

\$10.00

THE BUSINESS MAGAZINE OF THE PRINTING INDUSTRY

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# Graphic Arts MONTHLY<sup>®</sup>

MARCH 2003

## The Gloss Game

Coating & Curing on Press  
Speeds Throughput, Adds  
Enhancement & Protection

PINPOINTING PROMISING MARKETS FOR PRINT

COLOR MANAGEMENT MAKING STRIDES

COMPLIANCE ALERT: NEW HEALTHCARE RULES

# Winning the Gloss Game: Coating &

Aqueous and UV/energy-curable options continue to draw interest and attract practitioners as shops speed throughput and enhance customer value.

**O**ne process has become a standard feature on many sheetfed presses, permitting fast turnaround of work by “sealing” the job to let the inks take their own time to dry without smudging or blocking. The other process, which continues to win new interest and practitioners, is a more complicated technique that’s nonetheless earning a stand-out, beat-the-competition reputation.

The former, of course, is aqueous coating; the latter is in-line hybrid UV coating, in which sheets are printed with semiconventional inks and exposed to ultraviolet energy in one or more interdeck curing units, then overprinted with a UV-curable polymer type of coating that can add a high gloss, a matte finish, or even a metallic appearance.

## HYBRID UV IS HOT

“The hottest topic for printers today is hybrid UV,” states Vince Kowalski, vice president of technical sales for Grafix LLC, a systems supplier. “More than 75% of our current customers are hosting this technology, which has taken a lot of them into market segments that they could only

dream about in the past.”

Kowalski adds, “Just like printers, we at Grafix LLC feel that we really separated ourselves from our competition in this field by focusing on the importance of total application support during and after equipment installation. In addition, promoting the technology by highlighting our consumable supply partners has had a dramatic impact, considering that hybrid UV coating is now achievable every day.”

## SPECIALTY NO MORE

Bill Bonallo, president and chief executive of Technotrans America Sheetfed Division, another system supplier, agrees. He reports, “In the past, UV printing and coating was reserved for use by specialty printers, with a big emphasis on packaging; shops using very untraditional substrates, such as plastics and foils; and a handful of high-end printers producing annual reports, automobile brochures, and specialty advertising pieces.”

Bonallo adds, “All of this type of work has been very well served by the advantages of hybrid UV technology, but now the process is allowing general commercial printers to address some new opportunities. The UV segment is definitely growing.”

## AQUEOUS HOLDS ITS OWN

But is all this heated interest in UV translating into sales? Not everyone thinks so. “Water-based coating is holding its own, even though there’s growing interest in hybrid inks and UV coating,” says William E. Fuchs, president of Fuchs-DeVries Inc., which in a few months will introduce a new coating conditioner that monitors the viscosity and dispensing of water-based and UV coatings on sheetfed presses.

“The slow economy and the long slump in sheetfed press sales are taking their toll on any growth in UV coating,” Fuchs continues. “Will print buyers still spec jobs requiring UV coating? Will printers be able to charge more? These questions must be answered.”

Printers and suppliers agree that it is UV’s very distinctness—which allows a print buyer to achieve a unique printed piece and sets a printer apart from the competition—that makes the process so appealing.

## CONSIDER ALL EXPENSES

Printers must take into account all pertinent expenses before deciding if UV technology is feasible. “There are materials handling costs, harsher solvents to clean, and more waste products to dispose,” notes Craig Fodness, western region vice president for Coatings & Adhesives Corporation, a manufacturer of water-based coatings and specialty adhesives.

Fodness adds, “We see print-

By Debora Toth

Project Editor

**Applying coating: the engraved (black) anilox roll carries a precise amount of liquid coating to the (blue) blanket, which applies it directly to the freshly printed but dry sheet. Subsequently, UV lamps cure the coating to a hard, glossy finish. Turn to page 28 for full report. Photographed by Mark Derse at American Printing Company, Inc., Madison Wis.**



# Curing on Press

ers adopting UV coating but finding that customer usage is lower than expected and peripheral costs higher, including blanket and disposal expenses. Learning to use the technique properly may take a few weeks, or as long as eight months.”

## BACKWARDS FROM THE EFFECT

“The technology today in coating processes and applications leads many print designers to start with the final effect then work backwards into the total design,” says Keith Tap, vice president of operations for Grafix LLC.

“For example, for a National Football League piece,” Tap suggests, “using a spot coating called ‘texturized UV,’ we can help a printer create the pebbled surface of a football, then add the actual scent of leather to the coating.”

## QUICK COMPARISON

Printers deciding whether or not to install a UV-curable coating system must consider cost and training. Both hybrid and full UV inks are more costly than conventional inks. But despite the higher costs for materials, printers do reap the benefits of one-pass productivity and the quick processing of jobs.

“Either process, hybrid or full UV, definitely requires a slightly different approach on press,” explains Bonallo of Technotrans. “Hybrid UV is closest to conventional lithography specific to on-press performance and

**Single-pass printing, UV coating, and curing can speed job throughput and enhance the printed product with gloss, matte, or texture finishes.**

runnability, requiring very little changes in technique.”

Bonallo adds, “I’ve been told that some plates yield shorter runs than normal and that thermal imaged plates work well with hybrid UV inks. Some shops even post-bake their plates to extend the run lengths. As for full UV, few people would argue that this process has challenges of its own.

“Clearly, proper ink and water balance are critical to both processes, with full UV having a slightly smaller operating window. Good press operators who truly understand the importance of ink and water balance will not be thrown by UV, but ‘run-by-the-numbers’ operators who never look at the surface of a plate or ink rollers after mounting a plate will probably run into trouble.”

## COATING ALTERNATIVES

Manufacturers of coatings, ink, and application or monitoring equipment continue to invest in research and development for UV curing.

Epic Products International Corporation markets its on-press CoatTech anilox system, which meters a precise, uniform volume of coating—aqueous, UV-curable, or metallic—to the plate cylinder. The system is designed for use on offset printing units and tower coaters.

In April 2001, Flint Ink Corporation introduced its Gemini hybrid ink product, a blend of conventional and UV ink which cures via UV light but provides

the benefit of printability of conventional inks and, according to the company, eliminates the glossback effect.

“Gemini has been absolutely popular,” reports Rod Balmer, Flint Ink’s technical director of paste ink research. “It has taken off beyond my expectations. I thought it would be a niche product. While the largest users are packaging printers, Gemini is really aimed at conventional printers that have coaters and can quickly dry and reprocess their jobs.”

Sun Chemical Ink (GPI), which has had much success with its Hy-Bryte inks and coatings, notes that the hybrid UV chemistry requires no special blankets, rollers, plates, or fountain solution; no special changeover press cleaning or conditioning; and no use of primers, spray powder, or off-line UV coating.

Still, the company contends, the conventionally applied products stay durable and glossy over time.

Sun also offers its SunCure line of UV curing inks, including SunCure SF for sheetfed printing. The company offers many energy-curable inks and coatings for flexographic, screen, and letterpress applications on a range of substrates.

## CHAMBER/ANILOX TECHNOLOGY

Harris & Bruno International designed its Lithocoat chamber/anilox system to allow printers to automatically switch between types of coatings with-

Mark Derse

out worry about contamination. The Harris & Bruno chamber automatically retracts from the changeable anilox roll after the wash cycle is complete.

"We still see a lot of interest in UV," says Steve Garner, product manager for Harris & Bruno, which calls itself the world's largest supplier of chambered doctor blades. "Folding carton printers use UV to produce high gloss on their cosmetic and pharmaceutical packaging, while commercial printers use it to add a unique coating for special effects."

Garner says recent Harris & Bruno projects involved printers installing 20"-wide sheetfed presses with in-line UV coating units, to produce post cards, brochures, and advertising materials.

### AN INERT ATMOSPHERE

Managers and technicians at Technotrans believe that the newest technology in this area is the concept of UV curing in an inert atmosphere. While this is common on web presses, particularly narrow-width webs, the idea is new in the sheetfed field. IST, a supplier that's related to Technotrans, has pursued this concept in cooperation with a major press supplier.

The inert-atmosphere idea is to replace oxygen with nitrogen in the area where the curing actually takes place so as to greatly enhance the efficiency of the curing process. Doing so results in lower power output, which reduces the heat to the substrate. Heat management to the substrate is critical for temperature-sensitive, non-porous substrates such as foils, Mylars, synthetics, plastics, and even lightweight label stocks.

"In my view," says Bonallo, "this proven concept is best suited for specialty printers that

print on those temperature-sensitive, non-porous type of substrates on a consistent basis."

He says that Technotrans America has introduced a new-generation, ultra-efficient thermal drying system designed to provide the highest levels of ink and water-based coating drying at maximum-rated press running speeds, which currently exceed 16,000 impressions per hour.

Bonallo says, "The design allows complete interchangeability with our IST UV components, which is important when hybrid UV systems are utilized."

### BROADENING THE HORIZON...

When American Printing Company, Inc., Madison, Wis., wanted to open up new opportunities for itself, it installed a new 40" eight-color Mitsubishi 3F-16 sheetfed press, equipped with a Grafix LLC interdeck UV curing system, a Harris & Bruno chamber/anilox coater, and 12-foot-long extended delivery.

"Within a year, that press took over more than half of our work," says Shawn Welch, director of operations for the 70-employee company. "We'd never had UV capabilities before, but we took a chance and got into the market early, and have already earned a reputation for super-high-gloss print production."

Previously, American Printing used its quartet of Heidelberg presses—a five- and a six-color 29", a 40" five-color, and a two-color perfecter—to produce high-quality work with aqueous coating. But when a customer asked for UV, the shop had to send the job outside.

"When it came time to add a press, we didn't just want to buy a machine to do everything better," recalls Welch. "We wanted equipment that could open up a broader market. We're now the only printer in our area with an eight-color plus UV, rated at up to 16,000 sheets per hour. That really sets us apart."

## The New Dimension: Matte, Gloss, Texture

**T**oppan Printing Company America, Inc., which operates a 210,000-square-foot facility in Somerset, N.J., specializes in all types of on- and off-press coatings, including film lamination, varnishing on all of its five 40" sheetfeds, aqueous coating on the only 10-color Speedmaster 102 sheetfed in the New York metropolitan area, plus UV coating.

Says Al Starzyk, who recently joined Toppan Printing as senior vice president of sales, "One of our missions is to educate our clients on the advantages of enhancing graphic products with various types of coatings. We know that designers and production people in our client companies are under a lot of pressure to get their materials to stand out from the crowd, so we help them wherever and however we can. This is a very effective way to advance the use of special coatings."

In late January, Toppan Printing, Sappi Fine Papers, and Celloglas jointly hosted a no-charge seminar on coating techniques in New York City for clients and prospects, to help explain the advantages, differences, and drawbacks of various types of coating techniques.

"Some of the tricks are simple and not that expensive," explains Starzyk, "yet the effect can pop off the page or, in other cases, add a subtle but effective touch to a printed piece. True, a lot of high-end printers can 'paint' a sheet with ink, then add an overall high-gloss coating, but we think that the right coating is much more versatile—a way of adding another graphic dimension, whether it's matte, gloss, or texture."

At the Toppan/Celloglas seminar, Sappi presented its new guidebook, *Varnish Techniques on Coated Papers*.

## GLOSS GAME

The company also uses the equipment to print point-of-sale displays on polyethylene and vinyl, or it can foil stamp jobs for novelty printing items.

### ...AND SHORTENING PRODUCTION

The new press also contributes faster turnaround and more versatility since, after UV curing, a job is dry and ready to be sent immediately to the finishing department, or for a second-side pass through the press. Shop managers can thus schedule work for straight-through production to keep jobs moving. At the same time, designers call on the knowledge of American Printing's staff members for insights about stock, ink, and coating design.

"Printers need to understand what they're getting themselves into with UV," cautions Welch. "We regularly attain gloss levels of 95, but it took weeks of testing, experimentation, and real effort in controlling all the variables."

Here's one popular approach that American Printing takes on its Mitsubishi sheetfed with inter-deck UV curing and in-line coater: print seven colors on the sheet and use the plate on the eighth unit to apply a colorless dull varnish in select areas, then apply an overall gloss flood coating in the Harris & Bruno unit. After passing through the extended delivery and final UV curing stage, the sheet surface displays, say, a high-gloss finish on product photos and a matte finish on the background (created by the underlying dull varnish).

Says Welch, "Clients love this treatment—and we produce it in a single pass, with all the gloss and dull applications in perfect register with the images."

Another Wisconsin printer, Sussex-based Color Ink Printing, decided to plunge into print-



**American Printing's Shawn Welch displays a necessary tool, a gloss meter (his is a Micro-Gloss 60 from BYK-Gardner).**

ing on plastics and other unique substrates using hybrid UV inks. Color Ink installed a new 40" KBA Rapida 105 six-color sheetfed with tower coater and extended delivery.

The Rapida is equipped with a full KBA automated makeready system, including the KBA CIP3/4 interface, CCD video camera register system, closed-loop spectrophotometry, and an in-line UV coating system.

Because of Color Ink's location in the highly competitive print region near Milwaukee, managers had foreseen that new print forces would likely be grabbing its sheetfed market.

"We could see that digital printers, high-end copier shops, and even web operations were taking our traditional ink-on-paper sheetfed business," says Bryan J. Dion, president of Color Ink. "Surrounded by more than 200 printers, we knew we needed to differentiate ourselves. Being able to print on plastics and styrenes, plus everything from heavyweight

litho label stock to heavy board, really sets us apart."

Dion concludes, "The Rapida press presented us with access to new business and new opportunities in a much more affluent print market."

### SEEKING "SOMETHING DIFFERENT"

In 2001, when Kennickell Printing, a 100-employee commercial shop in Savannah, Ga., was looking for "something different," its owner decided to install a six-color 40" Komori Lithrone sheetfed with in-line UV coating.

"We'd never had UV before," says Al Kennickell, the firm's third-generation owner. "So far, our biggest use is printing and curing UV ink on uncoated paper. The process looks significantly better than conventional. We produce about 10 to 15 fine art prints each month and are converting them over to the UV uncoated paper process."

However, Kennickell notes, the UV process can add up to 30% to the cost of a job, resulting from the higher cost of the inks and the need to wash up the press twice after a UV job.

Kennickell Printing also has been exploiting its data collection, printing, and fulfillment department for its catalog and direct-mail clients. For example, a boat manufacturer displays various models on its Web site; when a prospective buyer indicates interest in a particular model, site software collects pertinent data, then instructs Kennickell Printing to produce and mail a custom-printed brochure.

This business, the printing company has found, is lucrative and is a way to expand its client base beyond the Southeast. Says Al Kennickell, "We need to know more about UV, so we're going to explore different substrates to use our capabilities."

Mark Dersa

Mark Dersa

## GLOSS GAME

### SMALL SHOPS USE UV

Even small shops are finding success with UV. Fourteen-employee Ad-Co Printing, Tampa, Fla., installed a 29" four-color 74 Karat digital waterless press from KBA in mid-2002 to augment its 29" Sakurai four-color, 25" Komori two-color, and Ryobi 522PS press.

"Last year we invested \$750,000 in four UV coaters," says John Disbrow, Ad-Co owner along with his wife, Angela. "We can gang-run post cards on the Karat, then UV coat them off line, achieving a high-quality, high gloss that protects the product."

With the 74 Karat's quick turnaround (typically 24 hours from receipt of disk), Ad-Co finds itself the only printer within 200 miles that can provide 29" short-run, full-color digital printing with off-line UV coating, produced in house. It can produce different versions on demand, if necessary.

Highlighting its clientele, which is centered in the Tampa and Sarasota areas, are vacation and cruise companies. Ad-Co, which attributes about 40% of its business to printing for the trade, also offers single-pass folding, numbering, and addressing, and in-house mailing.

"We print a lot of pocket folders, rack brochures, flyers, and posters," says Disbrow.

Ad-Co's business plan is succeeding. In 1998, the shop billed \$10,000 a month, and last year the shop was earning \$70,000 a month. So far this year, Ad-Co is posting \$250,000 a month—accomplished without hiring a salesperson.

Within a year, Disbrow would like to move into a new 50,000-square-foot facility, and he's looking closely at a new 29" KBA Rapida five-color with in-line UV coating.

### THE APPEAL OF AQUEOUS

Not every printer is diving into UV; a number of shops are still installing aqueous coating equipment. When Payne Printery, Dallas, Pa., put in a Heidelberg Speedmaster CD 74 six-color press last June, the machine was the firm's first taste of coating capabilities. The 29"-wide press is equipped with an aqueous tower coater and extended delivery.

"With aqueous coating, we aimed for faster turnaround on our jobs as well as a better-looking job," explains Doug Ehret, vice president of production for Payne. "Many of our clients were already demanding it on jobs. Today, 80% to 85% of our jobs are coated, and we believe that many of our clients would have left us had we not begun offering coating."

With a printing portfolio consisting of brochures, envelopes, folders, and CD and pharmaceutical packaging, provided to clients mainly located in the Northeast and Mid-Atlantic regions, Payne experienced 38% growth by the end of 2002.

To keep up with that growth rate, Payne supported its new press with additional Heidelberg equipment, a Stitchmaster stitching machine and a Stahlmaster folder with Roto Score unit. "When you can deliver a better product to your clients, your business is going to expand—it's that simple," comments Brett Gauntlett, Payne's chief operating officer.

Payne Printery, established in 1931 and now operating in a 42,000-square-foot facility, also operates three additional Heidelberg presses: two 40" Speedmaster 102 FP five-colors, plus a Quickmaster DI 46-4-Plus four-color digital press. ■



At Payne Printery, Doug Ehret (left) is production vice president, and Brett Gauntlett is chief operating officer.

## SOME 'GLOSS GAME' PLAYERS ARE WARRIORS

Yes, I know, our cover line refers to “The Gloss Game,” but in actuality the process of applying a shiny, dull, or textured finish on press to a sheetfed-printed piece is nothing but serious business to a select group of companies. These are the fierce competitors vying for the highest gloss, or the most gorgeously printed and “wet”-coated job, or the finished piece that makes the best use of an eye-popping surface treatment.

The operations director of one such “warrior” company told me, simply, “In the markets we’ve chosen to compete in, whoever achieves the highest gloss wins.”

The trick, of course, is to accomplish this in some slick manner, preferably in a single pass through the press, to avoid separate off-line steps or, perish forbid, sending the work outside to a finishing company. Which explains the continuing appeal and development of aqueous coating or hybrid UV processes relying on energy-curable technology.

And since putting ink on paper by conventional means is itself a dynamic process, you can imagine how complicated such advanced approaches can quickly become. Some of the high-end print-and-coat companies devote weeks to finding the right formulas and combinations—but the results can be worthwhile.

### A highlight in a dreary time

Frankly, it’s fun for a change to be talking about something that involves so much imagination, plus enormous potential and reward, even though progress may be hugely challenging from a technical standpoint.

These days, while most printers are only talking about price-cutting, cost-cutting, and water-treading, the conversations at a recent seminar on coating and curing were about enhancing the designer’s intention, improving the viewer’s grasp of the message or reaction to a printed piece, even about functionality, from product protection to better readability.

By the way, these discussions about gloss techniques didn’t involve viscosity readings, interdeck curing units, or lamp

angles. The fact is, varnish techniques, which have been used literally for decades, are suddenly new again when used with today’s inks, plates, and blankets, and coupled with some of the energy-curable technologies.

To be clear, we have to separate the print finishing that general commercial printers might be capable of producing from the heavy laminations or coating applications that specialists offer. The companies in the latter category are really trade shops set up with industrial-strength equipment and a portfolio of capabilities.

But for most other commercial printers, the print-and-coat process really ingratiates them to their customers, which is always a good thing.

### Many solutions are available

These specialists are around, and they’re anxious to discuss the differences, similarities, and advantages of on- and off-press coating, UV curing, and thermal and aqueous lamination. Then there are the different types of film lamination systems, producing gloss or matte finishes, recommended for case-bound books, point-of-sale displays, pocket folders, identification cards, charts and maps, paperback books, labels, and so on.

For the majority of commercial printers, whether they’re shops serving a local clientele or bigger operations dealing with high-end designers or serving national clients, being able to add a gloss or dull coating in

house to a printed job really ingratiates them to their customers. Anything that earns closer ties with buyers and gains their confidence is, to me, a good thing.

This capability, like many other special treatments, has always been available on an outsource basis: call up a trade finisher and arrange for shipment.

But the collaborative nature of the print-finishing process—choosing the right layout, testing for the best combination of components, even arranging a press OK—tends to bind customer and printer more tightly, on a partnership basis. This is the true appeal of the gloss game.



A handwritten signature in black ink that reads "Roger Zwartweg". The signature is fluid and cursive, with a large, stylized 'Z' and 'W'.

EDITOR IN CHIEF