

SunCure® FLME

Low Migration Ink System for Primary Packaging

1. Description

SunCure® FLME is a range of high performance, UV curable, migration-compliant lithographic inks designed for printing of non-food contact surfaces of primary or primary outer wrap food packaging. **SunCure® FLME** 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
- PSO process set made to ISO2846-1, allowing the production of print that meets the ISO12647-2 print standard when used on suitable substrates and with appropriate reprographics
- Adhesion to a wide range of substrates including carton board and appropriately selected plastics and flexible packaging films and foils
- Excellent taint and odour properties
- Made using specially selected raw materials from audited vendors
- Manufactured only from substances listed in Annex 2 and Annex 10 of the Swiss Packaging Inks Ordinance*
- Complies with Nestlé** criteria for the printing of their packaging
- Formulated without materials based on Bisphenol A and thus suitable for printing packaging to comply with the French regulatory requirements on Bisphenol A***
- Suitable for in-line or off-line coating, foil stamping and lamination processes

3. Product Suitability

3.1 Applications

SunCure® FLME 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
- It is strongly recommended to in-line or off-line coat to improve gloss, physical and chemical resistance properties

SunCure® FLME inks should not be used 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® FLME 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 the Interior (DFI) on materials and articles intended to come into contact with food (RO 2019) Section 12 Printing Inks (Annex 10 edition 2.0)

** Nestlé – The latest version of “Guidance Note on Packaging Inks” October 2018

*** LOI n° 2012-1442 du 24 décembre 2012 visant à la suspension de la fabrication, de l'importation, de l'exportation et de la mise sur le marché de tout conditionnement à vocation alimentaire contenant du bisphénol A



3.2 Substrates

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

4.2 Manufacturing and Materials

SunCure® FLME 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® FLME inks are supplied in 3 kg green plastic buckets. Shelf life is 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® FLME 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® FLME 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® FLME** 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 **460** 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® FLME** 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 cannot accept responsibility.

The process inks are designed to print and cure at the following typical print density values.

	ANSI T FILTER	DIN 16536
Yellow	0.90-1.10	1.25-1.35
Magenta	1.35-1.45	1.35-1.45
Cyan	1.35-1.45	1.35-1.45
Black	1.70-1.80	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**



7. SunCure® FLME Product Information

	Product Code	Product	Lightfastness # Full Strength	Alcohol #	Alkali #
Process Colours	FLME02	PSO Yellow	4	+	+
	FLME04	PSO Magenta	5	+	-
	FLME07	PSO Cyan	7	+	+
	FLME09	PSO Process Black	7	+	+
	FLME26	Process Yellow	5	+	+
	FLME27	Process Magenta	6	+	-
	FLME25	Process Cyan	7	+	+
	FLME46	Process Black	7	+	+
	FLME54	Resistant Process Yellow	7	+	+
Blend Colours	FLME30	Intense Yellow	5	+	+
	FLME35	Intense Magenta	5	+	-
	FLME38	Intense Cyan	7	+	+
	FLME14	Green Shade Yellow	7	+	+
	FLME83	Red Shade Yellow	6	+	+
	FLME21	Orange 021	4	-	+
	FLME06	Opaque Orange	4	+	+
	FLME32	Red 032	6	+	+
	FLME36	Resistant Warm Red	6	+	+
	FLME33	Transparent Red	6	+	+
	FLME88	Resistant Carmine	6	+	+
	FLME56	Resistant Pink	7	+	+
	FLME57	Resistant Purple	7	+	+
	FLME53	Resistant Violet	7	+	+
	FLME63	Resistant Reflex Blue	7	+	+
	FLME73	Resistant 072 Blue	7	+	+
	FLME71	Green	7	+	+
	FLME50	Untoned Black	8	+	+
	FLME48	Transparent White		+	+
	FLME84	Opaque White		+	+

Test methods are available on request. Note: Resistance properties relate to the pigments used in the inks, not the resistance properties of the cured ink 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.

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

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The information contained herein is based upon data believed to be up-to-date and correct at the time of writing. It is provided to our customers (and/or analytical contractors) 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 risk management measures to protect food consumers. Our Products are intended for sale to professional users. The information herein is general information designed to assist customers in determining the suitability of our products for their applications. All recommendations are made without guarantee, since the application and conditions of use are beyond our control. We recommend that customers satisfy themselves that each product meets their requirements in all respects before commencing a print run. There is no implied warranty of merchantability or fitness for purpose of the product or products described herein. In no event shall Sun Chemical be liable for damages of any nature arising out of the use or reliance upon this information. Modifications of the product for reasons of improvements might be made without further notice.