



1. Description / Application

SICURA WL-LM (Low Migration) is a waterless UV offset system, curing by free radical mechanism. It is especially developed to achieve very low residual odour and migration risk after curing and outstanding adhesion properties on a wide range of synthetic materials and papers.

The inks are applied with Toray waterless negative- or positive-plates or Presstek CTP plates.

2. HSE

Intended Use

Food packaging: YES

Compliance Management

In the manufacture of food packaging, the printer and/or packer/filler have the responsibility to ensure that there is no migration of concern through the substrate and/or via set-off from the printed outer side to the food contact surface in the stack or the reel.

The "Customer Guidance: Printing Inks for Food Packaging" has to be observed. Please refer to this document which can be easily downloaded from our web site <http://www.siegwerk.com/en/customer-segments/customer-service/food-packaging-safety.html>

SICURA WL-LM inks series for primary food packaging is formulated and produced in accordance with the "EuPIA Guideline on Printing Inks applied to the non-food contact surface of food packaging materials and articles" as set out in the Customer Information leaflet "Printing Inks for Food Packaging"

In particular, **SICURA WL-LM** products represent a new generation of inks exclusively formulated with selected components, so as to both minimize potential migration of concern through the substrate and the set-off from the printed outer side to the food contact surface in the stack or the reel.

SICURA WL-LM formula does not contain the following:

- Basic dye complex ("fanal") pigments and barium-organic pigments with highbleeding tendency,
- Low molecular weight acrylates with potential to leave undesirable contents of free monomer in the cured printed layer, and with high potential to migrate into food at undesirable levels,
- Low molecular weight photoinitiators and synergists with potential to remain largely non-bound in the cured printed layer and/or to release photocuring breakdown substances at levels of concern, thus with high potential to migrate into food at undesirable levels and to cause an unacceptable odour and off-flavour risk.

With this advanced design, a high degree of ink-side safety is provided, enabling the converter to produce packaging, which is minimized in sensory impact and migration of concern according to today's standards.

Note that set-off and migration are dependent on the processing conditions such as efficiency of the lamps, reflectors, thickness of the ink layer, colour and sufficient barrier properties of the substrate. Particular consideration for these parameters, and for the selection of non-bleeding ink references with resistant pigment, is required in case of demanding areas such as packaging for :

- organoleptically sensitive foodstuffs in general
- liquid or pasty, fatty and/or aqueous or acid food
- pasty or solid fatty food

and such as place mats with possibility of short-time food contact.

You will produce a safe packaging material if you observe good printing practices and restrictions as outlined in the Technical Information mentioned above. In particular, these inks are not approved for direct contact with food, even if separated from it by a varnish layer.



Responsibility

The manufacturer of the finished printed article and the filler have the legal responsibility for compliance.

The instruments for verification of compliance of the printed and dried layers are assessments done by the printer on the final packaging.

Material combinations are under your own control. You should conduct representative analytical investigations, such as organoleptic and migration testing, to cover each relevant application category. SIEGWERK will identify specific components whose migration should be monitored to assess compliance, and make available such information to those parties specifically involved in the compliance control. SIEGWERK will inform you on bodies that provide the required capabilities and analytical sensitivities for the qualified verification of printed packaging.

3. Properties / Substrates

SICURA WL-LM is dedicated to food and pharmaceutical packaging applications, including printing on the outer surface of primary food packaging needing low odour and low migration in conformity with the requirements of the regulations.

Adhesion, resistance to scratching and scuffing, water resistance (wet scratch and wet scuff resistance) and very good resistances to cosmetics, lotions, shampoos, alcohol, cleaning agents and solvents are normally obtained, when compared to standard requirements, on the following substrates:

- **Inline Corona treated polyethylene**, with surface tension level of at least 40 - 45 mN/m
- Lacquered/**primered polyethylene**
- Lacquered/**primered polypropylene**
- Soft PVC (Vinyl)
- Selected shrinkable substrates like PVC/PET and OPS*
- Selected lacquered/primered aluminium
- Selected lacquered/primered aluminium-metallized substrates
- Uncoated papers and cardboards with low porosity
- **Coated paper** and cardboards
- Polyethylene "paper" (e.g. Tyvek, Syntepape)
- Top-coat thermal paper
- Other substrates after technical evaluation

* The inks are all suitable for the shrinking process. Shrinkage behaviour depends on ink adhesion to the substrate. Under optimal conditions and with the correct White (White F Sleeves Series) contractions up to 60% are possible. For critical foils, we recommend the sleeves series Sicura Flex 39-3.

To observe:

The inks of this series are normally not suitable for:

- *Not inline Corona treated polyethylene*
- *Not inline Corona treated polypropylene as well as inline Corona treated polypropylene*
- *Polystyrenes*
- *Strongly absorbing paper qualities*

4. Printing and processing instructions

Basic shades

A range of basic shades with which most of the desired shades can be self-mixed, is available (see below list of basic shades). The basic inks correspond in shade largely to those of the PANTONE mixing system.



Working with basic inks offers you the following **advantages**:

- The ink is available immediately.
- You are able to prepare the correct amount of required ink: you will neither have too much nor too little ink.
- You can optimally rejuvenate the remaining minimum quantity of leftover ink with the pure basic inks into new shades.
- You are in a position to order basic inks in larger quantities and in larger containers, thus having less empty containers to dispose of.

Curing

Suitable for curing the inks of this series are medium pressure mercury vapour UV emitters with a power of at least 120-200 W/linear cm. Optimum results can be achieved using high performance quartz coated aluminium reflectors, which reflect almost the total UV radiation across the whole spectrum, but eliminating the infrared portion (e.g. by means of the "cold mirror" technology). Such reflectors yield maximum radiation density at minimum web heat load.

For more power, two or more units can be connected in series.

The printing speed depends not only on the curing unit but also on the shade, colour strength and opacity. Generally, black, white and bronze inks will dry slower than yellow, red or varnishes.

Printing

Presstec or Toray Plates for waterless inks are suitable. We recommend to use negative plates.

Cleaning

The inks can be removed from rollers and tools by cleaner 10-650038-2 (V 316) or methoxypropanol. To clean the waterless plates correctly, please follow the recommendations of the plate supplier or contact our technology department.

To observe:

Reactive UV thinners are not suitable for cleaning.

5. Shelf life

The inks and varnishes of this series have under normal conditions a shelf life of **at least 9 months**. Within this period the products are usable in conformity with the indications of this data sheet.

Normal conditions mean:

- storage in firmly closed, not yet tapped containers;
- temperatures not exceeding 20°C for weeks or 25°C for days.

The shelf life can be extended by cool storage below 15°C.

To observe:

Do not expose open containers to direct sunlight or strong light sources.



6. Product List

Basic shades

Product name	Product code	Light Resistance according to wool scale WS (DIN ISO 12040)	Alkali Resistance (DIN ISO 2836)	Ethanol Resistance (DIN ISO 2836)	Solvent Resistance (DIN ISO 2836)
WL-LM Process Yellow 1210	70-300463-0.1180	4	Limited	Yes	Yes
WL-LM Process Magenta 3000	70-800904-8.1180	4-5	Limited	Yes	Yes
WL-LM Process Cyan 5650	70-110777-3.1180	7-8	Yes	Yes	Yes
WL-LM Process Black 9990	70-900312-3.1180	7-8	Yes	Yes	Yes
WL-LM Deep Black 9992	71-900328-7.1180	7	Yes	No	Yes
WL-LM Yellow greenish 0300	71-300473-7.1180	6	Yes	Yes	Limited
WL-LM Orange 021 C 1608	71-700175-4.1180	4	Yes	Yes	Yes
WL-LM Warm Red 2050	71-800920-2.1180	5	Yes	Yes	Yes
WL-LM Red 032 C 2048	71-800921-0.1180	6-7	Yes	Yes	Yes
WL-LM Rhodamine Red 4500	71-800922-8.1180	4-5	Yes	Yes	Yes
WL-LM Purple 5400	71-100226-1.1180	6-7	Yes	Yes	Yes
WL-LM Violet 5501	71-100227-9.1180	6-7	Yes	No	Yes
WL-LM Reflex Blue 6400	71-110805-0.1180	6-7	Yes	No	Yes
WL-LM Blue 072 C 6413	71-110806-8.1180	6-7	Yes	Yes	Yes
WL-LM Green 7900	71-500310-9.1180	8	Yes	Yes	Yes
WL-LM Transparent white 1001	71-000212-2.1180		Yes	Yes	Yes
WL-LM Opaque white	71-010261-7.1180	8	Yes	Yes	Yes

Anti scumming additive to prevent scumming: **71-470064-8.1020**

Please add the Anti scumming-Additive only just before the printing process because it decreases the viscosity and the tack. Necessary amount: 0,5% - 2%, has to be weighted!

Antitack-additive **71-470085-3**

Necessary amount: 1-3%



7. Security Labelling

EU: Irritant (Xi). Irritating to eyes and skin (R36/38). May cause sensitization by skin contact (R43).
Contains acrylates.

To observe:

Do not handle products without having consulted the corresponding safety data sheets. We supply them together with the first shipment to your safety manager.

Because of the differences in materials for printing, processing conditions and test criteria **this Technical Data Sheet can only be of an advisory nature.**

Our data reflect the latest state of our knowledge and are based on the characteristics established in the laboratory and on practical experience.
Your own tests with the original materials under the respective conditions are indispensable.

We disclaim any liability for applications for which this ink series is not foreseen.