



# SERIES 990UV



## Technical Data Sheet

## UV screen printing inks

### 1. APPLICATION FIELDS:

UV screen printing ink for the printing of blow moulded objects, especially cartridges, suitable for substrates made of pre-treated polyethylene (PE), polypropylene (PP), polyamide and other plastic types.  
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 990UV series are constitutionally free from toxic elements and solvents. The inks of this series will exhibit good solvent and water resistance after 12 hours.

### 3. RANGE OF COLOURS:

The basic colour 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	990UV2071
Medium Yellow	G 2	990UV2072
Orange	G 3	990UV3073
Light Red	G 4	990UV3074
Red	G 5	990UV3075
Pink	G 6	990UV3076
Violet	G 7	990UV5077
Blue	G 8	990UV5078
Green	G 91	990UV6750
White	G 11	990UV1081
Black	G 12	990UV9082
Clear Base		990UV0007

#### 3.2 Special Products:

##### 3.2.1 High Opacity Formulations:

White	(high opacity)	990UV1133
Black	(high opacity)	990UV9233

### 3.3 Euro-Colours / 4-Colour Process Printing Inks:

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

Process-Yellow	990UV2263
Process-Magenta	990UV3480
Process-Cyan	990UV5515
Halftone Black	990UV9180

For additives see "Additional Products"

### 3.4 Bronze Colours:

See separate "Bronze Colours" leaflet

### 4. ADDITIONAL PRODUCTS:

When printing 4-colour process halftones, the transparent paste (reactive to UV light) can be used to reduce the colour density of the process colours.

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

Transparent Paste	(max. addition 10%)	990UV0124
Raster Paste	(max. addition 10%)	990UV0012

### 5. ADDITIVES:

#### 5.1 UV-Thinner:

The inks of the 990UV series are ready to use. If further viscosity reduction is desired, UV-thinner may be added.

In order to increase curing, the addition of reactive thinner is recommended.

In general, no solvent-based thinners should be used due to flammable nature of the solvents

UV Thinner	(max. addition 2-5%)	990UV0014
Reactive Thinner	(max. addition 2-5%)	990UV0010

#### 5.2 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	(max. addition 2%)	100VR1259
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## 5.3 Levelling Agent:

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

Levelling Agent (max. addition 0.5-1%) 100VR133

## 6. PROCESSING INSTRUCTIONS:

### 6.1. Pre-treatment:

Pre-treatment of polyolefins (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:

Screen printing meshes between 140-34 threads/cm and 200-34 threads/cm are suitable for printing with UV inks. The colour mixing formulations are based on a 180-34 threads/cm mesh. However, test prints and approval of the colour are generally recommended for the respective print jobs. The 990UV series can be used with all screen-printing machines with screen printing stencils currently used for industrial applications.

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 990UV 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/cm<sup>2</sup>. 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, 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.

## 7. CLEANING:

Screens and squeegees as well as other working materials can be cleaned with the RUCO screen cleaner 100VR1185.

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	100VR1185
Cleaner for cleaning equipment	100VR1240C
Bio degradable Cleaner	100VR1272

## 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 Product Management Department.

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