

Technical Datasheet

Issue: March 2018

Product Name

SICURA Nutriflex LEDTec

1. Description / Application

Flexo printing inks, curing by radical mechanism with UV-LED light at a wavelength of 395 nm, for a wide range of plastic materials and other substrates (varnished aluminium), **suitable for processing with all in-line types of UV-LED label or packaging printing machines.**

These products can be used straight out of the container.

2. Product Safety

Intended Use

Food packaging, pharma, or hygiene: **YES**

Only for food packaging inks

These inks are only suitable for use on the non-food-contact side of food packaging, provided that they are applied using the relevant Good Manufacturing Practices (a system for ensuring that products are consistently produced and controlled according to quality standards) and according to the guidelines in this Technical Data Sheet.

The printer, converter and the packer/filler each have a responsibility to ensure that the finished - printed - article is fit for the intended purpose(s) and that the ink and coating components do not migrate into the food at levels that exceed legal, regulatory and industry defined requirements.

Please refer to Siegwirk's "Statement of Composition" for further regulatory information.

In case of specific applications, please contact your technical application service.

For further information, please refer to Siegwirk'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.

SICURA Nutriflex LEDTec formula comprises no one of the following:

- Basic dye complex ("fanal") pigments with high bleeding tendency.
- Low molecular weight acrylates with potential to leave undesirable contents of free monomer in the cured printed layer, and with high potential to migrate into food at undesirable levels.
- With this advanced design, a high degree of ink-side safety is provided, enabling the converter to produce packaging, which is minimized in sensory impact and migration of concern according to today's standards.

Note that set-off and migration are dependent on the processing conditions and sufficient barrier properties of the substrate. Particular consideration for these parameters, and for the selection of non-bleeding ink references with resistant pigment, is required in case of demanding areas such as packaging for:

- organoleptically sensitive foodstuffs in general
- liquid or pasty, fatty and/or aqueous or acid food
- pasty or solid fatty food

You will produce a safe packaging material if you observe good printing practices and restrictions as outlined in the technical data mentioned above. In particular, these inks are **not approved for direct contact with food**, separated from it or not by a varnish layer.

Please contact us if you plan to produce microwave- and ovenproof food packaging.



Material combinations are under your own control. You should conduct representative analytical investigations, such as organoleptic and migration testing, to cover each relevant application category. We will identify specific components whose migration should be monitored to assess compliance, and make available such information to those parties specifically involved in the compliance control.

Compliance Management

In the manufacture of food packaging, the printer and/or packer/filler have the responsibility to ensure that there is no migration of concern through the substrate and/or via set-off from the printed outer side to the food contact surface in the stack or the reel.

3. Properties / Substrates

Properties

- suitable for heat sealing
- suitable for lamination
- pasteurization and sterilization (selected pigment range) possible
- silicon free
- deep- and shock-freeze resistant (contact our technical department for use on paper materials)

Adhesion, resistance to scratching and scuffing, water resistance (wet scratch- and scuff resistance), heat-sealing resistance, far-reaching resistance against hydrogen peroxide aseptic treatment and excellent resistances to fat, acid or alkaline products, cosmetics, lotions, shampoos, alcohol, cleaning agents and solvents are normally obtained on standard label substrates. Specific substrates after technical evaluation.

Filling goods resistance

It is always recommended to approve the resistance against filling goods.

Special applications

These products are in principle **suitable for Top-Coat thermal papers**. 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.

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.

4. Printing and processing instructions

The inks of this series are designed for UV-LED light with a wavelength of 395 nm.

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 or even finer laser-engraved anilox rollers (with doctor blade) can be used:

Application	Screen [l/cm]	Dip volume [cm ³ /m ²]
Highly concentrated process prints:	360 - 475	2.2 - 3.0
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

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.

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 rollers and tools by using methoxypropanol.
Reactive UV thinners are not suitable for cleaning.

5. Shelf life

The inks of this series have under normal conditions a shelf life of **at least 12 months**. Within this period the products are usable in conformity with the indications of this data sheet.

Exceptions:

Items marked with ** in the product list have a shelf life of **only 4 months!**

Items marked with * in the product list have a shelf life of **only 9 months!**

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 number	Light resistance on wool scale WS ISO 12040	Alkali-/ Soap-Resistance ISO 2836	Alcohol-Resistance ISO 2836	Solvent-Resistance ISO 2836	Sterilization-Resistance in Steam 121°C / 45 min.
Nutriflex LEDTec Process Yellow C E01	80-300822-6	4	Yes	Yes	Yes	Yes
Nutriflex LEDTec Process Magenta C E01	80-801822-0	5	No	Yes	No	No
Nutriflex LEDTec Process Cyan C E01	80-120614-5	7-8	Yes	No	Yes	Yes
Nutriflex LEDTec Process Black C E01 *	80-900657-0	7	Yes	Yes	Yes	Yes
Nutriflex LEDTec Process Yellow HC E01	80-300823-4	5	Yes	Yes	Yes	Yes
Nutriflex LEDTec Process Magenta HC E01	80-801823-8	5	No	Yes	No	No
Nutriflex LEDTec Process Cyan HC E01	80-120615-2	7-8	Yes	No	Yes	Yes
Nutriflex LEDTec Process Black HC E01 *	80-900658-8	7	Yes	Yes	Yes	Yes
Nutriflex LEDTec Transparent white C E01	81-000337-6		Yes	Yes	Yes	
Nutriflex LEDTec Greenish Yellow C E01	81-300863-8	6-7	Yes	Yes	Limited	Yes
Nutriflex LEDTec Orange C E01	81-700501-0	4	Yes	Yes	No	No
Nutriflex LEDTec Orange light resistant E01	81-700590-3	6-7	No	Yes	Yes	Limited
Nutriflex LEDTec Warm Red C E02	81-801943-2	5	Yes	Yes	No	No
Nutriflex LEDTec Rot 032 C E02	81-801961-4	5	Yes	Yes	No	No
Nutriflex LEDTec Rubine Red C E01	81-801918-4	5	No	Yes	No	No
Nutriflex LEDTec Rhodamine Red C E01	81-801916-8	4	Yes	Yes	Yes	Yes
Nutriflex LEDTec Purple C E01	81-100445-6	4	Yes	Yes	Yes	Yes
Nutriflex LEDTec Violet C E01	81-100444-9	6-7	Yes	Yes	Yes	Yes
Nutriflex LEDTec Blue 072 C E01 *	81-111440-4	6-7	Yes	No	Yes	Yes
Nutriflex LEDTec Reflex Blue C E01 *	81-111439-6	6-7	Yes	No	Yes	Yes
Nutriflex LEDTec Green C E01	81-501039-2	8	Yes	Yes	Yes	Yes
Nutriflex LEDTec Black intensive C E01 *	81-900691-7	7	Yes	Yes	Yes	Yes

Light Resistance

The light fastness values refer to a solid tone printing. Light fastness decreases when colour strength is reduced or if colours are intermixed.

This applies also to other resistances mentioned in the product list.



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Nutriflex LEDTec Pale-Gold E01 **	81-400339-8	8	-	-	-	-
Nutriflex LEDTec Rich-Gold E01 **	81-400340-6	8	-	-	-	-
Nutriflex LEDTec Silver E01 **	81-400341-4	8	-	-	-	-
Nutriflex LEDTec White	81-010391-1	pigmentation: very high				
Nutriflex LEDTec Gloss varnish	85-601013-7	Silicon containing overprinting varnish				
Nutriflex LEDTec Matt varnish	85-601249-7	Silicon containing overprinting varnish				
Nutriflex LEDTec Cold foil adhesive E01	85-601328-9	Suitable for the in-line cold foil stamping process. To be applied in Flexo varnishing unit.				

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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.