

Working with Liquid Laminates

Liquid Assets

Liquid lamination systems are not for everyone, but they certainly have a place in the market.

By David King



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Shops running a lot of high-volume jobs will benefit the most from using liquid laminating systems.

For years now we have been telling you about liquid lamination, but we have never gone into real detail as to what choices are available, who uses it, why do they use it, and what are the advantages and disadvantages for this type of coating.

To have a better appreciation for clear/liquid coatings you need to first look at the screen printing market. Screen printers have been clear coatings for screen printed signs and graphics for use in both indoor and outdoor applications for quite some time now. When digital printing began to be integrated into the screen printing scene, it made sense that these printers would continue to use the same lamination coating process with the new digital prints. Of course in the early days almost all digital printers were slow, dedicated roll-to-roll machines, while the screen printing world dealt in high-volume and everything was done on sheets. Digital integration in screen shops took its time.

One of the first digital printers (and some believe the only printer) that took in rolls and converted them to sheets of digital prints was a very large solvent-based drum printer called the Idanit — the current incarnation is the HP Scitex TurboJet. The TurboJet can print a full sheet of graphics (typically up to 65" x 145") in less than 55 seconds (around 4,000 square feet an hour) — now that is *cookin!* This has become the machine of choice for many screen printing shops due to its speed and sheet output capability. Screen printers with this unit can print sheets



These trucks are still on the road more than five years after being wrapped with liquid-laminated graphics that and they still look great.

and then laminate them with their flood coating equipment.

Back in 1995, a small company came to market with a liquid laminator that used a water-based laminate to coat aqueous digital prints. This machine would take a roll in and output a finished roll with a liquid coating. The machine was expensive, the process was slow and messy, and overall, it was a pain in the rear. But the savings were huge. My first machine (back in 1997) saved me over 50¢ per square foot on laminated graphics, and at that time we were running more than five, 300-foot rolls a week of 3M vinyl. Each roll we ran through the coater saved us \$675, so at the end of the month, we had a savings of about \$13,000!

Today, the digital inks and coatings have advanced so much that it is no wonder so many high-volume players in the digital printing market use liquid coatings on many of their graphics. Each of the companies I spoke with use at least one or two of the three liquid laminate choices: UV-curable liquid coating, solvent-based liquid vinyl coating, or water-based liquid laminates.

UV-CURABLE COATINGS

Right now these are the most popular coatings in the screen printing world. In most cases, this coating is applied using a clamshell press, but today some of the companies are moving toward continuous feed coaters. A few of my clients have this technology in-house and it is very fast, convenient, and allows



Working with liquid lamination systems takes some getting used to,



Liquid laminate systems are available in three types: UV-curable, solvent-based and water-based. (image courtesy Triangle Digital INX).



One downside to liquid lam systems is that the equipment is more expensive than film laminators.

Working with Liquid Laminates



Available in 60" and 80" widths, the Drytac VersaCoater UV XL handles output from most roll-to-roll and flatbed inkjet printers, including rigid substrates up to 3" thick. (Image courtesy Drytac)

for multiple sizes of image to be fed in one after the other. Because the coating cures with UV light, the speed is very fast, as fast as 90 feet per minute.

With the clamshell (also known as the long stroke) screen press unit the process is to slide the print onto the press, the top comes down and a long mechanical squeegee comes across and coats the graphic, then the operator slides the print onto a conveyer belt and it goes through the UV dryer at high speed.

These coatings have one drawback as I was told by a representative of Craftsmen Industries, a large screen and digital graphics house based in St. Louis, Mo. They stated that UV-cure laminate coatings are a little more brittle and will not stretch as well as the other laminates, but they use the system because of the speed and for the cost savings — they claim it costs them less than 10¢ a square foot for the coatings and it carries a full five-year warranty.

SOLVENT-BASED COATINGS

For information on working with solvent-based coatings I spoke with Rich Thompson, who runs Ad Graphics, a high-volume graphics producer based in Sarasota, Fla. (and occasional contributor to *Digital Graphics*). His shop employs a liquid coater and solvent-based laminates. Rich stated that cast vinyl is made from a liquid vinyl that is applied to a casting sheet and after the process is complete you have a roll of cast vinyl in a box. What better coating to cover your cast vinyl but with a liquid version of cast vinyl? Rich told me that about half of all

the graphics they produce in his shop are liquid coated. Due to the strong smell I recommend that a solvent coater be kept in its own vented room. Oh, the solvent smell comes with its own set of harmful VOCs, so this is actually a safety issue. A liquid coater and the right high-volume applications and you have a successful laminating solution for about 15¢ per square foot.

WATER-BASED LIQUID LAM

I have coated more than 2,500 graphics since 1997 using water-based liquid lam technology, and the graphics are still on many of these vehicles today. I especially like this choice because it is water-based, relatively easy to apply, and the cost is low — around 15¢ per square foot. I was told that this product is not as durable as solvent-based products, but I have not found that to be true. In the nine years I liquid coated graphics I did not see the performance issues that some people had expressed to me about this coating.

DOWNSIDES

Now, I know this all sounds great, but I'm sure you want to know what the downside is to using liquid coatings. Great question, and I will tell you that this process is definitely not for everyone. Liquid coatings are messy, they take a lot of getting used to. Installers don't like them because the coating is so thin that it adds no body to the graphic film and makes it difficult to handle. Also, you must use a pre-mask on most of the graphics you sell or ship to your installers.



Long-stroke screen press equipment, similar as this, can also be used to apply clear laminates. Prints will then be moved to a dryer to complete the process.

LIQUID LAMINATING RESOURCES

Company	Product Type/types	Web site
3M	solvent-based laminates	http://solutions.3m.com
Drytac (was Advanced Finishing Solutions)	water-based and UV-cure coating equipment, laminates	www.drytac.com (www.advfinishing.com)
ClearStar Coatings	water and solvent-based laminates	www.clearstarcorp.com
Daige Inc.	manually operated coaters, laminates	www.daige.com
Eastsign International Ltd.	solvent coaters	www.eastsign.com
Fujifilm Sericol	UV-cure laminates	www.fujifilmsericol.com
Gandinovations	water-based laminate	
Lumina Coatings	water-based laminates	www.luminacoatingsintl.com
Neschen Americas (Seal)	water-based and UV-cure coating equipment, laminates	www.neschenamericas.com
Optima International	water-based and "synthetic solvent" coating equipment, laminates	www.optima-int.com
Triangle Digital INX	water and solvent-based laminates	www.triangleinx.com
Valspar	water-based laminates	www.valsparglobal.com

If don't keep the machine properly cleaned and maintained you will end up with coatings that are too thin and the graphics will fail earlier than expected. Also, this is a practical solution only for high-volume jobs. You can't run a 15' piece of vinyl through the machine, you must run long pieces since the machine requires 6' to web, and 4' at the end to keep it from messing up the printed graphics. So, just to run one graphic you need to waste 10' of vinyl.

You must also consider the lack of versatility of a liquid coater. Most liquid coaters run just one type of coating, and generally it's full gloss. So, for any job requiring a heavy duty finish you'd still need to use a film laminate. Film laminators can be very versatile — handling any number of film thicknesses, grades and surface types.

One of the biggest downsides is the initial cost of the equipment. Automatic liquid coaters start at \$16,500 and can run as high as about \$90,000. A good long-stroke screen printer with a dryer unit runs around \$80,000 and will take up about a 50' x 10' area in your shop. Good-quality film laminators range from around \$2,000 to \$16,000.

BUT THEN AGAIN...

Now, as I always do, I will give you the ROI to help you determine if you should consider a liquid coater for your business. I believe that if you are running at more than four rolls of adhesive-backed vinyl a week, you might want to consider a liquid coater. Of course, this assumes that your four rolls per week are often running through the night, and that you are doing longer runs and primarily needing only one type of laminate finish.

If you are paying 80¢ per square foot for a cast film overlamine, and the new machine will bring your new cost down to 15¢ a square foot, each roll you run will save you about \$438. Consider that you will need to subtract from this savings the extra cost of the wasted vinyl needed to web the machine

(about 10' for each run). I like to calculate a 30% waste cost, plus the cost of the pre-mask and the labor to pre-mask your graphics. So, your real savings would be around \$900 per week. Not to bad for a \$16,500 investment.

Although liquid coaters can only deliver one type of coating, the applications go way beyond vehicle graphics. You can run just about anything through the machine — banners, barricade wraps, wall wraps, short- or long-term vinyl signs, backlit displays, wallpaper, paper prints — just about anything. If you run the short-term graphics, you can change out the coating bar (meyer bar) to allow you to reduce your coating thickness to less than .3 of a mil and cut your cost per square foot.

What I learned by talking with some of these large graphics companies that handle graphics for huge fleets of trucks is that they run 95 percent liquid and the largest of them runs over four million square feet per year. Together, the nine companies I spoke with do about 15 million square feet of liquid coated graphics per year. This is equal to more than 22,000 rolls of 54" x 150' of vinyl film per year.

ON THE OTHER HAND...

Okay, these numbers are quite staggering, but I don't recommend that everyone just run out and get one of these machines without thinking it through. It's important to remember that your volume must dictate the move to liquid coatings. When you get to that stage volume-wise, then make sure you review with the manufacturer of your graphic vinyl what their policies are for liquid coatings — the warranty they offer etc. Also, if you start looking at liquid coaters, be sure to call other shops who use the machine you're interested in so you can get honest feedback.

Okay, good luck, and be smart with your money, and I will see you on the show floor!

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