



Reveal S decorated shirts provide good color vibrancy and color reproduction.

ROAD TO SUBLIMATION SUCCESS

Sublimating to Cotton

By David Gross

Over the past 20 years, I have truly enjoyed being a “Sublimation Evangelist” for our industry. Looking back on those many years, I think of the countless times I have been asked the old familiar question: “Can cotton be sublimated?” I then think of the countless times I’ve reluctantly replied, “No.” Sublimating to cotton has been on my sublimation bucket list for a long time.

Why is cotton a constant candidate for sublimation decorating? First, cotton is the go-to fabric in other forms of decorating such as screen printing and modern direct-to-garment printing. Second, compared to the polyester options available for dye-sub, cotton shirts have a lower cost and are readily available in thousands of different styles from seemingly hundreds of garment vendors. Third, most customers simply prefer cotton.

As far as I know, it is impossible to

directly sublimating to cotton using traditional sublimation dyes and release papers. Why? The dyes, officially called “disperse dyes,” need to bond with an oil-loving molecule like polyester. This stumbling block has forced folks to search for a way to either break or at least work around the laws of physics when it comes to sublimating onto cotton. I have tested a number of promising and sometimes unusual methods that involved either coating the cotton with polyester

or modifying the release paper. In my opinion, all of these methods had fatal flaws. Until now.

INTRODUCING REVEAL S

Jim Cobb and his team at Vivid Chemical have introduced what I think is the first commercial “self-weeding” sublimation transfer paper. This game-changing transfer paper, called Reveal S, allows sublimators to decorate white/light colored cotton or blended fabrics using almost any inkjet sublimation printer.

The secret to the Reveal S transfer paper is a patent-pending coating that will selectively release only in areas that have been printed with sublimation ink. This type of process is called “single-step self-weeding.” (See sidebar on page 53.)

As the coating is released from the Reveal S paper, the sublimation ink turns into a gas and sublimates into the

released coating, which contains polyester. This released coating is melted onto the surface cotton fabric to finish the process. Unlike sublimating to polyester, which actually dyes the fabric, Reveal S makes sublimating to cotton a surface decorating technology, similar to screen printing or DTG printing.

Because of the selective release of the Reveal S paper, it is ideal for graphics but not a good fit for photographs. This is because photos often have light areas that will not activate the emulsion layer of the Reveal S coating. I've found that it's also necessary to check and possibly darken any light areas within vector art to assure there's enough color saturation to properly transfer onto the fabric.

As most folks know, a sublimator's choices are limited to white and light colored polyester shirts. This is because dye-sub inks are not opaque and therefore

need a light background to look correct (even so, sublimating to colored polyester shirts is popular). If we start with a colored shirt, then we have a limited amount of remaining color spectrum available to us, i.e., when sublimating to a yellow polyester shirt, blue is difficult to achieve since the cyan ink plus the yellow of the shirt produces green.

The Reveal S paper does not have this limitation. Since the coating that carries the dye-sub ink is somewhat opaque, more accurate colors can be produced on light-colored cotton shirts. As is the case with sublimation, if an area has no ink, you will see the underlying color of the shirt.

VIBRANCY AND DETAIL

Reveal S decorated shirts look great, in my opinion. Sublimation inks provide unmatched color vibrancy and noticeably better color reproduction than DTG

shirts. In addition, the detail/sharpness of the image is better than screen printing or DTG. This is because those technologies are putting ink directly onto the fibers of the fabric, allowing the grain or threads that make up the fabric to be seen. With the Reveal S paper, the inks live within the emulsion layer melted to the fabric, thus hiding the appearance of individual threads.

PRINTER/INK COMPATABILITY

So far, I have found the Reveal S paper universally compatible with both desktop and large-format sublimation printers. I have tested the Reveal S paper with Ricoh, Sawgrass, Mutoh and Epson printers and have had success with various brands of sublimation inks including SubliJet and SubliM. Reveal S should not be used in printers with non-sublimation inks such as dye or pigment inks.



Reveal S allows sublimators to decorate white/light colored cotton or blended fabrics using almost any inkjet sublimation printer.

IMAGES COURTESY DAVID GROSS



Vivid Chemical recommends transferring within a few hours of printing for maximum vibrancy.

One of the great things about sublimation is its ability to scale to larger and faster printers. Scaling up to larger printers for size and volume typically

After the first washing, the hand is minimal. I have found wash durability to be excellent and comparable with the best DTG inks. The Reveal S paper does

HOW TO USE IT

It's important to print to the imaging side of the paper in mirror image. Once printed, you are ready to transfer at the recommended time, temperature and pressure. Vivid Chemical recommends transferring within a few hours of printing to achieve maximum vibrancy of the inks.

One interesting production benefit of Reveal S is that since it is partially transparent, you can clearly see the image from the other side of the paper as it is placed face down on the shirt. This feature greatly aids in reducing placement errors.

To maximize the vibrancy of the transfer, we at Condé Systems have developed a new "Reveal S Setting" for your sublimation printer.

REVEAL S VERSUS DTG

With DTG printers, the shirt must be aligned on the DTG's platen to be printed. Once printed, the shirt must be carefully removed and placed in your heat press. Generally, DTG inks are pressed for about

One interesting production benefit of Reveal S is that since it is partially transparent, you can clearly see the image from the other side of the paper as it is placed face down on the shirt.

provides lower operating costs, making sublimation with the Reveal S paper quite attractive.

HAND AND WASH DURABILITY

Once transferred, hand of the shirt is similar to screen printing. Due to the self-weeding nature of the Reveal S coating, you only feel and see the emulsion where you see color on the garment. Outside of those areas, the hand remains unchanged.

require heavy pressure to set the emulsion firmly into the cotton, so I recommend washing your first shirt to verify that proper transfer pressure was used. Like most fabric printing technologies, you must follow the directions to get excellent wash durability. Due to various sizing agents used by manufacturers, some fabrics will wash better than others, so always test new fabric.

What is Self Weeding?

Your typical inkjet transfer paper works like a decal. Once pressed, the entire decal or emulsion layer is melted to the shirt. This is acceptable for white shirts, as the decal layer is difficult to notice, but it makes the entire transfer area stiff. For light colored shirts, this is completely unacceptable as you see the rectangular shaped, milky colored emulsion layer on the shirt.

To get around this, some folks spend long hours trimming the printed transfers, which from a production standpoint leads to huge bottlenecks and reduces profit. Self-weeding papers, on the other hand, only transfer what is printed on the paper.

Most self-weeding papers are two step, requiring a weeding step to remove any non-printed emulsion from the paper after printing. The Reveal S paper is a single-step self-weeding paper, making this a true technology breakthrough.

35 to 45 seconds to cure the ink. I estimate the round trip time for a typical DTG shirt is about three minutes. With the Reveal S paper, you only need to print the transfer and press. Transfer time is typically 20 to 25 seconds, which is about how long it takes to print the transfer.

So after the first print, it is likely that the heat pressing will be the limiting factor for throughput. Allowing setup time to load the press, we can still achieve at least a three times increase in throughput along with a significant decrease in labor. With DTG, your material costs are just ink and the garment used. With the Reveal S process, it's the paper, sublimation ink and your garment. My cost estimates show the cost of both production methods to be about the same.

WHAT ABOUT DARK COTTON SHIRTS?

Vivid Chemical believes they are close to finishing another version of their Reveal paper that would decorate dark cotton shirts. The results of this

paper would be similar to the Neenah Image Clip Laser Dark or the Forever Low-Temp Laser Dark self-weeding papers for color laser copiers and color laser printers. I think we can look forward to some exciting future products that will push us farther down our road to sublimation success.

David Gross is president of Condé Systems Inc. of Mobile, Alabama. He can be reached by email at dgross@conde.com.

A&E



LaserSketch.com

YOUR ONE-STOP SHOP

As an innovator and developer of marking materials and color back fills for the laser engraving of metal, glass, plastic and wood, **LaserSketch.com** is your one-stop shop.

630-243-6360

Jim@lasersketch.com

Have a service or product to sell?

For A&E Marketplace advertising inquiries, call **800.669.0424**



A&E MARKETPLACE

CUSTOM PATCHES & EMBLEMS
CUSTOM
Embroidered, CHENILLE & LaserCUT™ Patches!
800.672.8778 www.drapatch.com
Since 1984

EQUIP NEW/USED FOR SALE
ACCESS
Business Solutions
USED LASER ENGRAVING EQUIPMENT
Buy, Sell, Trade
www.usedlasers.com or 312-386-8021
Use INFO #84

GLASS ETCHING
The **MUST HAVE** Book for every glass enthusiast... Now in its 3rd Printing!
GLASS SIGNS

ONLINE FORUMS
engravingetc
• Real Experts!
• Real Solutions!
• Real Fast!
Miss a little and you miss a lot!
www.enravingetc.org

USED LASERS
ACCE
Business So
Parts, accessories & service for many makes & models
www.usedlasers.com or 312-386-8021
Use INFO #84

Buy & Sell Uses
If Free Classified!
Call our Head at 555
Buy Your Next Laser
or Sell Your Laser
Just Lasers
Use INFO #84