SILICONE-FREE OPAQUE WHITE
905UV1484LM

Technical Data Sheet **UV screen printing ink**

1. Application fields:

The **silicone-free** and **low-migration** opaque white for rotary UV screen printing is suitable for printing on the following substrates:

- Polyolefins like Polyethylene (PE), Polypropylene (PP)
- TC Polyethylene (PE)
- TC Polypropylene (PP)
- TC Polyester
- PVC and other plastic films
- Coated paper and coated cardboard

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 opaque white **905UV1484LM** show the following features:

- Low-migration (with the use of 3 % 100VR1491 adhesion promoter) comply with the current ”Nestlé Guidance Note on Packaging Inks“
- In accordance with positive list 1A 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
- New development with future-oriented raw materials
- Free from CMR materials
- Opaque white for combination printing in rotary screen and flexo printing
- Silicone-free, barium-free, low-odour, highly opaque, low viscosity, suitable for stamping
- Low viscosity, for universal use on a wide range of substrates
- Excellent printability with UV flexo, offset and **inkjet inks** as well as very good embossable in hot and cold foil stamping process
- Good solvent and water resistance as well as excellent filling resistance after 48 hours

This opaque white can be especially recommended for printing on exterior food packaging is constitutionally free from toxic elements.

The used raw materials comply with the limits of metal elements stipulated by the actual EEC regulation *EN 71 (Safety of Toys), part 3* (Migration of Certain Elements).
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. Combination printing with other ink systems:

Specially matched low-migration systems for label printing are ensuring highest safety in the printing of food and cosmetic packaging.

UV overprinting varnishes (low-migration):

960UV494LM tactile, gloss (UV screen printing)
Low tactile 50 - 100 µm, transparent, flexible, gluing, hot-stamping

960UV480LM high gloss (UV flexo printing)
Viscosity approx. 100 s, gluing, hot-foil-stamping

960UV481LM matt (UV flexo printing)
Viscosity approx. 140 s., partly gluing and hot-foil stamping, good slip properties

4. Additives:

4.1 UV thinner / levelling agent:

Opaque white **905UV1484LM** is ready to use.

If further viscosity reduction is desired, UV thinner / levelling agent may be added. In order to increase curing, the addition of reactive thinner is recommended.

UV thinner / levelling agent (max. addition 2%) 100VR1408

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.

4.2 Adhesion Modifier:

In the case of particularly high resistance requirements the addition of adhesion modifier is recommended. However, the addition of adhesion modifier to UV curable ink will lead to a processing time (pot life) of 4 - 8 hours at 21 °C depending on the colour shade. Higher processing temperatures will result in a shorter 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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5. Process instructions:

5. 1 Pre-treatment:

Pre-treatment of polyolefins (PE/PP) must be performed by CORONA-discharge in order to insure the adhesion of the UV screen printing ink to the substrate. In case of PE, surface tension needs to be at least 42 mN/m (Dynes/cm), in case of PP at least 48 mN/m (Dynes/cm).

5.2 Stencils / Printing Equipment:

Suitable mesh types are: RotaMesh® RM 305/17%, RM 305/13% or mesh type Screeny® KM and KS or S-Line® RSS which are used on rotary screen printing machines.

Any acrylic acid ester resistant squeegee material may be used.

5.3 Curing conditions:

The opaque white **905UV1484LM** can be cured by the use of medium pressure mercury vapour lamps (at least 120 W/cm).
The optimum energy output is 70 - 100 Millijoule/cm^2, measured by Kühnsast- UV integrator under lab condition. UV curing is followed by a 24 hour post-cure phase after which the ink film is fully cured and has its final properties.
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.
Un-cured prints are considered a hazardous waste. Therefore, it is recommended to cure 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.

5.4 Preparation for printing with silicone-free inks:

When printing with silicone-free inks, we must take into consideration that equipment like pumps, syringes, containers, squeegees and screens have to be silicone-free. Therefore, they have to be cleaned with alcohol for example isopropanol.
Screens from washers/automated screen cleaning equipment must be cleaned by hand prior to using to insure, that no silicone contamination/residue is left remaining on the screen.

Before printing, we recommend to stir the opaque white.

6. Cleaning:

Screens and squeegees as well as other operating materials can be cleaned with the RUCOINX screen cleaner 100VR1272.
The cleaning has to be done carefully and separate from the cleaning of silicon added inks. Any contamination by silicone has to be carefully avoided.

If cleaning is not performed by fully automatic cleaning equipment, protective gloves must be worn. 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.

Biodegradable Cleaner 100VR1272

7. Shelf life:

A shelf life of **9** 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.

8. 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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