

Coating you with Profits

BY DAVE KING



David King is director of operations for Massachusetts-based Castle Graphics. He has been in the digital industry for more than 21 years and works with a number of major manufacturers to help develop new

and better technologies. In addition to writing for Digital Graphics Magazine, Dave is a frequent speaker at The Sign Business & Digital Graphics Show. He has also produced Inkjet Printing, Laminating and Mounting, an educational video for the Video Classroom series. For more information call 1-800-691-8047.

I'm sorry, I just don't get it. I purchased my first liquid laminator back in 1997 and have saved a *fortune* each year by using it. What I don't get is why so many people still use hard laminates for their solvent-print graphics.

WHY SWITCH TO LIQUID?

Let me put this in straight dollars and cents. All vinyl products that need to be laminated with a film laminate must use a cold film vinyl laminate. These laminates are available as either cast or calendared films. Cast laminates work great on cast vinyl, and the same rule applies for calendared. Each time a cast film laminate is put on a graphic, it costs about 75 cents per square foot.

Big deal, you say? I say, *Yes*, it is a big deal — so big that it only takes one \$405 roll (54" x 150') of cast vinyl per month (or \$102 per roll for calendared) to pay for a new liquid laminator very quickly. Don't believe me? Well, to run my liquid laminator it costs me about 15 cents per square

foot for long-term applications (a thicker layer of laminate), and about 6 cents per square foot for short-term applications. So why are people still using film vinyl laminate to cover vinyl graphics?

That draws a picture on the savings to the bottom line, but readers may still be wondering why they should consider switching. There are other reasons as well — reasons that tie into production efficiencies and avoiding lamination failures.

EVAPORATING PROFITS

Solvent ink is basically made up of colored pigments that are suspended in a solvent-based solution. Depending on the ink (and the printer used), prints are generally not

completely dry when they come off the printer. Solvents tend to linger, either on the print surface or within the media, depending on the material's porous properties. The solvents need time to evaporate completely. Some prints can release solvents for weeks, depending on the material and the inks.

Basically, laminating must be put off until the prints are completely dry, because laminating a solvent print while solvents are still present in the media creates a good chance that the lamination will fail. Let me explain why.

Film laminate is a solid material and will not let the lingering solvents evaporate through the film. As a result the solvents are forced to evaporate through the *back* of the



Seal's AquaSEAL SW-3000 laminator may be pricey for some shops, but it's a workhorse. The machine uses an infra-red and blown-air drying system.

print, or, they could force the laminate to lift from the film producing a failure. On the other hand, liquid laminate is *not* solid and will allow the solvents to evaporate through the laminate over time. This way you can be assured that the print is protected and no failures will occur — even though the print is not completely dry when laminated. No waiting — far fewer failures.

MATERIALS ISSUES

Okay, the next factor to consider is the different materials a solvent printer handles: window film, adhesive-backed vinyl, banner

material, wall paper, Tyvek, temporary vinyl, printed cut vinyl, paper prints and many others.

All of these materials can be put through a liquid laminator, and in most cases, the material is very much like it was before the laminate was applied. This is the case because the liquid laminate is very thin and remains soft and flexible.

For jobs that require added stiffness (such as some P.O.P. applications), film lamination is still the best bet. Printing a job on bond paper and then laminating with a good vinyl film laminate, hot or cold, will

work just great. Wait until the print is completely dry before laminating.

DELIVERY SYSTEMS

Liquid lamination machines dry laminates in three ways — air-dried, heat-cured (infra-red) and UV-cured (using an ultra violet light). Most machine-applied liquid laminates are water-based, some use a UV-sensitive laminate. There are also solvent-based liquid laminates, but they are most commonly applied using a brush, aerosol or spray gun.

In the world of water-based laminates, if you ask the equipment manufactures of



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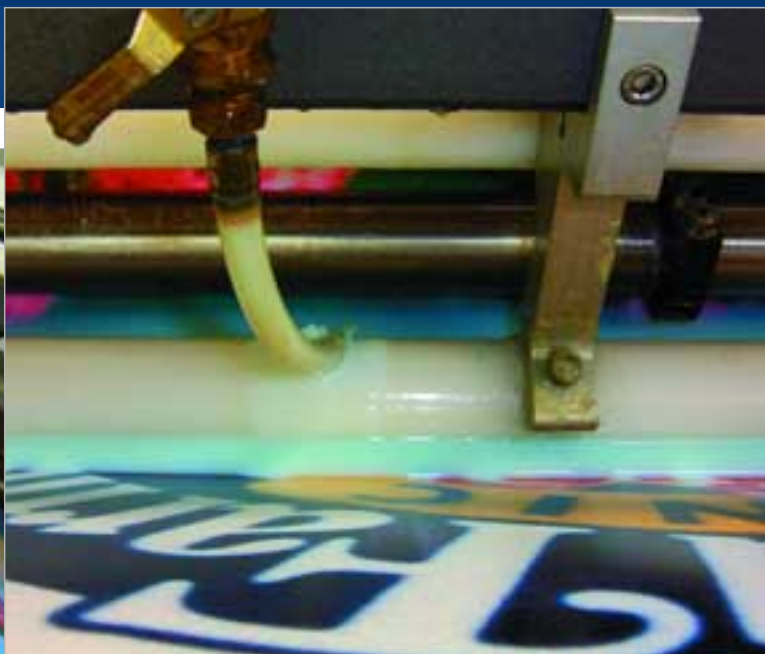
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Liquid Laminates



A close-up image shows the laminate flooding the print and the Meyer bar controlling the thickness of the laminate.

infra-red curing systems, they will say their product is the best. And if you ask the UV-curable people, they will also say their product is the best. The truth is, *it depends on the application*. Take for example vehicle graphics and adhesive-backed vinyl graphics. These are best served with an infra-red curing or air-dry water-based liquid laminate like those sold by Seal and Valspar. These systems dry easily (air for small units or heat-cured for larger systems), are easy to clean up, flow well across the surface of the material and are safe to use.

In our shop we use the Seal 3000 laminator, and it's just a great machine. The price tag is a little high for a lot of companies, but Seal has a number of great liquid laminators that are priced from as low as \$3,000. Even their low-end model has a Meyer rod that supports the five-year high-gloss liquid laminate. It's an air-dry system that works great and is perfect for shops that are just starting out with a solvent printer.

When looking at the bigger machines, the systems use electric infra-red (IR) heaters that run up to 800 degrees and move the vinyl through the machine with the thicker five-year high-gloss coating at a rate of about five feet per minute. A 300' roll gets laminated in about one hour. Not

bad, since the average high speed solvent printer would take over five hours to print this roll!

The UV-curable water-based coatings work only with UV-curing laminators — I guess that's easy to remember. UV-curing systems employ an ultra-violet (UV) lamp to instantly cure the laminate as it passes underneath. Neschen-Accutec has a very nice system that runs at 30-90 feet per



The Sign Coater from Seal is an entry level liquid laminator.

minute. Neschen-Accutec's water-based UV coatings contain ultra violet light absorbers (UVA's) as well as light stabilizers to prevent yellowing. The UV lamps get very hot, however, and require a high-speed conveyer system to move the materials through the UV drying oven, if a print is kept under the lights too long (just a few too many seconds) it can cook up and even melt! These systems are very fast and are ideal for high-volume shops that need to coat thousands of prints per day. The downside to this system is that it cannot handle rolled materials. However, imagine coating and cutting a 4' x 8' sheet in five seconds! Wow, now *that's* cookin'!

For small jobs, repairs and touch-ups on solvent prints and other outdoor prints, we use a solvent-based product called SunPrint spray. I know that Frog Juice and 1 Shot are also popular products used in the sign industry to protect air-brushed and other jobs. ClearStar also makes a solvent-based laminate. As mentioned earlier, this type of coating is not applied by a machine, so spraying consistency will not match that of a laminator. For best success, many coats should be applied to graphics. This material is more expensive, but then again, it doesn't require a machine.

Seal's Sign Coater is an air-dry system. Pull the coated print from the machine, tack it down to prevent curling, and in 20 minutes the laminate is dry.



COATING FINISHES

Liquid laminates typically come in a number of different finishes: high gloss, typically used for vehicle applications (we use this for everything); luster, a semi-gloss; matte, a flat finish; graffiti-proof, a thicker coating; and short-term, a very thin coating.

Seal liquid laminators have different types of application (Meyer) bars for applying different finishes — smooth bars for thin coatings, best for short-term applications, and ribbed bars for a thicker coating, best for long-term applications.

One confusing note: A five-year high gloss laminate used with the thin bar can produce a short-term coating; or, a short-term laminate used with the thick bar can produce a longer-term laminate. By my calculations (and confirmed by Seal Graphics) — my cost for five-year coatings on vehicle graphics is about 15 cents per square foot. But when I want a short-term coating for bus graphics or banners, I switch to the smooth bar and get my cost down to 6 cents a square foot. Keep in mind that the thicker the laminate, the higher the gloss (when using a gloss laminate) and the more it smoothes out the finish of the film.



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Liquid Laminates



Liquid laminators from Optima International, such as the XP RC-2085, use an infra-red curing system, but the laminate is a synthetic solvent base rather than the water base used in other systems.

LIMITATIONS AND DRAWBACKS

Nothing is perfect. The down side to liquid lamination and liquid laminators is that it requires about two-to-five feet of material leader to web the machine. The machine can only run at a speed of between one and 10 feet per minute, while a film laminator can run at more than 20 feet per minute. Also, there are no slitters on liquid laminators. Plus, if a premask is desired, it must be applied after the lamination step.

The liquid laminate is not as thick or strong as film laminate, and might be easier to install using a premask where a film lam-



Seal offers a complete line of production-oriented liquid laminators employing an infra red drying system and water-based laminates.

Liquid laminator and laminate suppliers:

Seal Graphics Americas - www.sealgraphics.com

Neschen-Accutech - www.neschen-accutech.com

Optima International - www.optima-int.com

Liquid laminate suppliers:

Valspar - www.valspar.com

ClearStar Coatings - www.clearstarcorp.com

SunPrint Spray - www.sunprintproducts.com

1 Shot - www.1shot.com/

Frog Juice - <http://new.far-from-normal.com>

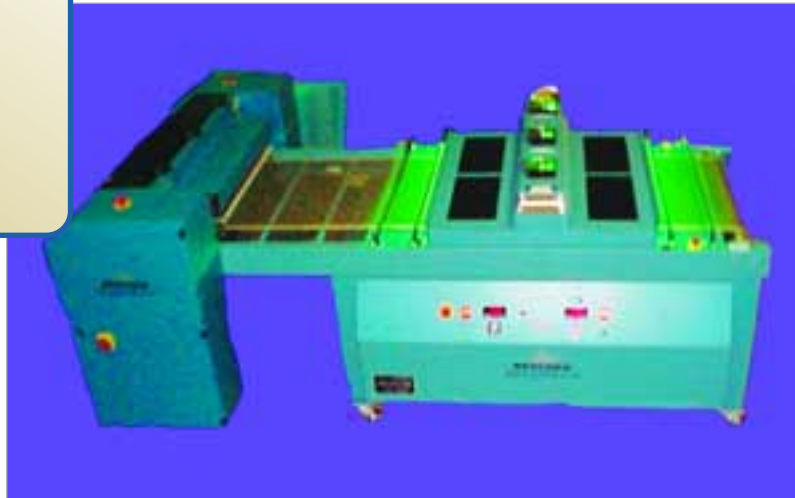
inate does not need a premask. Here's a tip: After working with liquid laminates for a while, the premask just tends to get in the way. At Castle, we print first, then go directly into the liquid laminator, then go to one of our film laminators for inline slitting and premasks if needed.

A final word to consider is that a liquid laminate can make vehicle wraps more difficult. The cured laminate is much softer than a film laminate and harder to handle. But on the upside, wraps that could never be done in the past are now possible because the film can be stretched farther than ever — over compound curves, in pockets and on surfaces that would likely fail with a film laminate.

We use Avery MPI 1007 EZ film to print all our vehicles. The film is great, but the liquid lamination gets 50 percent of the credit for the success.

A major message for all vehicle and wall-wrap crazies: Before choosing a solution, check the warranty information on the films and coatings.

If you purchase and use a non-warranted coating product to coat prints, say, for a vehicle graphic that fades early, you'll be stuck with the full strip, reprint, and reinstall for free! Also, watch out for coatings that lift off after applied. Use the tape test: take a piece of packing tape, apply it to a newly coated print that has had about an hour to dry, and then remove it *fast*. If some or any of the coatings come off, it's likely the wrong material for the job. If you are applying to a vehicle and you lose a little part of the coatings (it happens to us once in a while) keep your SunPrint/Frog Juice/1 Shot spray on hand to fix the area. **DG**



Liquid laminators from Neschen-Accutech employ a UV (ultra violet) curing system that is incredibly fast, but cannot handle rolled materials.

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