

Technical Datasheet

Issue: September 2015

Product Name

SICURA Flex CAT 36-2

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 printing with all in-line type of 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 speed on in-line printing machines
- excellent heat-seal resistance
- good suitability for lamination
- excellent water and product resistances
- particularly low in odour

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.

The inks of this series are principally **suitable for thermal transfer and hot foil stamping**. However, 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 resistances as well as the water and product resistances will normally improve during the first two days.

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 substance) 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 the adhesion (especially their wet adhesion). Please verify in advance the suitability of the specific surface on printed material stored in conformity with practical conditions and on finished packaging.

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.

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 [cm³/m²]
Standard process prints:	300 - 360	3.5 - 4.5
Line images and/or texts:	180 - 195	6.0 - 7.0
Intensive solids:	160 - 180	7.5 - 8.5
Fine lines:	200 - 320	4.5 - 6.0

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 pastel shades or gold varnishes, in particular if pigments with different resistance to temperature are present in the mixture, irreversible colour changes may happen due to heat-sealing or other thermal stress starting from 120 °C. Correspondent tests under original conditions are indispensable.

Curing

Suitable for curing the inks of this series are medium pressure mercury vapour UV emitters with a power of at least 160 W/linear cm. Optimum results can be achieved by using high performance quartz coated aluminium reflectors, which reflect almost the total UV radiation across the whole spectrum, but eliminate the infrared portion (e.g. by the aid of the "cold mirror" technology).

Lamination

On suitable substrates and with suitable adhesives, the printed inks of this series can be laminated, offering good bond values.

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

Guidelines for use

*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** during production their conformity to the pre-set values.*

***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.*

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)
36-2 Greenish Yellow E01	81-321649-6	6-7	yes	yes	no
36-2 Process Yellow E01	81-321653-8	4	no	yes	yes
36-2 Orange 021C E01	81-706069-2	4	yes	yes	no
36-2 Warmred C E01	81-844144-6	4	yes	yes	no
36-2 Red 032C E01	81-844147-9	5	yes	yes	yes
36-2 Rubine Red C E01	81-844149-5	5-6	yes	yes	yes
36-2 Rhodamine Red C 0E01	81-844133-9	4-5	yes	yes	yes
36-2 Purple C E01	81-844134-7	4-5	yes	yes	yes
36-2 Violet C E01	81-106606-7	6-7	yes	yes	yes
36-2 Process Blue E01	80-113243-2	7-8	yes	yes	yes
36-2 Blue 072C E01	81-113292-7	6-7	yes	yes	yes
36-2 Reflex Blue C E01	81-113314-9	6-7	yes	yes	yes
36-2 Green C E01	81-514476-1	7-8	yes	yes	yes
36-2 Process Black E01	80-909699-3	7	yes	yes	yes
36-2 Blending Varnish E01	81-009661-0	-	yes	yes	yes

* These shades are less pure due to the avoidance of the poorly resistant “fanal” pigments.

Please contact our technical department if you need additives for this series.

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.