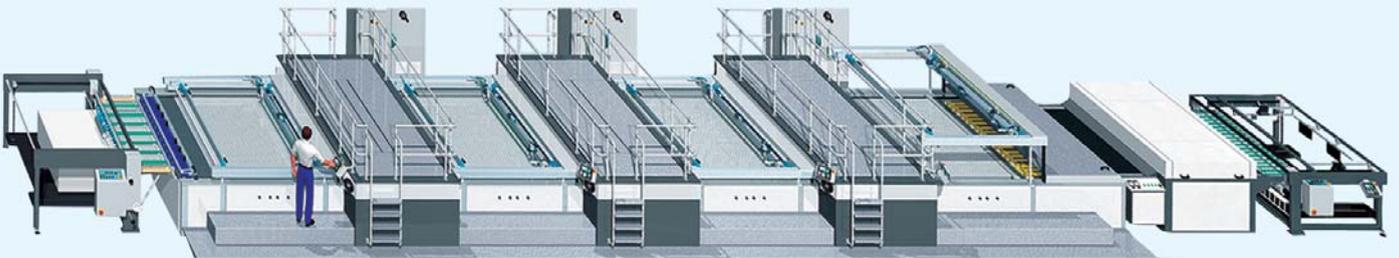


# PROGRAM UV-CURING INKS FOR GRAPHIC SCREEN PRINTING

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Meanwhile UV-curing screen printing ink systems have substituted a large share of conventional screen ink systems. This trend will continue in the future as with UV-technology processes are much more effective than with solvent based inks. In addition UV-curing varnish systems are indispensable for print finishing by screen process. Large format multi-colour equipment also requires the use of UV-curing ink systems.



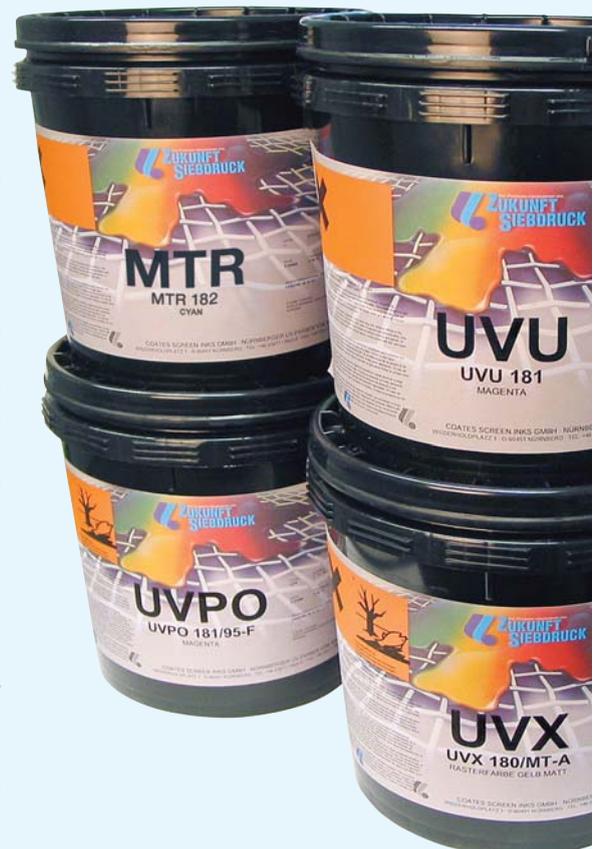
The decision, which type of ink to use for which application, however, is not an easy one to make. It is true, that many ink manufacturers have already cheerfully announced availability of the universal ink system for all jobs. It must be clear to every realistic screen printer that such a statement does not meet the requirements of the screen process. Variety of substrates, combined with highest demands regarding further processing of prints, weather resistance call for a careful choice of the optimal ink system.

Just one simple example: If you want to print PVC self-adhesive foil you can almost use any UV-curing ink system available on the market, as all ink systems show a more or less good adhesion on that type of substrate. The same applies to rigid PVC foils. However, in further processing of such prints you will partially experience considerable problems, often even big customer complaints. Printed plasticized PVC foil printed with unsuitable ink systems will lose its material strength. Unprinted the foil is elastic and flexible. Printed with unsuitable ink it becomes brittle and tears like paper. Rigid PVC foils will lose their impact strength so that printed rigid PVC posters will break like glass.

In the following we introduce UV-curing ink systems well tried in daily use. The information given is mainly limited to the key features of the ink types and their applications.

For further information please refer to the relevant product data sheets of the individual products.

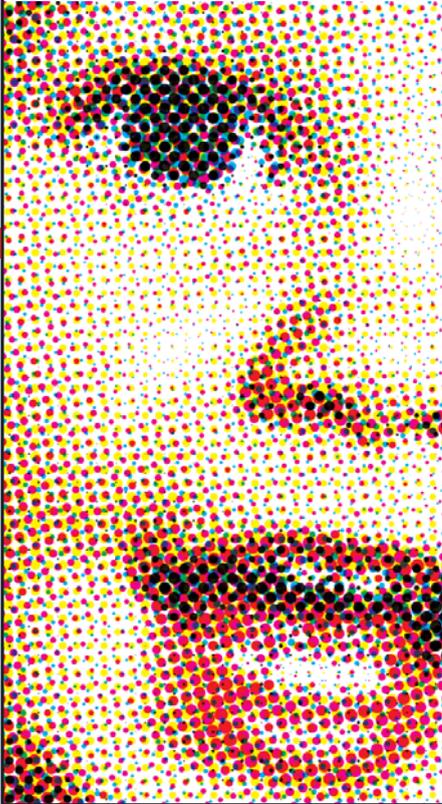
In addition to UV-curing varnishes for print finishing we also introduce functional screen coatings such as floor graphic varnishes and varnishes with special tactile effects.



# UVU



## THE "UNIVERSAL" INK SYSTEM



We have just read that there is actually no such thing, as a really universal ink system. And that is quite correct. Nevertheless suitable ink systems such as UVU can be used for a broad range of substrates.

UVU is suitable for printing of almost all types of thermoplastics such as PVC-materials, polystyrene, PMMA, polycarbonate and with adhesion promoter also for printing of polypropylene wall sheets.

Another very important advantage of UVU inks is the low ink build-up of process prints. Comparison measurements with competitive systems have shown that UVU results in approx. 30% lower build-up, even though it does not contain any solvents or water. In addition to process colours this ink range is also available in the C-MIX-2000 colour range. With these colour shades you can precisely and exactly match any colour sample in a quick and cost-efficient manner.

The ink system UVU is highly reactive and thus can be processed with low UV energy in multi-colour printing equipment.

**Advantages:**  
low thermal impact and low energy consumption.

If necessary, UVU can also be offered mixed with adhesion promoter, UVU.../PP. This adjustment shows excellent suitability for polypropylene wall sheets and hollow wall sheets. For these applications the low energy requirement of this ink system is an invaluable advantage.

# UVX



## THE BEST QUALITY FOR PRINTING OF PVC MATERIALS

Generally PVC foils become very brittle when printed with UV-ink systems. Then they sometimes tear when the carrier paper is removed. Especially printed removable adhesive foils will show a severe loss of stability. Even if the foil is heated for the peel off process it can only be removed in small parts. It is very important that foil applied to flat substrates is very elastic. Foils for vehicles need to be printed with extremely weather resistant and lightfast ink systems. The ink range UVX shows exactly these properties.



Loss of impact strength of rigid PVC-foils with up to 280µm is another problem screen printers are facing when using less suitable ink systems. Double-sided prints with UVX on such display foils will result in low loss of foil stability.

UVX inks are mainly used for printing of PVC adhesive foils and rigid PVC foils on multi-colour printing equipments.

In addition to brilliant and lightfast process inks UVX is also available in the C-MIX 2000 colour range. Using the C-MIX-2000 base colours printers can exactly match any desired colour shades in a cost efficient manner. UVX inks are also available in metallic colour shades.

UVX range is highly flexible and highly reactive. Therefore UVX inks are especially suitable for the production of double sided stickers. Generally double sided stickers require overprinting of up to 10 ink layers.

For barrier layers an extremely opaque white UVX 60/669-HD is available. This obliterating ink can also be mixed with 3% aluminium powder B 79/12 to form a light blocking barrier.

# UVPO >

## THE POLYPROPYLENE INK

Polypropylene materials are more and more used as substrates for screen printing applications. Polypropylene wall sheets and hollow wall sheets are the substrates most often used for large format advertisements, above all for election campaigns. Pictures of politicians are often printed on polypropylene wall sheet materials. These posters are weather resistant and will last for the required time periods.

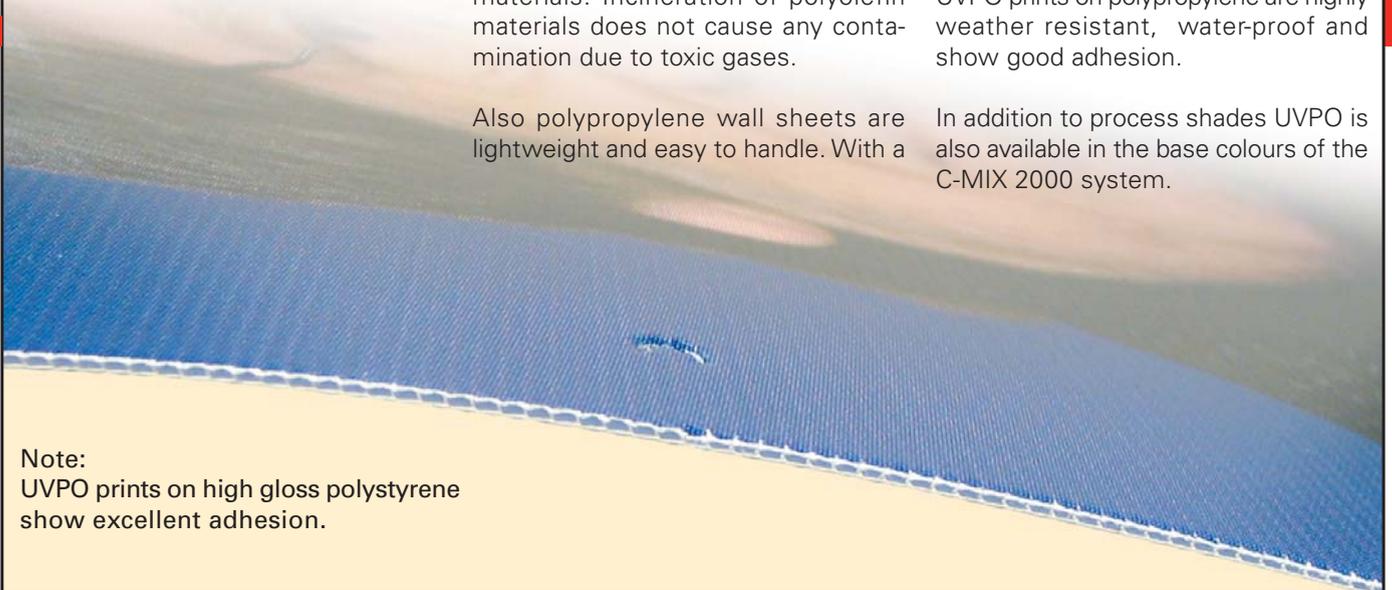
Ecobalance surely is one reason for the increased use of polypropylene materials. Incineration of polyolefin materials does not cause any contamination due to toxic gases.

suitable ink system such as UVPO these materials are ideal for screen printing. UVPO prints on polypropylene are highly weather resistant, water-proof and show good adhesion.

Also polypropylene wall sheets are lightweight and easy to handle. With a

In addition to process shades UVPO is also available in the base colours of the C-MIX 2000 system.

Note:  
UVPO prints on high gloss polystyrene show excellent adhesion.



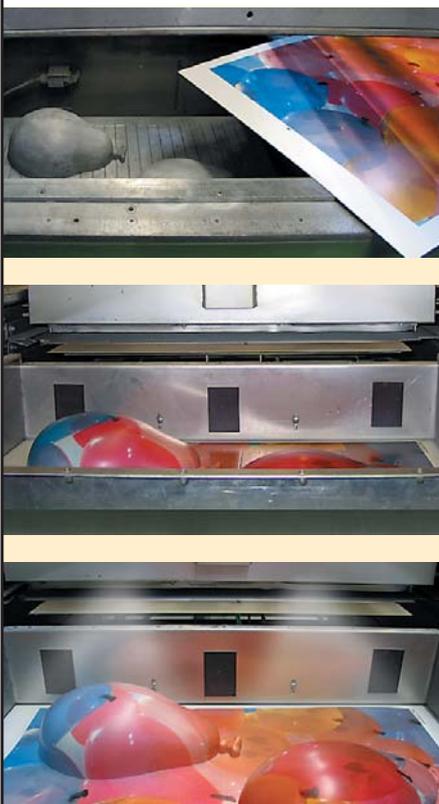
# MTR >

## UV-CURING INK FOR DEEP DRAWING APPLICATIONS

When first developing UV-curing inks formulation of an ink type suitable for deep drawing hardly seemed to be possible with such inks. The first UV-curing ink types had such a high cross-linkage that thermo-forming of prints was impossible. Only with development and combination of suitable photoinitiators combined with the appropriate resin systems and monomers UV-curing screen printing inks could be used for deep drawing of displays.

Generally such ink systems are not very reactive and tend to blocking. In that respect MTR offers many advantages. Plastics printed with MTR can be formed almost in the same manner as prints made with solvent based ink systems. Another advantage is the excellent printability of the MTR ink system. So-called ink piles are avoided as ink build up is low. In addition to thermoplastics used for forming applications MTR can also be used for printing on PVC materials.

Effects on mechanic stability of PVC are low. Naturally MTR is also available in process colours as well as C-MIX 2000 base colours.



# UVGS >

## FOR GLASS AND CERAMICS

While glass and ceramics applications are a predominant practice of industrial companies graphic screen printers are also able to print these materials with suitable UV equipments.

Still glass and ceramics are decorated with ceramic frit-based ink systems. That process requires temperatures of 600-800°C to achieve fusion of the ink film with the substrate.

A variety of applications, however, only requires scratch and water resistance of the printed glass material. Furniture decoration, bottles and also pictures on mirrors are therefore often printed with organic 2-component solvent based screen printing inks. In most applications these systems require oven curing at 140°-160°C to achieve the required resistance. That expensive drying process is avoided if suitable UV-curing screen printing inks are used.

As a result of constant development of UV-curing ink systems Coates Screen Inks GmbH now offers an improved UV-curing ink system. UVGS inks are highly water resistant and have quite a low energy requirement. This ink system can be adjusted to achieve increased resistance values with various additives.

In addition to process shades UVGS inks are also available in the base colours of the C-MIX 2000 system, an extremely opaque light blocking black, mat varnish and frosted effects.



# UVE >

## FOR COST-EFFICIENT PRINTING OF PLASTIC MATERIALS

UVE ink system already is a typical standard product of our ink program. Originally UVE was developed for economic reasons as a cost-efficient ink system for indoor and short-term outdoor use.

A main property of this ink system is excellent adhesion on polystyrene board materials which are mechanically processed after printing. Even in cutting and stamping applications UVE prints show excellent adhesion at the edges.

Being highly reactive double-sided prints on polystyrene boards can be produced in high numbers for rack storage. UVE is available in the C-MIX-2000 range and process colours. For production of colourful backlit slides highly pigmented process colours are also available. When printing on PVC materials, however, there is the risk, that the material becomes brittle.



# SPECIAL UV-CURING VARNISHES

Coates Screen does not only offer finishing products such as UV-curing gloss and mat varnish systems. We also offer a variety of special varnishes with mechanical or tactile effects.

## UV-CURING FLOOR GRAPHIC VARNISHES

Walk-on floor adhesives cannot only be made using approved foil systems. Such coatings can also be applied by screen process. Screen printed floor graphics result in similar anti-slip properties like floor-graphic foils. Compared to foil systems use of suitable screen ink systems will have two advantages. They are more cost-effective than foils and can be applied in a quick and cost-efficient manner using existing screen equipment.

For such applications Coates Screen Inks GmbH offers the following three products:

**Multistar MLS 70/00 Fine**

**Multistar MLS 70/02 Coarse**

**Multistar MLS 70/03 Medium**

Anti-slip properties of prints applied to various substrates such as rigid PVC, PVC-adhesive foils made with these varnishes have been evaluated and approved by the Bavarian LGA Bautechnik GmbH (industrial institute). Copies of the test certificate are available upon request. Similar coatings can also be achieved with other ink ranges such as UVX.

## UV-CURING ANTI-SLIP VARNISH UV 70/516

This varnish is not a floor graphic varnish but a mat UV-curing clear varnish forming a non-slip surface. The system can be applied to various substrates such as paper, cardboard, plasticized and rigid PVC, polystyrene and also on polycarbonate. UV 70/516 is used for production of non-slip surfaces as required for the underneath of mouse pads, trays and similar objects.

## SCRATCH PROOF COATING LAB-N 153023

This product offers properties similar to those achieved with nanoparticle coatings. LAB-N 153023 protects scratch sensitive surfaces of thermoplastics.

