

HEAT TRANSFERS

GENERAL INFORMATION

The heat transfer process has become increasingly popular among screen printers and T-shirt manufacturers. There are a number of advantages to the process, even though it does add another step into the process of screen printing. The transfer process uses a specially formulated paper as a medium for the ink. The image is printed on the paper rather than on a T-shirt, or other product, and the paper, with the use of heat, then transfers a completed image to the final product as another step.

One of the most prominent advantages is that the printing process is shifted into two locations. There is less likelihood of the products being damaged by ink spills or general messiness of the printing shop. Irregular, rather than flat, surfaces are easier to handle with a transfer than by rigging a screen to form around these contours. If there are problems that emerge in the printing process, they can be corrected without losing any of the shirts, or products, that are to be printed. T-shirt printers can work in small studios with transferrable images brought from another source.

Manufacturing a heat transfer requires the use of:

- A.** Appropriate ink (**Plastisol** for silkscreen; lithography ink can also be used in connection with **Plastisol** for adherence)
- B.** Release paper on which the image is printed
- C.** A carefully controlled process

Transfer paper is a smooth finish paper. Using a smooth paper permits the application of a finer and more exacting image. Since the paper is smooth, the image will copy without the imperfections caused by a textured surface. Also, the printing process itself requires less ink, since there is no need to compensate for the roughness of the surface. A thinner surface of ink is possible. Blank transfer papers can be bought from a variety of sources.

Since the paper is smooth and nonporous, less application pressure is needed to apply the ink. The ink will rest on the surface rather than need to be pushed down into the crevices of a surface. Squeegee operation can be more gentle, and there is less wear on the screen itself.

When using the squeegee, or setting blanket pressure, review the prints during the process. If the image is breaking up, more pressure is needed. If the image is smudging as it's printed, less pressure is required. A smooth ink surface is the goal. The pressure of the squeegee varies depending upon the size and intricacy of the image layer being printed.



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While printing on transfer paper, one concern is the avoidance of a layer picking up a previous layer while printing. The paper is designed to release the ink onto another surface and sometimes in printing subsequent layers, the screen will pick up bits of the previous layer. If this happens, reduce the pressure on the surface of the screen in subsequent passes, and use slightly less ink. Also, passing the squeegee at a slightly slower speed will help eliminate this problem.

The plastisol inks used in the transfer process must be heat cured after printing. They will remain in a “wet” or uncombined state until the curing process sets them on the paper. The plastisol inks should be cured just enough for the ink to remain stable until it is finally transferred to the garment or product. Care must be taken to prevent the ink from being overcured on the transfer paper. Overcuring plastisol tends to create a shortened shelf life and poor washability on garments.

Testing for the appropriate amount of curing can be done by peeling a small section of the ink from the paper and rolling it into a ball. It should have a stickiness and elasticity rather than crumbling and breaking apart. To correct overcuring, it is simpler to modify the amount of time given to the curing process than to alter the curing temperature.

Properly cured transfer sheets will tend to stick together when placed face to face. The inks are still “active” and ready for transferring from the paper to the garment or object. When printing plastisols for garment transfer, the inks should be thick enough so that when they are heat transferred they will not sink completely into the weave of the fabric and allow the fabric pattern to show through the transfer image. Also, a too thin layer of plastisol tends to wash very poorly. The image breaks up, and flakes of the ink separate from the garment.

Transfer papers will shrink when they are subjected to the heat of the curing process. The amount of shrinkage needs to be calculated to avoid poor registration with subsequent layers of color. Each printed layer is cured as it is printed. A stable transfer paper will shrink predictably and consistently. It is necessary to evaluate and compensate for this shrinkage. A simple means of compensating for this shrinkage uses the shrunken paper as a guide. Print and cure a single color. Use that printed image as a guide when setting up for subsequent color layers. All these layers will then be in perfect registration. The paper only shrinks once.

The curing of multiple layers of plastisol requires sensitivity to the different layers. In a four color print, the first layer will go through the curing process four times. The under layers of a print should be as minimally cured as possible to compensate for the repeated curing. Overcuring will tend to make the plastisol inks brittle and easy to peel off after the transfer process has been done.

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APPLYING A HEAT TRANSFER PRINT

• • • TEMPERATURE • TIME • PRESSURE • SNOW TRANS • • •

These are the four components of a heat transfer process. Finding the perfect combination of these elements will guarantee successful transfers of the images. Although a home iron can be used to heat the transfer paper and melt it into the garment, a more efficient method is to use one of the heat presses that are commercially available. With a heat press, the variables in the process become easier to calculate and to control. There is less likelihood of the transfers melting or imperfectly bonding. *(See information on heat transfer machinery on page 66.)*

• • • TEMPERATURE • • •

350° F is the industry standard. Too much heat will cause the papers to become brittle and tear. Too little heat will cause poor adhesion and poor washability.

• • • TIME • • •

The amount of time necessary to complete the transfer is generally about 10 to 30 seconds. The time varies with different thicknesses and different transfer presses. Essentially, enough time is needed for the plastisol inks to heat up, soften, and work their way into the fabric. If the original printing process overcured the transfer or printed an ink layer that is too thin, the ink will not be able to melt and sink into the weave of the fabric. The image will merely stick to the surface of the garment or the object without actually creating a bond. It will easily crack off or peel.

• • • PRESSURE • • •

Enough pressure is needed to drive the softened plastisol ink into the garment's weave. Pressure should be monitored carefully. Too little pressure will result in poor adhesion and a short life for the printed image on the garment. It is safer to apply too much pressure than to apply too little.

• • • SNOW TRANS • • •

Snow Trans is a product created by Standard Screen Supply to assist in the transfer process. The flakes of Snow Trans are sprinkled on the garment over the entire area on which the transfer will be placed. It intensifies the bond between the garment and the plastisol ink. Snow Trans can compensate for an overcured transfer print that may not have enough adhesive ability to fully bond with the garment. *(See Specialty Products.)*



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OTHER APPLICATIONS

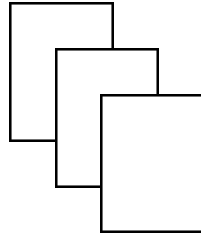
Transfer papers are used with other applications besides silkscreen. Lithography inks can be printed on the sheets, and backed up with a white plastisol layer to provide the cured adhesion to a garment.

The actual manufacturing process for these inks is very similar to the process used in screen printing colors. Color layer after color layer is applied. As a final layer, a white back-up of plastisol ink is printed over the entire image.

This layer becomes the bond. It is like a covering of glue that holds both the fabric and the lithography inks and provides a secure hold between them.

Sublimation or ink jet printers can also produce a transfer. When a single copy, or a very limited number of copies, of an image is needed, this is the most efficient method.

Specially treated transfer paper is run through an ink jet and the image is printed onto the paper. This image is then adhered to the garment in much the same way as the heat transfer images are.



PAPER



PRINTER



SINGLE T-SHIRT



HEAT TRANSFERS

Heat transfer is the process by which a special release paper is screen printed for transfer to a garment through the use of the heat press. A regular plastisol ink is usually used.

There are both cold-peel processes and hot-peel processes.

Cold-Peel Process

Plastisols are transferred from the printed transfer paper to the garment at 300°F.

Hot-Peel Process

Several inks, including flock, nylon, and metallic inks, require a higher temperature to ensure a proper transfer. Hot peel will transfer the inks at about 400°F.

The adhesion of the ink to the fabric can be made more permanent by sprinkling **SNOW TRANS** flakes onto the printed transfer before heat pressing the image to the garment.

SNOW TRANS
Available by the pound



Standard Screen Supply Corp. is a primary source for heat transfer machines.

We stock a variety of heat transfer presses with different options for screen printers who are interested in augmenting their screen printing operation.

***We will special order any heat transfer press that is not in stock.
Quick delivery is guaranteed.***



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