Created: 03/14/23

KIWO DTF FILM PREMIUM

1. DESCRIPTION

KIWO DTF FILM PREMIUM is a PET (Polyester) substrate circa 120 micron coated on one side with a special aqueous receptive layer, designed to be transferred via thermal reaction. The non coated side is normally left uncoated or with a single layer “nonslip” coating to improve registration. As opposed to Inkjet Film used for screen printing film positives and negatives, KIWO DTF FILM PREMIUM is designed in combination with the addition of a specialist adhesive layer post printing, to be transferred via thermal reaction to any thermally stable substrate, such as cotton, nylon, treated leather, polyester, 50/50 blends, and more (must have a higher Glass Transition and Melting point than the DTF process).

The coated layer has a micro-porous coating with microscopic cavities that absorb the pigment particles in pigment inks by capillary action. The coating has a volumetric limit for 4 color (plus) inkjets, which must be profiled to prevent over inking phenomena, which will prevent eventual image transfer. KIWO DTF FILM PREMIUM is water and bleed resistant but struggles under high humidity conditions.

KIWO DTF FILM PREMIUM has a specific D-min (cloudiness measured with transmission densitometer) with a “matte” feel to ensure adherence during thermal transfer.

The typical process involves the following general steps.

- Images to be printed (using 4 colors process inkjet inks with White ink) are mirrored and imaged onto specially coated receptive side. Printing workflow requires White ink imaged over 4 color printed image. Imaging is a two-part process; 4 color ink laydown with staggered white layer over the image. White layer is ONLY required if printing on dark substrates. Color image will be visible on backside (no coated PET) with white layer over color image on coated side.
- Post imaged films have a fine grind adhesive powder (typically TPU or Thermoplastic Polyurethane Powder) applied to printed coated side. Powder will ONLY bond to printed areas and does not adhere to non-printed areas.
- Film with imaged area and TPU powder are then subjected to an IR (infrared) light source to permanently bond the TPU powder to the printed layer.
- Film is then placed printing side down onto thermally stable substrate. Using a Heat Transfer Press with a specific pressure and temperature range, the image is then transferred to the substrate.

2. APPLICATION

Stage 1 Image Printing

- KIWO DTF FILM PREMIUM has a max ink limit down via profiling of 300% (meaning no combination >300% of C, M, Y, K). This is a wider latitude than other films. Anything greater than this may create pooling issues and an inability to dry. Requires profiling for accurate ink limit.
- Compatible with wide range of DTF aqueous-based inks and standard aqueous pigment inks.
- KIWO DTF FILM PREMIUM requires less ink for the same delta as generic DTF film. Requires film/ink weight measurement.
- Film will track through standard pinch roller inkjet system. A minimum of 8 pinch rollers over a 24” width is required.
- Film requires operating range of no greater than 75°F and 55% Rh (non-condensing). Film may exhibit white moisture rings around image with excessive Rh.

Stage 2 Adhesive Powder Application

- Adhesive powder application is a function of ink used. Typically, powder is adhered to White mask image. There are different types of adhesive powder differentiated by grind size and heat tolerance (glass transition and melting). Grind size and temperature have a positive temperature relationship. The larger the grind the longer the time required to melt (higher glass transition and melting point temperature). Finer grind will have a lower glass transition and melting point temperature. Typical powders are circa 80 to 200 microns in size.
- Powder is applied to uncured film (image size) via agitation (shaker box) or manual process. Powder will adhere to ink surface and not to non-imaged areas.
- Film is then “cured” using an IR light source. This means the resin-based adhesive will pass its glass transition stage and adhere to white ink layer. Adhesive will NOT be melted at this stage. Typical curing is around 120 to 150 degrees for 1 to 2 minutes. This is a function of manufacturer’s recommended temperature. Please refer to manufacturers Technical Information for powder. The powder will be bonded/gelled to the ink.

Stage 3 Heat Press Application to Substrate

- Image/adhesive powder are now applied to substrate via pressure, heat, and time. Three variables are a function of the adhesive powder, substrate, and film specifications.
- This is a cold / warm peel. True hot peels require a higher melting point with narrow latitude glass transition / melting point. KIWO DTF FILM PREMIUM can adhere to substrate between 240° to 360° Fahrenheit. This depends on adhesive powder manufacturer’s technical information recommendation and substrate being adhered to.
- Typical DTF FILM with medium grind adhesive powder has been tested at 320° to 360° Fahrenheit, 25 seconds at a medium to high pressure.
- Heat application will affect “hand” of print.
- It is possible to post process prints with second application for shorter period. Post processing may include use of secondary fabric between substrate and heat press to embed print into substrate.

3. PHYSICAL DATA

Color: Matte Sheet, White

4. PERSONAL PROTECTION

It is recommended to wear protective glasses and gloves. See Safety Data Sheet for additional information.

6. PACKAGING

24“ width X 328‘ length rolls

7. ADDITIONAL INFORMATION

For additional product information, please visit our web site at www.kiwo.com. All products mentioned in this Technical Information are available through KIWO Inc. and its distributor network. For further information contact your authorized KIWO distributor or KIWO directly.

Thank you for choosing **KIWO**.