



Technical Bulletin #91

Dye Migration

Dye migration or bleeding occurs on polyester and or poly/cotton garments when the Disperse dye in polyester fiber is heated to temperatures in excess of 265°F causing it to sublime. (The dye actually changes from a solid to a gas.) When plastisol inks are heated at temperatures higher than 265°F (Note: Most plastisol ink is cured at 320°F.) these dyes are released into the ink causing a discoloration of the plastisol ink.

Example: A red 50% cotton/50% polyester shirt is printed and cured at 320°F with a MH (non-low bleed/high opacity) White ink. After 12 hours the white ink begins to turn pink. Note that the migration may not become noticeable for 24 to 48 hours depending on the ink deposit or the quality of the dye used in the garment.

Solution

- Print with a quality low bleed (EL NPT Series) ink as an under base when printing on polyester or polyester/cotton colored textiles. Rutland's EL9074 NPT LB White and EV9240 LB White are very effective options when printing on polyester/cotton blends. Our EL9749 Super Poly White is recommended when printing on 100% polyester substrates. Testing is suggested when new lots and or types of garments are to be printed. (A drop of plasticizer on the suspect fabric sandwiched between two pieces of white cloth and pressed on 320°F for 30 seconds, will show the amount of bleed from a particular fabric. All polyester will bleed some but you should be concerned with fabrics that exhibit severe bleed.)
- On 100% polyester (bleed is always more severe) you must use Rutland's EL9749 Super Poly White.
- Print on 100% Cotton. Cotton will not bleed and therefore doesn't require low bleed ink. Use EH9075 NPT Cotton White on 100% cotton as a good quality, high opaque, economical white.
- On 100% Nylon. Nylon will not bleed, and, therefore, doesn't require a low bleed ink. Use EN9474 or EN9036 NPT Nylon Mesh Whites for Nylon.