LIQUID laminating

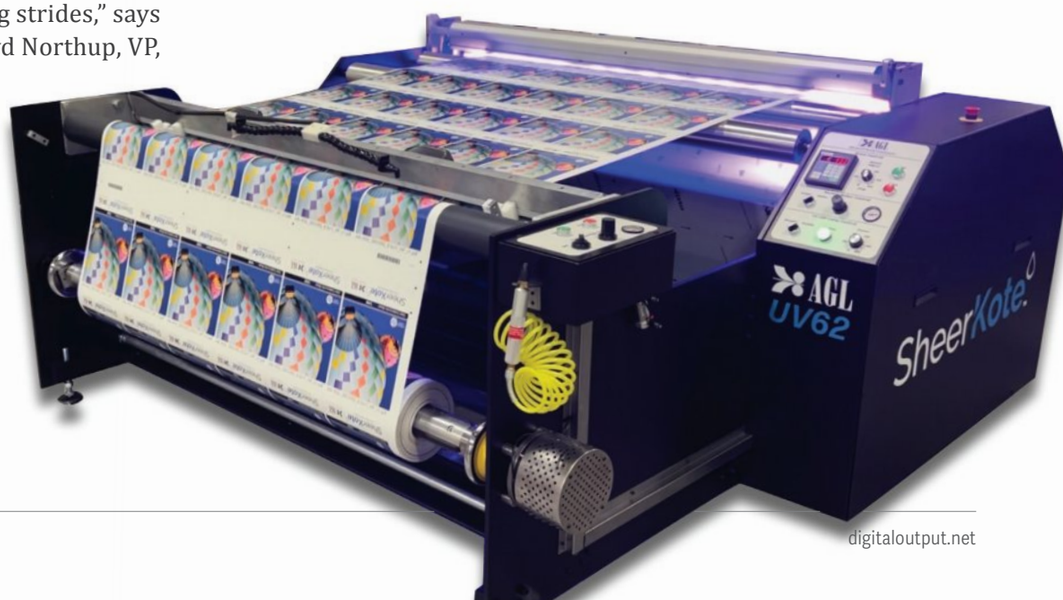
UV Liquid Coatings for Roll-to-Roll Wide Format Graphics

by Cassandra Balentine

There is a growing interest in UV liquid coating for the purpose of protecting and finishing wide format roll-to- roll graphics like wallcoverings, decals, banners, posters, and fleet wraps.

While the use of UV liquid coating is popular in the narrow format space, recent technology introductions have fostered intrigue in its use for large format graphics finishing.

"Narrow web UV coating has been around a long time. But, large format UV coating is starting to make big strides," says Syd Northup, VP, sales, digital U.S., Marabu North America. "Large sign and graphic shops are starting to see the benefits



Shown) The AGL SheerKote UV62 liquid coater is designed for roll-to-roll liquid coating on an industrial level. It is the first model in AGL's SheerKote line of UV LED liquid coating equipment.

of coating to protect graphics quickly and efficiently. Most importantly, the amount of labor and time to process/coat a job versus film lamination is paramount."

During the initial years of UV LED in print, Brian Buisker, president, and Hayes Holzhauer, partner, Advanced Greig Laminators, Inc. (AGL), point out that narrow format adopted the technology first due to the smaller width requirements. "As technology advanced, it allowed for wider UV LED lamps to be designed as well as a reduction in cost, making it a viable option in wide format."

Liquid Coating for Wide Format

An advantage to UV is the ability to print an image and immediately send it for finishing. The coated image cures in seconds. "This process speeds up any production environment that needs to get product out the door quickly—i.e real estate signs, outdoor signage, banners, etc.," comments Northup.

Buisker and Holzhauer note that UV LED curing has been in wide format printers for years. "AGL is introducing this technology for the first time to the wide format coating/laminating industry."

They point to numerous benefits of UV LED curing for wide format coating and laminating, including power savings, reduced emissions and replacement costs, a smaller footprint, and instant on/off capabilities.

Substantial power savings are possible with UV LED compared to traditional UV mercury arc lamps, which Buisker and Holzhauer say use 70 percent more electrical power to operate than low heat, low energy UV LED technologies.

UV LED lamps perform at 50 percent lower CO2 emissions. "The lamps generate no ozone and offer the elimination of toxic mercury. No ventilation is required with UV LED," add Buisker and Holzhauer. Further, instant on/off of UV LED allows for more efficient operations and cost savings.

In terms of replacement costs, Buisker and Holzhauer note that typical UV arc lamps need to be replaced every 1,500 hours or sooner while UV LED lamps last for around 60,000 hours when maintained correctly. "UV LED technology avoids these replacement costs and eliminates the hazardous mercury. This can amount to $32,000 to $35,000 in savings per year."

A smaller footprint is standard with AGL's SheerKote UV62 machine, which uses approximately 64 square feet of space while UV arc machines take upwards of 160 square feet of space, comment Buisker and Holzhauer.

Of course, there are challenges to consider. "One of the biggest challenges is the cost of a UV coater. Unlike Marabu's low-cost StarLam liquid laminator for water-based coating, the cost of a UV coater can range anywhere from $80,000 to $200,000," points out Northrup.

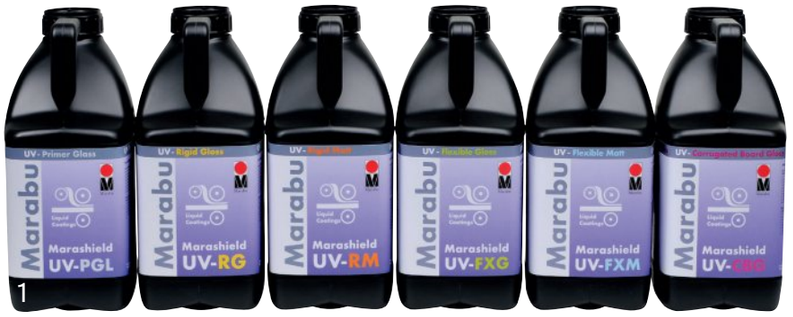
Lamination Options

Among solutions for wide format, roll-fed liquid lamination solutions is the AGL SheerKote UV62 liquid coater, which is designed specifically for roll-to-roll liquid coating on an industrial level. It is the first model in AGL's SheerKote line of UV LED liquid coating equipment.

With conventional UV arc curing known to produce ozone, which is a hazard for employees and requires costly ventilation equipment, the AGL SheerKote UV62

companies **mentioned** DIRECT *See page 22 for more info.*

INFO#	COMPANY	WEBSITE
100	Advanced Greig Laminators, Inc.	aglinc.com
101	Graphic Finishing Partners, LLC	gfpartnersllc.com
102	Marabu North America	marabu-northamerica.com
103	Mimaki USA, Inc.	mimakiusa.com



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offers an attractive proposition. "The UV LED curing technology in the UV62 does not create any ozone or volatile organic compounds—so no costly ventilation is required," explain Buisker and Holzhauer.

The water-cooled UV LED system in the AGL SheerKote UV62 is also of note, as it increases the substrate temperature by just ten to 25 degrees Fahrenheit—compared to 70 to 90 degrees Fahrenheit with UV arc—allowing easier coating of temperature sensitive materials.

Further, the AGL SheerKote UV62 utilizes meyer rod coating technology, which provides a superior coat finish. "The meyer bar allows for quick setup and breakdown of the machine, saving valuable time and keeping a cleaner working environment," note Buisker and Holzhauer.

AGL also formulated the Kote-Rite line of liquid coatings for the SheerKote line of liquid coaters. They offer universal ink compatibility, which means excellent adhesion, flexibility, and protection over latex, UV, and solvent inks. Gloss, satin, and matte finishes are available in a variety of grades to fit your specific application.

Buisker and Holzhauer feel that this technology will open the door for smaller wide format shops to incorporate a SheerKote machine due to its smaller footprint and allow them to realize the cost savings of $0.03 to $0.05 per square foot coating costs rather than $0.30 to $0.50 per square foot costs for dry lamination film.

Marabu also offers a UV-curable liquid coating, Marashield, which is applied with UV roller coating machines. The company believes this technology offers "unbeatable advantages and unparalleled versatility when compared to traditional film lamination as

Marashield coatings are not only less expensive than laminating films, they also improve efficiency in production."

Marashield is multi-purpose and can be used as a primer, finisher, and for protection. As a primer, Marashield coatings create an evenly applied primer as a bonding layer for inks on surfaces that are typically challenging to adhere to properly, such as glass.

"UV stability is our biggest benefit," states Northup. He says most UV-curable liquid coatings do not have UV inhibitors to protect against UV rays. MaraShield offers high resistance to abrasion, chemicals, UV rays, and graffiti. The company points out that Marashield coatings have passed numerous tests ensuring maximum protection of the end product.

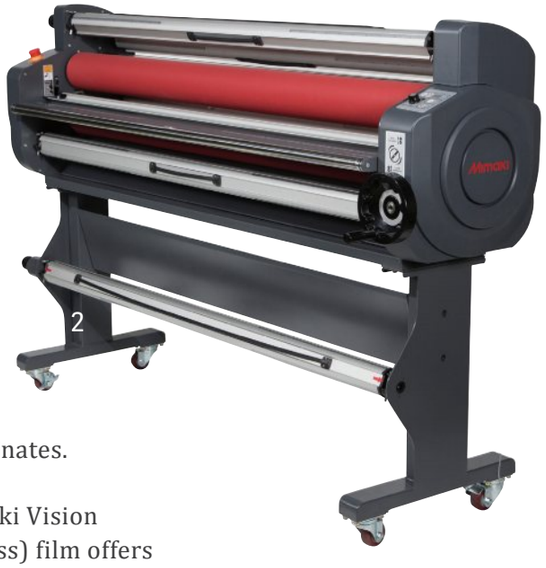
Northup says Marashield is seen as a smart alternative to film lamination cost, in addition to the protection presented as well as consistent quality.

Further, Northup feels the competitive advantage of an eye-catching professional look cannot be underestimated. "With Marashield, the best and most professional look is achievable each time you coat."

While liquid coating is generating attention, film and heat-assist lamination is a strong player in wide format finishing.

Sam Crosby, dealer manager, Graphic Finishing Partners, LLC, feels that the company's roll film options offer benefits that liquid laminating cannot. This includes superior abrasion resistance, adding body to assist with the installation process—especially as it pertains to vehicle graphics, more affordable equipment options, and the ability to "finish on demand" compared to the traditional liquid process.

Among available film lamination equipment, Mimaki USA, Inc. offers the LA-160W heat-assisted laminator, a 62-inch wide device that Timothy Mitchell, senior manager, customer experience, Mimaki, says improves laminate film adhesion, particularly to surfaces printed with UV LED ink, and reduces the potential for the silvering effect created by pressure-sensitive laminates.



Additionally, Mimaki Vision Laminate 310 (Gloss) film offers fine finishing with a glossy feel while maintaining the color brightness of the print. "This high-quality, heat-assisted overlaminate is also a cost-effective alternative to cold laminating films," shares Mitchell.

Leaning into Liquid

While film-based lamination is well established as a preferred finishing method for wide format graphics, UV LED curing is an emerging technology for wide format finishing, particularly for roll-to-roll operations. Applications like wallcoverings, decals, banners, posters, and fleet graphics benefit from potential power savings, reduced emissions and replacement costs, smaller footprint, and instant curing.

1) Marabu offers a UV-curable liquid coating, Marashield, which is applied with UV roller coating machines. 2) Mimaki offers the LA-160W heat-assisted laminator, a 62-inch wide device designed to improve laminate film adhesion, particularly to surfaces printed with UV LED ink, and reduces the potential for the silvering effect created by pressure-sensitive laminates.