

## Computer-to-Plate goes green

Environmental considerations have never played such an important role in CtP. Tony King takes a look at the latest products and asks which is the greenest of them all

Computer-to-plate has moved a long way in terms of affordability, performance and reliability since the early days. Plate technology has advanced to the point where printers can choose between traditional CtP systems that use chemical development and new chemistry-free technologies. This article looks at the latest chemistry-free systems, the different technologies that they use and the benefits they deliver to the user.

The interest in chemistry-free CtP at last year's Drupa was not just about extra simplicity and convenience - it was also in large part due to an increased environmental awareness in the printing industry. Printers with green ISO credentials and environmentally-friendly practices advertise the fact as part of their selling process, with many reporting that the emphasis on sustainable and eco-friendly practices actually gains them new business.

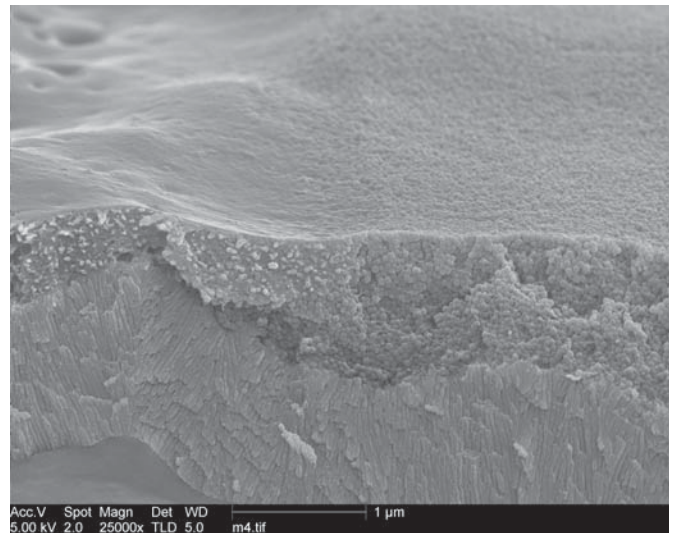
But with different technologies available from the suppliers, the difficult question of which is best for you remains. The technologies fall into three broad categories, based on how the non-image areas are removed.

### Direct on press (DOP)

These plates are imaged in a platesetter and put on press. During the press start-up the non-image area is removed and carried away by the paper during make-ready. The principle is total elimination of all plate chemistry and this approach is favoured by Kodak with its ThermalDirect plates and Fujifilm with Brillia Pro-T. Both these plates rely on a thermal platesetter to image them. Fuji's Pro-T has an impressive sensitivity of about 120mJ/cm<sup>2</sup>, meaning high levels of productivity.

Critics of this approach argue that the press isn't designed to remove plate coating. Converts to the technology

would argue that it is working just fine for them. With the annual worldwide offset plate market in the region of 600 million square metres this technology has the potential to completely eliminate the tens of millions of litres of developer and processor waste.



*The high magnification image of Agfa's Azura coating shows melted (fused) coating particles on the left and unfused particles on the right. This physically altered coating structure eliminates the need for chemical development.*

### Gum/water washed plates

Agfa and Presstek use thermal platesetters to write the image on their plates. Agfa uses a gumming station to remove the non-image area whilst simultaneously gumming the plate, which is called Azura TS. This plate has a speed of about 210mJ/cm<sup>2</sup>. Presstek, with its Aurora Pro, has a similar concept to Agfa but uses water rather than a plate gum on a plate that has a faster sensitivity of ~140mJ/cm<sup>2</sup>. Presstek has high expectations of Aurora Pro, which it says combines speed and robustness.

Critics of this technology point out that this approach is not as straightforward as the Fuji/Kodak route. The system still uses water or gum in small amounts and it needs a small wash unit. But supporters argue that the high pH developer is completely eliminated and the additional wash step makes for a simple and robust system. Agfa backs up its assertions by claiming over 2000 worldwide installations of its technology. However Fuji is gaining ground quickly and claims 300 installations of the Pro-T plate in the UK market alone. Kodak has a steadily growing following too.

Whilst perhaps not as elegant and direct as the DOP approach, it is clear that the 'gum' technology has been given a clear vote of confidence by the industry. Agfa's experience has shown that a gumming/wash unit needn't be an obstacle to popular appeal so long as the plate performance is good.

## Novel Technologies

Using inkjet to squirt an image on a substrate is an idea that has been looked at a few times but so far without much success. Technical concerns have centred on the speed of imaging and the accidental splatter of ink onto non-image areas. Israeli company VIM Technologies has adopted this approach, adding its own technology to improve quality. Whilst the systems may never be able to compete at the higher end of the quality market, the ability to use a standard inkjet printer to image plates will have a great deal of appeal.



*Kodak's Thermal Direct relies on the fount solution to moisten the non-imaged coating, so that the tackiness of the ink pulls the coating off on the first few press sheets.*

After the aluminium substrate has been sprayed with an image, a baking step (which will use energy) hardens the ink into a tough coating. Can VIM succeed where the others have failed with inkjet CtP? It will be interesting to see how it fares in 2009 as this could be the lowest cost approach of them all.

## Chemistry-free for all

These new plate technologies will not suit everyone, run length limitations mean that the longer run printers need to consider alternatives. There are 'reduced chemistry' plates available from the major suppliers that use chemical or physical image development and do need a traditional

processor along with process chemistry. However the plates do offer the possibility of much longer run lengths if the use of chemistry can be tolerated.

## Computer to conventional plate

The concept of using traditional analogue plate for laser exposure is still alive, however this isn't a mainstream approach and is unlikely to become so without a significant technology breakthrough. Remember that this approach is likely to still use a traditional developer and so may never compete with the newer technologies on environmental grounds.

## China

China has seen massive investment in plate manufacturing capacity and the first digital plates developed in China are already in production. So far there is no independently made plate that is competing internationally with the best of the high-end products from the major suppliers. But it could just be a matter of time before that changes, and when it does there will be more price pressure on the plate suppliers.

## Violet chemistry-free

Thermal is not the only route into chemistry-free, but so far it is the most popular route. However, Agfa with its N92 VCF Violet chemistry-free plate and Fuji with its Pro-V plate offer a technology that may be interesting to owners of violet platesetters wanting to go chemistry-free. Both the Agfa and Fuji plate technologies are exposed with violet laser energy to create image areas. The plate leaves the platesetter and goes to a gumming unit where a small pre-heat section amplifies the image. Then the non-image area is washed away while the plate is being gummed.

Since the violet chemistry-free plates could be fogged in white light, on-press development is not a realistic option. Again, purists might argue that this technology is not entirely chemistry-free since it uses a gum. But the high pH developer is eliminated, and with it many of the processing variables. So owners of violet platesetters have good technology options to eliminate chemical development as well.

## To gum or not to gum

That is the question. There is no denying the simple logic that the Fuji/Kodak approach of removing the non-image area on-press has great appeal. There is neither gum to dispose of nor a gumming unit to run. Improvements to DOP plate technology means that the plates are quick to reach make-ready point on the press and have proven reliable in use. Although Agfa can't deny the fact that its system does produce waste gum, it argues that it is the gumming principle that has actually delivered the working robustness that has seen the Azura technology become the early leader in terms of commercial success so far. But Kodak and Fuji have high expectations for their products in 2009. Presstek will be keen to assert its presence with Aurora Pro, noting Agfa's experience that a wash/gum unit is acceptable to the market.

## System costings

Opponents of the Agfa/Presstek 'wash off' technology might argue that the wash unit makes the technology inherently more expensive than the Fuji/Kodak approach. Certainly the elegance and simplicity of the Fuji/Kodak approach is highly attractive and hard to beat. However, all the suppliers are keen to do well in this new market and are backing it to grow dramatically from a few thousand customers today into a mainstream technology in the future. The suppliers will all position these new technologies as premium priced, but nonetheless they will all be keen to quote competitive pricing depending on the plate volumes and plate gauges required.

This article is part of the Verdigris series of stories about understanding the environmental impact of print. The Verdigris project is supported by Agfa Graphics, Canon Europe, Digital Dots, drupa, Fujifilm, HP, Kodak, Ricoh, Océ and Unity Publishing.

## Eco-friendly printers

As society increasingly looks to eco-sensitive approaches, printers that publicise their commitment to using recycled/recyclable materials and chemistry-free CtP are attracting new business. The printing industry faces turbulent times and many are preparing for reduced profit margins and lower revenues. Surely the business benefits of implementing environmentally friendly

technology have to be worth considering for any printer? ISO 14001 was published recently and rather than being a prescriptive list of 'must do's' it focuses instead on establishing and continually improving an environmental management system. Going green is one thing, getting the ISO accreditation and using the green credentials to your business benefit may be just as important.



*Fujifilm's Brillia Pro-T is a highly sensitive develop on press plate.*

## Which is the best plate for you?

The new technologies remove high pH developers from CtP, removing variables and improving system consistency. In themselves these are important benefits, but coupled with the green arguments these new CtP technologies become very attractive. But there are subtle performance differences between the different plates that will need to be assessed before you make your decision to change to one of them. Run lengths on the different products depend on individual print conditions, the ink, press, paper and so on. No two printers are the same, making it hard for suppliers to exactly define parameters such as run length.

Productivity, or plates-per-hour, will depend on the laser energy of your platesetter, your resolution requirements and the sensitivity of the plate that you plan to test. Determining the best product for your individual business is best done by arranging test plates, which the suppliers should be pleased to arrange for you. Sometimes longer run lengths can be squeezed from a given plate by increasing exposure energy, but remember that will affect your platesetter productivity. Different plates have

different top-end reproduction characteristics; these differences may not be important to everyone, but be sure to make print tests if really high quality print is essential to you.

Any printer that is ready to upgrade from traditional CtP to one of the newer technologies has an interesting choice to make and some important benefits to gain. As always, the best advice is to visit printers that have successfully installed the newer CtP technologies, see how they implemented the technology and whether they were able to use the technology to their benefit. Compare the different suppliers against each other and run several sets of test plates before making your decision. Environmental considerations have never played such a large part in the decision making process for CtP, which is a tribute to the industry we work in.

Tony King 