950 UV SERIES

Technical Data Sheet **UV screen printing inks**

1. APPLICATION FIELDS:

UV screen printing ink for the printing of blow moulded objects suitable for substrates made of polyolefines, especially for polyethylene (PE) tubes.
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 inks of series 950 UV are formulated with special organic pigments. Out of it the good opacity, high colour intensity and good light-fastness result. The inks are of high reactivity and offer flexible ink films and can be easily overprinted and over-lacquered. They are not suitable for the overprinting of ink films containing silicone (like the ink series 985 UV for example).

The inks of the 950 UV series are constitutionally free from toxic elements and solvents. The raw materials used meet with the limits stipulated by the EEC regulation EN 71 (Safety of toys), part 3 (Migration of Certain Elements) of December 1994.
The inks of this series will exhibit good solvent and water resistance after 12 hours.

3. RANGE OF COLOURS:

The basic ink mixing system consists of 11 basic colours and may be used for the mixing of a wide colour shade range. We offer computer based mixing formulations which can be taken as a basis for the matching of the varying printing conditions such as screens and the differently dyed substrates.

3.1 Basic Colours:

Yellow	D 1	950 UV 2866
Yellow reddish	D 2	950 UV 2867
Orange	D 3	950 UV 30791
Light Red	D 4	950 UV 30792
Red	D 5	950 UV 30793
Pink	D 6	950 UV 30794
Violet	D 7	950 UV 50963
Blue	D 8	950 UV 50964
Green	D 9	950 UV 60290
White	D 11	950 UV 1292
Black	D 12	950 UV 9260
Clear Base		950 UV 0007

3.2 Special Formulations:

The special formulations are additional colour shades which can be used in case of particular requirements with regard to the opacity.

3.2.1 High Opacity Formulations:

Blue, D 85	(high opacity)	950 UV 50965
Green, D 95	(high opacity)	950 UV 60291
White	(high opacity)	950 UV 1295

3.2.2 Printing Black:

Printing Black	950 UV 9262

4. ADDITIVES:

4.1 Thinner:

The inks of the 950 UV 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 %) 950 UV 0014
Reactive Thinner	(max. addition: 2-5 %) 950 UV 0010

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 (potlife) of 4-8 hours at 21°C depending on the colour shade. Higher processing temperatures will result in a shorter potlife.
Overprinting must take place within 12 hours at 21°C in case an adhesion modifier is added.

Adhesion Modifier (max. add.: 2 %)	HV 100 VR 1259

4.3 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 100 VR 1385

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5. PROCESSING INSTRUCTIONS:

5.1. 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).

5.2 Stencils / Printing Equipment:

Screen printing meshes between 120-31 threads/cm and 165-27 threads/cm are suitable for printing with UV inks.

However, test prints and approval of the colour are generally recommended for the respective print jobs.

The 950 UV 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.

5.3 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 950 UV 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^2. 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.

6. 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

7. 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.

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 Technical Application Department.

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