



Technical Data Sheet

UV screen printing ink

1. APPLICATION FIELDS:

Universal high-gloss UV screen printing ink (dual cure system) for the printing of glass, metal, ceramics and duroplastics.

Substrates may differ in their chemical structure or method of manufacture. Therefore, 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 UV screen printing ink cures under UV lamps and then additionally cross-links chemically under the influence of heat. (For further details see item 6.3 Curing Conditions).

The inks of the 930 UV series are suitable for multi-colour inline printing and excel for their resistance against chemical and cosmetic agents as well as for their dishwasher resistance.

A special product test is recommended prior to production. The inks of the 930 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.

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.

3.1 Basic Colours:

Light Yellow	B 1	930 UV 2750
Medium Yellow	B 2	930 UV 2751
Orange	B 3	930 UV 30513
Light Red	B 4	930 UV 30514
Red	B 5	930 UV 30517
Pink	B 6	930 UV 30516
Violet	B 7	930 UV 50652
Blue	B 8	930 UV 50651
Green	B 91	930 UV 60106
White	B 11	930 UV 1250
Black	B 12	930 UV 9227
Clear Base		930 UV 0007

3.2 Special Products:

3.2.1 High Opacity Formulations:

White	(high opacity)	930 UV 1238
Black	(high opacity)	930 UV 9236

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

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

Euro-Yellow	930 UV 2766
Euro-Magenta	930 UV 30560
Euro-Cyan	930 UV 50678
Halftone Black	930 UV 9231

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.

Printing Lacquer	930 UV 0140
Transparent Paste (max. addition: 10 %)	930 UV 0124
Raster Paste (max. addition: 10 %)	920 UV 0012

5. ADDITIVES:

5.1 Thinner:

The inks of the 930 UV series are ready to use. If further viscosity reduction is desired, an 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 the flammable nature of the solvents.

UV Thinner (max. addition: 2-5 %)	930 UV 0014
Reactive Thinner (max. addition: 2-5 %)	930 UV 0010

930 UV

5.2 Adhesion Modifier:

For optimum water resistance on glass, 2 % of the adhesion modifier must be added. However, it must be noted, that the maximum pot life of the ink mixed with adhesion modifier is 8 hours at 21 °C.

Adhesion Modifier (max. add.: 2 %) HV 100 VR 1320

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 100 VR 1297

6. PROCESSING INSTRUCTIONS:

6.1 Pre-Treatment

Many glass containers have to be coated with water based polyethylene emulsion in order to improve the scratch resistance and the transport protection. In order to achieve good adhesion of the ink direct onto glass, a flame pre-treatment of the area of the glass to be printed on is necessary.

6.2 Stencils / Printing Equipment:

Screen printing meshes between 140-34 through 165-34 threads/cm (T-mesh) are suitable for printing with UV inks. The colour mixing formulations are based on a 165-34 threads/cm mesh. However, test prints and approval of the colour are generally recommended for the respective print jobs. The 930 UV series can be used with all screen-printing machines with screen printing stencils currently used for industrial applications. Any acrylic 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 930 UV series can be cured by the use of medium pressure mercury vapour lamps (at least 160 W/cm). Additionally, the ink will cross-link chemically under the influence of heat: 30 minutes at 160° C or 15 minutes at 180° C (above influence time and temperature on the printed ink film must be absolutely kept).

The mentioned conditions are valid for bottles at a volume up to 0.5 litres. For bottles of a higher volume influence time and temperature in the oven should be approx. 40 minutes at 160° C or 20 minutes at 180° C.

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 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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