FACT SHEET

What is Dye Migration & how can it be avoided.

Understanding polyester printing & dye migration ...

Dye migration is also known as bleeding or dye sublimation. This is a process that occurs mostly with standard plastisol inks on synthetic fibres like polyester. It is most notable with white inks on shirt colours such as red, navy maroon and even dark greens & blacks. It may appear immediately when the shirts exit the oven, or when they are left to sit overnight and even two weeks later.

The cause of Dye Migration.

The real cause of dye migration is simply the fact that the dyes in the polyester fabric are heat set dyes that sublimate or turn gaseous when heated to around 165 degrees celsius. During the curing of the plastisol ink, the dye, in gaseous form, migrates into the ink layer thus tinting the ink the colour of the shirt. This is inherent in the dyeing process of polyester and is unavoidable but not always impossible to deal with.
Any fabric containing polyester is vulnerable to dye migration and bleeding. When screen printing polyester or polyester blend garments precautions must be taken in an effort to prevent this bleeding.

Poor Quality fabrics & dying.

Another cause of dye migration is the simple fact that sometimes the process used in the dyeing of polyester garments, is of substandard quality and the dye will tend to migrate easily from the fabric into the ink layer. Some fabrics even have dye that is unbound and can migrate even if not heated. These poorly prepared fabrics can be are more common today with the rapid increase in popularity of polyester fabric.

Re-dyed garments.

Another cause can be re-dyed shirts. For example, let's say a fabric supplier dyes more yellow fabric one spring season for some reason and then they experience larger orders for shirts like black or navy and even maroon. Can you guess what they do? That's right, a re-dye job. Any re-dyed garments will have a tendency for the dyes to bleed into the ink layer. This goes for 100% cotton shirts as well as polyester or poly blends. Printing white ink on a 100% cotton tee shirt that has been re-dyed may also result in colour bleeding into the ink layer.

(a) Dye Migration.....(b) No Dye Migration

COMBATTING DYE MIGRATION...

There are specific inks that can be used for printing fabrics prone to sublimation & dye migration. Using good quality inks, that contain blocking agents that work to prevent sublimation is a good place to start. While these inks work to prevent the problem, they are not perfect insurance against dye migration.
It is prudent to test polyester & polyester blend fabrics, prior to printing.