



# **USING LITHO GLOSS/MATTE**

## **Technical Information Bulletin**

Litho Gloss/Matte is a heat transfer release paper suitable for use when producing a Straight Screen or Litho/Plastisol Heat Transfer.

## **General Information**

Manufacturing a heat transfer which works properly is a combination of the following: 1) Release Paper; 2.) Litho ink; 3.) Plastisol; 4.) The method in which the first three items are used. If the proper materials are used, but used improperly, no one can guarantee a finished item that will work properly. Method, resulting from experience and testing, is the most important of the four parts.

The following is given as a general outline on how to produce Litho and Straight Screen Transfers using Litho Gloss/Matte release papers, and how to avoid many of the common mistakes. It is not the final and complete method of production. We offer this information only as an overall description of our paper and how best to adapt it to your method. We make no guarantee regarding other products used in conjunction with these papers and the results that are obtained.

## **Printing Litho Transfers**

Litho Gloss/Matte was developed to overcome the major drawback of parchment papers – their poor printing surface. The rough surface of parchment always placed an absolute limit on the finesse of the design to be lithographically printed. Litho Gloss/Matte, with its smooth surface, never limits the printer or the artwork since its base stock is printing paper. This advantage shows itself in many ways.

First, because the surface is smooth and free of the holes and valleys found on other papers, less ink needs to be put on the paper. There is no need to “load up the sheet” while litho printing. Reducing the amount of ink by 30-50% will eliminate smudging and smearing and, at the same time, give you a much brighter and cleaner transfer than was ever possible with other papers. A side benefit is that ink costs are reduced.

Second, when running Litho Gloss/Matte, it is not necessary to use excessive blanket pressure because there is no need to force the ink down and into the paper. When examining a design under a glass, you will see every dot and each in good condition. None are dragged out or squashed. Again, the overall result is a clearer and sharper design on the shirt.

So, when printing Litho Gloss/Matte, do not use too much ink and do not use too much cylinder pressure. The best rule of thumb is for the printer to run this paper as he would a regular commercial job: NORMAL PRESSURE AND NORMAL AMOUNTS OF INK.

However, keep in mind that Litho Gloss/Matte is a release paper designed to release ink. If the image begins to break up with many small specks appearing in the solids during printing, then more pressure is needed to firmly place the ink into position on the paper surface. A balance must be found between too much pressure (which will distort the individual dots, thereby reducing the clarity of the image) and too little pressure (which will result in the ink film breaking apart). The correct level of pressure is not hard to find and, if anything, it is better to err towards slightly too much, rather than too little cylinder pressure.

Litho Gloss/Matte works beautifully on 1 and 2-color presses as well as on 4-color presses. However, the press operator will have to be alert for dots which were put down during the first pass being picked off during the second pass (remember, this is a release paper). To overcome this

problem, should it occur, the following steps should be taken: Carefully adjust ink levels and press pressure, using slightly less ink and pressure on each successive pass; Reduce press speed; Use an ink which is designed for use on 1 and 2-color presses. This type of ink will greatly resist being picked off the sheet during printing, yet it will release beautifully when the image is transferred to a shirt.

Another advantage of Litho Gloss/Matte stems from its being a white paper (i.e. not blue or gray). When matching a specific color, such as on a custom design, it is not necessary to pull a sheet off the press, cut out one design, back it with Plastisol, cure it, transfer it, and only then inspect the color. (Meanwhile, the press is standing idle at how many dollars per hour?) With Litho Gloss/Matte, it is necessary only to pull out one sheet and inspect the color right then and there. The color shade on the paper is what you will see on the garment as the paper provides the proper white background necessary for color matching.

A problem to watch for is when printing Litho Gloss/Matte is set-off in the freshly printed stacks (before being coated with Plastisol). This problem, if allowed to go unchecked, will result in many small specks in the final image on the shirt.

The problem of set-off can be avoided by observing these precautionary steps: 1.) Do not load up the sheet with too much ink; 2.) Keep the stacks short coming off the litho press; 3.) Do not ship the freshly printed stacks from one location to another for 24 hours after litho printing; 4.) Use some dry set-off powder as the sheet comes off the press. Up to 50% of the amount used on commercial job can be used when printing Litho Gloss/Matte without encountering problems.

It is interesting to note that set-off also occurs when using parchments and other papers but that it is usually not noticed due to the overall low printability of the paper and of the finished print on the shirt.

When deciding which litho ink to use in conjunction with Litho Gloss/Matte, keep in mind that you want ink with a long “open-time”. Open-time is the length of time a freshly printed image can remain unbacked with white Plastisol before it dries and becomes unusable. Litho inks with a short open-time (inks which dry in 2 or 3 days) should be avoided as they can very quickly cause scheduling problems.

For example, it would not be safe to do a litho run on a Friday as screening the backup layer of white Plastisol on Monday might be too late. Or, should a press or oven break down for a few days, you could have a problem, as the litho ink may be dry before the machinery is repaired. So, as you can see, you should use only litho ink with a long open-time.

A good litho ink, used on Litho Gloss/Matte, typically has an open-time of 1-2 weeks. Some ink can remain open for as long as 1-2 months under ideal conditions; however, it is not recommended to leave transfers uncoated for this length of time. The exact length of open-time will vary according to your method and, in general, it is best to coat the design with white plastisol as soon as it is practically possible.

In every case, be sure to TEST the compatibility of any new ink you plan to use with Litho Gloss/Matte.

*NOTE: NEVER run freshly printed sheets through the oven to “dry” the litho inks before screening on the white Plastisol.*

## **Screen Printing the White Backup Plastisol**

Although this step of the manufacturing process seems less complex than the printing of the 4-color images, it is during this step of the operation that manufacturers make most of the mistakes that cause problems later on.

The most common mistake is to over-cure the Plastisol. Over curing is so common because it is so easily done: An oven a bit too warm or a belt passing through the oven a bit too slow and – Presto! – The Plastisol is over-cured. People tend to let over-cured transfers slip through Production and quality control because they are less sticky than properly cured transfers and thus easier to handle. However, over curing of the Plastisol leads to many problems, including shortened shelf life and poor washability.

Plastisol is a product that will remain in its “wet” state indefinitely if left in the open air. The reason for curing Plastisol in an oven is to solidify it just to the point that the transfers can be handled and packaged; however, Plastisol should be cured as little as possible to reach this point. To effect proper curing, it is usually much easier to control the speed of the belt passing through the oven rather than the temperature in the oven. Leave the oven temperature control at one specific setting and vary the belt speed until you find the point where the transfers are properly cured. The oven should be completely enclosed, including a bottom underneath the belt. An open bottomed oven will have a poor temperature control.

To test for proper curing, place two transfers back to back against on another. The transfers should stick together quite a bit. If they just fall away from one another (no sticking action at all), then the Plastisol is probably over cured.

Another way to test for proper curing is as follows: Take a transfer and, with your fingernail, peel off a strip of Plastisol. Note how it reacts when stretched and rolled into a ball. If it breaks apart easily and tends to crumble, then it is probably over-cured (just think of how it will crack and crumble on a shirt!). If, on the other hand, it is elastic and rolls easily into a sticky little ball, then it is probably cured correctly.

Again, cure the Plastisol layer as little as possible and only to the point where the Plastisol is dry enough to handle. If you’ve modified your curing process a number of times and the Plastisol still has no “life” when it comes out of the oven (i.e. sticky, elastic, etc.), then perhaps you should try another brand of Plastisol.

The second common error related to the backup white is the thickness of the Plastisol. Many transfers are produced with a backup layer that is too thin. An overly thin layer of Plastisol will result in a poor looking transfer, as the weave pattern of a shirt will show through the design. A thin Plastisol layer will also result in poor washability of the finished item.

A correct Plastisol layer should be in the range of 3-4 mils thick, with 2.5 mils being the absolute minimum. Using a micrometer, measure the thickness of a transfer, including both the paper and the Plastisol layer within the jaws of the micrometer. Next, measure the thickness of the paper

alone. Subtract – the difference is the thickness of the Plastisol. If it is too thin, then modify your screening process.

DO NOT ADD any sort of extenders to the white Plastisol used to back the litho transfers. Extenders will reduce the stickiness of the Plastisol, which later results in a heavy ghost of ink remaining on the paper after transferring. Adding extenders will also result in poor washability.

### **Straight Screen-Printing (1-4 colors)**

Litho Gloss/Matte, when used for straight screen-printing, will give you beautiful results and with the greatest of ease. Its smooth surface will impart a satin sheen to the finished transfer and make the colors brighter and the image sharper.

The most important advantage of Litho Gloss/Matte for straight screen-printing is its dimensional stability. Everyone knows that it is impossible to work with a paper which shrinks considerably and, not only that, but which shrinks differently from sheet to sheet. With erratic shrinkage, nothing is ever in register.

Litho Gloss/Matte greatly reduces all of these problems. It will shrink – all papers shrink when subjected to heat – however, Litho Gloss/Matte will shrink only a small amount and every sheet will shrink in the same manner. With minor shrinkage, which is consistent, it is very easy to compensate.

To obtain the best results from Litho Gloss/Matte, especially when running 6 or 8 designs on one sheet, we recommend that the following procedure be used: Cut the screens for your first color and start running the sheets through the screen press and oven; Cut the screens for the second and third, etc., colors using a sheet with the first color already down as a guide (this sheet having already shrunk); All subsequent colors will then be in perfect register.

The curing of the many layers of Plastisol on a 4-color design can be tricky. Do not forget the first color down is exposed to the oven's heat 4 times. Keep an eye out for over curing. Excessive curing of a straight screen transfer is not as serious as over-curing but will lead to premature cracking and peeling of the transfer on the shirt.

### **Transferring Transfers onto Garments**

This step is very important, yet is the one over which the manufacturer often has no control because it is being done by someone else, somewhere else, at a later date. It is because of the lack of control over the final step that it is important to properly manufacture transfers in the first place. If the transfer is properly printed and cured, then the person who finally puts it onto a shirt will have a hard time messing it up.

Three factors play a part in the transferring step:

1. Temperature
2. Time
3. Pressure

A temperature of 350° F seems to be the standard of the industry. If problems start to occur during the transferring stage, check the temperature of the transfer press using some accurate means. Do not trust the small thermometer on the press. It is not uncommon for these thermometers to be either high or low by 30-40° F. Too little heat will give a good-looking transfer at first, but the washability will be poor. Too much heat will cause release papers to become brittle and tear.

The amount of time necessary to apply a transfer ranges from 10-30 seconds, depending on the following: Whether a transfer press or a home iron is used; The type of transfer; The thickness of the paper, etc. Basically enough time is needed for the Plastisol to heat up, melt, and work its way into the textile. This is why it is so important to make sure that the Plastisol layer is thick enough and not over-cured. If the Plastisol is too thin and/or over-cured during the manufacturing stage, it will not melt and work its way into the textile during the transferring stage. Instead of having a strong bond between the Plastisol and the shirt, you will have a transfer sticking to the surface in a superficial manner. After just a few washings, the Plastisol will begin to crack and peel and the owner of the shirt will probably never buy another transfer from you.

Enough pressure is needed to drive the melted Plastisol into the textile. Of the three factors mentioned above, pressure seems to be regarded as the least critical. However, it should be monitored carefully, since using too little pressure will result in a transfer, which is poorly applied to the shirt. Also, in the case of litho transfers, using too little pressure will result in white specks on the design and a heavy ink stain on the paper.

When peeling Litho Gloss/Matte off a garment, you will notice a slight ghost of litho ink left on the paper. Do not be alarmed – this is normal. The ghost, or stain, is not indicative of ink soaking into the paper, or of poor shelf life. The ghost is simply litho ink that the backup layer of Plastisol could not pick up. As an analogy, think of dipping a magnet into a jar of tacks. A weak magnet will pick up so many tacks and no more. A stronger magnet will pick up more tacks, however, either the weak magnet or the strong magnet will leave tacks behind if there were too many tacks to start with..

This illustrates why it is not necessary to load up Litho Gloss/Matte with excessive amounts of litho ink – the Plastisol will pick up just so much litho ink and no more. The rest will be left behind in the form of a ghost or stain on the paper. This also illustrates why it is important to test different Plastisols – some pick up ink better than others. In addition, some Plastisols wash better than others because they are better at holding onto the ink after they have picked it up.

When doing wash tests, it is recommended that you do not start the tests for at least 24 hours after the transfer has been put onto the garment. This extra time period allows the litho inks to dry completely in the open air before being subjected to the wash. Also, if possible, instruct the person who buys the transfer to turn the shirt inside out when washing. This will increase the life of the transfer.

Regarding shelf life, we can say with confidence that Litho Gloss/Matte will give you no problems, assuming that your product is properly manufactured. Litho Gloss/Matte has been on the market for many years, and of the more than 100 million transfers, which have been printed on it, NONE have ever come back due to a shelf life problem.

### **Litho Gloss/Matte Price**

Litho Gloss/Matte is competitively priced. It will cost you no more than you are paying now to switch to the best heat transfer paper available. In fact, by switching to Litho Gloss/Matte, you will be ahead! YOUR WASTE WILL GO DOWN AND YOUR QUALITY WILL SOAR! Ask for our price schedule and compare for yourself.

## Summary

There is quite a bit which one must know in order to produce a high quality transfer. It all starts with using the finest release paper to build upon. We feel the Litho Gloss/Matte is your best possible choice. Litho Gloss/Matte, used in conjunction with high quality inks and Plastisols, will result in the best, longest lasting transfer possible. Is it all worth it?? Try some of our samples and judge for yourself.

The above information is given as a general outline designed to help manufacturers obtain optimum results with our heat transfer release paper. As mentioned above, the production of transfers includes a combination of paper, ink, Plastisol, and your own method. All information and recommendations given above are believed to be accurate and reliable, however, accuracy and completeness are not guaranteed. The following is made in lieu of, and to supersede, all warranties and guarantees, expressed or implied:

**The Seller and Manufacturer's maximum obligation shall be to replace any such quantity of paper, which has been proven to be defective. Neither the Seller nor the Manufacturer of Litho Gloss/Matte shall be liable for any injury, loss or damage, direct or consequential, arising out of the use of or the inability to use the paper.**

**Before using any paper, always test to determine the suitability of the paper for use in conjunction with your other products and your method.**