

SunCure® FLM

Low Migration Ink System for Primary Packaging

1. Description

SunCure® FLM is a range of high performance, UV curable, low migration lithographic inks designed for printing of non-food contact surfaces of primary or primary outer wrap food packaging. SunCure® FLM 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
- Adhesion to a wide range of substrates including carton board and appropriately selected plastics and flexible packaging films and foils
- Lowest migration potential, as certified by independent laboratories
- Excellent taint and odour properties
- Made using specially selected raw materials from audited vendors
- Manufactured only from substances listed in Annex 1 and Annex 6 of the Swiss Packaging Inks Ordinance*
- Meets Nestlé** criteria for the production of their packaging
- Suitable for in-line or off-line coating, and with foil stamping and lamination processes

3. Product Suitability

3.1 Applications

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

- Primary and primary outer wrap food packaging
- Outer wrap pharmaceutical packaging and packaging for other sensitive applications
- Appropriately selected grades of paper and board, selected flexible packaging films and self-adhesive label substrates
- Can be in-line or off-line coated to improve gloss, physical and chemical resistance properties

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

- Microwave or ovenable applications
- Direct food contact

Printers should assure themselves that use of this product on food packaging has been fully assessed for risk and that the packaging produced meets regulatory requirements for the intended end use. Whilst SunCure® FLM inks are versatile in performance, they may not be suitable if used outside the above described applications. If in doubt, please check suitability 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

working for you.



3.2 Substrates

SunCure® FLM inks are suitable for use on paper and carton board and a wide range of non-absorbent substrates. Corona treatment is recommended for non-top-coated plastic 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 Print Finishing

SunCure® FLM inks can be coated to improve gloss, physical and chemical resistance properties. A range of Low Migration coatings are available for use with the inks, to ensure a complete low migration package solution. Please contact your Sun Chemical representative for specific recommendations. SunCure® FLM 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® FLM inks should be used in accordance with normal standards of industrial hygiene and good working practice. Please refer to the SunCure FLM product Safety Data Sheet for specific information.

4.2 Manufacturing and Materials

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

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® FLM inks from Sun Chemical, 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 Sun Chemical customer technical services or your Sun Chemical representative for consumables advice and recommendations.

6. End-Use Safety / Assumptions

Acceptable technical performance of SunCure® FLM 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 fulfil its responsibility within the supply chain, Sun Chemical will provide on request, under non-disclosure agreement, information regarding potential migratable components, where present, in 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 from www.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.

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Product	Product Code	Lightfastness # Full Strength	Alcohol #	Alkali #
PSO Yellow	SunCure® FLM02	4	+	+
PSO Magenta	SunCure® FLM04	5	+	-
PSO Cyan	SunCure® FLM07	7	+	+
Process Yellow	SunCure® FLM26	5	+	+
Process Magenta	SunCure® FLM27	6	+	-
Process Cyan	SunCure® FLM25	7	+	+
Process Black	SunCure® FLM46	7	+	+
Intense Process Yellow	SunCure® FLM30	5	+	+
Intense Process Magenta	SunCure® FLM35	5	+	-
Intense Process Cyan	SunCure® FLM38	7	+	+
Resistant Process Yellow	SunCure® FLM54	7	+	+
Green Shade Yellow	SunCure® FLM14	7	+	+
Red Shade Yellow	SunCure® FLM83	6	+	+
Orange 021	SunCure® FLM21	4	-	+
Opaque Orange	SunCure® FLM06	4	+	+
Red 032	SunCure® FLM32	6	+	+
Resistant Warm Red	SunCure® FLM36	6	+	+
Transparent Red	SunCure® FLM33	6	+	+
Resistant Magenta	SunCure® FLM44	7	+	+
Resistant Pink	SunCure® FLM56	7	+	+
Resistant Purple	SunCure® FLM57	7	+	+
Resistant Violet	SunCure® FLM53	7	+	+
Resistant Reflex Blue	SunCure® FLM63	7	+	+
Resistant 072 Blue	SunCure® FLM73	7	+	+
Green	SunCure® FLM71	7	+	+
Untoned Black	SunCure® FLM50	8	+	+
Transparent White	SunCure® FLM48		+	+
Opaque White	SunCure® FLM84		+	+

Test methods available on request

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.

A range of SunCure® FLM metallic inks are also available for use with these inks, please contact your local Sun Chemical representative for specific information

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Please see www.sunchemical.com for further information on Sun Chemical products and services.

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