

SunCure® ULM

Low Migration Ink System for Primary Packaging

1. Description

SunCure® ULM is a range of high performance, UV curable, low migration, lithographic inks designed for printing non-food contact surfaces of primary, or primary outer wrap food packaging. SunCure® ULM inks are also suitable for printing of pharmaceutical and sensitive goods' packaging where a risk of migration has been identified.

2. Product features

- Sheetfed or web offset printable
- Extensive colour range, including resistant colours
- Lowest migration potential, as certified by independent laboratories
- Excellent taint and odour properties
- Checked analytically for contamination before release to market
- Manufactured only from substances listed in Annex 1 and Annex 6 of the Swiss Packaging Inks Ordinance*
- Listed as an approved product for the printing of packaging for Nestlé**
- Suitable for in or off-line coating, foil stamping and lamination processes

3. Product Suitability

3.1 Applications

SunCure® ULM inks are intended for use in the following areas:

- Primary and primary outer wrap food packaging
- Outer wrap packaging for pharmaceutical and other sensitive applications, including tobacco packaging
- Suitable grades of paper and board, corona treated PE coated board and selected label substrates
- Selected colours may be used for microwave (without susceptor) and ovenable applications, subject to the restrictions noted below
- Can be in-line or off-line coated to improve gloss, physical and chemical resistance properties

SunCure® ULM inks are **not** suitable for use in the following areas:

- Printing on most plastics, films, foils and non-absorbent substrates
- Direct food contact
- Ovenable applications >200°C and/or for a dwell time of longer than 30 minutes

Printers should assure themselves that use of these products on food packaging has been fully assessed for risk and the packaging produced meets regulatory requirements for its intended end use. Whilst SunCure® ULM inks are versatile in performance, they may not be suitable if used outside the above described applications. If in doubt, please check with your local Sun Chemical representative.

* Ordinance of the Federal Department of Home Affairs (FDHA) on Materials and Articles (817.023.21) Section 8b:Packaging Inks (Annex 6 revision 25.11.09)

** Nestlé - Guidance Note on Packaging Inks 02-02-2012

3.2 Substrate

SunCure® ULM inks are suitable for use on a wide range of carton board, PE coated board and selected label substrates. Corona treatment is recommended for PE coated substrates to ensure an optimum treatment level of 38-44 mNm⁻¹. Note: there is significant variation between different grades of substrates. The printer should follow specific advice from their substrate manufacturer and make any tests necessary to prove performance under realistic conditions before commencing with commercial printing.

3.3 Printing Finishing

SunCure® ULM inks can be coated to improve gloss, physical and chemical resistance properties. A range of low migration coatings is available for use with the inks, to ensure a complete low migration package solution. Please contact your local Sun Chemical representative for specific recommendations. SunCure® ULM printed materials can be successfully laminated in-line or off-line using solventless adhesives, using standard converting processes.

4. Safety, Health and Environment

4.1 Product Handling

SunCure® ULM inks should be used in accordance with normal standards of industrial hygiene and good working practice. Please refer to the SunCure ULM Safety Data Sheet for specific information.

4.2 Manufacturing and Materials

SunCure® ULM inks are produced using Good Manufacturing Practice and in accordance with the latest EuPIA Guidelines on Printing Inks Applied to the Non-Food Contact Surface of Food Packaging Materials and Articles. (See www.eupia.org for details)

4.3 Storage

SunCure® ULM inks are supplied in 3 kg green plastic buckets. Shelf life is at least two years from date of manufacture, when stored in original unopened containers between 5° and 25°C and protected from direct sunlight. The inks may remain useable for a period longer than two years, but once they have reached this age should be checked before use. If in doubt, please contact your Sun Chemical representative for advice. Inks returned from press that have not been contaminated in any way should be re-used within three months.

4.4 Waste Disposal

Printing inks, coatings and printing residues should be disposed of in accordance with Local, EU and National regulations. Please refer to the product Safety Data Sheet for additional information.

5. Printing Conditions

5.1 Printing Conditions

SunCure® ULM inks are supplied press-ready and should not need adjusting under normal printing conditions. Where possible, the use of press-side additives should be avoided. The press and roller system should be thoroughly cleaned to avoid cross-contamination of SunCure® ULM inks by any products used previously.

5.2 Additives

A number of low migration press-side additives are available for adjusting properties in non-standard conditions or applications, where press adjustment has not achieved a satisfactory result. As a general principle, use of additives should be a last resort, when process adjustment has not solved particular application issues. Furthermore, the maximum addition level should be respected, to avoid the potential creation of other issues.

5.3 Wash Up

A variety of proprietary wash-up solutions are available which are suitable for use with UV inks and press components, including rollers, blankets and plates.

5.4 Fountain Solutions

Depending on press type and substrate, a number of **SunFount®** fountain solution additives are available for use with SunCure® ULM inks, to provide optimum emulsification and printing properties. These inks are usually run with low or no alcohol founts and SunFount® 480 and 485 are proven products for most applications. Please contact your local Sun Chemical representative for consumables advice and recommendations.

6. End-Use Safety / Assumptions

Acceptable technical performance of SunCure® ULM inks is dependent on:

- The application of Good Manufacturing Practice
- The press being fitted for UV printing, including suitable rollers, blankets and plates
- The press and associated equipment being free from contamination from previously used products
- The inks should not be mixed with other products, as low migration properties will be compromised
- Control of film weight and print density
- Adequate curing capacity on-press to ensure that the print is fully cured before conversion
- Appropriate packaging design and structure

Choice and control of film weight, curing and substrate are printer technical requirements for which Sun Chemical can not accept responsibility. Depending on measuring equipment the process inks are designed to be printed at the following typical print density values. It is strongly recommended these are not exceeded as cure may be impacted and low migration properties compromised.

Yellow 0.90 – 1.10 Magenta 1.35 – 1.45 Cyan 1.35 – 1.45 Black 1.70 – 1.80

To fulfill its responsibility within the supply chain Sun Chemical will provide upon request, under non-disclosure agreement, information regarding potential migratable components, where present in the inks that are intended for food packaging applications.

For further information on Low Migration printing, please refer to Sun Chemical's Best Practice Guide: **DESIGNING PACKAGING WITH CERTAINTY – A BEST PRACTICE GUIDE** (available by e-mailing to packaging@sunchemical.com)

The information contained herein is based on data believed to be up-to-date and correct at the time writing. It is provided to our customers in order that they are able to comply with all applicable health and safety laws, regulations, and orders. In particular, customers are under an obligation to carry out a risk assessment under relevant Good Manufacturing Practices (GMP) in line with EU food contact legislation and as a result take adequate measures to protect food consumers.

7. Appendix

	Product	Product Code	Lightfastness # Full Strength	Alkali #	Alcohol #
Process Colours	Process Yellow	SunCure ULM26	5	+	+
	Process Magenta	SunCure ULM27	5	+	+
	Process Cyan	SunCure ULM25	7	+	+
	Process Black	SunCure ULM46	7	+	+
Blend Colours	Intense Yellow	SunCure ULM30	5	+	+
	Intense Magenta	SunCure ULM35	5	+	+
	Intense Cyan	SunCure ULM38	7	+	+
	Resistant Yellow	SunCure ULM54	5	+	+
	Heat Resistant Yellow	SunCure ULM29	7	+	+
	Resistant Magenta	SunCure ULM44	5	+	+
	Orange	SunCure ULM21	4	+	-
	032 Red	SunCure ULM32	6	+	+
	Green	SunCure ULM71	7	+	+
	Green Shade Yellow	SunCure ULM14	5	+	+
	Carmine Red	SunCure ULM88	5	+	+
	Resistant Warm Red	SunCure ULM36	6	+	+
	Resistant Pink	SunCure ULM56	7	+	+
	Resistant Violet	SunCure ULM53	7	+	+
	Resistant Purple	SunCure ULM57	7	+	+
	Resistant Reflex Blue	SunCure ULM63	7	+	+
	Resistant (072) Blue	SunCure ULM73	7	+	+
	Untoned Black	SunCure ULM50	8	+	+
	Tint Medium	SunCure ULM48		+	+
	Opaque White	SunCure ULM84		+	+

Test methods are available on request. Note: Resistance properties refer to the properties of the pigments used, not the properties of the cured film.

Lightfastness is measured according to the Blue Wool Scale. Under wet conditions such as during external exposure lightfastness is significantly worse for certain colours. Please consult our technical services for recommendation on alternative shades or blend formulations. Resistant colours may differ slightly in shade from the equivalent non-resistant colour.

Note: SunCure ULM84 is intended primarily as a mixing white, and not as a first-down or backing white. If a White ink is required for these purposes, please contact your Sun Chemical representative for product advice and recommendation.

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Please see www.sunchemical.com for further information on Sun Chemical products and services and contact your local Sun Chemical representative for specific product advice.