



SERIES 937LED



Technical Data Sheet

UV screen printing inks

1. APPLICATION FIELDS:

Universal free radical LED 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 937LED ink series is suitable for multi-colour inline printing and excels at 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 (up to -20°C) 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 937LED ink series is constitutionally free from toxic elements and solvents.

3. RANGE OF COLOURS:

3.1 Basic Colours:

Yellow	M01	937LED2185
Yellow	M02	937LED2186
Orange	M03	937LED3359
Red	M05	937LED3360
Pink	M06	937LED3361
Violet	M07	937LED5416
Blue	M08	937LED5417
Green	M09	937LED6158
White	M11	937LED1055
Black	M12	937LED9075
Clear Base	M0	937LED0082

3.2 High Opacity Formulations:

White	(high opacity)	937LED1054
Black	(high opacity)	937LED9074

3.3 4- Colour Process Printing Inks:

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

Process-Yellow	937LED2187
Process-Magenta	937LED3362
Process-Cyan	937LED5418
Halftone Black	937LED9076

3.4 Bronze Colours:

3.4.1: Brilliant Silver (2-C 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	937LED0081
Brilliant Silver Paste	360RS4058
(Recommended mixing ratio: 5-6 weight parts Bronze Varnish: 1 weight part Brilliant Silver Paste)	

4. ADDITIONAL PRODUCTS:

Overprinting varnish	937LED0067
Frost effect lacquer	937LED0065
"Window" Lacquer, standard	937LED0068

5. ADDITIVES:

5.1 UV-Thinner:

The inks of the 937LED 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%)	937LED0014
Reactive-Thinner	(max. addition 4-8%)	937LED0010

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 before printing.

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. addition 4%)	100VR1410
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5.3 Levelling Agent

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

SERIES 937LED

of a levelling agent. This additive can also reduce or eliminate the presence of pinholes.

Levelling Agent	(max. addition 0,5 – 1%)	100VR1297
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Using more than the max. 1% may result in poor inter-coat adhesion between colours.

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%)	937LED0069
Raster Paste	(max. addition 10%)	937LED0286
Thixotropic agent	(max. addition 10%)	937LED0070

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

A special product test is recommended prior to production.

The 937LED 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

The inks of series 937LED are formulated for LED bulbs (irradiance: minimum 8W/cm²) of wavelength of **395 nm**. Alternatively, you can use conventional UV curing bulbs (Hg- or Fe-doped with a lamp power of 160 – 200 W/cm, UV dose 200mJ/cm²).

Series 937LED shows good curing properties and is suitable for more than 100 cycles/min. depending on the colour shade, UV bulb configuration, mesh count and transferred film weight.

Please note that low radiation intensity, excessive machine speeds or excessive film thickness can have a negative influence on the curing properties and adhesion.

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	32335
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. Storage at higher temperatures reduces the shelf life.

Excluded are metallic and effect inks (see separate data sheet).

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 Product Management Department.

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