



SERIES 937UV-LED

(Preliminary datasheet)



Technical Data Sheet

UV Screen Printing Inks

1. APPLICATION FIELDS

Universal free radical LED-UV and conventional UV (Hg, Fe doped) curing high-gloss 2 component screen printing ink for the printing of glass, metal and ceramics. Substrates may differ in their surface properties or method of manufacture. Therefore, a suitability test must always be carried out before printing.

2. CHARACTERISTICS

This 2 component UV screen printing ink cures under LED- UV bulb and conventional UV curing bulb (Hg-, Fe-doped). An additional **post heat treatment is not required**. The 937UV-LED ink series is suitable for multi-colour inline printing and excel for their resistance against chemical and cosmetic agents as well as typical beverage industry liquids.

Optimal adhesion and scratch resistance can be achieved within a shorter time compared to conventional UV curing ink series. Water and dishwasher resistance and ice water or frost resistance will be achieved only after approximately 72 hours (storage at room temperature).

If the storage temperature is less than 21 °C, the post curing effect will be reduced and the time to achieve the final properties and resistances is prolonged. A special product suitability test is recommended prior to production.

The 937UV-LED ink series is constitutionally free from toxic elements and solvents.

3. RANGE OF COLOURS

3.1 Basic Colours:

Yellow	M01	937UV2185LED
Yellow	M02	937UV2186LED
Orange	M03	937UV3359LED
Red	M05	937UV3360LED
Pink	M06	937UV3361LED
Violett	M07	937UV5416LED
Blue	M08	937UV5417LED
Green	M09	937UV6158LED
White	M11	937UV1055LED
Black	M12	937UV9074LED

3.2 High Opacity Formulations

White	(high opacity)	937UV1054LED
Black	(high opacity)	937UV9075LED

3.3 4- Colour Process Printing Inks

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

Process Yellow	937UV2187LED
Process Magenta	937UV3362LED
Process Cyan	937UV5418LED
Halftone Black	937UV9076LED

3.4 Bronze Colours

3.4.1 Brilliant Silver (2 K-Non-Leafing):

This abrasion resistant pigment is produced in a special process. The particles have a flat structure, can be well wetted by the binder and therefore stand out for their high brilliance.

Bronze Varnish	937UV0081LED
Brilliant Silver Paste	360RS4058

Recommended mixture ratio:

5-6 weight parts Bronze Varnish: 1 weight part Brilliant Silver Paste

4. ADDITIONAL PRODUCTS

Overprinting varnish	937UV0067LED
Frost effect lacquer	937UV0065LED
“Window” Lacquer, standard	937UV0068LED

5. ADDITIVES

5.1 UV - Thinner

The inks of the 937UV-LED 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.

UV Thinner (max. addition: 2-5 %)	937UV0014LED
Reactive Thinner (max. addition: 4-8 %)	937UV0010LED

5.2 Adhesion Modifier

For optimum chemical and mechanical resistances as well as water and dishwasher resistances onto glass adhesion modifier must **always** be added.

However, it must be noted, that the maximum pot life of the ink mixed with adhesion modifier is approx. 8 hours at 21°C.

Adhesion Modifier (max. add. 4 %)	HV 100VR1410
(for all inks/ lacquers except Black)	

Adhesion Modifier (max. add. 6 %)	HV 100VR1410
(For Black)	

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5.3 Levelling Agent

The levelling of the ink surface can be optimised by the use of a levelling agent. This additive can also reduce or eliminate the presence of pinholes. Using more than the max. 1% may result in poor inter-coat adhesion between colours.

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

5.4 Other Additives

Using Transparent Paste can reduce opacity of ink (especially when printing CMYK) The Raster paste helps to create sharper halftone dot configuration. The thixotropic agent can be used to adapt the ink to printing condition.

Transparent Paste (max. addition: 10%) 937UV0069LED
Raster Paste (max. addition: 10 %) 937UV0286LED
Thixotropic agent (max. addition: 10%) 937UV0070LED

6. PROCESSING INSTRUCTIONS

Based to the high reactivity please avoid direct daylight.

6.1 Pre-Treatment

Many glass containers are cold end coated (CEC) in order to improve the scratch resistance and obtain a transport protection. Therefore, to achieve good ink adhesion onto glass, a flame, Pyrosil or UVITRO® pre-treatment of the glass surface is necessary. In dependence of different hot and cold end coatings a special product suitability test is recommended prior to production.

6.2 Stencils / Printing Equipment

Due to excellent curing properties in depth for 937UV-LED ink series can be used mesh count 120-31per cm (305-31 per inch) to achieve high opacity of ink in comparison to ink series 935UV. Generally screen printing meshes between 120-31and 165-27 per cm (305-31 and 420-27 per inch) are suitable.

A special product test is recommended prior to production. The 937UV-LED ink 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

Suitable are LED-UV curing bulbs with intensity (Irradiance at UV Emitting Window) of minimum 8 W/cm² and wavelength of **395 nm**.

The inks of 937UV-LED ink series are formulated for LED-UV module and conventional UV curing bulb (Hg, Fe

doped) and show good curing properties suitable for printing speeds of more than 100 cycles/ min depending on the colour shade, UV bulb configuration, colour, mesh count and transferred film weight.

With proper LED-UV curing 937UV-LED inks show good surface curing properties without the need for additional final cure with conventional UV. However, a final cure with conventional UV may be required if the LED-UV dose is insufficient. Specific power requirements and customer curing conditions will determine best method.

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. The type of reflector, the doping of UV bulb and finally the size or shape and colouring of glass will influence the curing process and adhesion of the UV ink series.

Uncured prints are considered hazardous waste. Therefore, it is recommended to cure misprints under the UV bulb. After curing, waste can be disposed of by conventional methods.

7. CLEANING

Screens and squeegees as well as other working materials can be cleaned with the RUCO screen cleaner 32335. If cleaning is not performed by fully automatic cleaning equipment, personal safety equipment is required.

Universal Cleaner		UR 32335
Cleaner for cleaning equipment	WR	100VR1240C
Bio degradable Cleaner	BR	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.

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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 safety, storage and the environmental aspects regarding these products, please refer to the Material Safety Data Sheet (MSDS).

Additional technical information can be obtained from our Technical Application Department.

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The above statements are accurate to our best knowledge and belief. However, due to the great number of possible influences during the manufacture of the substrate and the variation in the application process we suggest that suitability testing take place under actual conditions before production. No legally binding guarantee of certain properties or of the suitability for a definite application purpose can be derived from the above information.

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