Product Information

HEAT CURING OF PERMASET® INKS

Heat setting of PERMASET AQUA®, PERMASET SUPERCOVER® and PERMATONE® prints is absolutely imperative

All dry and cure regimes are subject to variability due to local conditions (including moisture content of fabrics, ambient temperature and particularly relative humidity (RH), etc.) in the work space.

Best practice involves conducting a battery of test prints following installation of your equipment. Test a range of print types and fabric types through a range of time and temperature regimes. Ideally, these should also include operation under a range of operating conditions, specifically ambient temperature and relative humidity (RH) in the work space.

Best practice also dictates conducting sample prints before and at the beginning of each print run. These can be cured with the proper print, then taken out and evaluated at various stages of the curing or heat-set process to test washability.

There are at least six methods that can be employed to cure **PERMASET®** prints:

TRADE PRINTER

1. Drying Tunnel or belt dryer is the equipment employed by most professional screen printers; 160°C (320°F) for 3 minutes is the cure regime recommended for **PERMASET®** inks. Other temperature/time regimes are listed on all **PERMASET®** ink containers. Some print shops report success with shorter dwell times; ultimately the test is what works in your workshop with your equipment.

START UP PRINTER

2. Heat Press: As with other methods, the prints must first be completely dry. Heat Presses are a favoured option for many start-up printers as they are compact to buy, compact to house and quick to operate. However, results can be very variable with heat presses, so testing prior to printing is imperative.

3. Flash Dry/Cure Units: Again, as with other methods, the prints must first be completely dry. Flash Units are also a favoured option for many start-up printers, particularly those that started printing with plastisols. They too are cheap, compact and quick. However, results can be even more variable than with heat presses. Testing prior to printing is therefore even more imperative.

HOME STUDIO PRINTER

4. Hand Iron: The prints must first be completely dry before hand ironing. Results are reportedly not as good as tunnel drying, but we have seen no evidence of difference. Metallics may present greater issues as the plate-like pigment structure can reflect heat and thus limit the amount of heat getting to the print/fabric interface. Thus for Metallics particularly and for **PERMASET SUPERCOVER®** prints to a lesser degree, turning the garment inside out and

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ironing on the reverse side of the print will help get the heat to where it is most directly required.

5. Bake: Again after air drying, fold piece/garment, **wrap in AlFoil (Aluminium Foil)** and bake at low heat (90°C; 194°F) in a domestic oven.

6. Tumble dry: Again after air drying, place in tumble-dryer for around 30 minutes and test.

NOTE: Emphasis on moisture content of the fabric and thorough drying of prints before curing is based on the fact that, until and unless all moisture has been removed from the ink AND the fabric, the print cannot get over 100°C (212°F), so cannot get close to cure temperature (160°C; 320°F) and therefore will not cure.

In commercial applications, often 90% of the energy used is consumed by water removal with only the last 10% involved in the cross-linking of polymer. It is only once the polymer has been cross-linked that any degree of wash and dry clean resistance will be achieved.

However, it must be emphasised that more heat does not always mean a better cure. In practice too much heat runs the risks of:

a) singeing the garment and

b) overcuring, which will actually compromise the wash-fastness and may even cause the print to crack in extreme cases.

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