

Dyeing for ATTENTION

Is dye sublimation still the best way to go with fabric printing?

BY DAVID KING



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MORE THAN SEVEN YEARS AGO we purchased our first dye-sublimation (DyeSub) printing system, and at the time we had the first true roll-to-roll sublimator, and it worked great. Over the years we have upgraded to better printers (electrostatic to inkjet), but not much else has changed. We still use the same fabric, the same sublimator, and the same stitcher. And funny enough, the fabric prints are more fabulous today than when we first started. So why would I consider changing?

SAVE MONEY AND TIME

My answer is that “change is good...” and if we could take one step out of the process of producing prints on fabric (the transfer step), this would save time and

money. A few years ago Fisher Textiles sent me samples of their new coated fabric, which was designed to be printed directly to by a solvent printer. Some of the fabrics were good, some were just okay and others were just bad!

We put this thought on the back burner for a year or so, and then Neschen came to us and said, “We have great coated fabrics.” So I again looked at the price and the products to see what had changed. The new coated fabrics were again much better than a few years ago, and again we got the same basic results: some were good, some were okay and others were just bad!

This time we tested more than just one solvent printer; we tested a Mimaki JV3, a Vutek 3360 and a NUR Fresco, and the results were much better on the higher-resolution printers. Finally we tested the coated and uncoated fabrics on the Vutek Pressvu 200/600 UV-curable printer, and these results were better across the board. The UV-curable inks tended to show off the color better and when we double struck the fabrics with more ink, the colors were wonderful.

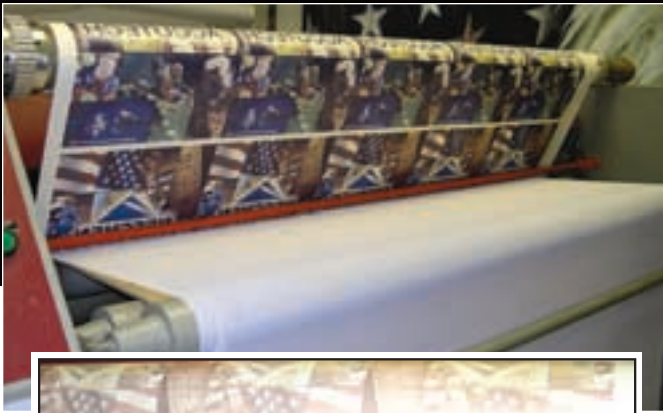
A LITTLE TEST

In the world of digital fabric the 80/20 rule applies: 80 percent of the fabrics sold are 20 percent of the fabrics available. The most popular are the Poplin (wrinkle-free), Satin (high gloss with a tight weave), Dacron (looks like nylon and ideal for flags), Duck (ideal for roll up banner stands due to it being stiffer), Hercules (heavy texture), and Sheer (very light and see-through). These same products are also available coated so you can print directly on them.

So we got all excited about direct printing to fabrics, but a test would not be complete without going back to the dye-



This sample sublimation print, created from 2,800 separate images, was printed five years ago using an electrostatic printer. It's been hanging in our showroom ever since and still looks great. A larger version of this print is still used as a stage backdrop for the Army National Guard.



Above, carrier paper printed with a dye-sub image in reverse and uncoated fabric are fed together into the dye sublimator. The carrier paper holds dyes in place while they are sublimated into the fabric at 400 degrees F (below).



The Vutek 3360 solvent printer, printing direct to coated fabric.



The Vutek Press Vu UV 200-600 prints UV-curable inks directly to coated or uncoated fabrics.

Costs associated with each process:

Process/Material	Solvent	UV Curable	DyeSub	Notes:
Uncoated fabric Quality	No Good	Good	Great	
Recommended Fabric	Coated	Coated	Uncoated	
Cost for Recommended	\$.45-\$.90	\$.45-\$.90	\$.15-\$.30	Cost per sq. ft.
Ink Cost on Average	\$.06-\$.20	\$.20	\$.26-\$.93	Cost per sq. ft.
Paper Required	NO	NO	YES	Cost \$.12 per sq. ft.
Special Processing	NO	NO	Sublimation	(From Adams International)
Washable	Limited	Limited	No Problem	
Outdoor Durable	Good	Better/Best	Good	Coating and ink type affect durability
Additional Costs	None	None	Electricity	For sublimator (lots of electricity)
Time	Just Print It	Just Print It	2 Steps	

sub “standard” and using this as the bar.

The test was very extensive. We used eight different fabrics from Fisher and Neschen, and we used all four printers for all images. The image was always the same so we could show the true changes in the inks. The printing was solvent vs. dye-sub vs. UV-curable.

In all cases we ran at 600 dpi or as close as we could get on the printer. The fabrics that looked the best on solvent were the ones that had the heaviest coatings like canvas and artist light. The coated fabrics in all cases looked the best on both solvent and UV-curable. As the fabrics got lighter and softer the colors

became more washed out. The UV-curable inks were the most consistent across the fabrics. The coatings on the fabrics made them a little stiffer and when we printed on them with UV-curable inks, the fabrics became even stiffer, like a light starch had been added to the fabric.

When it was all done (three days later and over 400 miles of driving) we had a very large table of samples. Much to the surprise of the others in my group, the dye-sub *blew the others out of the water!* Oh wow!

I was a little surprised. I thought the direct print would be closer to the dye-sub print, and a few of the fabrics were—but not enough to give up dye-sublimation

and go to direct print. (To be totally honest, the canvas did look great and you cannot sublimate to canvas, so I guess one of the fabrics was better than dye-sub.)

The dye-sub fabrics are natural (if you call polyester natural) feeling and looking, so they did win for overall look and feel.

WHO CARES?

I do not like to start with cost of graphics because if you cannot sell the quality of the print, then who cares how much it costs!

Okay...now that I gave my little speech, let's review the real costs. (see chart above)



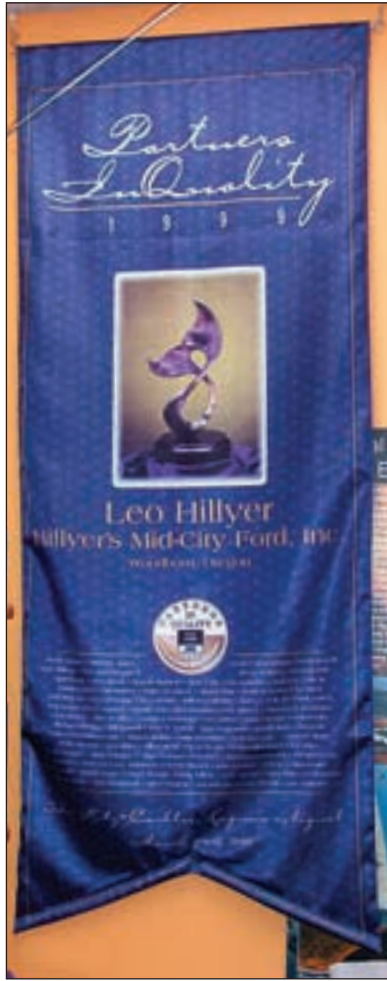
Direct solvent on coated material, printed one year ago.



Direct solvent on coated material, printed today.



Dye-sub on uncoated material.



Direct UV print from flatbed on coated material.



Examples of dye-sublimated fabric banners.

My assessment is that the cost of the coated fabrics are about 50 cents more per square foot, but the cost of the sublimation inks and the electricity are much higher than the coated materials. Plus the two-step process to make the sublimation print adds a labor cost.

But guess what—any customer that looks at dye-sublimation vs. any other process will choose the dye-sub every time!

The question is can you afford to go out and purchase a dye-sub system for fabric printing (estimated to be \$50,000) and make it pay vs. using your existing solvent printer. I cannot tell you this answer, but I can tell you that we have dye-sub, solvent, and a new Vutek UV printer—and I am *keeping* my dye-sub system!

Take the time to contact Fisher, Neschen, and other fabric makers for materials for both direct print and dye-sublimation and test them before you sell them. I am sure you will be happy.

See you on the show floor!