

Uviplast UV Curing Inks for Plastics

2000 UP ♦ MULTIDYNE LY ♦ OMNIPLUS UL ♦ HIFLEX ES

SERICOL

PRODUCT INFORMATION

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 12 line colours including Seritone Matching System plus trichromatic colours. PANTONE®* 1000 Matching Formula available.

Omniplus UL

Omniplus UL satin finish high colour strength ink, developed primarily for use in vacuum forming applications.

Omniplus UL can be used on a wide range of substrates including PVC, PETG, some grades of PET, polystyrene and polycarbonate, but for general graphic printing, Displaymaster XX is the preferred range.

13 satin finish line colours and trichromatic set available. PANTONE®* 1000 Matching Formula available.

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 over-varnishing with ES376 Hiflex Varnish.

Multidyne LY

High satin finish for use on most polypropylene including sheet and fluted types. Available in 12 line colours including the Seritone Matching System plus trichromatics. PANTONE®* 1000 Matching Formula available.

Main characteristics

Curing

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

2000 UP: 30-35 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.

See also section 'Flash Curing'.

Thinning

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

Multidyne LY: up to 10% ZE818. To increase cure speed, add up to 3% 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

Screen Wash Universal . 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 917, Dirasol 902, or Dirasol Super Coat, Indirect or capillary films.

Direct projection: Dirasol SuperPro, Dirasol S5.

Coverage 150.34 PW mesh

2000 UP: 80-100 m²/kg (85-105m²/ltr)

Multidyne LY: Line Colours 75-85 m²/kg (80-90m²/ltr)

Multidyne LY: Trichromatics 80-100 m²/kg (85-105m²/ltr)

Omniplus UL: Line Colours 70-80 m²/kg (75-85m²/ltr)

Omniplus UL: Trichromatics 80-100 m²/kg (85-105m²/ltr)

Hiflex ES: 80-90 m²/kg (85-95m²/ltr)

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.

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').

*PANTONE® is the property of Pantone, Inc.

Flash Curing

2000 UP and Hiflex ES can be flash cured with the addition of 3% ZE824. Multidyne LY can be flash cured with the addition of ZE833.

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 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. Please note LY025 may take up to 5 days to fully post cure.

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:

Omnipus 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').

Outdoor Use

Ink ranges in the Uviplast Series have been tested for resistance to weathering in an Altas xenon bulb weatherometer. Figures given are maximum expected outdoor life when printed full strength on an exterior grade self-adhesive vinyl and exposed in Zone 1 as defined on the 'Printers Guide to Weathering' information sheet.

2000 UP Up to 12 months. (*Exceptions: UP164, 8 months*)

Multidyne LY Up to 12 months.

Omnipus UL Up to 24 months. (*Exceptions: UL121 & UL164, 8 months*)

Hiflex ES Up to 30 months.

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

The Seritone Matching System

The Seritone Matching System enables printers to readily match special colours in-house. The system comprises base colours plus Black, White and Extender Base and is available in the 2000 UP, Multidyne LY and Omnipus UL colour ranges.

PANTONE® Matching System

Fujifilm provide formula for Uviplast 2000 UP, Multidyne LY, Omnipus UL to produce accurate simulations of PANTONE colours in the coated ('C' suffixed) section. The Fujifilm package includes:

- 1. PANTONE® Colour Formula Guide**
- 2. Fujifilm Formula Guide**
Formulations given in percentages by weight.
- 3. Colour 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.
- 4. 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.

Standard Colours

	2000 UP	Multidyne LY	Omnipus UL	Hiflex ES
Black	UP001	LY001	UL001	-
Dense Black	-	-	UL009	-
White	UP021	LY021	UL021	-
Opaque White	UP025	LY025	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 [†]	LY052 [†]	UL052 [†]	ES052 [†]
Trichromatic Magenta	UP135 [†]	LY135 [†]	UL135 [†]	ES135 [†]
Trichromatic Cyan	UP215 [†]	LY215 [†]	UL215 [†]	ES215 [†]
Trichromatic Black	UP004 [†]	LY004 [†]	UL004 [†]	ES004 [†]
Trichromatic Extender Base	UP396	LY396	UL396	ES396
Available pack sizes	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
ZE850	Fast Thinner for UL
ZE829	Thinner for ES

Available in 5 ltr containers.

ZE824	UV Flash Cure Additive for UP and ES
ZE833	UV Flash Cure Additive for LY
ZE834	Thinner for UL

Available in 1 kg containers.

See also the Product Information sheet 'Special UV Inks and Additives' for details on other additives which may be used to modify UV inks.

Metallic Shades

Metallic shades can be obtained by mixing Gold and Silver powders with Omnipus UL Varnish or with either UP 2000 or 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 UP 2000 Metallic Ink Medium	80 parts
	MP461 Rich Pale Gold Powder Superfine	20 parts
Silver	LY381 Multidyne LY Extender Base	80 parts
	MP461 Rich Pale Gold Powder Superfine	20 parts
	UL360 Omnipus Varnish	88 parts
	MP483 Silver Powder Superfine	12 parts

Silver	UP382 UP 2000 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 UL 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 2000 UP 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 Screen Gel Clear (OAA03) and Antistain Ultra (ANS81). For further application details refer to information sheet 'Xtend Decoating and Mesh Stain Removal Products'.

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.

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.

Fujifilm Customer Support will be pleased to advise on non- standard colours.

Minimum quantity 5 kgs.

Fujifilm Speciality Ink Systems Limited:

- Has certification to the International Environmental Standard ISO 14001.
- Is committed to minimising the risk to users of our products, and also to minimising the impact of our activities on the environment, from formulation through to production and supply.
- Research and development team , work to an in house Health Safety and Environmental policy, termed 'Design for Health, Safety and Environment', with the aim of proactively developing products with the least impact on health, safety and the environment.
- Regularly review and monitor our impacts and activities, setting objectives and targets as part of a continual improvement process.
- Is committed to reducing waste through better use of raw materials, energy, water, re-use and recycling.

Safety and Handling

Uviplast Inks:

- Have a flashpoint greater than 55°C and are therefore not classified as "dangerous substance" under the Dangerous Substances and Explosive Atmospheres Regulations (DSEAR).

Comprehensive information on the safety and handling of Uviplast screen inks and additives is given in the appropriate Safety Data Sheets.

Environmental Information

Uviplast Inks:

- Do not contain ozone-depleting chemicals as described in the Montreal Convention.
- Are formulated free from aromatic hydrocarbons.
- Are free from any volatile solvent and can therefore be considered to have less impact on 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 Fujifilm Speciality Ink Systems Limited and its associated companies, 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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