



# 955LED-LM series

## Technical data sheet

## UV screen printing inks

### 1. APPLICATION FIELDS:

**Universal, low-migration, radical curing, silicone-free and glossy UV screen printing ink for LED curing intended to print on plastic hollow bodies made of polyolefins, in particular tubes made of polyethylene.**

Substrates may differ regarding their surface properties (heat treatment) or method of manufacture. A suitability test must therefore always be carried out before printing.

### 2. CHARACTERISTICS:

The screen printing ink cures under LED curing as well as under conventional UV curing (Hg-, Fe-doped).

The inks of the **955LED-LM** series are:

- Low-migration, comply with the current "Nestlé Guidance Note on Packaging Inks"
- Correspond to the positive list 1A of the EuPIA Suitability List of Photoinitiators and the requirement of the Swiss Department of Home Affairs on consumer goods (SR 817.023.21) for outside printing of food packaging
- Formulated to be ITX, Benzophenone and 4-Methylbenzophenone (4MBP) free and free from Bisphenol A
- Free from toxic elements
- Free from mineral oil \*
- Silicone-free, barium-free and almost odourless
- Very reactive even at high machine speeds
- Suitable for combination printing with silicone-free pre-print white and silicone-free UV flexo printing inks

and is characterized by

- Very good flow properties
- High opacity and colour brilliance thanks to optimised pigment wetting and ideal base colour composition
- Good solvent and water resistance
- Excellent filling material resistance after 48 hours
- Crush and walk resistance

\*according to EuPIA definition

The inks of the **955LED-LM** series are particularly recommended for printing food and cosmetic packaging.

A special product suitability test prior to any kind of further processing is required.

The migration behaviour depends on many manufacturing process parameters, such as curing conditions, ink application and substrate, and thus has an influence on conformity. Therefore we recommend having a specimen certified by an independent testing laboratory.

### 3. RANGE OF COLOURS:

The basic ink mixing system consists of 11 basic colours and one blend.

Field-proven mixing formulas according to current colour shade patterns, e.g. Pantone®, HKS, RAL, NCS, etc., are available.

#### 3.1 BASIC COLOURS:

|            |     |              |
|------------|-----|--------------|
| Yellow     | D01 | 955LED2193LM |
| Yellow     | D02 | 955LED2194LM |
| Orange     | D03 | 955LED3370LM |
| Red        | D04 | 955LED3371LM |
| Red        | D05 | 955LED3372LM |
| Pink       | D06 | 955LED3373LM |
| Violet     | D07 | 955LED5426LM |
| Blue       | D08 | 955LED5427LM |
| Green      | D09 | 955LED6162LM |
| White      | D11 | 955LED1057LM |
| Black      | D12 | 955LED9097LM |
| Clear Base | D0  | 955LED0085LM |

#### 3.2 HIGH OPACITY FORMULATIONS:

|       |                |              |
|-------|----------------|--------------|
| White | (high opacity) | 955LED1070LM |
|-------|----------------|--------------|

#### 3.3 EURO-COLOURS / 4-COLOUR PROCESS PRINTING INKS:

4-Colour Process Inks are available for screen printing in accordance with DIN 16538.

|                 |              |
|-----------------|--------------|
| Process-Yellow  | 955LED2204LM |
| Process-Magenta | 955LED3397LM |
| Process-Cyan    | 955LED5438LM |
| Halftone-Black  | 955LED9085LM |
| Raster Paste    | 955LED0094LM |

#### 3.4 ADDITIONAL PRODUCTS:

|                   |              |
|-------------------|--------------|
| Overprint varnish | 955LED0084LM |
|-------------------|--------------|

#### 3.5 ADHESION MODIFIER:

To meet particularly high resistance requirements, we recommend adding adhesion modifiers. Please note that the processing time (pot life) of the ink mixed with adhesion modifier is 4-8 hours at 21 °C depending on the colour hue. Higher processing temperatures shorten the pot life.

Overprinting must take place within 12 hours at 21 °C in case an adhesion modifier is added.

|                   |                      |           |
|-------------------|----------------------|-----------|
| Adhesion modifier | (addition 2 % - 4 %) | 100VR1491 |
|-------------------|----------------------|-----------|

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## 4. ADDITIVES:

The inks of the **955LED-LM** series are ready for printing.

The use of thinner and curing promoter affect the low-migration properties of the ink. For low-migration requirements it is recommended to not to use any additives.

Solvent based thinners are not allowed to use due to the risk of equipment damage or danger of explosion.

If you have technical questions, please contact our Product Management.

## 5. PROCESSING INSTRUCTIONS:

Due to the high reactivity, direct daylight should be avoided.

### 5.1 PRE-TREATMENT:

To ensure proper adhesion, polyethylene (PE) or polypropylene (PP) are pre-treated by flame treatments or CORONA discharge. The surface tension should be at least 42 mN/m for PE and 52 mN/m for PP.

### 5.2 STENCILS / PRINTING EQUIPMENT:

Thanks to the favourable deep curing capabilities, a higher opacity can be achieved by sufficient curing, in particular with mesh 120-31. Screen print meshes between 120-31 and 165-27 F/cm are generally suitable for printing.

Suitability testing prior to printing is always recommended.

Inks of the 955LED-LM series can be used with all screen-printing machines with screen printing stencils commonly used for industrial applications.

As a squeegee material, products which are resistant to acrylic esters are to be used.

### 5.3 Curing conditions:

The inks of the **955LED-LM** series were formulated for LED lamps (radiation intensity: at least 8 W/cm<sup>2</sup>) with a wave length of **395 nm**. Conventional UV lamps (Hg- or Fe-doped) may be used as an alternative (power 160 - 200 W/cm).

The **955LED-LM** series has favourable curing properties and is suitable for printing speeds > 100 tubes/min. depending on colour hue, lamp configuration, fineness of the mesh and the thickness of the applied ink film.

Please note that low radiation intensity, excessive machine speed or excessive film thickness have a negative influence on the curing, adhesion and migration properties of the printing ink.

Uncured prints are considered hazardous waste. We therefore recommend curing all misprints under the lamp. After curing they can be safely transported to a disposal site and burned.

## 6. PREPARATIONS FOR PRINTING WITH SILICONE-FREE INKS:

Before silicone-free inks are used for printing, the entire equipment including dosing syringes, pump hoses (automatic ink feed), containers, squeegees, squeegee holders, ink blades and screens have to be cleaned very thoroughly using alcohol, e.g. isopropyl alcohol.

Screens which were cleaned in a washing machine have to be cleaned again manually beforehand to remove any existing ink residues of inks containing silicone to prevent contamination by silicone.

*The inks should be stirred well before use.*

## 7. CLEANING:

Screens, squeegees and other equipment can be cleaned using the **RUCOINX** screen cleaner 100VR1272.

If cleaning is not performed by fully automatic cleaning equipment, personal protective equipment is mandatory.

Biodegradable cleaner

100VR1272

## 8. SHELF LIFE:

A shelf life of at least 12 months is guaranteed when the inks are stored at 21 °C in their original container. Higher storage temperatures or open containers reduce the shelf life.

## 9. PRECAUTIONS:

UV inks may cause skin irritation and increase the sensitivity of the skin, which leads to hypersensitivity. Disposable gloves and protective goggles are strongly recommended in the interest of the user's health. For further information, please refer to the safety data sheet, the information sheet on the use of UV inks by the *Verband der Druckfarbenindustrie* [association of the printing inks industry] and the information sheet on the use of UV inks by the professional association. The latter is available here:

Berufsgenossenschaft Druck und Papierverarbeitung, Rheinstr. 6-8, D-65185 Wiesbaden, order number 205.

If you have any further technical questions, please contact our Product Management.

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