(PTN) Plastisol Inks

PROPERTIES

PTN is a plastisol ink which can be used for direct printing on fabrics and iron-on transfer printing. These plastisol inks have excellent screen stability, high opacity and color brightness and excellent wash resistance-for both directly printed fabrics and transfer printed ones. PTN has good adhesion to a variety of fabrics giving a print with a soft feel. PTN inks are suitable for printing fabrics made from natural fibres such as cotton and wool as well as synthetic ones. Compatibility with the textile should be carried out prior to use.

INSTRUCTIONS FOR USE

Thinning and Cleaning

• Stir well before use.
• PTN inks are supplied press ready and do not need to be thinned. However, they can be thinned by mixing with 2–3% Retarder 6032 or Thinner 2900 if required. Do not exceed this level as a higher percentage can result in reduced adhesion and opacity.
• PTN Flow Thinner (PTN901) can be used to increase the ink absorption into the fabric and give the print a softer handle. Addition of PTN901 is not recommended when printing dark colored fabrics as a higher opacity is usually required.
• Cleaner SWT139S should be used to clean PTN from the screen. For heavy ink stains, Screensolve SSO-038 or Thinner 5099 can be used. Please refer to the relevant P.I. Sheets for more information.

Printing

• PTN can be printed through a variety of solvent resistant stencils, such as Diazol Universal PU220, Diazol TX600 and Polyzol DE direct (422).
• For dark colored fabrics or transfer printing, screen mesh no. P43-80 to P61-64 is recommended. For single color printing or multicolor printing that requires curing after printing each color, mesh counts. P21-140 to P43-80 are required to optimize individual color opacity. (See ***"Drying and Curin***g".)
• Apply Spray Way SW82 or Dry stick Table Glue DG-880 all over the print table to firmly hold the substrate in place during printing.

Drying And Curing

PTN inks can only be dried through heat curing. The curing times will vary for different colors and due to differences in fabrics. For optimum printing results, the procedure below should be followed:
• For long/medium wave infra-red (IR) stoving, the temperature must be set at 150-170°C (300-340°F) for 30-60 seconds. For short wave IR stoving, the curing time is 15-20 seconds.
• For short wave IR stoving, the curing time for each color differs; black cures more quickly than lighter colors. These recommendations are only guidelines. Compatibility with each curing condition should be tested prior to printing.

Direct Wet On Dry Printing:

In multicolor printing with coarse meshes, each color (apart from the final color) must be cured at a low temperature. Once the last color has been printed it should be cured at the maximum temperature required.

Low Temperature Setting:

The temperature for convection oven stoving / jet air drying should be set at 100-130°C (210-265°F) for 30-60 seconds. For long/medium wave IR stoving, the temperature must be set at 100-130°C (210-265°F) for 15-30 seconds.

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Final Curing:
The temperature for convection oven stoving must be set at 150-170°C (300-340°F) for 2-3 minutes.

Transfer Printing:
In multicolor transfer printing, each color must be cured at low temperature first before the next color is printed.

Heat Setting:
The temperature for convention oven stoving / jet air drying should be set at 100°C (210°F) for 30-60 seconds. For long/medium wave infrared stoving, the temperature should be set at 100°C (210°F) for 15-30 seconds. It is important that the curing of the transfer not exceed the required duration or the maximum temperature, as this will result in poor adhesion.

Transfer Application
Transfer prints must be cured in the heat-pressing unit at 18-190°C (355-375°F) for 10-15 seconds. Precaution against potential overheating of transfer print pressing should be taken because fabrics are subject to shrinkage or burn. Allow the transfer paper to cool prior to removal. If a pressing unit is not available, heat from ironing can be an alternative but it is not as effective due to inconsistent heat and pressure.

Fastness
PTN inks have good wash resistance according to ISO Test Numbers 1, 2 and 3 and according to United Kingdom Home Laundering Consultative Council Recommendations No. 3. Prints may be ironed from the back of the fabric with a cool iron and with a cloth over it printed area. ***Prints will not resist dry-cleaning and garments should be marked to this effect.***

Expanding Prints
PTNE001 PTN Expander can be mixed with any PTN Plastisol Ink in the following proportions to produce 3 dimension expanded prints:
PTN Plastisol Ink : 80 parts (by weight)
PTNE001 PTN Expander : 20 parts (by weight)
The variable ratio of PTNE001 PTN Expander to ink allows control over the degree of expansion, color strength and print distortion. Optimum expansion is produced at the higher level of PTNE001 PTN Expander addition, whereas maximum color intensity and minimum distortion are achieved at the lower level.

Matt Prints
PTNE001 PTN Expander can be mixed with any PTN Plastisol Ink in the following proportions to produce matting prints:
PTN Plastisol Ink : 100 parts (by weight)
PTNE001 PTN Expander : not over 5 parts (by weight)
The variable ratio of PTNE001 PTN Expander to ink allows control over the degree of matting , colour strength and print distortion.

Drying and Curing Expanding Prints
Prints will expand and cure to a dry film only on the application of heat. Because different fabrics and colors require differing curing schedules should only break taken as a guide.

Note: Over-curing will cause ink film to collapse.

Full Cure: Convection Oven Stoving and Long/Medium Wave Infra-Red Stoving: 150°C (300° F) for 2-3 minutes.

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Wet-on-Dry Printing:
For production of multi-color prints, set at low temperatures between colors for followed by a full cure after the last.

Low Temperature Setting:
Convection Oven Stoving and Long/Medium Wave Infra-Red Stoving: 80-90°C(176-194°F) for 1-2 minutes.

Synthetic Fabric Printing
Add 5% PTN073 Nylon Catalyst for Plastisol Ink to any PTN Plastisol to improve adhesion on many nylon and synthetic fabrics and helps reduce fibrillation an cotton fabric. Mixed inks have a pot life of 8 hours. For maximum adhesion to synthetic fabrics use NYE or NYL.

PROPERTIES AND APPLICATION FOR PTN PIGMENT CONCENTRATE
PTN Pigment Concentrate can be mixed with PTN090 or PTN093* to create satisfy color. PTN Pigment Concentrate are not suitable for direct printing.
*Remark PTN090 has high viscosity and PTN093 has low viscosity.

COLOUR RANGE
The PTN range consists of 37 unleaded colors: 8 PTN Pigment Concentrate , 8 CMS (Colors Matching System) Base Colors, 11 Standard Colors , 5 Fluorescent Colors , 1 Phosphorescent Color and 4 Trichromatic Colors.

Remarks:

CMS	Colors Matching Systems
RS	Red Shade
BS	Blue Shade
GS	Green Shade
YS	Yellow Shade

Additive

PTNE001	PTN Expander (Powder)
PTN073	Nylon Catalyst for Plastisol Ink

Solvents

PTN901	Plastisol Flow Thinner
5099	Thinner
SSG17	Retarder
SWT139S	Cleaner

STORAGE
PTN inks should be stored away from heat, between 5-25°C. and in a sealed container.

STANDARD PACKING
PTN inks are available in 25Kg, 5Kg and 1Kg containers.
PTN Expander (Powder) is available in 1Kg, 500g and 200g containers.
Nylon Catalyst for Plastisol Ink is available in a 1 container.

COLOUR MATCHING SERVICE
Colors 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 color match is 3Kg.

SAFETY AND HANDLING

PTN inks should be used with care. Wear suitable PPE, for example, appropriate gloves and safety glasses.
PTN inks are formulated to be free from any toxic, carcinogenic, mutagenic or reprotoxic chemicals.
PTN inks are suitable for printing children's products. All colors 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.
PTN inks do not have a flashpoint and are therefore exempt from the Highly Flammable Liquid Regulation.
Whilst working with the ink, the consumption of food and drink, and smoking are not recommended.

ENVIRONMENTAL INFORMATION

PTN Inks:

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

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