



# Technical Datasheet

Issue: August 2016

## Product Name

**SICURA Screen 78-6** Opaque whites for combination printing

### 1. Description / Application

UV curable opaque white inks specifically developed for combination printing with UV-Flexo, UV-Letterpress, UV-Offset and UV-Waterless printing.

Screen printing inks, curing by radical mechanism with UV-light, for a multitude of synthetic substrates (in-line Corona treated polypropylene included) and for paper, with high gloss and good fastness properties.

### 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

- glossy surface
- standard applications for normal requirements on in-line Corona treated polypropylenes need no addition of hardener
- with hardener **71-470074-7** (Nutri ADD Hardener E90): for die-cutting resistance, water resistance and other enhanced requirements, in particular if critical substrates are used

#### Substrates

Adhesion, resistance to scratching and scuffing, water resistance (wet scratch and wet scuff resistance), heat-sealing resistance and resistances to fats, acid or alkaline products, cosmetics, lotions, shampoos, alcohol, cleaning agents and solvents are normally obtained on standard label substrates. Suitability of each substrate has to be tested before print run.

#### Special applications

These inks are normally **hot stampable** and **overprintable with the thermo-transfer method**.

The inks of this series are **not suitable for economic thermal papers** due to the darkening of the thermo-sensitive layer. Their **suitability on top-coat thermal papers is limited** mainly due to the comparably thick ink coat which may affect the thermal response.

These whites are normally not suitable for not in-line Corona pre-treated polyethylenes and polypropylenes.

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



#### 4. Printing and processing instructions

Due to special additives, which allow a very good combination printing, following necessary instructions have to be observed:

- The opaque white for combination printing should **under no circumstances be mixed** with inks of the series SICURA Screen 78-3.
- The whole printing unit (ink tube, doctor blade, doctor blade axle, pump circulation) has to be cleaned with detergent before printing, because slight soiling can interrupt the flow of the screen printing white (pinholes).
- Before use, the inks have to be stirred-up well.
- At the beginning of printing, sporadic pinholes can possibly appear which should disappear after few meters.
- Concerning substrates without topcoat, the flow could, in some cases, be improved by minimal increase of the blade pressure as well as adjustment (mostly increase) of Corona treatment.
- Should the print still show sporadic pinholes despite above mentioned adaptation of the machine conditions, additive **71-470094-5** (ADD Wetting agent E44) can be added to the ink (attention: not with foam problems! If large pinholes are visible, do not use the additive). Please start with a dose of 1 %. If there is an overdose of additives, foam problems will occur. The water resistance has to be checked again after the addition of the additive.

**The wetting agent has to be stirred-in with an electrical mixer at about 500 r/min for min. 5 min!**

#### Screens

Any rotary screen printing form developed according the photo-polymerization process resp. any polyester flat-bed screen with a solvent resistant emulsion may be used, whereby thicker ink layers tends to result in better flow than thinner ones (e.g. KS better than KM).

#### Rotary screen form recommendations

	Rotamesh, Stork	Open area (%)	Screeny, Gallus
Line images and/or texts:	Mesh 305	13	Type KS or KM
Intensive solids:	305	13	HV or KS

#### Curing

Suitable for curing the inks of this series are medium pressure mercury vapour UV emitters with a power of at least 140 - 160 W/cm.

Under normal conditions it is possible to print at a speed of 30 - 60 m/min.



UV-Hardener 71-470074-7 (Nutri ADD Hardener E90)

Enhanced requirements such as cold and hot water resistance, die-cutting resistance or sterilization resistance can be achieved by admixture of 1 – 2 % of above-mentioned hardener. In particular on in-line Corona pre-treated polypropylenes and other critical substrates.

This 2-comp. system has a maximum pot life of 6 hours, which can vary depending on the ambient air temperature and humidity. It is recommended to first check the compatibility of the used ink-system with the hardener before printing.

The chemical crosslinking process and therefore the development of the required resistances takes about 24 hours at room temperature.

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.*

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.

**Shelf life**

The inks have under normal conditions a shelf life of **at least 12 months**. Within this period the product is 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

Opaque whites				Additives			
Product name	Product code	Viscosity [Pas]	Pigmentation	ADD Reactive diluent E26 Dosage (%)	ADD Initiator E01 Dosage (%)	ADD Levelling agent E53 Dosage (%)	78-3 Wetting agent E02 Dosage (%)
				<b>71-470099-4</b>	<b>81-470167-8</b>	<b>71-470064-8</b>	<b>81-470117-3</b>
<b>Silicone containing</b>							
78-3 Opaque white E 11	<b>81-011515-4</b>	0.7	high	max. 5%	max. 5%	max. 2%	max. 2%
78-3 White E01	<b>81-011485-0</b>	0.8	medium	max. 5%	max. 5%	max. 2%	max. 2%
<b>Silicone FREE</b>							
78-6 Opaque white E24	<b>81-010295-4</b>	0.5	medium	max. 5%	max. 5%	no	no
78-6 Opaque white E21	<b>81-010278-0</b>	0.5	medium	max. 5%	max. 5%	no	no
78-6 Opaque white E20	<b>81-010250-9</b>	0.6	very high	max. 5%	max. 5%	no	no
78-6 Opaque white E08	<b>81-010335-8</b>	0.8	high	max. 5%	max. 5%	no	no

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.