

SUNCURE STARLUXE PRODUCT RANGE

Process Inks					
Process Yellow	SunCure USL26-EA1	5	+	+	+
Process Yellow (1st Down Opaque)	SunCure USL28-EA1	5-6	+	+	+
Process Magenta	SunCure USL27-EA1	4	+	+	-
Process Cyan	SunCure USL25-EA1	7-8	+	+	+
Process Black	SunCure USL46-EA1	7	+	+	+
Special Intense Black	SunCure USL74-EA1	7-8	+	+	+

Intense Process Yellow	SunCure USL30-EA1	5	+	+	+
Intense Process Magenta	SunCure USL35-EA1	4	+	+	-
Intense Process Cyan	SunCure USL38-EA1	7-8	+	+	+
Intense Process Black	SunCure USL24-EA1	7-8	+	+	+

Mid Resistant Process Yellow	SunCure USL08-EA1	4-5	+	+	+
Resistant Process Yellow	SunCure USL54-EA1	6-7	+	+	+
Mid-Resistant Process Red	SunCure USL37-EA1	6-7	+	+	+
Resistant Process Red	SunCure USL44-EA1	8	+	+	+
Untoned Black	SunCure USL50-EA1	8	+	+	+

Pantone® 012 Yellow	SunCure USL04-EA1	5-6	+/-	+/-	+/-
Pantone® Orange 021	SunCure USL21-EA1	4	+/-	+	+
Pantone® Warm Red	SunCure USL31-EA1	2	+	+	+/-
Pantone® Red 032	SunCure USL32-EA1	6	+	+	+
Pantone® Rhodamine	SunCure USL55-EA1	4-5	-	+	+/-
Pantone® Purple	SunCure USL51-EA1	4-5	-	+	+/-
Pantone® Violet	SunCure USL52-EA1	3-4	-	+	-
Pantone® Reflex Blue	SunCure USL61-EA1	3	-	-	-
Pantone® Blue 072	SunCure USL60-EA1	3-4	-	-	-
Pantone® Green	SunCure USL71-EA1	7	+	+	+

Green Shade Yellow	SunCure USL14-EA1	7	+	+/-	+
Transparent Scarlet	SunCure USL33-EA1	6-7	+	+	+

Resistant Warm Red	SunCure USL36-EA1	6	+	+	+
Resistant Pink	SunCure USL56-EA1	7-8	+	+	+
Resistant Carmine	SunCure USL88-EA1	6-7	+	+	+
Resistant Blue Shade Red	SunCure USL07-EA1	6	+	+	+
Resistant Purple	SunCure USL57-EA1	7	+	+	+
Resistant Violet	SunCure USL53-EA1	7	+	+	+
Resistant Reflex Blue	SunCure USL63-EA1	7	+	+	+
Resistant (072) Blue	SunCure USL73-EA1	7	+	+	+

Transparent White	SunCure USL48-EA1		+	+	+
Non-yellowing Transparent White	SunCure USL49-EA1		+	+	+
Non-yellowing Opaque White	SunCure USL47-EA1		+	+	+
Opaque White	SunCure USL84-EA1		+	+	+
Opaque White 2	SunCure USL45-EA1		+	+	+

Pantone® is the registered trade mark of Pantone Inc.

Light fastness

Alcohol

Solvent Mixture

Alkali

Note:

The colours in this table are simulated from 4-colour process printing. Please refer to PANTONE® colour guides for accurate colour matching. Refer also to the brochure from Sun Chemical "UV Curing, Pantone Formulating Guide, Essential Shade Library" for the 152 top shades.

The information in this table has been carefully compiled from experience gained in the laboratory and under commercial conditions. However, the product's performance and it's suitability for the customer's purpose depend on the particular conditions of use and the material being printed. We recommend that the customers satisfy themselves that each product meets their requirements in all respects before commencing a print run.

SUNCURE® StarLuxe inks are not intended for direct food contact. SUNCURE® StarLuxe can be used on the outside of some food packaging applications provided that package design and printing procedures are appropriate. SUNCURE® StarLuxe gives good results in odour and taint testing on suitable substrates but since application conditions can vary widely a full evaluation must be conducted before beginning a commercial print run. For advice please contact our technical service team.

There are many applications for SUNCURE® StarLuxe where additional light or chemical resistance may be required. For guidance please refer to the table and contact our technical service team. Specific requirements must be specified at the time of ordering.



Sun Chemical Ltd.
Cray Avenue
St Mary Cray, Orpington
Kent BR5 3PP
United Kingdom
Tel +44 (0) 1689 894 000
Fax +44 (0) 1689 894 020

Hartmann Druckfarben GmbH
Borsigallee 13
D-60388 Frankfurt am Main
Germany
Tel + 49 (0) 69 4000 0
Fax + 49 (0) 69 4000 286

Sun Chemical Europe
Wexham Springs
Framewood Road
Slough, SL3 6PJ
United Kingdom
Tel +44 (0) 203 139 0000
Fax +44 (0) 203 139 0001

WWW.SUNEUROPE.COM

Although the information presented here is believed to be reliable, Sun Chemical Limited makes no representation or guarantee to its accuracy, completeness or reliability of the information. All recommendations and suggestions are made without guarantee, since the conditions of use are beyond our control. There is no implied warranty of merchantability or fitness for purpose of the product or products described herein. In no event shall Sun Chemical Limited be liable for damages of any nature arising out of the use or reliance upon the information. Sun Chemical Limited expressly disclaims that the use of any material referenced herein, either alone or in combination with other materials, shall be free of rightful claim of any third party including a claim of infringement. The observance of all legal regulations and patents is the responsibility of the user.

JUST IMAGINE

SUN CHEMICAL – GLOBAL SUCCESS
IN A WORLD OF COLOUR

Sun Chemical is the world's largest producer of printing inks and pigments. It also is a leading provider of materials and services to packaging, publication, coatings, plastics, cosmetics and other industrial markets. Sun Chemical has more than 300 locations worldwide to provide customers local service with a global perspective.

Sun Chemical has an historic pedigree, tracing its history back to 1818. Since then, Sun Chemical has expanded its operations, bringing many well-known companies and brands under its umbrella including Coates Lorilleux, HARTMANN, US Ink and Kohl & Madden.

UV CURING

H I G H Q U A L I T Y P R I N T I N G

UV

Energy Curing Products

TAKE A FRESH LOOK AT UV PRINTING

SUNCURE® StarLuxe is a full range of UV curing offset inks for high quality printing on the widest range of substrates found in the packaging and labelling of cosmetics, liquor, healthcare, household and luxury goods.

Specialist packaging and labelling companies must meet the requirements of the most demanding brand owners and end-users. Sun Chemical developed SUNCURE® StarLuxe with these demanding print buyers in mind. No compromise in machine performance and no compromise in adhesion. The result is a full range of products that give the printer confidence in satisfying the most demanding customer where print production and adhesion are required at the highest level. Modern consumer goods must be packaged in such a way that they stand out from the crowd and demand a second look. Excellent results on non-absorbent substrates such as plastics, metallised paper and polyester, reflective and effect laminates and all at the highest press speeds can satisfy even the most demanding print buyer. Take a fresh look at UV printing with SUNCURE® StarLuxe.

THE RIGHT APPROACH

Reaching for the ultimate goal in any endeavour requires the right balance to be achieved. The development of SUNCURE® StarLuxe was undertaken by Sun Chemical in the knowledge that both increased printing machine speeds and the use of ever more challenging substrates were inevitable in the search for high quality package design and economic production. The challenge was to provide excellent machine performance whilst improving adhesion over any other available system. The challenge has been met by new SUNCURE® StarLuxe. Press speeds up to the maximum achievable on the current generation of UV presses are possible together with outstanding adhesion to the ever increasing and imaginative range of substrates encountered in folding carton, plastic packaging and label printing. UV curing and mechanical resistance is excellent, especially when using a suitable SUNCURE® UV coating, and print is ready for processing immediately off the press. Take a fresh look at UV printing with SUNCURE® StarLuxe.

ABOUT ADHESION

One of the greatest advantages of UV curing printing compared to any other process is the high level of adhesion on the widest range of printing materials. Adhesion on many non-pervious substrates can only be assured using UV printing.

Nevertheless, there are some basic rules to be followed. Adhesion is better when:

- ... the printing surface has a surface energy of between 38 and 44 mN/m
- ... the ink is properly cured
- ... the film-weight of ink applied is correct
- ... the correct coating is used

The addition of a suitable UV curing coating is often essential to provide correct mechanical and product resistance. This also helps in ensuring good ink adhesion, and a long printed life, free of blemishes. Ink and coating need to work together with the substrate to ensure the best printed result. This is only really possible when there is a difference in surface energy between ink and material of around 10mN/m. Corona treatment prior to printing increases surface energy for some materials and so aids adhesion. (Note that surface energy changes from Corona treatment can diminish with time).



TYPES OF ADHESION

Understanding the different mechanisms of adhesion can explain why care is needed in the choice of substrate or surface treatment. The mechanism for ink and coating adhesion is complex.

1.	MECHANICAL ADHESION Two materials may be mechanically interlocked. An ink or coating can literally hook into a microscopically rough surface. Adhesion and mechanical resistance comes from the strength of the cured ink layer.	
2.	CHEMICAL ADHESION Where two materials make some form of compound at the intersection. The best adhesion comes where some sharing of atoms or electrons takes place. Corona treatment increases the ability of the surface to share in this way.	
3.	DISPERSION ADHESION Where surfaces are charged but do not share electrons. This form of attraction is a form of adsorption.	
4.	ELECTROSTATIC ADHESION Some conducting materials may pass electrons and so form a difference in electrical charge at the join which gives electrostatic attraction.	
5.	DIFFUSIVE ADHESION Some materials may merge at the join by diffusion. This can only occur when molecules of both materials are mobile, allowing diffusion into each other. Ends of chains can also diffuse into the substrate.	

SUBSTRATE SURFACE ENERGY

Typical substrate surface energies before treatment showing why treatment is necessary on some substrates to obtain adhesion.

Polypropylene PP	30
Polyethylene PE	31
Polystyrene PS	34
ABS copolymer	36
Polylactic Acid PLA	39
PVC polymer	40
PETP polymer	43
Polycarbonate PC	45

Values are approximate and given in mN/m

COMPATIBLE WITH EVERY PRINTING PROCESS

SUNCURE® StarLuxe is a sheetfed offset UV curing ink that can also be used effectively on some web offset presses and for letterpress applications. SUNCURE® StarLuxe can be used on large and small format offset presses and with all damping systems. SUNCURE® StarLuxe is a full range of coloured offset inks and a range of special whites. For process printing choose from the 15 products giving a full choice between intensity and additional resistance. For Pantone® and other non-process colours there are 10 standard Pantone® blending colours and 11 special and resistant colours.

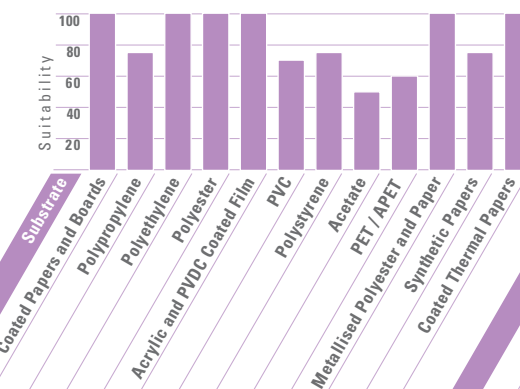
For tints and pastels there are 5 transparent and opaque whites including products that are especially resistant to yellowing. This can be essential for some long shelf-life high value consumer packaging such as cosmetics.

Take a fresh look at UV printing with SUNCURE® StarLuxe.

SUNCURE® STARLUXE CHARACTERISTICS

- Specially designed for printing on non-absorbent substrates
- Suitable for paper and board
- Robust lithographic performance even at the highest press speeds
- Good ink/fount stability and balance
- Good dot reproduction
- Good ink trapping properties
- Excellent and positive curing
- Good adhesion on the widest range of substrates
- Suitable for in-line or off-line coating with UV coating
- Suitable for in-line coating with water-based coating
- Suitable for in-line or off-line lamination
- Suitable for in-line or off-line foil stamping (foil blocking) on suitable foils with good scuff and rub resistance when coated.
- Full range of standard and resistant colours (depending on application)

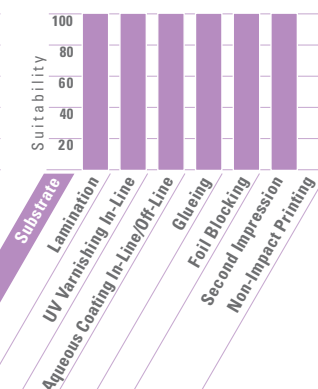
PRINT APPLICATIONS



100: Optimum utilisation
75: Good printability. May be used when no specific property required.

50: Preliminary test necessary.
0: Not to be used.

PRINT FINISHING



100: Optimum varnishability/lamination.
90: No test necessary.

70: Preliminary test necessary.
0: Do not use.

Note - IMPORTANT
The values indicated in the print application and print finishing diagrams correspond to an average value for the SUNCURE® StarLuxe product range. However, there are certain colours such as Warm red, Rubine Red, Rhodamine Red, Purple, Reflex Blue and Blue 072 which may not correspond to these average values and for these special care must be taken. The restrictions on usage concern, amongst other things, UV coating or aqueous acrylic coating and lamination, in addition to rub resistance, of certain colours. In order to benefit fully from the use of SUNCURE® StarLuxe products please consult the relevant technical leaflet or contact our technical services team.

A TOTAL HIGH QUALITY PACKAGE

To get the best performance from SUNCURE® StarLuxe use coatings and founts specially developed for high quality UV printing.

SUNCURE® HIGH QUALITY UV CURING COATINGS

A full range is available includes high gloss, satin and matt finishes in products with controlled slip values. The SUNCURE® range of coatings for use with SUNCURE® StarLuxe includes products for flexo and roller coater application as well as duct and dry offset. SUNCURE® 14HC151 is a foil stampable UV curing flexo coating which can be used in-line over SUNCURE® StarLuxe inks.

SUNFOUNT™ FOUNTAIN SOLUTIONS

A range of fountain solutions are available for use with SUNCURE® StarLuxe inks depending on press type and application. Contact SunAqua Systems (www.suneurope.com) for details and product recommendation.