

1. APPLICATION FIELDS

Universal low-viscosity UV screen printing ink for printing on plastic foils, especially in rotation screen printing procedures, suitable for pre-treated substrates made of polyolefines, polyethylene (PE), polypropylene (PP), Primer pre-coated polyester, PVC and other plastic types as well as for printing on paper and 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

This high gloss UV ink series is very reactive in nature, assuring good curing and adhesion even when printing at high machine speeds. The inks of the 985UV/NV series are constitutionally free from toxic elements and solvents.

The inks of this series feature good solvent and water resistance after 12 hours.

3. RANGE OF COLOURS

The basic ink mixing system consists of 12 basic colours and may be used for the mixing of a wide colour shade range. Field proven mixing formulations exist for Pantone®, HKS, RAL, NCS, etc. (see 6.2).

3.1 Basic colours

Light Yellow	G 1*	985UV2391 NV
Medium Yellow	G 2	985UV2392 NV
Orange	G 3*	985UV3764 NV
Light Red	G 4*	985UV3765 NV
Red	G 5*	985UV3766 NV
Pink	G 6	985UV3767 NV
Violet	G 7	985UV5831 NV
Blue	G 8	985UV5832 NV
Green	G 91	985UV6662 NV
White	G 11	985UV1152 NV
Black	G 12	985UV9145 NV
Clear Base		985UV0069 NV

* The above colours are also available in extremely light-fast versions having a value of > 7 on the blue wool scale (1-8).

3.2 Half Tone Colours / 4-Colour Set Printing Inks

For 4-colour set printing according to DIN 16538, 4 process colours are available:

Process Yellow	985UV2674NV
Process Magenta	985UV3854NV
Process Cyan	985UV5885NV
Halftone Black	985UV9179NV

3.3 Bronze Colours

see separate "Bronze Colours" leaflet

4. ADDITIONAL PRODUCTS

Printing Black is more reactive than G 12. Therefore we recommend to use it for job printing.

The high reactive UV transparent paste can be used to reduce the colour density.

Raster paste can be added to reduce "Dot Gain" and to achieve sharper dots for half tone printing.

Printing Black	985UV9152NV
Printing Lacquer	985UV0094NV
Transparent Paste (max. addition: 10 %)	985UV0124NV
Raster Paste (max. addition: 10 %)	985UV0012NV

5. ADDITIVES

5.1 Thinner

The inks of the 985UV/NV series are ready to use. If the viscosity needs to be adjusted, a UV thinner may be added. In order to increase the curing we recommend to add reactive thinner.

In general, no solvent-based thinners should be used to avoid damages of the equipment and because of their explosion risk.

UV Thinner	(max. addition: 2-5 %)	985UV0014
Reactive Thinner	(max. addition: 2-5 %)	985UV0010

5.2 Adhesion Modifiers

In the case of particularly high resistance requirements, we recommend the addition of an adhesion modifier. However the addition of adhesion modifier to UV curable ink will lead to a processing time (potlife) of 4-8 hours at 21 °C depending on the colour shade. Higher processing temperatures will result in a shorter potlife.

SERIES 985UV/NV

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

Adhesion Modifier (max. add.: 2 %) HV 100VR1259

5.3 Levelling Agent

The levelling of the ink surface can be optimised by the use of a levelling agent.

Levelling Agent (max. add.: 0,5-1 %) VM 100VR1297

6. PROCESSING INSTRUCTIONS

6.1 Pre-treatment:

Pre-treatment of polyolefines (PE/PP) must be performed by Flame Treatment or 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 52 mN/m (Dynes/cm).

6.2 Stencils / Printing Equipment

Suitable mesh types are: RotaMesh® RM 305/17%, RM 305/13% or mesh type Screeny® KM 325/22% and KS 325/25% which are used on rotary screen printing machines.

The colour mixing formulations are based on a 165-34 threads/cm mesh. However, we generally recommend test prints and approval of the colour for the respective print jobs.

Any acrylic acid ester resistant squeegee material may be used.

6.3 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 985UV/NV series can be cured by the use of medium pressure mercury vapour lamps (at least 160 W/cm). The optimum energy output is 250 - 300 Millijoule/cm². UV curing is followed by a 12 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, we recommend 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.

7. CLEANING

Screens and squeegees as well as other working materials can be cleaned with the RUCO screen cleaner 32 335. 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.

Universal Cleaner	UR	32 335
Cleaner for cleaning equipment	WR 100 VR	1240C
Bio degradable Cleaner	BR 100 VR	1272

8. SHELF LIFE

A shelf life of 12 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 Technical Application Department.

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