

The Santangelo family at H&S Graphics (Lodi, NJ) replaced its first chemistry-free system with Agfa's :Acento running :Azura plates. The 10-employee, third-generation, midsize commercial printer likes :Azura's quality, environmental benefits and overall performance on press. "It has paid off tenfold in productivity gains and lower consumable and disposal costs," says Mike Santangelo, vice president of finance.



John A. Santangelo with the company's :Acento platemaker.

The CleanPlate Club

Why these printers are process-free

At drupa 2004, Agfa, Kodak and Fuji joined Presstek as suppliers of chemistry-free plates. Over the past few years, these vendors have commercialized their products—today, they are used in a wide variety of printing plants around the world. Most chemistry-free plates share some common characteristics but are based on different technologies, and they are not necessarily appropriate for all printers.

All currently available chemistry-free plates use thermal lasers to form the image on the plate. The difference is in how the image is formed and what happens to the plate before it can be used to produce saleable sheets. Let's take a closer look at the three basic plate technologies: thermal ablation; on-press development and thermal coalescence.

Thermal ablation: Presstek Anthem Pro

Thermal ablation typically refers to the process in which the thermal laser ablates (removes) areas of the emulsion while the plate is being imaged. Plates that are imaged using thermal ablation generally consist of a basic substrate such as a grained aluminum plate, an oleophilic (ink receptive) imaging layer and an ink-rejecting microporous hydrophilic layer. The high-powered laser of the computer-to-plate system selectively burns tiny holes in the thin plate coating, causing it to burst away from the base. To prevent this debris from settling on the platesetter's mirrors and lenses, it must be equipped with a vacuum or other collection device. Presstek's Anthem Pro plate must be run through a processor that uses tap water to rinse away any removed coating left as a residue on the plate. This results in a high-contrast image that can be examined and measured.

Founded in 1960 as a typesetter, Nova Offset (New York) put down some printing roots in 1969 and has continued to evolve and grow. Until about five years ago, the 20-employee, family-owned business used an imagesetter to make plates from film. "Not only was the process time consuming and labor intensive, it also [occupied] a lot of space, which is at a premium in Manhattan," says Lance Burns, vice president. "We knew we needed to find a better solution."



Lance Burns (far right) poses with The Nova Offset crew: David, Scott, Kean, Lee, Ray and Chok.

Nova Offset's pressroom highlights include a single-color Multigraphics press, two two-color Heidelberg Quickmasters and a four-color Heidelberg Speedmaster 52. In 2002, the firm acquired a Presstek Dimension 400 platemaker with Anthem chemistry-free plates. Three years later, Nova upgraded to a Presstek Dimension 450i Excel for faster processing and additional automation.

"[CTP] has made a big difference to our business," says Burns. "Not only is it space-conscious, with no need for a darkroom or yellow-light environment, but it now takes us about a quarter of the time to make a plate."

Unlike the film-based process, operators seldom have to tweak register and color. "We simply 'set it and forget it,'" says Burns. "The plates are always in near-perfect register, and we are up to color in a few sheets. We no longer have to deal with the acquisition, management, storage and disposal of messy, hazardous chemicals."

Nova Offset used Presstek's Anthem chemistry-free plates prior to switching to the vendor's Anthem Pro chemistry-free grained plates. While the original Anthem worked well, Burns prefers the Anthem Pro: "The Anthem Pro plates run a little easier, makeready is faster, and the water balance is easier to achieve."

Less ink migration is another benefit. "Overall, the dot on sheet prints cleaner; the water balance is night and day," says Burns. "We didn't have a problem before, but it is so much faster getting up to color with the [Anthem] Pro."

Thermal coalescence: Agfa :Azura and Heidelberg Saphira Chemfree

Agfa's :Azura and Heidelberg's Saphira Chemfree use a thermal coalescence process, sometimes called "latex coalescence," "thermal fusion" or just plain "wash-off plates."

Here's how it works: A standard anodized and electrochemically grained aluminum plate, optimized for enhanced run length, is coated with ink-receptive latex microbeads suspended in a water-soluble binder. The laser melts the plastic into the grain, fusing an image directly on the plate. The

unfused emulsion in the nonimage areas is cleaned out in a separate wash/gum unit. In this clean-out unit, an optimized wetting and gum solution dissolves and removes the unexposed latex emulsion from the nonimaged area of the plate and protects the aluminum. During this step, the fused image becomes visible—the background is simply anodized aluminum. This cleanout allows users to see and measure the image before mounting on press—a key benefit for these plates. Standard daylight handling and the ability for the plates to hang for days in the pressroom are other advantages.

It's all good

Whitmore Printing (Lancaster, PA) is a 35-employee, \$5 million commercial printer. The third-generation family-run business installed its first platesetter in 2000. With its old film-based workflow, the company was paying a lot of overtime to strip and impose 500 plates per month. A Heidelberg Prosetter with Saphira violet plates addressed these issues—by 2005, prepress efficiencies enabled the company to quadruple its business.

Mike Whitmore, digital manager and fourth-generation Whitmore at Whitmore Printing, with the company's Heidelberg Suprasetter.



The simple life

Len Lacey doesn't so much speak as drawl in the dulcet tones that immediately reveal his roots in Birmingham, AL. "I'm an easygoing guy; I don't worry over little things," he says.

But a few years ago, Lacey, a printer for 26 years, was beset by health issues and bowed to the strain of running an 18-employee printing operation. He shuttered his old plant and sold most of the equipment.

Lacey built his new company, Printworks, on a core group of about 20 customers. Lacey has a couple of part-timers, but generally is on his own. "I work as hard as I ever did," he says. "But I have more free time. I enjoy [working with] customers more and there's less stress."

Lacey recently eliminated the aggravating task of trying to produce decent halftones with camera-ready copy. Most of Printworks' jobs are two-color and range in length from 500 to 1,000 pages. Customers' increasing color demands, however, prompted Lacey to add Xanté's (Mobile, AL) Impressia platesetter. Using non-photosensitive Aspen metal plates, the platesetter can produce more than 25,000 impressions without chemicals or other processing.

A friend at a corporate in-plant told Lacey about his company's results using Xanté's Platemaker to produce polyester plates, film and paper proofs. Lacey saw a few sample plates and promptly added a Platemaker 5.

"Qualities that were problematic before—tight registrations, screens, and halftones—are now a pleasure to offer my customers," he says. "Unlike camera-ready copy, these plates are on the money every time. It saves me a ton of press time, and that's a huge benefit."

Xanté CTP products use the vendor's Z-Y technology to ensure clean plates, crisp film, sharp images, high line screens, accurate registration and good halftones. Its Z-Dot technology allows for more control over dot gain while also enabling photographs and screens to be imaged smoothly with 356 shades of gray (150 lpi).

See www.xante.com.



Xanté's customers range from small duplicator operations to midsize shops running high-quality four-color process work. Platesetting options are offered for two-up portrait-size presses, landscape GTOs and four-up presses. The Platemaker 5 is pictured above.

The printer wanted a faster machine with more automation and, equally important, says owner Eric Whitmore, it wanted to be chemistry free. Heidelberg's Suprasetter, with its automated plate handling and inline processor, combined with the vendor's Saphira Chemfree plate, fit the bill. The move to thermal also allowed Whitmore to use regular light rather than the safe light previously required for the violet plate, while also eliminating developer and fixer storage and disposal costs. "We avoid it all with Chemfree [plates]," says Whitmore.

Eric Whitmore reports that although the Saphira Chemfree plate is a little more sensitive than the violet Saphira plate, there have been no performance issues beyond occasional scratching.

Average runs are 10,000 to 15,000 impressions, but Whitmore has run jobs of 200,000 using the same set of plates. Whitmore adds that the cost of the chemistry-free plates is comparable that of the violet plates the company had been using.

"I have nothing but good things to say about my experience," says Whitmore. "I challenge any one to find something that works better."

On-press development: Kodak Thermal Direct and Fujifilm Brillia HD Processless
Kodak's Thermal Direct and Fujifilm's Brillia HD Processless Thermal Plates both are developed

on press. Although the plates use different technologies, there are some general similarities. The thermal laser writes the image on a thin polymer coating on the plate, making the coating in the imaged areas non-soluble in the press fountain solution. The plate is mounted on the press, without any additional processing. As the press starts up, the dampening rollers are engaged and coat the plate with fountain solution, which dissolves the nonimaged areas of the plate. The imaged areas can immediately begin picking up ink. With the engagement of the press ink rollers, the plate is covered with ink. The fountain solution plus the ink transfers the dissolving coating to the blanket, and then to the first sheets of paper. The makeready sheets carry the dissolving coating out of the press as the job is brought up to color and into register. Depending on conditions, this happens within 100 press sheets.

Processless all the way

For Target Information Management (Lansing, MI), the road to outputting digital plates didn't include any film detours. "To be cost competitive against other printers in our area, we had to go direct-to-plate," says John Harris, vice president of the nine-employee operation. "We were trying to expand from [being a] forms printer to the commercial market, and we just couldn't compete on shorter-run jobs."

Know your CTP costs

One of the principal attractions of chemistry-free or processless plates is the streamlining of workflow and elimination of variables associated with plate development and processor maintenance. Process-free eliminates almost all nonplate costs. Because many printers don't track these costs closely, the potential savings might come as a surprise. For more information, see "CTP Platemaking: Understanding the Real Costs," a free report available at www.johnzarwan.com.

Target has used the Fujifilm Bril-
lia HD Processless Thermal Plate with
Fujifilm's Dart 4-up CTP system for
about a year. "Once we knew we were
going direct-to-plate, we also knew we
were going to employ processless plates,"
Harris explains. "It's always been dif-
ficult for us to get rid of chemistry from
our conventionally developed plates. We
have a septic tank and use well water, so
we couldn't even dispose of waste that
normally could be put down the drain.
Waste disposal was a huge expense."

Moreover, Harris says that for his plate
volume, he would not be able to utilize
his chemistry efficiently. He adds, "For a
smaller shop, processless was a necessity."

Although Harris was initially con-
cerned about the plate's lack of visible
image, he reports that the Fujifilm plate
has improved since its debut: "We can
actually look at a plate and know what it is."

Target's pressroom includes sheetfed
Komori Lithrone 426 and Solna 225
presses as well as two Didde web presses.
The printer routinely runs 100,000 im-
pressions and has printed jobs of more
than 120,000 impressions without mak-
ing new plates.

"The Fujifilm process plate is great,"
says Harris. "In the year that we've been
using the plates, we've been impressed
with their performance continually."

'I wouldn't go back'

As its name implies, Digital Press (Port
Orange, FL) is an all-digital shop. Its
offset pressroom includes a Heidelberg
QM DI and a Sakurai Oliver 474 EPII
perfector, soon to be joined by a Heidel-
berg Speedmaster 74 eight-color perfec-
tor. On-demand capabilities include a
recently installed a Kodak NexPress.

Digital Press had added a Screen
PlateRite 4000 platesetter in 2001, but
didn't like the conventionally processed
plates it was using. Jim Benoit, GM, was
dissatisfied with the plates' performance
in general and chemistry issues, specifi-
cally. "We spent the majority of our time
dealing with chemistry," says Benoit. "We
couldn't let it get cold. It was a real mess.
We wanted to eliminate chemistry, the
processor, the waste of man hours, the cost
of the chemistry, its storage and disposal."

In 2004, Digital Press began research-
ing new chemistry-free options but found
most still required a processor, something
the company wanted to eliminate. Benoit
contacted Kodak and became a beta tester
for the Thermal Direct plate.



Further reading 

See the new CTP section at www.americanprinter.com.

- "Free to be CTP" (March 2006) features detailed technical descriptions of thermal and violet processless technology from Agfa, ECRM, Fuji, Heidelberg, Presstek, Kodak, RIPit and Xanté.
- "Flexible options" (April 2006) details user experiences with two-up polyester, metal and processless platesetters from Mitsubishi Imaging, Presstek (Vector), Kodak, RIPit and Heidelberg (Prosetter), along with product news from ECRM, Printware and Glunz & Jensen.

Kodak's Thermal Direct plate.


Run lengths range from 5,000 to 75,000 impressions. "We're printing at 200 lpi," says Benoit. "It's very open and clean, and makeready is only 20 sheets. We've been making count without any problems. These are good plates."

Although image contrast for the Fuji and Kodak processless plates isn't as pronounced as conventional or chemistry-free plates, Benoit and Harris say this isn't a major obstacle. Benoit says, "It is an issue. But that's the old paradigm. The printers that are still checking plates to blue lines and color proofs need to get on the bandwagon and soft proof."

Even so, Benoit continues, the benefits far outweigh the inconvenience. "It's as good as or better than anything I've ever seen. It's the first time I haven't had a processor, and it's the best. I wouldn't go back."

Plate debate

No one plate is suitable for every printer. Even with all of the advantages of chemistry-free and processless plates, many printers simply can't use them.

In certain situations, however, the benefits of chemistry-free plate technology are compelling, both financially and environmentally. All of these no-process plates work on press and each can claim satisfied customers, many with years of experience using them. Users must evaluate the advantages and disadvantages for themselves. 



John Zarwan is an independent consultant and author. He has written extensively about chemistry-free plates and has worked with most of the vendors cited in this article. Contact him via www.johnzarwan.com.