

Technical Datasheet

Issue: September 2015

Product Name

SICURA Flex CAT 37-5

1. Description / Application

Flexo printing inks, curing by cationic mechanism with UV-light, for a wide range of plastic materials and other substrates. **Suitable for processing with UV-Flexo label- or packaging printing machines.**

The inks can be used straight out of the container.

2. Product Safety

Intended Use

Food packaging, pharma, or hygiene: **NO**

Only acceptable for food packaging if the processing conditions rule out the possibility of set-off in the reel or stack and the design of the final printed article ensures reliable functional barrier properties to migration. For further information, please refer to **Siegwerk's Customer Guidance: Printing Inks for Food Packaging ("Know How")** on <https://www.siegwerk.com/en/our-responsibility/product-responsibility/customer-communications/food-packaging-safety.html> in particular chapter 5. "The printer's selection of ink" has to be observed.

3. Properties / Substrates

Properties

- good gloss, high colour strength and dot sharpness
- allows high printing speeds on in-line printing machines
- excellent heat seal resistance
- good suitability for lamination
- excellent water and product resistance

Substrates

Adhesion, resistance to scratching and scuffing as well as frequently sufficient water resistance (wet scratch and wet scuff resistance) are normally obtained on standard label substrates. However, the suitability for each substrate has to be tested individually prior to printing.

Special applications

Except for special new paper qualities, the inks of this series are **not suitable for economic thermal papers** due to the darkening of the thermo-sensitive layer.

Suitability for thermal transfer and hot foil stamping is limited. Tests with original material under industrial conditions have to be done, since the result depends largely on the quality of the used substrate.

In case of doubt, please contact in time our technical department.

Guidelines for use

Before the print job is started, new materials must be checked for compatibility with the inks of this series or with the planned ink-/overprinting varnish combination, even if their suitability on a comparable type of the same substrate group is proved.

The test prints, especially on self-adhesive labels, have to be examined after die-punching (in particular at the edges), for adhesion, resistance to scratching and water (resistance to wet scratching and scuffing), adhesion and scratch resistance after heat-sealing, resistance of the printed ink to the packaging contents and other application-specific requirements.

Due to the post-curing process, these properties may change during the first 24 hours after printing. Therefore please make a re-check after one day.

Consequently, for every new job in which printing is done on a known material, but with untested ink and printing combinations, the aforementioned tests have to be carried out as well.

PVC and un-primed polyethylene and polypropylene substrates may contain lubricants, which can migrate to the surface e.g. during storage. Such substances may be present even if the measured surface tension is higher than 42 mN/m; they can negatively influence the adhesion, the scratch and water resistance of the printed inks.

Unlike UV systems curing by radical mechanism, the prints are subject to a distinct post-curing phase (dark curing), once passed the UV drier. Hereby the mechanical resistance as well as the water and product resistance will normally improve during the first two days. Therefore please make an additional check.

Certain papers and cardboards with alkaline coat, some pre-printed inks or varnishes or other surfaces sensitive to solvent attack (in particular if they contain alkaline substances) are more likely to interfere seriously with the cationic curing mechanism of these inks and varnishes. In addition, printed ink or varnish layers may - particularly on aluminium - be negatively influenced in their adhesion (specially their wet adhesion). Please check in advance the suitability of the specific surface on printed material stored in conformity with practical conditions and on finished labels.

Depending on the absorption properties of the substrate, the fresh prints may still have a perceptible odour. However, this odour (whose main component is the photo initiator breakdown product diphenylsulfide) disappears - depending on the aeration and storage conditions of the prints and rolls - during the post-printing processes. Please verify your printed jobs and your print conversion processes for sufficient elimination of this residual odour.

4. Printing and processing instructions

Overprint varnishes

If better mechanical resistance, improved fastness to packaging contents or moisture and/or other specific properties are required, over-lacquering with a suitable varnish is necessary. Please consult the separate Technical information (available upon request).

Printing plates

In principle, photopolymer plates are suitable. However, the suitability has to be examined individually.

Lamination

On suitable substrates and with suitable adhesives, the printed inks of this series can be laminated, offering good bond values. Please contact our technical department for more information.

Anilox rollers

Depending on printing image and substrate e.g. the following laser-engraved anilox rollers (with doctor blade) can be used:

Application	Screen [l/cm]	Dip volume [cm ³ /m ²]
Four-color halftone prints:	250 - 360	3.5 - 4.5
Line images and/or texts:	180 - 195	6.0 - 7.0
Intensive solids:	160 - 180	7.5 - 8.5
Overprinting varnishes:	120 - 165	8.5 - 10.0

Heat-seal resistance

The prints are heat seal resistant in the range from 160°C - 250°C, depending on the substrate. In case of very extended lightening of the coloured inks (to get pastel shades or gold varnishes), in particular if pigments with different resistance to temperature are mixed, irreversible colour changes may happen due to heat-sealing or other thermal stress. Suitability tests under original conditions are indispensable.

Guidelines for use

If you intend to use anilox rollers with a diameter less than 60 mm, you should prefer a theoretical ink transfer about 25 % higher than the above values.

*The cationic curing mechanism guarantees that, after exposition to the radiation in the UV lamp, the cross linking process continues up to a comparably high degree resp. up to minimized residual monomer content. However, speed and quality of the curing process are dependent from the radiation dose. You must therefore **optimize performance and effect of the dryers** and **monitor** their conformity to the pre-set values during production.*

***High air humidity** (starting from 50% relative humidity) slows down the printing speed and the quality of the cross linking process - in particular in combination with **low web temperatures**. You need therefore to measure and optimize these parameters.*

*Before printing, ink fountains, varnishing unit, pumps, tubes, (chambered) doctor blades and other elements in contact with ink or varnish **must always be cleaned**. **Slightest contaminations** with other inks and varnishes, in particular with radically curing UV-systems, may seriously interfere with the curing of the inks and varnishes of this series. For the same reason, only inks, varnishes and additives of this series may be admixed.*

In case of doubt, please contact in time our technical department.

Stir up well each ink or varnish before use. Mainly whites, colours containing white, varnishes, mat varnishes as well as gold and silver inks show sedimentation of essential components.

Do not handle products without having consulted the corresponding safety data sheets. We supply them together with the first shipment.

Cleaning

The inks can be removed from tools by using methoxypropanol. Reactive UV-thinners are not suitable for cleaning.

5. Shelf life

The inks and varnishes of this series have under normal conditions a shelf life of **at least 9 months**. Within this period the products are usable in conformity with the indications of this data sheet.

Normal conditions mean:

- Storage in firmly closed, not yet tapped containers.
- Temperatures not exceeding 20°C for weeks or 25°C for days.
- Do not expose open containers to direct sunlight or strong light sources.

6. Product list

Product name	Product code	Light Resistance acc. to wool scale WS (ISO 12040)	Alkali-/ Soap Resistance (ISO 2836)	Alcohol Resistance (ISO 2836)	Solvent Resistance (ISO 2836)
37-5 Process Yellow E01	80-321623-3	4	no	yes	yes
37-5 Orange 021C E01	81-706065-0	4	yes	yes	no
37-5 Red 032C E01	81-844070-3	4	yes	yes	no
37-5 Process Red E01	80-844034-1	5-6	yes	yes	yes
37-5 Process Blue E01	80-113241-6	7-8	yes	yes	yes
37-5 Green C E01	81-514472-0	7-8	yes	yes	yes
37-5 Process Black E01	80-909695-1	7	yes	yes	yes
37-5 Blending varnish E01	81-009662-8	-	yes	yes	yes

Because of the differences in materials for printing, processing conditions and test criteria this Technical Data Sheet can only be of an advisory nature. Our data reflect the latest state of our knowledge and are based on the characteristics established in the laboratory and on practical experience. Your own tests with the original materials under the respective conditions are indispensable. We disclaim any liability for applications for which this ink series is not foreseen.