



SERIES 085UV-LM

Technical Data Sheet

UV Dry Offset Printing Ink

1. APPLICATIONS FIELDS:

Specifically designed UV dry offset inks for printing onto cups, pails, buckets and lids made of

- Polyolefins (PE/PP)
- Polystyrene

Substrates may differ in their chemical structure or method of manufacture. A test for suitability must always be carried out before printing. Antistatic, Mould Release Agents and Slip Additives may have negative effects on adhesion, and should be detected and removed prior to printing.

2. CHARACTERISTICS:

The UV dry offset printing inks of series **085UV-LM** show the following characteristics

- Low-migration, comply with the current "Nestlé Guidance Note on Packaging Inks"
- In accordance with positive list of the EuPIA Suitability List of Photoinitiators as well as the specifications of the Swiss EDI Ordinance on Consumer Goods (SR 817.023.21) for inks applied to the non-food contact surface of food packaging
- Free from ITX, benzophenone, 4 methylbenzophenone (4-MBP) as well as formulated free from Bisphenol A
- Excellent abrasion and rub resistance – no ink set-off on the inside of the cup
- Excellent ink transfer at inking unit, low mist even at high machine speeds
- Very fast curing properties at printing speeds of up to 700 pieces/minute with high process security
- High colour strength and yield as well as excellent ink transfer
- Ready-to-use inks
- Low-odour according to DIN 1230-1 (Robinson test)
- High light fastness according to Blue Wool Scale (DIN 16525)

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 of the produced food packaging certified by an independent testing laboratory.

3. RANGE OF COLOURS:

The basic ink mixing system consists of 14 basic colours and may be used for the mixing of a wide colour shade range. Field proven mixing formulations exist for Pantone®.

3.1 Basic Colours:

| | | |
|-------------------|-----|-------------|
| Yellow | P01 | 085UV2019LM |
| Yellow | P02 | 085UV2037LM |
| Orange | P03 | 085UV3048LM |
| Red | P04 | 085UV3050LM |
| Red | P05 | 085UV3049LM |
| Red | P51 | 085UV3125LM |
| Pink | P06 | 085UV3051LM |
| Violet | P07 | 085UV5035LM |
| Reflex blue | P08 | 085UV5037LM |
| Blue | P09 | 085UV5036LM |
| Green | P10 | 085UV6009LM |
| White | P11 | 085UV1009LM |
| Black | P12 | 085UV9012LM |
| Transparent White | P00 | 085UV0024LM |

When mixing colour shade formulations that require higher opacity or printing transparent substrates, we recommend partially replacing Transparent White P00 with White P11.

3.2 High Opacity Formulations:

| | | |
|-----------------|----------------|-------------|
| White | (high opacity) | 085UV1010LM |
| Black | (high opacity) | 085UV9013LM |
| Pre-Print White | | 085UV1030LM |

3.3 4-colour set, according to Pantone process inks:

For printing 4-colour set the following process colours are available:

| | |
|-----------------|-------------|
| Process Yellow | 085UV2035LM |
| Process Magenta | 085UV3087LM |
| Process Cyan | 085UV5078LM |
| Process Black | 085UV9047LM |

4. ADDITIVES:

The **085UV-LM** ink series is ready to use.

Raster paste can be added to reduce "Dot Gain" and to achieve sharper dots.

| | | |
|-------------------|----------------------|-------------|
| Transparent White | (max. addition 10 %) | 085UV0024LM |
| Raster Paste | (max. addition 10 %) | 085UV0043LM |

The addition of slip additive is recommended to improve abrasion resistance.

| | | |
|---------------|---------------------|-----------|
| Slip additive | (max. addition 1 %) | 100VR1447 |
|---------------|---------------------|-----------|

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.

085UV-LM

5. LIGHT FASTNESS AND PRODUCT RESISTANCE:

| Basic colour | | Light fastness | H2O | H+ | OH- | soap | butter |
|--------------|-----|----------------|-----|----|-----|------|--------|
| 085UV2019LM | P01 | 7 | 5 | 5 | 5 | - | 5 |
| 085UV2037LM | P02 | 4 | - | 5 | 5 | 5 | 5 |
| 085UV3048LM | P03 | 6-7 | 5 | 5 | 5 | 5 | 5 |
| 085UV3050LM | P04 | 7 | 5 | 5 | 5 | 5 | 5 |
| 085UV3049LM | P05 | 5 | 5 | 4 | 4-5 | 3-4 | 5 |
| 085UV3125LM | P51 | 6 | - | 5 | 5 | 5 | 5 |
| 085UV3051LM | P06 | 6-7 | - | 5 | 5 | 5 | - |
| 085UV5035LM | P07 | 7-8 | 5 | 5 | 5 | - | - |
| 085UV5037LM | P08 | 7-8 | 5 | 5 | 5 | - | - |
| 085UV5036LM | P09 | 8 | 5 | 5 | 5 | 5 | 5 |
| 085UV6009LM | P10 | 8 | 5 | 5 | 5 | 5 | 5 |
| 085UV1009LM | P11 | 8 | 5 | 5 | 5 | 5 | 5 |
| 085UV9012LM | P12 | 8 | 5 | 5 | 5 | 5 | 5 |
| 085UV9013LM | HD | 7-8 | 5 | 5 | 5 | 5 | 5 |

Light fastness : 1 = bad 8 = good
- : not tested

Product resistance: 1 = bad 5 = good

(These details are based on publications of pigment suppliers)

6. PROCESSING INSTRUCTIONS:

6.1 Pre-treatment:

Pre-treatment of polyolefines (PE/PP) must be performed by CORONA-discharge or flame in order to insure the adhesion of the UV printing ink to the substrate. Printing on PE requires a surface tension of minimum 42 mN/m. PP requires 44 – 48 mN/m (in exceptional cases 42 mN/m).

6.2 Curing Conditions:

The varying UV absorption of the individual colours results in a range of curing properties depending on colour and opacity. All colours of the 085UV-LM series can be cured by the use of medium pressure mercury vapour lamps (at 100 - 120 W/cm).

The minimum recommended energy output is 50 - 100 mJ/cm² (measured with Kühnast-Integrator under Lab condition). The Ink film shows its final properties 12 hours after UV curing.

However, it must be noted, that low radiation intensity, excessive machine speeds or excessive film thickness can have a negative influence on the curing properties and adhesion.

Uncured prints are considered a hazardous waste. Therefore, we recommend curing misprints under the UV lamp as a matter of principle. After curing, spoilage can be disposed by conventional methods and may be incinerated without causing any difficulties.

7. CLEANING:

Printing plates/Clichés can be cleaned with the plate cleaner 35352 and the rollers of the ink fountains should be cleaned with the roller cleaner 34622. If cleaning is not performed by fully automatic cleaning equipment, personal safety regulations must be followed.

Cleaning liquids that are contaminated with UV products should not be used for the washing of working materials that were used with conventional screen printing inks. Solvents that contain UV residue are not suitable for reclamation and must be treated as a separate waste.

| | |
|----------------|-------|
| Plate cleaner | 35352 |
| Roller cleaner | 34622 |

8. SHELF LIFE:

A shelf life of 24 months is guaranteed when storing the inks at 21 °C and in the original packing container. At higher storage temperatures the shelf life will be reduced.

9. PRECAUTIONS:

UV inks may cause irritations and can increase the sensitivity of the skin, possibly leading to hypersensitivity. Therefore, the use of disposable gloves and protective goggles is strongly recommended.

For further information on the safety, storage and environmental aspects concerning these products please refer to the Material Safety Data Sheet (MSDS).

Additional technical information may be obtained from our staff of the Product Management Department.

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