



What we have found is that it is difficult, if not impossible, to RF weld a vinyl graphic printed with UV ink, therefore, to use that solution, solvent ink is needed for many banners.

Solvent Ink in Grand Format

Future not so bleak for an industry standard

BY DAVID KING



Dave King is "Command of Results" at MarketKing, a marketing agency that offers the Print Shop Makeover. The program is designed to visit and teach business owners about digital printing. For more information, e-mail him at david@themarketking.com.

SOLVENT OR UV? What a tough call for anyone to make. When you look at the marketing and sales pitches, you would say solvent will be dead in the future. But let's review the facts as they are today and see what we can determine for the future.

WHAT IS GRAND FORMAT?

Let me first define what grand format is for this article: vinyl banner material and fabric. The reason for this statement is that you can print anything on a grand-format printer, but only vinyl banner and fabric comes wider than 96", so this automatically defines this as grand format.

Now that we have determined the product, let's review the usages. Vinyl banner material comes in many types, but generally it is either solid or mesh. The solid for grand format is best with 13 oz. to 18 oz. The mesh is available in 75/25 to 30/70 (speaker mesh). For fabric, most direct-print applications use either a coated fabric or canvas (this is automatically coated). Most fabric is 126" wide. The next part of the process is finishing—banners are either taped (not typically used in grand format), stitched, hot air welded, or RF welded. For fabric, the most common is stitched.

IMPORTANT CONSIDERATIONS

For the last four months we have been producing vinyl banners on a UV-curing printer and for a number of jobs the results are great, but what decisions must be made before this new technology is installed?

Costs—Let's start with cost because this is an easy one to review. It is true that you will pay more for the ink in a



Why is UV-cure printing such a hot new solution for roll-to-roll printing? The answer is simple; the new printers are really fast.



Solvent inks work well for graphics that are used for a week or so then folded/rolled up for a year and then brought back out.

UV-cure printer than solvent inks. In some cases, the cost of UV-curable ink is three or four times more. Well, liter-to-liter cost comparisons can be deceptive since the volume of ink used on a particular job will be much higher for solvent inks than with UV-cure inks. On average, you will use less ink with a UV-cure printer.

VOCs—Are VOC's really an issue? Yes they are—for your health and the health of your staff. Legally, they are more of an issue in areas of the country where state governments are tightening regulation of hot solvent inks. Venting the work area with hot solvent printers is a must as the fumes are quite aggressive and unhealthy. This is a cost that should be considered as well. With UV-curable inks, venting for VOCs is not a legal issue, but a number of printers (including me) will vent anyway because UV ink does have a smell, and for some people the smell is a concern.

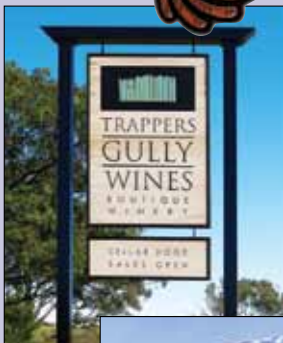
Finishing Options—One of the issues with UV-curable inks is the ability to

CONTINUED



I very much like the look of UV inks on vinyl banners. It is rich in color and more solid looking.

**Showcase Your Work
in the Industry's
Premier Monthly
Publication**



**DEADLINE:
OCTOBER 1, 2010**

**For complete contest rules
and an entry form go to
www.SDGmag.com**

SIGN
& Digital Graphics

Solvent Ink in Grand Format

CONTINUED

finish the graphics. What we have found is that it is difficult, if not impossible, to RF weld a vinyl graphic printed with UV ink. We are working with the manufacture of the printer and ink to see how this problem can be fixed, but until then, this poses a huge issue for us. Meanwhile, solvent-printed vinyl graphics have no problem at all with RF welders.

Fade Resistance—The second concern is the fade of the ink. We know how long the hot solvent ink can last, but we are not sure about the UV ink. My experience for outdoor durability with UV-curable ink prints is about a year. After about a year, at least here in New England, we often see the magenta fade by about 30% (less for the other colors). However, I know that all UV-curable inks are not the same, so hopefully your results are much better.

Shrinkage—The next concern is shrinkage. In the past, we have had huge issues with shrinkage on the inks. So much so, that over a two-year period, we have found large chunks of ink falling off the surface of some materials. We do not believe that the UV curable inks for the roll-to-roll machines will be a problem with ink chipping off because most graphics on banners or fabric are not up that long, and the substrate should absorb the shrinkage if there was to be any.

Speed—Why is UV-cure printing such a hot new solution for roll-to-roll printing? The answer is simple; the new printers are so *fast* that if the same speed was produced on the hot solvent printers, you would have a difficult time drying the ink. In addition, if the humidity is high, the drying is just about impossible. The UV-cure inks are dry once cured, which is the minute they come out of the printer.

Appearance—The next thing to consider is the look of the ink. I do not personally like the look of the UV-curable ink on boards, but I very much like it on vinyl banners, it is much more rich in color and more solid looking. There are some UV-cure printers, however, that offer a gloss mode for printing onto boards.

Storage—The last concern is folding and storing of the graphics. It is way too early to know, but we do a lot of graphics for events that are huge and they are used for a week or so then folded/rolled up for a year and then brought back out. We know hot solvent is not an issue, but we are concerned about the UV-curable inks. Only time will tell.

BREAKING DOWN THE NUMBERS

So here are the numbers for both a standard hot solvent printer running at 12" per minute and a UV-curing printer running at 24" per minute (these are typical numbers for the two different technologies). So, considering the price differences in the ink, as discussed above, what does this mean? Remember, the print speed for an average hot-solvent grand-format printer is about 400 square feet per hour, and the new UV-curing units can print at more than 800 square feet per hour.

Figuring 400 square feet at five cents for solvent ink, and 15 cents for the banner vinyl, which sells for a dollar per square foot, each hour this machine returns a profit of \$320.

Now take the same job on the UV-cure printer with an ink cost of 20 cents, the profit per hour is \$520. Now let's say you run six hours a day, your total profit at the end of a year is \$312,000! So I guess if the new printer cost \$350,000 and you have the work to keep the printer busy, I would say this is a stellar investment. The lack of VOCs would be an added bonus.

CONCLUSIONS

So what would I do if this was my choice? I would keep my hot solvent printer because I do a lot of RF welding plus I would need a backup for the new technology, and I would add the new UV-curable for the speed. I would only run the short-term jobs on the UV printer until a point when I was confident the ink would not fade or crack over time. **SDG**