Coates Screen

Product Data Sheet

UV-CURING SCREEN PRINTING INKS NEU UVPO

APPLICATION

UVPO inks are UV-curing screen printing inks which have especially been developed for printing onto pre-treated polyolefine materials. Those polyolefine materials can be corona-pretreated polypropylene such as PP foils (e.g. PP posters) or PP panels as well as flame-treated or corona-pretreated polyethylene (e.g. package printing).

Good adhesion and good water resistance together with a fast curing process can be achieved. If high demands regarding mechanical resistance onto flexible substrates are required (e.g. PP foils, PE tubes), adhesion and weather resistance can considerably be increased by adding the hardener Additive UV/H.

Due to the different properties of the substrates pre-tests prior to starting the job are absolutely essential. Apart from polyolefine materials, ink type UVPO also shows good adhesion onto paper, polystyrene and partly PVC.

CHARACTERISTICS

Inks UVPO are UV-curing screen printing inks with good printability and high reactivity. After the UV polymerisation a glossy and tack-free ink film is built with good abrasion resistance.

UVPO inks are water resistant and suitable for medium-term outdoor applications (approx. 6 – 12 months). By adding 5% of hardener Additive UV/H, UVPO prints show a considerably increased adhesion and resistance to water and to chemicals whereby a long pot life of 3 – 5 days is given in closed cans.

After the actual UV polymerisation UVPO will post-cure i.e. the complete adhesion begins after 1 – 2 days.

The ink system UVPO shows medium opacity and high brilliance.

PIGMENTS AND LIGHT FASTNESS

The pigments used for UVPO inks show a good light fastness (7-8 according to wool scale [DIN 16 525]). If the colour shades are reduced with high amounts of white or transparent systems the light fastness might be reduced.

Mixed shades with blue and green may show a slight reactivity loss. This can be compensated using sensitiser additive UV/S.

UVPO colour shades do not contain heavy metal pigmentation and correspond to the requirements of EN 71, safety of toys, part 3, migration of certain elements.

PROCESS COLOURS

The UVPO process colours for four colour halftone prints are adjusted to the Europe scale. However, due to the light fastness required for screen prints they are only an approximation. Depending on

printing conditions (halftone size, mesh count, hardness, angle and sharpness of squeegee, coating etc.) the process colours can be mixed with transparent paste UVPO-TP at any ratio.

As the UV-systems are free of solvents they result in high layer thickness. There-fore it is necessary to use fine fabrics and thin stencil coating. Hard squeegees and high angle squeegee positions are favourable. However the UV technology should be taken into consideration when making the films, f.e. layer thickness should be reduced using UCR or colourless ink layers.

ADJUSTMENT FOR SCREEN PRINTING
UVPO inks come in a medium viscose ready-to-print adjustment. For fast processing printing machines the viscosity can be adjusted using thinner additive UV/V (solvent-free). All commercial powdery thickening agents are suitable.

AUXILIARY AGENTS
As already mentioned UVPO screen printing inks come in medium viscose adjustment and can be used directly from the can. If for special reasons modification of the UVPO ink is required, our auxiliary agents/additives for universal use in UV inks are available. For application and addition please refer to our UV leaflet “Auxiliary Agents for UV Screen Printing Inks.“

For better adhesion and resistance properties hardener UV/H can be used, addition amount is 5%.

If possible, addition of further auxiliary agents should be avoided as incorrect use, above all over-dosage, may cause constant and unfavourable effects to the original product properties.

DRYING
Screen printing inks UVPO are UV-curing and only polymerise to a stable and durable ink film under UV light of suitable wave length (high pressure mercury lamps with at least 80 W/cm; 200 W/in.).

Curing parameter depend on layer thickness, ink shade, substrate and temperature. Printed on a white substrate with a 150-31 polyester fabric (380 mesh) at room temperature drying speeds are approx. 20-25m/min with 2 radiators (80W/cm) depending on the ink shades.

This corresponds to an energy value of approx. 300-250 mJ/cm² (measured with Kühnast UV-Integrator), measured at a wave-length of approx. 250-410 nm, 365 nm at the most.

The ink is completely cured after 1-2 days after UV curing and shows then full adhesion and scratch resistance. That means that test prints only should be evaluated and checked regarding adhesion after this period of time.

If there is the possibility to cure with higher energy amounts – provided that the substrate has the necessary heat-resistance – we advise to cure at higher energies (approx. 500mJ/cm²) in order to obtain better through curing and adhesion.

Under suitable drying conditions the material can be stacked or processed immediately after printing.
In extreme conditions UV inks tend to over-cure. This may cause problems in further processing, mostly overprintability. For best possible adhesion of multi-layer prints the first ink layers should be cured with maximum speed.

OVERPRINTABILITY
Like all UV ink systems UVPO inks do not require overprinting.

STENCILS
All commercial stencil materials are suitable. As these inks and free of solvents and water use of all emulsions and films is unproblematic. However, because often fine fabrics are used and thin layers are required high polymer layers or capillary films should be used.

CLEANING
Unpolymerised UV inks can be removed with all commercial solvent based cleaning agents of little polarity. Universal cleaning agents URS, URS 3 etc.) are the most suitable. Removal of completely cured UV inks is time consuming and only possible using very aggressive media (decoaters).

Contaminated skin has to be cleaned with water and soap immediately as the acrylates contained cause irritation. Contaminated clothing has to be removed immediately and cleaned.

PACKING
Screen printing inks UVPO are available 1 liter, 5 liter and 30 liter containers.

SHELF LIFE
For information regarding shelf life please see tin label.

CLASSIFICATION
Read material safety data sheets prior to processing.

The material safety data sheets according to Regulation (EC) No. 1907/2006 contain classification according to preparations directive (1999/45/EC) as well as instructions for precautions when processing, handling and storing as well as first aid.

The information given in the material safety data sheet refers to processing as described in this product data sheet.

PROCESS COLOURS ACCORDING TO EUROPE SCALE

yellow	NEU UVPO 180
magenta	NEU UVPO 181
cyan	NEU UVPO 182
black	NEU UVPO 65

C-MIX-2000 COLOURS

primrose	NEU UVPO/Y30	violet	NEU UVPO/V50
golden yellow	NEU UVPO/Y50	blue	NEU UVPO/B50
orange	NEU UVPO/O50	green	NEU UVPO/G50
scarlet	NEU UVPO/R20	black	NEU UVPO/N50
red	NEU UVPO/R50	white	NEU UVPO/W50
magenta	NEU UVPO/M50	varnish	NEU UVPO/E50

SPECIAL INKS

binder	NEU UVPO/B
transparent paste	NEU UVPO/TP
white, highly opaque	NEU UVPO/60-HD

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