



## HEAT CURING OF PERMASET

### Heat setting of Permaset Aqua is absolutely imperative

There are six methods that Permaset customers have told us about:

**1. Drying Tunnel** or belt dryer is the equipment employed by most professionals screen printers; 160°C (320°F) for 3 minutes is our recommended cure regime. Others temperature/time regimes are listed on all Permaset containers.

**2. Hand Iron.** The prints must first be completely dry. Results are reportedly not as good as tunnel drying, but we have seen no evidence of difference. Metallics may be an issue as the platey pigment structure can reflect heat and thus limit the amount of heat getting to the print/fabric interface. Thus for Metallics particularly and for SuperCover prints to a lesser degree, turning the garment inside out and ironing on the reverse side of the print will help get the heat to where it is most directly required.

**3.** 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.

**4.** After thorough air drying, place in **tumble-dryer** for around 30 minutes and test.

**5. Heat Press.** As with all the options above, the prints must first be completely dry. Heat Presses are a favoured option for many start-up printers as they are compact to house, cheap to buy and quick to operate. However, results can be very variable with heat presses, so they are not an option that we support.

**6. Flash Dry/Cure Units.** As with all the options above, 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 compact, cheap and quick. However, results can be even more variable than with heat presses, so they are not an option that we support.

All these methods are subject to suit local conditions, moisture content of fabrics etc. Our advice is to do a test piece (or better, multiple pieces). 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.

Our emphasis on moisture content of the fabric and ensuring that prints are thoroughly dry before curing is based on the fact that, until and unless all the 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 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, we must counsel that more heat does not always mean better. 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.

**VER1406**

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