UV Gloss-PE Inks (UVPW)

PROPERTIES

UVPW is a UV curable, high gloss ink suitable for printing pretreated Polyethylene (PE) and Polypropylene (PP) substrates. UVPW has excellent screen stability and is easily cured. It has good flow and when completely cured, gives a smooth surface with good film strength, chemical and water resistance. UVPW has a mild odour and is environment-friendly.

INSTRUCTIONS FOR USE

Thinning and Cleaning

- Stir well before use.
- UVPW inks are supplied press-ready. However if a lower viscosity is required, for example when using high speed automatic printing machines, the ink can be warmed to 38-40^{o}C or thinned with 5-10% UV Ink Thinner (2000)
- Cleaner 2940 should be used to clean UVPW from the screen. For heavy ink stains, Screensolve can be used. Please refer to the relevant P.I. Sheets for more information.

Pre-Treatment

The best pre-treatment process for Polyethylene (PE) and Polypropylene (PP) substrates to be used for packaging products is by using a flame from propane or butane mixed with air. For optimum adhesion, the container surface should be pretreated using flame treatment or corona discharge methods immediately prior to the printing operation. The surface tension of the substrate should be between 52-58 dyne/cm. For flame treatment, the flame constancy should be maintained to obtain maximum adhesion. It is recommended that ink adhesion on the pretreated substrate surface be tested prior to the actual printing operation because the quality of Polyethylene substrates from different batches varies and static problems may occur. Static will adversely affect the ink adhesion, so should be prevented by passing the container through a jet of ionized air immediately prior to printing.

Printing

- UVPW can be printed through any type of mesh, but for the best printing results it is recommended that P150-34 to P180-31 mesh is used.
- UVPW can be printed through a variety of stencils, such as Diazol Plus Ultra (U016).
- A snap distance of about 2-3 mm is required for a good release of the print from the screen.
- 1Kg of ink (UVPW200) will print an area of 80-90 m^2 through a P180-31 mesh.
- This ink will cure upon exposure to the UV energy. Therefore, UV light should kept to a minimum in the printing room and exposure to direct sunlight avoided.
- UVPW has no soluble agents, so when completely cured, the ink film tends to thicker than solvent-based screen printing inks. It is recommended that screen mesh with higher mesh counts be used to give prints with excellent definition.

Due to the wide range of coatings available, it is advisable that the ink be tested fully prior to printing.

Head Office Pathumthanee
26/9 M.3 Lumlukka Rd., Lumlukka, Pathumthanee 12150, Thailand.
TEL : (662) 533-2533, 994-5199
FAX : (662) 533-2535

Curing

UVPW inks will cure within 2-5 seconds when cured through the UV curing unit using a medium pressure mercury vapour lamp. The curing time depends on the thickness and opacity of the ink, the substrate used and the type of UV lamp used (different types of UV lamps vary in terms of wavelength emission, energy and efficiency).
UVPW ink printed on packaging products with a diameter of 60 mm will be UV cured by a medium pressure mercury vapour lamp of 80 watts/cm (200 watt/inch). up to 4,500 items/hr can be cured. The bigger the diameter of the packaging products, the lower the curing rate.
For two or more-colour printing, do not over cure the first colour to ensure optimum adhesion of the second coat. The second colour should be printed immediately after the first colour is printed. A second pre-treatment of the surface is not necessary because the adhesion of multiple colour prints usually depends on the first surface pre-treatment only.

Post Curing

UVPW inks cure by reacting with UV light. This reaction will continue for a while after the print has finished passing through the UV curing unit. This can cause over-cure of the ink, resulting in a decrease in the ink adhesion to the next colour to be printed. Accurate calculation of the curing time should be carefully done to ensure the maximum adhesion of the following coats of ink.

Plastics

Always fully test the ink before beginning a production run, as there is often considerable variation in plastics from different manufacturers and even between different batches. The surface of some types of plastics are coated with lubricants, mold release agents or anti-static coatings and this may impair adhesion. For ultimate adhesion, the substrate surface should be prepared before printing by wiping with a clean rag soaked with Thinner 2900.

Product Resistance

UVPW inks have excellent resistance to chemicals, solvents, water and other products. It reaches optimum resistance 24 hours after curing.

The following table illustrates the typical resistance of UVPW inks printed through P180-31 onto pre-treated Polyethylene and Polypropylene. The inks are cured by a single medium pressure mercury vapour lamp (80 watts/cm or 200 watts/inch) and the test carried out 24 hours after the curing process has been completed.

Products Tested	Excellent	Good
After Shave Lotions	•	
Alcohol	•	
Alkalis up to 10%		•
Anti freeze	•	
Battery Acid		•
Bleaches		•
Brake Fluid	•	
Cosmetics	•	
Detergent	•	
Household Cleaners	•	
Motor Oil	•	
Petrol		•
Skin Care Products	•	
Solvent	•	
Water	•	

IMPACT RESISTANCE

Impact resistance of some PE and PP containers can deteriorate after printing. UVPW inks are formulated to minimise this condition, but it is essential to establish that inks and containers are fully compatible by conducting suitable impact or drop tests.

COLOUR RANGE

The UVPW range consists of 15 colours: 9 CMS (Chaiyaboon Matching System) Base Colours, 2 Standard Colours and 4 Trichromatic colours. All the colours in the UVPW range have good light resistance. Virtually any colour can be produced by colour matching the CMS Base colours with Black, White and the Extender Base.The CMS colours can be used for direct printing, but are relatively transparent and are not suitable for applications where high opacity is required. Extender Base UVPW090 can be used to enhance colour transparency and curing speed as required.

CMS Base Colours

The following CMS colours are suitable for direct printing or colour-matching:

UVPW320	UV Gloss-PE Ink	Light Yellow/CMS Yellow GS
UVPW340	UV Gloss-PE Ink	Mid Chrome/CMS Yellow RS
UVPW407	UV Gloss-PE Ink	Deep Orange/CMS Orange
UVPW500	UV Gloss-PE Ink	Vermilion/CMS Red YS
UVPW550	UV Gloss-PE Ink	CMS Red
UVPW560	UV Gloss-PE Ink	CMS Magenta
UVPW590	UV Gloss-PE Ink	CMS Violet
UVPW600	UV Gloss-PE Ink	CMS Blue
UVPW700	UV Gloss-PE Ink	CMS Green

Standard Colours

The standard colours are available as follows:

UVPW100	UV Gloss-PE Ink	Black
UVPW200	UV Gloss-PE Ink	White
UVPW090	UVPE Extender Base	Clear

Trichromatic Colours

UVPW110	UV Gloss-PE Ink	Trichromatic Black
UVPW310	UV Gloss-PE Ink	Trichromatic Yellow
UVPW510	UV Gloss-PE Ink	Trichromatic Magenta
UVPW610	UV Gloss-PE Ink	Trichromatic Cyan

Remarks:

CMS	Chaiyaboon Matching Systems
RS	Red Shade
GS	Green Shade
YS	Yellow Shade

Thinners and Cleaners

2000	UV Ink Thinner
2940	Cleaner

STANDARD PACKING

UVPW inks are available in 25Kg, 5Kg and 1Kg containers.
The Solvents are available in 200 ltr, 20 ltr, 5 ltr and 1 ltr containers.

COLOUR MATCHING SERVICE

CHAIYABOON BROTHERS COMPANY (CBC) offers a quality colour matching service. Colours can be matched to prints, wet ink samples or to PANTONE references. When placing an order, please include a sample of the substrate to be printed, along with any other relevant information, such as the type of mesh and squeegees that are to be used and the product resistance required. The minimum order for a colour match is 3Kg.

STORAGE

UVPW inks should be stored in a sealed container between 10°C(50°F) and 25°C (77°F). They should be stored away from warm pipes and peroxides. When stored in a cool environment the inks will have a shelf life of 12 months from the date of manufacture.

SAFETY AND HANDLING

UVPW inks should be used with care. Wear suitable PPE, for example, appropriate gloves and safety glasses. All colours are non-toxic colours and comply with the following standards: EN71 Standard of the European Economic Community, the United Kingdom Toys (Safety) Regulation 1974, the DIN EN 71 Standard of Germany and French Toys Standard NF 551204.
UVPW is amine and NVP(n-vinyl pyrrolidone)-free.
UVPW does not have a flash point and is, therefore, exempt from the Highly Flammable Liquid Regulations.
Whilst working with the ink, the consumption of food and drink, and smoking are not recommended.

Please consult the information on ***The Safety and Handling of UVPW inks*** in the Chaiyaboon Material Safety Data Sheet.

ENVIRONMENTAL INFORMATION

UVPW Inks:

- Are formulated free from ozone depleting chemicals as described in the Montreal Convention.
- Do not contain heavy metals.
- Are free from aromatic hydrocarbons, known to have an adverse effect on the environment.
- Do not have any volatile solvents and are therefore less harmful to the environment when compared with solvent-based products.

TECHNICAL SERVICE AND INFORMATION

For further information or other relevant data, please do not hesitate to contact us. Chaiyaboon Brothers Company (CBC) has a team of well-trained personnel who are ready to give help and advise regarding product information and application.