work or where the ink build-up is heavy.

Some litho print may have anti-set off powder applied to reduce the risk of 'blocking' or 'set-off' of ink films which are not completely dried. These powders can contain waxes and render the print unsuitable for varnishing and may also cause varnish film defects such as pin-holing or uneven surface appearance.

Water based sealing lacquer is often applied 'in-line' to prevent 'set off' and other problems associated with inadequate ink film drying. These lacquers are sometimes difficult to overprint (exhibiting poor adhesion) and do not necessarily prevent occurrence of problems.

3.3 Over varnishing screen print

Uviscreen varnishes have given good results over a wide variety of both solvent based and UV curing screen printing inks. It is always important to pre-test for adhesion and cut and crease performance with a particular substrate / ink / varnish combination, before commencing a full production print run.

3.4 Over varnishing film lamination

Uviscreen varnishes can be used for spot varnishing over matt or gloss film lamination (sometimes referred to as OPP laminate) in order to achieve a contrasting decorative finish. Laminate is generally pre-treated by corona discharge to improve lay or wetting properties of subsequent coatings. This treatment may vary from batch to batch, or wear off gradually on ageing, making varnishing difficult. Generally a surface treatment level of at least 36-38 dynes is required for varnishes to have good lay and adhesion. In borderline situations, additives are available to improve wetting properties of Uviscreen varnishes.

3.5 Colour change

Inks to be over varnished should contain only pigments that are resistant to colour change or 'bleaching'. Colour change may occur with reflex blues, PMTA toners, fanals or any other pigment that can be bleached by the free amine synergists contained in most UV varnishes. This may be a particular problem with tints, i.e. greys, pinks, buffs etc.

3.6 Cutting and creasing

Gloss flexible sleeve varnishes (UV6630 / UV6636 and 20-967) are available for cut and crease work on paper and board materials. Successful cutting and creasing is often dependent on the type of board or paper coating and the board thickness. Multiple layers of ink or varnish may reduce the flexibility of the board coating.

In general, the thicker the ink or varnish films the less chance there is of successfully cutting and creasing. A substrate which fails to cut or crease before printing / varnishing, would be expected to give worse results once coated. Good adhesion of the inks and varnishes to the substrate surface is also critical.

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

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4. Product Range

Uviscreen UV 2000: Standard high gloss, water-white low odour spot varnish for overprinting screen and litho-print or matt laminate materials. It can be, used for some cut and crease work providing the board coating is sufficiently flexible and chip resistant.

Uviscreen UV 2600: A scuff resistant varnish with a very low matt finish for overprinting screen and litho inks on paper, board, PVC and some coated polyester materials and spot varnishing of gloss film lamination. UV2600 can be intermixed with UV2000 or UV6630 to obtain intermediate finishes. Matt UV varnishes are less flexible than gloss varnishes and careful pre-testing is recommended if the varnish film is to be cut or creased.

Uviscreen UV 6630: Standard high gloss, flexible sleeve varnish for cut and crease work on screen and litho printed paper and board materials. UV6630 is slower curing than UV2000 and hence may not be suitable for some single lamp UV driers.

Uviscreen UV 6636: A reduced viscosity version of UV 6630 for use on high speed presses such as cylinder presses. UV6636 has the same flexibility and cure speed as UV6630.

Uviscreen 20-967: High gloss flexible sleeve varnish for cut and crease work. This product is slower curing than UV 2000 and hence may not be suitable for some single lamp UV driers. Note 20967 is not suitable as a spot release varnish for scratch off / rub removable work.

5. General Handling

5.1 Storage and Shelf Life

Uviscreen UV curing screen printable overprint varnishes should be stored in closed, black polyethylene containers at temperatures between 5-32°C. Uviscreen UV curing screen printable overprint varnishes have a minimum shelf life of 12 months but can remain usable for longer periods, depending on storage conditions.

During storage some settlement may occur and therefore the varnishes should be thoroughly stirred prior to use.

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

6. Printing Conditions*

6.1 Curing

Uviscreen UV curing screen printable overprint varnishes cure by exposure to UV light. Actual cure speeds will vary depending on the UV curing unit used, the ink varnish type, mesh grade and other printing parameters that affect varnish deposit. Belt speeds as high as 30 to 40 m/min, with two 80 watts/cm lamps can be achieved, dependent on these variables. Full adhesion can only be achieved if the varnish film is fully cured.

Substrates and the inks to be overprinted can have differing receptivity to UV varnishes and therefore it is always advisable to determine optimum drying schedules under specific conditions before commencing with full production.



6.2 Viscosity Reduction

Uviscreen UV curing screen printable overprint varnishes are supplied press-ready and should not need adjustment under normal conditions. Should viscosity adjustment be considered essential, up to 5% by weight of UV reducer TU01 may be added.

6.3 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 polyester mesh with a mesh count of 140 – 180 threads/cm and a medium/hard sharp polyurethane squeegee should be used.

6.4 Coverage

Up to 120 m²/kg may be expected, but coverage is dependent on a number of printing factors including, mesh choice, stencil thickness, squeegee, etc.

6.5 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.

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

7. End-use safety

7.1 Handling

Uviscreen UV curing screen printable overprint varnishes 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. For more details on handling of UV materials please refer to EuPIA's latest document, 'Guidelines for Printers on the Safe Use of Energy Curing Printing Inks and Related Products' (www.eupia.org).

7.2 EN71-3:2013 Safety of Toys – Migration of certain elements

These inks have been formulated to comply with the requirements of toy standard, EN 71-3:2013 Safety of toys – Migration of certain elements (category III: scraped off material). 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 (note 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. For further compliance confirmation and advice please refer to your local Sun Chemical branch.

7.3 Food Contact

Sun Chemical cannot guarantee the suitability of any of its products for use where direct or indirect food contact may occur.



7.4 EuPIA

Uviscreen varnishes are formulated in accordance with the EuPIA exclusion policy for printing inks and related products. In particular, this excludes from use all materials classified according to the CLP Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures as carcinogenic, mutagenic or toxic for reproduction in categories 1A or 1B with hazard statements H340, H350 or H360, in addition to toxic or highly toxic materials with hazard statements H300, H301*, H310, H311*, H330, H331, H370 or H372* (* may be permitted if safe use can be demonstrated following risk assessment). Pigments based on compounds of Sb, As, Cd, Cr (VI), Pb, Hg, Se, certain dyes, solvents, plasticisers and miscellaneous materials are also excluded.

8. Technical Assistance / Contacts

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

Our Products are intended for sale to professional users. The information herein is general information designed to assist customers in determining the suitability of our products for their applications. All recommendations are made without guarantee, since the application and conditions of use are beyond our control. We recommend that customers satisfy themselves that each product meets their requirements in all respects before commencing a print run. There is no implied warranty of merchantability or fitness for purpose of the product or products described herein. In no event shall Sun Chemical be liable for damages of any nature arising out of the use or reliance upon this information. Modifications of the product for reasons of improvements might be made without further notice.

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