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SCREEN NEWS



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COATES SCREEN INKS GMBH

2007 > VARIETY OF UV-CURING SCREEN
INK SYSTEMS
UVU - A CLASS OF ITS OWN
UVGS - THE NEW GENERATION OF
UV-CURING INKS FOR GLASS



Alfred Brunner
Technical Director

VARIETY OF UV-CURING SCREEN INK SYSTEMS

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Screen Ink Manufacturers quite regularly offer their customers novelties or new developments of UV-curing screen printing inks. This clearly shows that there is still a potential for improvement and advancement of UV-curing screen inks – a positive aspect. These UV-curing ink systems are the future of graphic screen printing. These ink types are essential for the production of large format multi-colour prints. In addition, UV screen inks combine a better standardisation of screen printing with higher productivity.



Screen printers are often confronted with the problem of finding the best suitable ink system for various applications and existing printing equipment. Graphic screen printers are processing increasing amounts of UV-curing ink systems. However, there are several printing problems or problems with further processing if they did not choose the best possible ink system. In addition to good to optimal printability combined with a sufficient reactivity (i.e. high reactivity) of UV-curing inks there are many more requirements a screen ink film has to meet.

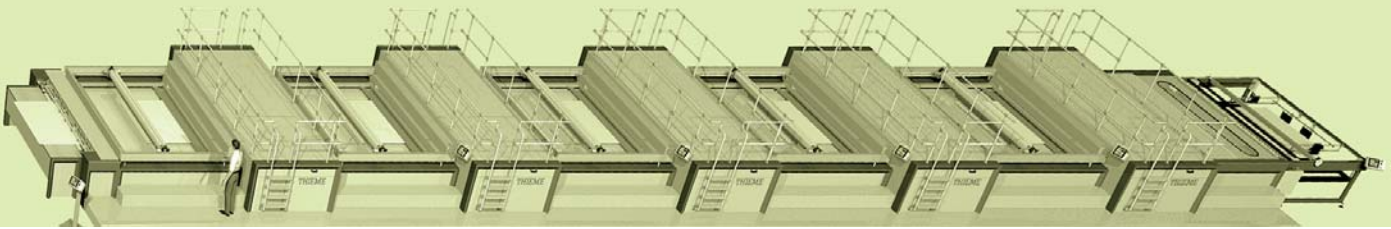
At first one will think of ink adhesion and weather resistance, however, one issue often neglected is the influence of the screen ink on the substrate itself. When printing rigid PVC-foils with less suitable ink systems, however, the brittleness of the material increases significantly. Printed foils (especially those printed with many layers) will show such a high tendency to brittleness that they splinter like glass during further processing or transport (rolling up).

Printing of plasticized PVC self-adhesive foils requires highly elastic ink films allowing the foils to adhere on uneven surfaces. The use of less suitable inks will cause the plasticized PVC foil to lose its properties. The result: it will tear like paper. This is a special problem if printing multiple layers or large process prints.

Excellent ink adhesion is extremely important for printing and further proces-

sing (like cutting printed edges) of polystyrene materials. If ink systems do not have optimal suitability, the ink film will splinter at the cutting edge. For deep drawing applications of thermoplastics like PMMA, polycarbonate and polystyrene you will require a UV ink system with an elastic, formable ink film.

UVX >



YOU ARE LOOKING FOR A SCREEN PRINTING INK SYSTEM WITH THE FOLLOWING PROPERTIES:

1. > Best possible suitability for substrates such as rigid and plasticized PVC foils. The ink system should not affect the material properties of these substrates. There should be no adverse effect on toughness and elasticity of rigid PVC. Solid prints or multiple layers printed on PVC-self-adhesive foils should not or only have little impact on elasticity and rigidity of the foil.
2. > Colour shades and ink adjustments. For matching of Pantone shades or any other required shade a mixing system with 11 base colours is supposed to cover the colour space. Process colours in glossy or semi-gloss adjustment should also be available. Pigments contained in the ink system should offer a good light and weather resistance.
3. > Processing and reactivity
The ink system you are looking for has to be highly reactive and suitable for processing on multi-colour equipment. The individual colour shades can be cured with energies ranging from 150 – 200 mJ/cm². Process prints shall result in a flat film to avoid strong ink piles.
4. > Obliterating grey with a high opacity is required for the production of double-sided stickers.

THE OFFER FROM COATES: UV-CURING SCREEN PRINTING INKS RANGE UVX

> UVX inks are based on weather resistant UV-polymers and contain highly lightfast pigments. Printed on suitable substrates UVX prints show very good outdoor and weather resistance. UVX has been especially developed for printing on PVC materials. Large format PVC stickers for the automotive industry can be produced using UVX. This ink type is especially recommended for removable adhesive foils. Even after long-term outdoor use PVC foils printed with UVX can be removed from the substrate. If such applications are printed with less suitable UV-curing printing inks, it is hardly possible to remove the stickers as the foils become brittle.

Solvent based inks are mostly used for the production of double sided stickers – as far as the obliterating grey is concerned. Although it is possible to process these ink systems in combination with coloured UV-curing inks, the UVX range offers a complete solution for UV-technology with a highly opaque white adjustment.

UVX inks have a low ink pile and are thus especially suitable for process prints. Process colours of the UVX range are offered in a glossy and a semi-gloss adjustment.

Residue odour of monomers of UVX prints is extremely low.





UVE



UVPO

GESUCHT WIRD EIN SIEBDRUCKFARBSYSTEM MIT FOLGENDEN EIGENSCHAFTEN:

1. ▶ Perfekte Farbhaftung auf Polystyrolmaterialien. Die optimale Farbhaftung des Systems ermöglicht problemloses Anfräsen und Stanzen bedruckter Kanten.
2. ▶ Im Farbsystem sollen Rasterfarben für die Aufsicht und für Durchleuchtung vorhanden sein. Daneben wird ein Mischsystem mit 11 Basistönen gesucht, welches beliebige Farbtonvorlagen problemlos nachstellen lässt.
3. ▶ Das Farbsystem soll hochreaktiv eingestellt sein. Die Farbdrucke speziell auf Polystyrolmaterialien müssen absolut stapelfest sein – und dies auch bei beidseitigem Druck. Zur Aushärtung der Farbtöne sollen Energiemengen zwischen 150 und 250 mJ/cm² ausreichend sein.
1. ▶ Beste Haftung auf Polypropylenbedruckstoffen wie Polypropylenbannerfolien und Polypropylenstegplatten – und dies auch bei relativ mäßiger Vorbehandlung.
2. ▶ Das Farbtonangebot soll Rasterfarben für die Aufsicht wie auch Rasterfarben für Durchsichtarbeiten (Diadrucke) umfassen. Ein Mischsystem mit 11 Basistönen soll den Farbraum abdecken, um Pantone und auch andere beliebige Farbtöne problemlos nachzustellen. Die Pigmentierung des Farbsystems soll eine gute Licht- und Wetterbeständigkeit bieten.
3. ▶ Das Farbsystem soll hochreaktiv eingestellt und für die Verarbeitung auf Mehrfarbenlinien geeignet sein. Zur Aushärtung der Farbtöne stehen Energiemengen zwischen 150 und 250 mJ/cm² zur Verfügung.
4. ▶ Darüber hinaus soll das Farbsystem auch für die Bedruckung anderer Bedruckstoffe geeignet sein.

DAS ANGEBOT VON COATES:

UV-HÄRTENDE SIEBDRUCKFARBEN DER REIHE

UVE

▶ UVE-Farben wurden als relativ vielseitig einsetzbare Farben entwickelt. Die hohe Vernetzungsdichte des Bindemittelsystems erzeugt harte, widerstandsfähige Farbschichten. Dadurch zeigt UVE auch sehr gute Beständigkeiten gegen eine Vielzahl von Chemikalien. Dieser hohe Vernetzungsgrad führt allerdings bei PVC-Materialien mit zunehmender Zahl der Farbschichten bzw. der Flächendeckung zu einer zunehmenden Materialversprödung. Das Hauptanwendungsgebiet von UVE ist deshalb die Bedruckung von Polystyrolplattenmaterialien. Durch seine hohe Reaktivität und ausgezeichnete Blockfestigkeit wird dieses System u.a. in großen Mengen bei der Verarbeitung mit großformatigen Mehrfarbenlinien sehr geschätzt. Neben den Standard UVE-Rasterfarben wird für hinterleuchtete Drucke eine spezielle Diaversion in sehr hoher Farbdichte angeboten.

UVPO

▶ UVPO-Farben wurden entwickelt für den Druck auf Polypropylenbannermaterialien wie auch Polypropylenstegplatten. Beide Bedruckstoffe haben ein großes Potential für den Siebdruck. Polypropylenmaterialien werden als umweltverträglicher im Gegensatz zu PVC-Bedruckstoffen eingestuft.

Die Bedruckung von Polystyrol Glanzmaterial mit UV-Farben ist häufig mit größten Schwierigkeiten verbunden. So ist auf diesem hochglänzenden glatten Material in den meisten Fällen keine brauchbare Farbhaftung zu erzielen. Arbeiten mit der Qualität UVPO weisen bei diesen Bedruckstoffen eine ausgezeichnete Farbhaftung auf.



UVU >

MTR >



1. > Suitability for a variety of thermoplastics such as PVC-materials, polystyrene, PMMA, polycarbonate, coated polyester and polypropylene banner materials or PP wall sheets.
2. > Colour shades and ink adjustments. For matching of Pantone shades or any other required shade a mixing system with 11 base colours is supposed to cover the colour space. Process colours of this range in a semi-gloss adjustment should also be available. Pigments contained in the ink system should offer a good light and weather resistance.
3. > Processing and reactivity. The ink system should be highly reactive and suitable for processing on multi-colour equipment. The individual colour shades can be cured with energies ranging from 150 – 200 mJ/cm². Process prints shall result in a flat film to avoid high ink piles.

1. > Suitability for thermoplastics, which will be formed or deep drawn after printing. In addition to a very good adhesion, flexibility and thermo-forming properties are of utmost importance.
2. > In addition to process inks a mixing system with 11 base colours is required to precisely and easily match any desired colour. Pigments contained in the ink system should offer a good light and weather resistance.
3. > The ink system you are looking for should show a very low ink pile in process prints, to avoid colour deviations. The different colours of this ink system should cure using energies between 200 and 300 mJ/cm². The prints should be stack proof to a certain extent.

UVU

> UVU inks were mainly developed for large jobs printed on multi-colour lines. Main requirement of this ink range is the suitability for a variety of thermoplastics. UVU inks are suitable for printing of plasticized PVC-foils and rigid PVC materials as well as for printing of polystyrene, PMMA and polycarbonate. With the addition of adhesion promoter (additive PP/UVU) this ink system also shows excellent suitability on polypropylene.

In addition to users of multi-colour lines UVU inks are surely also very interesting for screen printers using 1-colour equipment for a variety of applications. UVU process prints have an extremely low ink pile thus avoiding colour shifts during continuous printing. Due to its rheology UVU inks are suitable for quick running cylinder presses as well as for multi colour lines. Rigid PVC materials only show little brittleness when printed with UVU. Considering all above mentioned properties price-efficiency ratio of this ink system is very interesting.

MTR

> MTR inks were developed for printing of thermoplastic materials such as polystyrene, PET-G, polycarbonate, PMMA used for the production of three-dimensional displays. When developing MTR highest attention was paid to achieve best possible forming properties of cured ink films. A special diapositive version with a high colour density is available for backlit process prints.



Alfred Brunner

+49 911 64 22-241 +49 911 64 22-283
alfred.brunner@sunchemical.com

