



UV-Screen opaque white for combination printing with UV-Flexo printing inks of series 39-2, UV-Letterpress inks of series 41-2 and suitable UV-Offset inks on Rotative screen printing machines and fast printing flatbed machines

SICURA SCREEN OPAQUE WHITE FOR COMBINATION PRINTING



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Depending on the method of printing substrates, the request to the label or the viscosity, various opaque white are available, which are especially developed for combination printing with UV-Flexo, UV-Letterpress and UV-Screen.

For example:

Standard White (viscosity ca. 0.4 Pas)	78-3-106
Standard White (viscosity ca. 0.6 Pas)	78-3-0306

Please pay attention to the processing instructions on page 4

1. SHORT DESCRIPTION / APPLICATION

Universal screen printing inks, curing by **radical mechanism** with UV-light, for a multitude of synthetic substrates - inline Corona treated polypropylene included - and for paper, with high gloss and good fastnesses.

On the basis of the proven UV-series 78-2, with the new 78-3 series Siegwerk has developed an equivalent ink type that meets, due to its polyvalent fitness for use, its **optimized overprintability with UV-Flexo, UV-Letterpress and UV-Offset inks** as well as its improved curing speed, the high performances required by the producers of **self-adhesive labels** which print by rotary screen systems a broad spectrum of substrates. The BARGOSCREEN SICURA SCREEN OPAQUE WHITE FOR COMBINATION PRINTING are also limited suitable for fast printing flatbed machines.

2. PROPERTIES / SUBSTRATES

- Polyvalent fitness for use
- Good intercoat adhesion and good leveling when overprinted with UV-Flexo inks series 39-2, UV-Letterpress inks series 41-2 and suitable UV-Offset inks
- Glossy, brilliant shades
- **New:** Standard applications for normal requirements on in-line Corona treated polypropylenes need no addition of hardener.
- With **Hardener 411-90**: for die-cutting resistance, water resistance and other enhanced requirements, in particular if critical substrates are to be used.

Adhesion, resistance to scratching and scuffing, water resistance (wet scratch and wet scuff resistance) and far-reaching resistances to cosmetics, lotions, shampoos, alcohol, cleaning agents and solvents are normally obtained, when compared to standard requirements, on the following substrates:

In-line Corona treated polyethylenes, with surface tension level of at least 40-45 mN/m

- **In-line Corona treated polypropylenes**, with surface tension level of at least 42-45 mN/m
- **Lacquered/primered polyethylenes**
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- **Selected lacquered/primered aluminum** (e.g. PVC-lacquered aluminum)
- **Selected lacquered/primered aluminum-metallized substrates**
- **Selected lacquered/primered polyesters**
- **Coated papers and cardboards**
- **In-line Corona treated highgloss papers**
- **Uncoated papers and cardboards with low porosity**
- **Polyethylene "papers"** (e.g. Tyvek, Synteaape)
- **Other substrates after technical evaluation**

Special applications:

- **Thermal papers:**

- 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.
- Please consult the Technical Information "Printing on thermal papers: Recommendation of suitable ink/material combinations". This information will help you to select specific substrates and ink types in order to achieve optimal heat smear resistance and water resistance.

- **Thermal transfer/Suitability for hot stamping:** The imprintability of the inks of this series by thermal transfer resp. hot stamping is only **limited**.
The good acceptance of the print image depends largely on the surface smoothness of the substrate, the quality of the ribbon and the type of the printer.

The good acceptance of the hot stamp image is normally limited to good when hot stamping **in-line**. However, when hot stamping out of line, as well as in thermal transfer **after aging of the printed inks**, the imprintability is limited to poor.

- Contact our technical department for more information.

To observe:

- *Before the print job is started, **new materials**, in particular plastic substrates, 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** are to be examined **after die-cutting** (in particular at the edges) for adhesion, resistance to scratching and water (resistance to wet scratching and scuffing), resistance of the printed ink to the packaging contents and other application-specific requirements. In particular, check please whether you must use **Hardener 411-90** (see page 7).*

- *Due to the after-curing process, these properties may change in during the first 24 hours after printing. Please do therefore an after-check.*
- *Before starting a new print job on a known material, but with new shades and/or new ink resp. ink/varnish combinations, please verify whether the **resistances** and, if applicable, other properties fulfill the **application-specific requirements**.*
- *If you intend to produce for packagings which are subsequently to be filled with odor-sensitive contents, please make sure that the **typical odor** of the prints will not affect them.*



If you want to print on materials which will later be used as an immediate food wrapper or which will be placed close to food, please contact Siegwerk. Read our Technical Information "UV- and electron-beam curing printing inks and varnishes: Physiological harmless and suitability for food packagings" (available on request).

- PVC and unprimed polyethylene and polypropylene substrates sometimes contain lubricants, which 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.
- In case of doubt, please contact in time our technical department.

3. INSTRUCTIONS FOR PRINTING AND PROCESSING

General instructions

For every **new printing substrate/ink/overprinting varnish combination** please run a **test print** and examine after die-cutting (in particular at the die-cutting edges) to the expected measure on mechanic resistances (e.g. resistance to scratching and rubbing, adhesion), on resistances against package contents, on water resistance (resistance to wet scratching and scuffing) and other application-specific requirements.

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

Printing

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

- **The opaque white for combination printing should under no circumstances be mixed with labeling of series 78-3 (exception 411-67) and other inks of series 78-3.**
- The whole printing unit (ink tube, doctor blade, doctor blade axle, pump circulation...) has to be **cleaned with detergent before**, because slight soiling can interrupt the flow of the screen printing white (Pinholes).
- Before use, the inks **have to be stirred up well** with a stirrer.
- When beginning with 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 adjustment, additive **411-67** 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** can be expected. Besides the water resistance has to be checked once more.
- The **viscosity** of the ink lays between **0.3 - 0.6 Pas**. If the viscosity, contrary to expectations, is still too high, it can be adjusted with thinner 411-26. Recommended quantity of addition: not more than 5 %.

Screens:

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

Rotary screen form recommendations:

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

Curing

Suitable for curing the inks of this series are medium pressure mercury vapor UV emitters with a power of at least 100-160 W/linear cm. Optimum results can be achieved using high performance quartz coated aluminum reflectors, which reflect almost the total UV radiation across the whole spectrum, but eliminating the infrared portion (e.g. by the aid of the "cold mirror" technology). Such reflectors yield maximum radiation density at minimum web heat load.

For more power two or more units can be connected in series.

The printing speed depends not only on the curing unit but also on the shade, color strength and opacity. Generally, black, white and bronze inks will dry slower than yellow, red or varnishes.

Under normal conditions it is possible to print at a speed of 30 - 80 m/min.

Lamination

BARGOFLEX UV Laminating adhesive 39-0-0167 or 39-0-0122:

Universal adhesive, particularly for laminates polyethylene/polypropylene, polypropylene primered/polypropylene and polypropylene inline Corona/polypropylene

Optimum gloss and protection can be obtained by **in-line** lamination of the prints in the flexo varnishing unit with one of these or another selected adhesive, cured thereafter across the transparent laminating film by UV radiation.

To observe:

- Please observe in any case the Technical Information of the UV laminating adhesive.

UV-Hardener 411-90:

To observe: **Special provisions in case of enhanced requirements and/or critical substrates** (see page 3)

Die-cutting resistance, cold and hot water resistance/sterilization resistance and other enhanced requirements can be achieved - in particular on in-line Corona treated polypropylenes and other critical substrates - only by admixture of hardener.

In such cases you must proceed as follows:

- *Immediately before printing, you must add - by intensive stirring - to every ink or varnish of this series to be printed fully or partially on in-line Corona-treated polypropylene, **1-2 % Hardener 411-90** (isocyanate hardener).*
- *The chemical crosslinking process and therefore the development of the required resistances needs **about 24 hours** at room temperature.*
- *Pot life: the mixture has to be processed **within 12 hours** after the hardener addition. This time elapsed, the mixture must be discharged owing to viscosity increase and reduced quality of the chemical crosslinking.*

Therefore: please estimate the amount of the mixture needed for the job resp. for max. 12 hours rather on the low side. If you observe towards the end of this period that it will not be sufficient, you can prepare a fresh ink/hardener mixture - now precisely calculated - and add it to the remaining mixture in the fountain. By doing so, you have only an irrelevant amount of it to eliminate at the end of the job.

- **At machine stops** for longer breaks and at the end of the shift, **screens** and soiled parts on the machine have to be **cleaned immediately**, before the ink has reacted!

Cleaning

The inks can be removed from screens and tools by **Cleaner V 316** or methoxypropanol.

To observe: *Reactive UV thinners are not suitable for cleaning.*

4. SHELF LIFE

The inks and varnishes of this series have under normal conditions a shelf life of **at least 6 month**. 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.

The shelf life can be extended by cool storage below 15°C.

To observe:

- *Do not expose open containers to direct sunlight or strong light sources.*

"Over-stored" inks (typical symptoms: lumps or thickened part at the bottom) may normally be re-used by carefully removing this thickened ink with a spatula (not by mixing it in with a stirrer).

5. SECURITY

Classification:

EU: Irritant (Xi). Irritating to eyes and skin (R36/38). May cause sensitization by skin contact (R43). Contains acrylates, trimethylolpropanetriacrylate and hexanedioldiacrylate.

To observe: Safety data/Information on composition

Do not handle products, in particular **Hardener 411-90**, without having consulted the corresponding safety data sheets. We supply them together with the first shipment to your safety manager.

Because of the differences in materials for printing, processing conditions and test criteria this Technical Information **can only be of advisory character**.

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 or this product is not foreseen.

78-3 combinationprinting GSch/AWe