

Uviplast UV Curing Inks for Plastics

2000 UP • 3000 QR • MULTIDYNE LY • OMNIPLUS UL • HIFLEX ES

The Uviplast series of inks has been developed for versatility and high performance on a wide range of substrates and applications for external use. The range includes specialist products for processes such as vacuum forming, bending, cutting, drilling and creasing.

Uviplast inks offer unlimited screen stability, freedom from re-wetting and blocking problems plus atmospheric and workplace environment advantages.

Uviplast Product Ranges

2000 UP

A high gloss finish ink for printing onto rigid PVC, polystyrene and most grades of polycarbonate, 2000 UP also gives excellent solvent and chemical resistance. Comprises 13 line colours including 9 base colours of the Seritone Matching System plus trichromatic colours to DIN16538/9.

PANTONE®* 1000 Matching Formulae available.

3000 QR

A satin finish ink range for use on PVC, polystyrene, polycarbonate and many other plastics. For general use QR inks have flexibility and embrittlement resistance for use on thin gauge materials like self adhesive vinyls. It should be noted that Hiflex ES is recommended where maximum flexibility and embrittlement resistance for removable grades of SAV are to be printed. Available as a trichromatic set to DIN 16538/9.

Omniplus UL

Designed for a wide range of applications including PVC, PETG, some grades of PET, polystyrene, polycarbonate and acrylic. 13 gloss finish line colours, comprising the Seritone Matching System, plus a set of satin finish high strength trichromatics. Suitable for vacuum forming.

Hiflex ES

Trichromatic satin finish ink, specifically designed to overcome embrittlement and shattering problems associated with printing of thin gauge plastics. If a complementary line colour is required for bus side applications, Uvispeed Multiflash UZ is recommended. Suitable for self-adhesive PVC, thin gauge semi rigid vinyls, vinyl banners and 100 micron fleet transfer vinyls for bus sides. Prints intended for bus backs should be protected by overvarnishing with ES376 Hiflex Varnish.

Multidyne LY

High satin finish for use on most polypropylene including sheet and fluted types. Available in 13 line colours including the Seritone Matching System plus trichromatics to DIN16538/9.

Co-use with Other Inks

It is not recommended to intermix any of the Uviplast series with each other or with any other ink as this will adversely affect designed performance. Hiflex ES may be overprinted by Omniplus UL line or trichromatic colours. Intercoat adhesion may not fully develop until 24 hours after printing and compatibility of combined systems must be

Main Characteristics

Curing

Cured through dryer with 2 x 80 watt/cm lamps.

2000 UP: 30-35 metres/min 150.34 mesh.

3000 QR: 20-25 metres/min 150.34 mesh.

Multidyne LY: 25-35 metres/min 150.34 mesh.

Omniplus UL: 15-20 metres/min 150.34 mesh.

Hiflex ES: 25-30 metres/min 150.34 mesh.

Thinning

2000 UP: up to 10% ZE807. To increase cure speed, add up to 10% ZE813.

3000 QR: up to 10% ZE834.

Multidyne LY: up to 10% ZE818. To increase cure speed, add up to 5% ZE824.

Omniplus UL: up to 10% ZE834. To increase cure speed, up to 5% ZE850 can be added but this will affect the ability to vacuum form.

Hiflex ES: up to 10% ZE829. Do not use any other thinner.

Wash-up

Seriwash Universal Screen Wash. Do not wash-up with any UV thinners. Serisolve AM or SW are recommended for automatic screen cleaning machines.

Mesh

150.34 PW is recommended for general use. Although 140.34 to 165.34 PW may be used, coarser meshes may impair cure, adhesion and anti-embrittlement properties.

Stencil Type

Solvent resistant.

Recommended:

Contact exposure: Dirasol 916, Dirasol 902, or Dirasol Super Coat, Indirect or capillary films.

Direct projection: Dirasol SuperPro, Dirasol S5.

Coverage (m²/kg.) 150.34 PW mesh

2000 UP: line colours 80-100.

3000 QR: 80-100.

Multidyne LY: line colours 75-85. trichromatics 80-100.

Omniplus UL: line colours 70-80. trichromatics 80-100.

Hiflex ES: 80-90.

IMPORTANT: Stir well before every use. Test application fully, including block resistance of rigid sheets, before beginning a production run. There is often considerable variance in plastics from different manufacturers and even between different batches (See product specific information particularly 'Co-use with Other Inks').

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evaluated under production conditions before commencing a production run.

Curing Information

The curing information quoted for each product is typical for modern UV dryers. Actual curing rates depend on a number of factors including ink film thickness, opacity, the number and type of lamps used (including lamp emission spectrum, power and efficiency) and the stock being printed. In the case of flash cure it also depends on the number of flashes used. Care should be taken to ensure that each colour is cured correctly to achieve optimum adhesion to substrate and subsequent overprint adhesion. **White or colour matches containing White will be slower than standard colours.**

Post Curing:

The chemical reaction initiated by a UV Dryer will continue for some time after the prints have emerged. This reaction can adversely affect intercoat adhesion and care should be taken that prints are not over-cured and that adhesion of subsequent colours, as well as the first colour, is assessed at regular intervals.

Pre-Production Tests

Plastics:

Certain plastics may be impregnated with lubricants which, like plasticiser migration, may impair adhesion even a considerable period after printing. This can usually be overcome by wiping the surface with white spirit before printing.

Surface adhesive left from protective papers on rigid PVC sheets should be thoroughly removed in line with suppliers' instructions.

Some plastics can become brittle when printed, possibly to the point of shattering, often after several weeks. It is essential to check compatibility between ink and plastic to guard against this.

Multidyne LY is specifically designed for use on polypropylene which is corona discharge treated during manufacture. The efficiency of this treatment decreases with age. It is recommended to always use fresh stock. Any contamination of the surface (e.g. finger marks) will impair adhesion and water resistance of the finished print.

Vacuum forming:

Omnipius UL is suitable for vacuum forming but, due to the variety of methods used, it is advisable to conduct tests before commencing a production run.

Addition of unsuitable thinners will have an adverse effect on vacuum forming performance and should be avoided when used for this application (see table 'Thinning').

Ink Coverage

The coverage figure for each product is for one colour in each range. Higher pigmented colours such as white and colour matches containing a high proportion of white will not yield the same coverage.

Outdoor Use

Ink ranges in the Uviplast Series have been tested for resistance to weathering in an Altas xenon bulb weatherometer. Under this method the outdoor life of each range in a temperate climate such as the UK has been estimated as follows:

2000 UP	Up to 12 months. <i>Exceptions: UP114, UP164, UP121, UP 021, UP325</i>
3000 QR	Up to 12 months.
Multidyne LY	Up to 12 months.
Omnipius UL	Up to 2 years. <i>Exceptions: UL121, UL164.</i>
Hiflex ES	Up to 2 years.

Colours listed as exceptions have reduced lightfastness and should not be used for prolonged outdoor exposure or in colour matches requiring outdoor resistance.

For more comprehensive details on weathering please contact Sericol Technical Services.

The Seritone Matching System

The Seritone Matching System enables readily matched special colours. The system comprises base colours plus Black, White and Extender Base – it is available in the 2000 UP, Multidyne LY and Omnipius UL colour ranges.

PANTONE® Matching System

Sericol provide formulae for Uviplast 2000 UP to produce accurate simulations of PANTONE colours in the coated ('C' suffixed) section. The Sericol package includes:

- PANTONE® Color Formula Guide**
- Sericol Formula Guide**
Formulations given in percentages by weight.
- Color Manager Software**
For use with IBM compatible computers. This package enables use of the PANTONE formulations plus:
 - Storage facility for user's own formulations.
 - Automatic batch sizing and costing.
 - Ink coverage estimator.
 - Stock control system to calculate the amount of stock and a reminder when stocks fall below a given (programmable) level.
- PANTONE Formula Scales**
Pre-programmed with PANTONE shades to ensure maximum accuracy, speed and cost savings.

Colour Range

Extender Base is available for each ink type, it can be mixed into any standard colour where greater transparency or faster drying speed is desired.

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Standard Colours

	2000 UP	3000 QR	Multidyne LY	Omnipus UL	Hiflex ES
Black UP001	–	–	LY001	UL001	–
Dense Black	UP009	–	–	UL009	–
White UP021	–	–	LY021	UL021	–
Opaque White	UP025	–	–	UL025	–
Seritone Yellow (Green Shade)	UP064	–	LY064	UL064	–
Seritone Yellow (Red Shade)	UP066	–	LY066	UL066	–
Seritone Orange	UP114	–	LY114	UL114	–
Seritone Red (Yellow Shade)	UP121	–	LY121	UL121	–
Seritone Red (Blue Shade)	UP164	–	LY164	UL164	–
Seritone Magenta	UP165	–	LY165	UL165	–
Seritone Violet	UP127	–	LY127	UL127	–
Seritone Blue	UP230	–	LY230	UL230	–
Seritone Green	UP325	–	LY325	UL325	–
Extender Base	UP381	–	LY381	UL381	–
Varnish –	–	–	–	UL360	ES376
Trichromatic Yellow	UP052†	QR052	LY052†	UL052†	ES052†
Trichromatic Magenta	UP135†	QR135	LY135†	UL135†	ES135†
Trichromatic Cyan	UP215†	QR215	LY215†	UL215†	ES215†
Trichromatic Black	UP004†	QR004	LY004†	UL004†	ES004†
Trichromatic Extender Base	UP396	QR396	LY396	UL396	ES396
Available pack sizes	5 kg	5 kg	5 kg	5 kg	5 kg

†Trichromatic Colours to DIN 16538/9 (BS4160/4666)

Reducers and Additives

ZE807	Thinner for UP
ZE813	Fast Thinner for UP
ZE816	Matting Base for UP
ZE818	Thinner for LY

Available in 5 and 1 ltr containers.

ZE824	UV Flash Cure Additive
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Available in 1 kg containers.

ZE850	Fast Thinner for UL
ZE829	Thinner for ES

Available in 5 ltr containers.

ZE834	Thinner for UL AND QR
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Available in 1 ltr containers.

Metallic Shades

Metallic shades can be obtained by mixing Gold and Silver powders with Omnipus UL Varnish or with either UP2000 and Multidyne LY Extender Bases. Recommended mixing ratios are by weight as follows:

Gold	UL360 Omnipus Varnish	85 parts
	MP461 Rich Pale Gold Powder Superfine	15 parts
	UP382 UP2000 Metallic Ink Medium	80 parts
	MP461 Rich Pale Gold Powder Superfine	20 parts
	LY381 Multidyne LY Extender Base	80 parts
	MP461 Rich Pale Gold Powder Superfine	20 parts
Silver	UL360 Omnipus Varnish	88 parts
	MP483 Silver Powder Superfine	12 parts
	UP382 UP2000 Metallic Ink Medium	85 parts
	MP483 Silver Powder Superfine	15 parts
	LY381 Multidyne LY Extender Base	85 parts
	MP483 Silver Powder Superfine	15 parts

Uviplast 2000 UP metallics may be tinted, if required by 5-10% additions of Uviplast 2000 UP Seritone base colours. Similarly, Multidyne LY metallics may be tinted with Multidyne Seritone Base Colours.

Omnipus metallics should not be tinted as this has an adverse effect on stability.

A pot-life of approximately 8 hours for Omnipus UL and Multidyne LY and 24 hours for UP2000 can be expected if the above ratios are used under normal conditions.

Post Print Mesh Cleaning

For the fastest way to remove ink stains that remain after decoating use SeriGel Clear (OAA03) and Antistain Ultra (ANS81).

For further application details refer to information sheet 'Decoating and Mesh Stain Removal Chemicals'.

Special Matches

Colours can be supplied against prints, wet ink samples or to PANTONE®, British Standard, 'HKS' or 'Munsell references'. A sample of the substrate and the number and type of mesh to be used, should be attached to orders. Other properties required of special matches may be very important and full details should be supplied of the process to be followed.

Our Technical Service Department will be pleased to advise on non-standard colours.

Minimum quantity 5 kgs.

Storage

Containers should be tightly closed immediately after use.

Uviplast inks and reducers should not be stored in direct sunlight or near sources of heat and should be kept away from peroxides.

For maximum shelf-life, storage should be between 10°C and 25°C.

Stored in a cool environment the inks have a shelf-life of approximately 12 months from the date of manufacture.

Safety and Handling

Uviplast inks:

- are formulated to be free from any (toxic) carcinogenic, mutagenic or reprotoxic chemicals.
- do not have a flashpoint and are therefore exempt from the Highly Flammable Liquid Regulations.
- are formulated free from lead and other heavy metals and therefore should comply to the EN71- 3:1988 Toy Safety Standard.

Comprehensive information on the safety and handling of Uviplast screen inks and additives are given in the appropriate Sericol Material Safety Data Sheets, available upon request.

Environmental Information

Uviplast inks:

- are free of any volatile solvent and are therefore beneficial to the environment when compared to solvent-based products.

The information and recommendations contained in this Product Information sheet, as well as technical advice otherwise given by representatives of our Company, whether verbally or in writing, are based on our present knowledge and believed to be accurate. However, no guarantee regarding their accuracy is given as we cannot cover or anticipate every possible application of our products and because manufacturing methods, printing stocks and other materials vary. For the same reason our products are sold without warranty and on condition that users shall make their own tests to satisfy themselves that they will meet fully their particular requirements. Our policy of continuous product improvement might make some of the information contained in this Product Information sheet out of date and users are requested to ensure that they follow current recommendations.

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