

## Deep drawing LM UV offset inks for metal decoration



**Process:** UV sheet-fed offset  
**Application:** Metal decoration  
**Series:** SICURA METAL DEC

**This series of low migration inks is specially formulated for metal decoration printing on lids/screw caps of juice bottles.**

UV offset inks for printing on metal sheets require, as well as good printability, excellent adhesion and good thermo resistance. For some applications like lids/caps, outstanding flexibility is neces-

sary to avoid cracking during the deep drawing process.

Moreover, low migration of the inks is necessary to avoid migration by set-off from the printed side to the reverse side which is in contact with the beverage. Generally, high flexibility is obtained with low molecular weight monomers which act as plasticisers in the cured ink film, but these monomers are not suitable with low migration application. To cope with the low migration constraints, Siegwerk's development team designed a unique flexible backbone which permits high flexibility without compromising the low migration profile. When dried, the ink shows a very good compromise between hardness and flexibility allowing deep drawing.

The series has been validated by Massily France for the production of lids/caps that are applied on top of fruit juice glass bottles.

## New opaque white for IML printing

**Process:** UV sheet-fed offset  
**Applic.:** IML (in-mould labelling)  
**Series:** SICURA PLAST NUTRITEC  
**Product number:** 79-010272-7

**An opaque white in a class of its own. High opacity, maximum covering power, good adhesion, outstanding printing properties.**

The benefits of this newly developed UV offset opaque white are due primarily to its **high opacity** which is linked not only to the high pigment concentration

but also to the rheology of the ink: Optimum levelling and low tack help to maximize the ink transfer on the press and to achieve a smooth solid surface. The white is used for IML printing on transparent polypropylene substrates. Despite its enormous covering power, the new formulation of this PLAST NUTRITEC white simultaneously exhibits low viscosity and an ink layer which yields a smooth surface. Moreover, the white stands out due to its low migration properties, its exceptional purity and its low tendency to yellowing.

## Almost 100% renewable Black of TEMPO NUTRIPACK

**Process:** Conventional sheet-fed offset  
**Application:** Food packaging  
**Series:** TEMPO NUTRIPACK 2  
**Product number:** 60-912027-4

**A strong offset black, low migration, for food packaging.**

This is a new development in the TEMPO NUTRIPACK 2 series. A black ink that uses a pigment made from renewable sources such as plant oils.

Because the binder of the NUTRIPACK 2 series is also made from vegetable components, this new black ink contains more than 95% of renewable ingredients.

Nevertheless, no compromises have been made with regard to the intensity of the blackness. The printing characteristics are excellent and the water/ink balance is good. Nobody can see the difference between this new environment-friendly black and the standard black.

With the NUTRIPACK 2 series, Siegwerk answers the increasing demand for sustainable products in the printing industry. The NUTRIPACK 2 inks enable the printers to fulfil the stringent requirements of food regulations in terms of migration.

## RadTech Conference Basel 15-17 Oct. 2013 Europe's event for UV/EB

With attendees from around the world, the Radtech Europe Exhibition is the place to find new products and innovations in the field of radiation curing, great ideas, partners and customers. Bernd Miller, head of narrow web technology, will represent Siegwerk as chairman of the graphic art session.

([www.european-coatings.com/radtech](http://www.european-coatings.com/radtech))

## Food-compliant water-based OPV range

In food packaging printing, not only have the inks to be compliant with the regulations but also the overprint varnishes.

Always ahead of the regulations and of their implementation, Siegwark presents its new range of acrylic varnishes for the printing of the non-food contact side of food packaging.

The range is of course based on specific raw materials suitable for food packaging applications, but also a complete set of migration tests had been performed

in order to guarantee their suitability. Thanks to this pro-active and realistic approach, the majority of the final applications can be confidently covered by this new product range.

The table below gives an overview of the available products and their main application characteristics.

Standard gloss, matt, satin and also high gloss, primer, grease barrier, IML, etc... are as in many different varnishes able to meet customer and market demands.

Description	Product code	Applications	Gloss	Drying speed	Rub resistance
Standard Gloss	15-600463-2	Packaging/Publication	50%	4/5	3/5
Packaging	15-602699-9	Packaging	50%	4/5	3/5
Matt	15-600462-4	Packaging	15%	4/5	3/5
Semi-matt	15-600458-2	Packaging	30%	4/5	3,5/5
High Gloss	15-602713-8	Packaging/Publication	55%	3,5/5	3/5
LM Gloss	10-602160-3	Primary Food Packaging	50%	4/5	4/5
LM Matt	15-600466-5	Primary Food Packaging	20%	4/5	3/5
Primer	15-602690-8	Packaging/Publication	50%	4/5	–
IML	15-600611-6	In Mould Labelling	40%	4,5/5	4/5
Food contact	15-600460-8	Grease and water barrier	50%	3,5/5	–

### Technical Glossary

## Yellowing of UV white and UV varnishes

Yellowing as a result of prolonged exposure to sunlight is irrelevant for labels and packaging materials on account of the short life cycles of these products. Conversely, yellowing of UV white and UV varnishes at the production stage is undesirable. The cause of yellowing lies with certain photoinitiators and binders. Under the UV lamp, yellow-tinted decomposition products are produced. Some of these decomposition products break down again within an hour (= retrogressive yellowing) while others remain as stable substances in the cured ink layer and are responsible for the unwanted discolouration of whites and

varnishes. As a general rule: the higher the UV dose, the greater the degree of yellowing.

Certain highly reactive photoinitiators tend to produce more yellow decomposition products. When formulating UV whites and varnishes, printing ink manufacturers therefore endeavour to utilise photoinitiators with resistance to yellowing if at all possible. It is up to the printer to purchase the appropriate products. In an emergency he can add a small quantity of optical brightener to the white should yellowing of UV white become apparent.

### Well Worth Knowing

## New 500 MHz NMR spectrometer in Siegburg

Siegwerk's laboratories are equipped with state-of-the-art analytical methods for investigations into molecular structures.



NMR spectrometers (= Nuclear Magnetic Resonance) in chemical laboratories work using the same principle as the magnetic resonance tomography imaging techniques in medicine. Today NMR spectroscopy is an important analytical technique utilised in the development of new ink systems. Minute substance samples of ca. 50 mg are dissolved in a thin glass tube and spun in a powerful magnetic field. The measurement process takes around 4 minutes. With an automated sample feed system, as many as 98 prepared samples can be analysed overnight or in the course of a weekend. Around 10,000 samples are analysed each year at Siegwark in Siegburg.

Siegwerk experts recognised the potential benefits of NMR spectroscopy in the manufacture of printing inks as long ago as the 1980s. The new 500 MHz machine is not only the fourth of its type, but also the most up-to-date and most powerful by a wide margin.