ISSUE 4
2012

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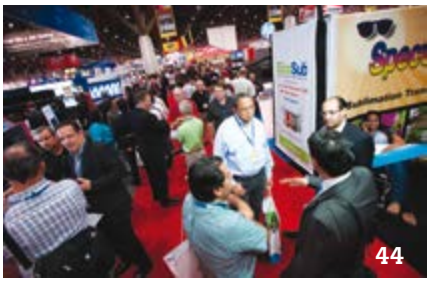

MESSAGE FROM BRYAN COLLINGS

As I write, we have just returned from a very successful SGIA expo in Las Vegas. All our usual contacts report increased sales and enquiries. Printers in all three major sectors, industrial, graphic and textile were upbeat about present and expected demand levels. It's been a long time coming but we've seen surprisingly few dropouts as companies have tailored their expenditure to the lower incomes.

It was very pleasing to find so many American companies supporting this magazine, which they tell us seems to give them the best coverage of their key existing and potential customers in North America and beyond.

With similar feedback from European attendees at the inaugural EcoPrint 2012 event last September, we will continue in 2013 to present our ever-growing readership across all continents with the very latest technical information for digital, screen and pad printing. But if you have not yet subscribed, the ***only*** way to receive all four issues next year is to subscribe online for a total of only €55 / $80 / £45 at our NEW website: ***www.specialistprinting.com***

On the industrial front, we have just attended the bi-annual major glass exhibition, Glasstec 2012, where once again there was an air of optimism. We are pleased to announce that Glasstec will again be powering Europe's only dedicated glass decoration event, GlassPrint 2013, to be staged jointly by Chameleon Business Media and ESMA in Düsseldorf in November 2013.

However, before that ESMA are running the Advanced Functional and Industrial Printing Conference on 6-7 March 2013 in Düsseldorf, which comes highly recommended for all those interested in keeping up to date with the latest advances in the automotive, film insert moulding, nameplate, fascia, printed electronics, circuit, label and solar cell technologies. See page 24 for full details.

Bryan Collings, Publishing Director,
Specialist Printing Worldwide

MOVING SIDEWAYS, NOT STANDING STILL

Sophie Matthews-Paul looks at the diversification opportunities for ink-jet

As we head towards the end of another year I don't think anyone will disagree that there has been a continuation of diversification in existing digital technologies and their application areas, rather than the introduction of vast numbers of surprising innovations. There have been one or two exceptions, of course, with the most trumpeted being Benny Landa's nanotechnology arriving at Drupa. Memjet, too, used the Düsseldorf event to show the spread of its developments in a range of third-party machines, finally bringing to market its much-discussed print-heads.

Although there have been a few new platforms, with products like Mimaki's solvent/UV-curable inks showing a diversification in existing formulations, I've felt there's been something of a lull in very shiny new products. Instead, there's been the introduction of modified and, in many cases, improved technologies some of which have been around for a while but, hitherto, haven't been widely used commercially. The growth in the use of LED curing comes as no surprise in wide-format engines, with even Durst biting the bullet and announcing it in the latest iteration of its entry-level Omega printer. Then we're hearing more about pin curing which, again, isn't new but is making an appearance in an EFI platform for the first time, along with greyscale capabilities, with its inclusion in the VUTEK HS100 Pro.

SPECIALIST MARKETS

Talking to manufacturers as I've done the rounds of exhibitions and various different parts of the world during 2012, it is clear that finding niche and more specialist markets are on the agendas of many. Some can simply take their existing solutions and tweak them for sectors away from the display industry, while others are looking at developing new engines for industrial and other more eclectic applications.

In conversation with existing PSPs and first-time investors, it's also pretty clear that many of these companies are looking for ways to bring something different to the market and extend their customer bases by offering something beyond their normal remit. We have a sound and stable collection of technologies which, such as we've seen already take place in three-dimensional ink-jet systems, can be diversified to take a basic set of digital principles and move them sideways into untapped areas. The ceramics' industry is another example where manufacturer confidence in the versatility of ink-jet sees existing components modified to suit a particular type of specialist application.

Everyone now knows about wide-format ink-jet systems and their capabilities, and growing numbers of businesses are seeing similar principles apply in narrow-web applications and packaging. From the perspective of machine developers and manufacturers of all component parts of a working engine, the interesting point will come when those that, up until now, have been involved primarily in the graphic arts decide they must move into new spheres for potential. It might still be print, but it won't be in a form that those outside the industry will recognise immediately. Take food decoration, OLED (organic light emitting diode) production and medical applications as just some examples where jetting and deposition are finding application opportunities.

Benny Landa describes his nanotechnology

A FASCINATING SITUATION

These considerations leave the digital industry with a fascinating situation. Who would have imagined that, when ink-jet technology first really came to the fore as a valid method of applying fluids to a substrate, it would have become a major force in production in so relatively short a time? We used to dream about printing to rigid substrates, perfecting output onto textiles, incorporating personalisation and producing a one-off or a short-run quickly and easily. But, now, we take all these capabilities, and more, for granted while we push for lower costs, faster speeds, higher quality and greater flexibility.

Then there are the environmental factors to take into consideration with ink-jet technologies, with greener options now needing to be added to the list of prerequisites we expect in our digital engines, regardless of industry sector. Eco-awareness and greater opportunities for sustainability also need to be factored into what happens next, regardless of whether the technology being challenged is digital or analogue.

So, even though we might not be about to experience much in the way of ground-breaking excitement in developments for the foreseeable future, with a few obvious exceptions, we should expect to see an increase in the areas where ink-jet and its digital relations are starting to impact. And the growth across different industries is testimony to the effect that today's technologies is having across the production landscape, and that has to be positive for everyone involved.

Sophie Matthews-Paul is an independent analyst and editorial consultant to Specialist Printing Worldwide

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Agfa Graphics passes VIGC RIP tests for PDF/X-4 compatibility

Agfa Graphics says its :Apogee v8 work-flow software has been awarded the 'Passed' accreditation in extensive RIP testing for correct rendering of a very broad set of PDF/X-4 features. The series of tests was run by the VIGC, the Flemish Innovation Centre for Graphic Communication in Belgium.

":Apogee PrePress v8 was introduced at Drupa 2012 and has the latest Adobe PDF Print Engine built in," says Erik Peeters, Marketing Manager at Agfa Graphics. "We have always been amongst the first to implement the most advanced PDF processing and value independent product compliance testing. In an open system environment the compatibility amongst systems is crucial. We were keen to take part and pleased with the result."

VIGC has revealed that PDF RIP output is making significant strides forward in terms of reliability and predictability. The organisation ran its latest round of testing in the run-up to Graph Expo. ■

EFI breaks sales and booth attendance records at SGIA

EFI states that it concluded a very successful SGIA Expo with record-setting booth traffic, leads, and sales on the show floor. The company believes its product portfolio, including new innovation in digital wide- and superwide-format, as well as digital label production, is properly aligned to enable high productivity and profits for customers.

"The growth of the speciality graphics industry is apparent with the record-breaking attendance, not only in EFI's booth, but also at SGIA overall," says Scott Schinlever, Senior Vice President and General Manager of EFI's Inkjet Solutions. "As the speciality graphics industry continues to undergo an accelerated analogue-to-digital transformation, EFI has led the way not only in best-in-class printers, but also with a fully integrated work-flow from job acquisition and management to scheduling and printing. We believe these productivity enablers are equally as important as the printers themselves in ensuring that printing companies can transform and position themselves to address the requirements of a rapidly changing market."

At SGIA, visitors to EFI's booth were able to see the company's complete printer line-up and integrated workflow products. Show attendees had great interest in the newest products in EFI's ink-jet portfolio, including the VUTEk HS100 Pro, VUTEk GS3250LX Pro, VUTEk QS3 Pro, EFI R3225 and the Jetrion 4900M-330. The company's focus on innovation includes its Pin & Cure imaging technology, LED UV-curing, and true greyscale print head technology, which is now available across many VUTEk wide-format models. ■

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ColorGATE RIP software Version 7.11 release available

ColorGATE's RIP software solutions Productionserver, Filmgate, Proofgate and Photogate are available now in version 7.11. With Productionserver, customers now benefit from the new In-RIP-Trapping Module, TRAPM, that ensures elimination of flashes in the print image due to process-related registration errors in multi-colour printing that can occur during printing process. In addition, the new release provides support for a large number of printers and enhancements, such as the Quality Assurance Module (QAM) and Print and Cut Module (PCM).

The In-RIP-Trapping Module ensures elimination of flashes in the print image due to process-related registration errors in multi-colour printing, which can occur during printing process when printing image elements of different colours sequentially on a printed sheet. Most of these errors are based on mechanical inaccuracies of the printing system, such as inaccurate alignment of the printing sheets, which are technically inevitable in some cases.

In order to counter these misalignments, In-RIP-Trapping Module enables over-filling or under-filling of adjacent image elements. Next to offset printing, especially for screen- and packaging printing, trapping is an important feature to ensure high-quality printing products.

In Quality Assurance Module, multi-colour wedges are now supported for EyeOne and EyeOne iO, and the Print & Cut Module is now able to handle cut paths in multi-page documents. Release 7.11 includes new printer drivers for several printers including the Canon iPF6400, Canon iPF6450, Canon iPF8400, Canon iPF9400, Epson SureColor SC-S506X0 Series, Epson SureColor SC-S706X0 Series, KIP Color 7800 and the Durst Omega 1. In addition, the Epson SureColor SC-S306X0 Series printer driver has been improved significantly.

ColorGATE and its distribution partners also supply the new X-Rite professional colour measurement systems X-Rite i1Pro 2 which sets standards in terms of colour calibration, colour accuracy and profiling, essential to creative workflow. Display on monitors and projectors, on proofs or online should correspond to the real appearance of the image file.

ColorGATE offers a comprehensive range of X-Rite solutions including the i1Basic Pro 2 spectrophotometer for professional image editing, which is available in an exclusive ColorGATE edition. It comprises an i1Pro 2 spectrophotometer for profiling, which follows the latest developments in ISO standardisation plus an i1Profiler for monitors and projectors. The Pantone colour manager creates palettes for digital colour simulation, keeping Pantone libraries up to date, managing spot colours and adding special colours. ■

With the monochrome Omega 210, folding cartons are coded and marked with black and red ink

Atlantic Zeiser's LSC responds to smaller batch sizes for coding and printing

Atlantic Zeiser is confident that its Late-Stage Customisation (LSC) is the solution of the future for the cost-efficient coding and labeling of pharmaceutical and cosmetic products. At FachPack in Nuremberg the company demonstrated the results of the integration of the Omega 210 drop-on-demand UV ink-jet printer, in combination with the right Smartcure UV-LED dryers, in existing production lines to allow variable coding and marking at the latest possible stage in the production process.

This technology is advantageous when it comes to small batches on complex and capital-intensive packaging lines which, when operated cost-efficiently, are a key factor of competitiveness.

LSC print modules, such as the Omega 210 UV ink-jet printer, significantly increase the flexibility of this type of system. They can be retrofitted in existing systems at the most appropriate point. Printers like the Omega 210 must allow rapid job changes combined with maximum machine availability. The integrated drop-on-demand ink-jet print technology must also ensure very high print quality on a range of surfaces such as cartons and aluminum blister foil, as both materials are printed sequentially in a single process. This demands optimum co-ordination between printers and perfect adhesion of the UV-curable inks.

Atlantic Zeiser develops and manufactures the UV inks in-house, formulating them to suit the Omega printers and different substrates. ■

ErgoSoft AG launches digital printing competence centre

After several years of product planning, ErgoSoft AG has announced that its instructional demonstration centre for digital printing will be opened early in 2013 in Sausheim, Elsass, on the borders of Germany, France and Switzerland.

ErgoSoft AG has long been aware that instruction, consulting or additional training in the field of digital printing is not being widely offered in the market. The company believes it is no longer enough to simply develop software, and that clients are looking for comprehensive solutions. This requires trained professionals with technical expertise, future-orientated sales and marketing concepts as well as the perfect combination of printers and pre- and post-treatment machines, software, inks, media and materials.

Training and consulting in the instruction centre will take place in co-operation with partners in these critical areas as well as together with resellers and specialists in the digital printing industry. The company will also continue to include and support schools and universities and to stand by the students as part of its broader approach to this concept.

ErgoSoft France is accessible by road, air and rail. Basel-Mulhouse airport is only 20 minutes away and the TGV train station, with direct connections to Zurich, Lyon and Paris is only 15 minutes distant, making it easy for business partners and instruction participants from around the world. ■

ErgoSoft's software solutions for the digital printing community

Enfocus Switch streamlines wide-format printing work-flow at Thamm

Wide-format PSP, Thamm GmbH, has improved its production with Enfocus Switch and has now created a fully automated PDF printing work-flow that "practically runs itself". By refining efficiency, reducing manual processes and streamlining operations, Thamm has been able to increase productivity and profitability.

Enfocus Switch accomplishes repetitive tasks associated with receiving, sorting, and processing files automatically

Before working with Enfocus Switch, Thamm's high-performance wide-format output devices required considerable manual work, creating a production process that was time-consuming and subject to error. Production staff laboured with Acrobat pre-flight functions, leading to some jobs taking days to sort out. From data input to print preparation, quality assurance, production and order completion, the company's work-flow was disjointed and inefficient.

After learning about Enfocus Switch through Enfocus's German distributor, Impressed, Thamm began to improve its production process by streamlining the work-flow. Jörg Kulasik, Head of Colour Management and RIPs at Thamm, explains: "We decided to work out thoroughly our production process from back end to front. Once we integrated Enfocus Switch into our work-flow, a lot changed – and for the better. What is most striking is the time saved. Repetitive processes that had to be done manually are now fully automated – and exactly how we need them to happen."

For Thamm, the greatest benefit of Switch is the open software architecture, which facilitates easy integration, use of metadata and integrated plug-ins from third-party developers. Some of the products used in Thamm's workflow include Enfocus PitStop Server, callas pdfToolbox, callas pdfToolbox Server, ColorLogic CoPrA, and ColorLogic ZePrA.

"We've achieved a lot in a short time. We check incoming data in terms of printability, we've partially automated the conversion of print data into print colour spaces, and we control automated processes directly from our ordering system," concludes Jörg Kulasik. "We also implemented print data conversion workflows using callas pdfToolbox. For me, Enfocus Switch has no limits, and I'm sure we'll use it to integrate other tools and functions in the future."

Enfocus Switch is a modular, open automation platform that allows users to accomplish repetitive tasks associated with receiving, sorting, and processing files automatically. Founded in 1988 by owner Andreas Thamm with the aim of revolutionising the industrial advertising marketplace, Bonn-based Thamm operates in various industries. Applications include interior and outdoor advertising, exhibition and store construction, billboards and publicity, and HGV and other vehicle signage. ■

Huntsman and DyeCoo enter into CO2 collaboration

Driving innovation and sustainability for the textile industry, Huntsman Textile Effects and DyeCoo Textile Systems are joining forces to develop and grow supercritical CO2 textile processing technology. This joint collaboration is set to create more sustainable products intended to benefit the industry as a whole.

By using recycled carbon dioxide as the application medium, DyeCoo's technology completely eliminates the use of water in the textile dyeing process. This new technology requires innovation in dye and chemical products as applications expand in order to obtain the high level of colour fastness and performance that consumers demand.

Steve Gray, Global Vice President of Research and Technology at Huntsman Textile Effects, states: "Our track record in innovation, sustainability and quality, underpinned by our global presence, puts us in a great position to support this emerging technology. We believe that this technology has the potential to revolutionise textile manufacturing and we are excited to partner with like-minded and progressive partners like DyeCoo to make sustainable dye and chemical innovations more readily available throughout the industry. This collaboration is a reinforcement of both companies' long-term strategy and deep commitment to innovation and sustainability."

Reinier Mommaal, CEO and co-founder of DyeCoo Textile Systems, adds: "The roll-out of new revolutionary technology in the textile industry cannot be done without the right partners. The first new products introduced with Huntsman Textile Effects will be in the areas of finishing products and fluorescent brighteners. The track record of Huntsman regarding innovation and sustainability makes them a preferred partner for us." ■

Kodak board elects Edwards as Senior Vice President

Douglas Edwards has been elected Senior Vice President at Kodak

Eastman Kodak Company has elected Douglas Edwards as a Senior Vice President of the company. Edwards, 51, is President of the Digital Printing & Enterprise Group, a position to which he was named when Kodak realigned its management. His responsibilities include packaging, functional printing, electrophotographic solutions, ink-jet printing solutions, Kodak service business, consumer ink-jet systems and Design 2 Launch. He reports to Kodak Chairman and Chief Executive Officer, Antonio M Perez.

"Doug's election to this post is recognition of his leadership skills," states Perez. "Moreover, it is an indication of the confidence we have in him to lead one of the two major businesses around which we will build the future of Kodak."

Prior to being named to his current post, Edwards was General Manager of the Pre-Press Solutions business. He joined Kodak in 2005 when the company acquired full control of a former joint venture with Sun Chemical, where he managed the R&D. Earlier in his career, Edwards held senior positions in marketing, manufacturing and research for Zeneca Specialties and ICI Colors & Fine Chemicals. He started his career as a research chemist with the Ilford unit of Ciba-Geigy. ■

Big names already signed for Sign & Digital 2013

Sign & Digital UK 2013 is seeing a flurry of bookings with big name exhibitors committing to significant space at the event. Epson, Roland DG, Hybrid Services/Mimaki, Agfa Graphics, All Print Supplies, Digital Print Innovations, AXYZ, PrintMax, Dorotape, Signwaves, Ultima Displays, Signmaster Systems, Delcam, NCS Fabrications, Granthams, Blackburn Metals, Radecal Machine Sales & Services, Maxicam and The Sign Group are just some of the companies that have booked their space for the show.

Rudi Blackett, Event Director, comments: ''We are delighted to report strong stand sales already for Sign & Digital UK 2013, which will be held in 2013 at the NEC, Birmingham from 30 April to 2 May. The show is well established as a business event for the sign and display graphics' industry and the growing number of end users of signage and digital printing output. Exhibitors at the 2012 show have reported significant sales onsite – confirming that Sign & Digital UK is without doubt a must-attend annual event for businesses to find the best deals, keep up with the latest technology and make informed purchasing decisions.''

Brett Newman, Technical Director at Roland DG (UK) states: "In line with Roland DG's growing portfolio of innovative products for the sign-making and digital printing market, we have significantly increased our stand presence at Sign & Digital UK 2013 as we see the exhibition as a great opportunity to spend quality time and do business with both new and existing customers." ■

International Coatings launches 7100 Performance Pro Series

International Coatings Company has introduced its ultra low-bleed, non-phthalate, low-curing 7100 Performance Pro Series ink, specifically formulated for today's performance and stretch performance fabrics. It comes in eight popular colours and offers superior bleed resistance, outstanding print performance, very fast flash, excellent opacity and stretch memory.

The ink has low curing properties, with the 7100 series curing between 140 degrees C and 149 degrees C, making it ideal for 100% polyester, polyester blends, and polyester stretch fabrics. 7100 Performance Pro is creamy, contains no bleaching agents and is easy to print through high and low mesh counts.

"Based on customer demand, we developed a high-performance ink that is compatible with the many performance and moisture management fabrics in the market today," states Steve Kahane, President of International Coatings. "7100 Performance Pro delivers the superior bleed resistance, stretchability, coverage, and low cure properties printers need for those fabrics, all in one product."

The major printers that have conducted beta-tests with 7100 Performance Pro all agree that it exceeds their expectations, and works extremely well on a variety of performance fabrics with superior bleed blocking characteristics and stretchability.

7100 Performance Pro is available through International Coatings' exclusive network of distributor companies. ■

New 7100 Performance Pro is well suited to stretch fabrics

X-FILM MANAGEMENT APPOINTMENTS

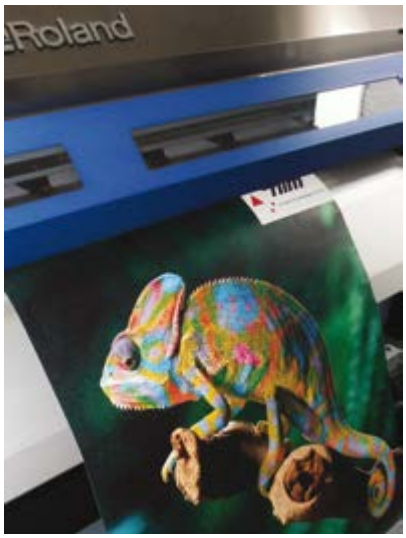
Maria Bader is head of export at X-film

Maria Bader has established herself during the past year at X-film Selbstklebefolien GmbH as a head of export department. She holds an MBA degree and has 12 years of successful international business-to-business sales experience with a strong focus on the business development and project operations. Additionally, she has broad technical and managerial experience gained from management positions in Germany and abroad.

X-film Selbstklebefolien GmbH is a leading developer, manufacturer and supplier of high-quality self-adhesive films for sign-making and digital printing. The company operates in more than 50 countries through its world-wide distributor network.

Bader's duties at X-film include the responsibility for export sales turnover, as well as the company's strategic sales and marketing policy. She leads and supervises the export department and co-ordinates activities to create and implement long-term strategies for successful international business development of X-film. ■

X-FILM CONTINUES TO DEVELOP INTO 'GREEN' MARKETS



X-art continues X-film's 'green' philosophy

X-film is continuing to develop its new self-adhesive 'green' products. After the introduction of its new PVC-free polypropylene film for digital printing at the beginning of this year, the company has announced its next 'green' materials for interior design and decoration.

Recently launched, X-art Wall Fleece is free from PVC and glass fibre and X-film says it respond to a market demand for an ecologically advanced product for use on indoor applications.

Announced at the recent Viscom Frankfurt exhibition, X-art is a specially developed synthetic paper that can be individually printed. It is an ideal media for the creation of wall tattoos for wall decoration as well as for applications in exhibitions, shops and events. Another application use is for creative wall design in hotels, showrooms and shopping centres.

Customers have a choice between the two product variants of X-art 150 and X-art 150S. The first of these, X-art 150 shows the excellent print results with UV-curable ink. The second, X-art 150S, is produced with an additional top coat especially for solvent and eco-solvent inks and gives perfect colour reproduction. Both variants can be printed with latex ink.

X-art 150 has a matte finish, while X-art 150S has a light gloss brilliant finish because of its additional top coat. Both products feature very good light stability.

X-art's grammage of 150 gsm for X-art 150 and 165 gsm for X-art 150S makes the products very light, but both have good adhesion making them solid products for practical application.

X-film says that users do not need any special knowledge for application of this material. The special semi-permanent acrylic adhesive enables corrections and repositioning during application, and the wall fleece can be dry removed without any residue. The adhesive is solvent-free, an aspect which puts an additional value on the environmentally friendly concept of the new products.

New X-art is suitable for application on painted and coloured surfaces, making it a valuable extension to the company's popular XF5 film (former Normex D-CUM) with removable adhesive.

The next international exhibition for X-film will be SGI Middle East in Dubai which takes place in January 2013. The company will take the challenge of its best products from its wide range of films for sign-making and digital printing. It is anticipated that the new X-art Wall Fleece will definitely find a place on Middle East markets. ■

Frank Romano named Graphics of the Americas' Man of the Year 2013

Graphics of the Americas (GOA) President George Ryan has announced that the 2013 Graphic Arts of the Americas recipient for North America is world renowned author, consultant, speaker, and professor Frank Romano. He will receive the honour in an official ceremony to be held during GOA's evening gala taking place in Orlando on 21 February 2013 at the Rosen Shingle Creek Resort, held in conjunction with the Graphics of the Americas Conference & Exposition, taking place in Orlando, Florida, from 21 to 23 February at the Orange County Convention Center.

Established in 1982, the annual Gala Award is given to professionals who excel in management, technology, business and quality, and those who significantly contribute to the graphic arts industry as well as back to the community. Members of the Printing Industry of America and associations nominate the award recipients – one representing Latin America, and the other, North America.

George Ryan, GOA President, states: "I know I speak for all of us in North America when I say I am proud that the man known throughout the world as a hero of print technology progress is one of our own. Frank's positive yet straightforward analysis and opinion on our industry, always delivered with warmth and humour, has been instrumental to hundreds, if not thousands, who have wondered, struggled, and prospered. Frank is a gentleman, a scholar and a friend. I look forward to celebrating this honour with him at the dedication ceremony."

"Frank's contributions to graphic communication education, industry, research, application, and critical thinking defines the significance of printing not only in the 20th Century but in the 21st Century as well. Frank is a Renaissance man and a futurist. He is a man of the highest moral character, the most generous of his time, and at an intellectual level beyond anyone else I know in the graphic communication industry," states Harvey R Levenson, Ph D, Professor and Department Head, Graphic Communication Department, Cal Poly State University.

RIT Professor Emeritus Frank Romano's career has spanned 54 years in the printing and publishing industries. Many know him as the editor of the International Paper 'Pocket Pal' for 30 years, or have read one of the thousands of articles he has written. He is the author of 52 books, including the 10,000 term Encyclopedia of Graphic Communications (with Richard Romano). Romano lectures extensively and was the principal researcher on the landmark EDSF study, 'Printing in the Age of the Web and Beyond'. He has been quoted in many newspapers and publications, as well as on TV and radio. He appeared on the History Detectives PBS programme and serves as President of the Museum of Printing in North Andover, MA. ■

Registration opens for ISA International Sign Expo 2013

The latest products, newest techniques, and business relationships all are on the cards when the ISA International Sign Expo 2013 returns to Las Vegas from 3 to 6 April at the Mandalay Bay Convention Center. Registration for the Expo is now open.

The 2013 event builds upon several enhancements made in 2012, designed to capitalise on the energy of ISA's Expo and allow attendees even more opportunities to network. Happy hours will take place on the show floor on Thursday and Friday afternoons.

"ISA International Sign Expo remains the place to be for the sign industry," says Lori Anderson, ISA president and CEO. "Our 2012 show was filled with incredible information and valuable opportunities for our industry. We expect 2013 to be even larger in terms of attendees, exhibitors, and overall floor space."

New to 2013 is the addition of the Dynamic Digital workshop, which kicks the Expo off on 3 April, with a day-long educational track devoted to this rapidly expanding form of signage. Educational offerings on the following three days include new courses aimed specifically at environmental designers, architects, and fabricators. In addition to the enhanced educational opportunities, a portion of the Expo floor will be dedicated to showcasing the latest dynamic digital products in the Dynamic Digital Park. ■

New dates and location for InPrint as manufacturer interest builds

Event organiser, FM Brooks, has announced updated details for the inaugural InPrint trade show, which focuses on innovation for industrial and manufacturing print production. InPrint will run from 8 to 10 April 2014 at the Deutsche Messe, Hannover, Germany.

Underscoring its strong value proposition to manufacturers, InPrint 2014 will be co-located with the Hannover Messe, familiarly known as the Hannover Fair.

Said to be the world's first event of its kind totally dedicated to showcasing industrial print technologies, InPrint 2014 will demonstrate the myriad opportunities available from incorporating ink-jet screen and specialist printing technologies, such as 3D, to an increasingly innovative sphere of manufacturing applications, from functional, technical print, to surface imaging for decorative projects.

InPrint will focus leaders, ink-jet developers, technical print specialists, print production companies and, most importantly, industrial manufacturers on innovation and future print and prototyping technologies for applications across a virtually endless variety of sectors. These include such diverse vertical markets as aeronautical, automotive, food and beverage, interior decor and pharmaceutical, as well as many others.

"On-going research among ink-jet and screen-printing manufacturers confirms the need for a dedicated event that unleashes the exciting and innovative capabilities of print technology across a number of industries," explains Frazer Chesterman, Director, FM Brooks. "We are delighted to be establishing such an event, but the fact we are co-locating with the Hannover Fair gives visitors to InPrint 2014 an additional reason to attend and adds significant impetus to our proposition."

"Even at this early stage, InPrint 2014 is attracting the interest of major technology manufacturers, each recognising the event's potential as a platform to share knowledge, as well as generate interest and drive investment in future print and prototyping technologies," adds Marcus Timson, Co-Director, FM Brooks.

These include Mark Alexander, marketing director at world-leading ink-jet technology developer, Xaar, who says: "Since 1990, Xaar has been continually investing in R&D to develop industrial ink-jet print-heads that open up new possibilities for applications and new areas of business opportunities. An event that showcases the innovative potential of ink-jet for a variety of manufacturing applications is an exciting concept and Xaar welcomes the launch of InPrint 2014."

Peter Buttiens, CEO of ESMA, the European specialist printing manufacturers' association, comments: "ESMA has long been promoting technical and functional printing and ESMA members have a particular expertise and passion for innovation in industrial print - from screen printing through to ink-jet and other print processes. InPrint is a good idea as we see it acting as a unique bridge for print into the manufacturing sector." ■

New fJET-24 printer offers high resolution and fast speeds

Pad Print Machinery of Vermont's has introduced the fJET-24, a high resolution, high speed flat-bed ink-jet printer which supports single- or bi-directional CMYK printing. It is designed for personalised souvenirs, customised gifts, industrial products and special promotional items.

Artwork files are sent directly from a computer or USB drive to the ColorPrint RIP software, and the variable droplet size technology produces sharp images with smooth gradients up to 1200 x 1200dpi. The flat-bed print area is 508 x 610mm (20 x 24 inches) and has a platen height adjustment system which automatically detects the distance between print-heads and product height up to 75mm (2.95 inches). This system can also be custom built for automation or to accommodate larger print requirements.

Examples of products printed on the new fJET printer

The ink comes in 300ml tanks, complete with a liquid level sensor alarm. The print-head maintenance system features automatic purging, wiping and capping. There is also an option for two additional high-density white inks as a base coat on transparent and coloured media for brighter and more vivid colours. ■

THE CURRENT STATE OF DTS (DIRECT TO SCREEN) AND CTS (COMPUTER TO SCREEN)

Larry Cope describes using ink-jet printing screens for textile and promotional product printers

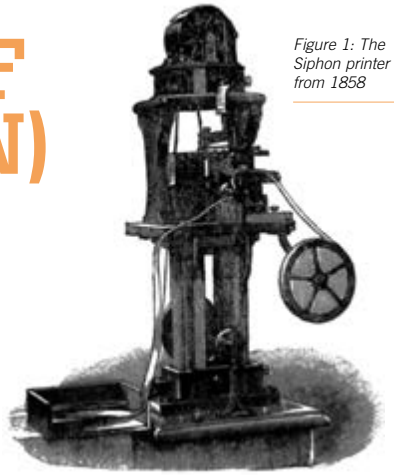


Figure 1: The Siphon printer from 1858

Both DtS and CtS names signify the same basic principle of applying a UV resistive stencil directly to the screen which is then exposed and washed out to make a print ready screen. Two other methods include Laser and DLP (digital light projection); these types of systems bypass the need to expose the screen but the cost is significantly (ten to 20 times) higher, and are seldom found in textile printing shops.

There are two basic methods to apply the stencil to the screen, thermal ribbon and piezo ink-jet. Thermal ribbon machines comprise only about 2 to 3% of the market. The cost of a thermal ribbon machine can be much less than ink-jet machines but the cost of the ribbon is much higher and thermal ribbon machines need to be in a relative clean environment printing on a nearly perfectly uniform emulsion coating. The chart below showing materials' costs was compiled by calling several manufactures and using figures they supplied to calculate costs to print a 457 x 457mm [18 x 18 inches] image on a 584.2 x 787.4mm [23 x 31 inches] screen. Prices could vary from country to country; local distributor prices could also impact these prices.

- Wax resin ribbon thermal method65 cents/ square foot — $1.46 per image
- Hot melt (Phase change) ink$60.00/100 gram block of ink — .45 per image
- Liquid UV resistive ink $200.00/litre bottle — .22 per image

Wax resin ribbon costs were easy to calculate because the amount of ribbon used is not image dependent. Hot melt ink has only one manufacturer to my knowledge and prices I was quoted were consistent. Liquid was most difficult because there are many manufactures and wide variations in price. I chose to use the price of a very high quality dye ink specifically made to stencil screens and made in the USA. The prices for hot melt and liquid inks will vary depending on image density, DPI and line count of the stencil image.

PRINTING DIRECT-TO-SCREEN

The balance of this article will cover ink-jet printing direct to screen. Many people think that ink-jet printing is a relative new technology but this is not true. The first ink-jet printing device was the Siphon recorder, patented in 1858 (UK Patent 2147/1867) by William Thomson and used to record telegraph messages. [Figure 1] The first piezo DOD (drop on demand) the current technology was not Epson or Exon as many people think. In the late 1940s RCA corporation was developing the first piezo drop-on-demand printer which was patented in 1950 (US Patent 2,512,743) but was never developed into a commercial product. From 1973 to 1985 four types of piezo actuators were patented and, in 1977, the Siemens PT-80 was the first piezo ink-jet printer to reach the market.

You may be asking if all this history is necessary, but understanding industry history helps to understand where we are at today and where we could be tomorrow.

Below are four types of ink-jet piezo actuators and some of the current companies associated with each.

1. Squeeze tube
Siemens
2. Bender
Epson, Tektronix, Dimatix
MEMS technology print heads
3. Push or bump
Ricoh, Hitachi
4. Shear mode
(shared wall and roof actuator)
Shared wall, SII Printek, Xaar, Konica Minolta, Toshiba, Brother

Roof actuator, Dimatix (Spectra Gen 2)
Note on Shear mode: Shared wall print-heads can only fire every third jet at the same time; the piezos share a common centre wall so you cannot fire all jets simultaneously. Roof actuator is possibly the most costly but holds advantages over other types of print-heads and may be the best way forward for direct-to-screen printing.

Ejected drop velocity is from 15 feet/second to over 30 feet/second. Never, and I repeat never, hold your hand in front of an ink-jet print-head while it is jetting ink. At this velocity the small particles of ink will penetrate your skin which can cause blood poisoning.

THE EARLY YEARS

The first years of the 1990s saw the first direct-to-screen printing units from Gerber. These used thermal bubble jet water-based inks to produce the stencil directly on the screen emulsion. They did reduce costs and increase profits but they were, basically, flood jets that flooded the screen with a heavy liquid mask which would spread as soon as printed. This made image quality only fair.

The late 1990s saw the development of phase change (wax) print-heads from Data Products (now Ricoh) and Spectra (now Fujifilm Dimatix). These heads used the latest developments in piezo technology and were a large step forward in print quality. The ink did not spread and image quality was better controlled. There was the problem of thermal attraction as one heated dot on the page tries to draw the next dot to it, so image distortion can occur. Also, the electronics near the print-head

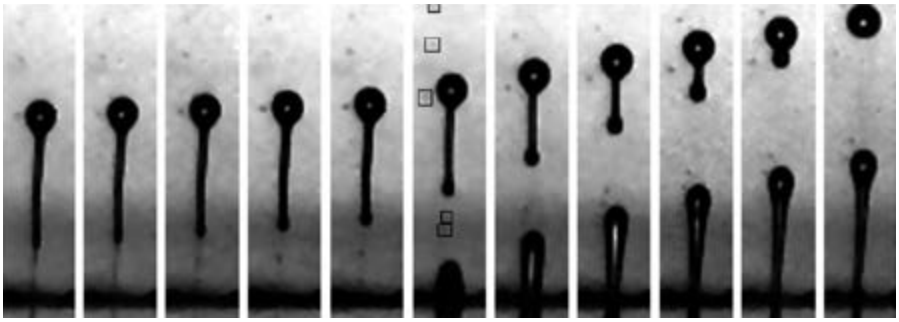


Figure 2: Two dots being ejected from one nozzle in sequence filmed at one million frames/second

are subject to very high temperature as these print heads operate at 125 degrees C (257 degrees F). The heads are costly and tend to have a short life span of the nozzle plate. Wax print-head development is very static at this time, meaning the head you purchased in 1999 is basically the same head you purchase today.

The 2000s saw huge investment in piezo liquid print-head development and also ink development. If you think back to the late nineties and the printer on your desk, you could only dream of printing photo quality images with water-based liquid inks; not so today. We have very robust print-heads with long life spans 30,000 to 70,000 screen images or more produced with the same print-head. Water-based UV resist dye inks that don't spread out are dry to the touch within seconds and image quality is superior to wax (phase change) heads today. Wax printers are still viable but you are limited due to large dot size and a maximum of 256 jets per print-head.

One of the difficulties with ink-jet printing is that dots in round form are not ejected from the print-head [Figure 2]; a very small mass of ink is ejected with a long tail following. As the drop travels forward the tail pinches off and then catches up to the main drop. In theory this is what we want to happen in the real world; at differing air temperatures, humidity and ink viscosities strange things happen. The tail can break off from the main drop causing many small dots to form. The tail speed can be too fast and crash into the main drop causing many small dots to land on the media. This lowers the resolution of the stencil image on the screen.

CONSISTENT RESULTS

Different inks all have various results. When DtS/CtS manufacturers suggest temperature ranges and humidity levels they are trying to help you with consistent results that will achieve higher throughput and lead to better profit margins. Temperature and humidity control of the DtS/CtS printing room are a must for consistent high quality stencil production.

All shops are unique but a simple general rule for productivity and quality in a garment printer's screen room using DtS/CtS technology would be to produce your direct-to-screens at no more than 55 lines/inch using a binary or GS 30 to 50 picolitre (dot volume/size) print-head at 600/800dpi round dots. This combination would produce good half-tones and sharp line art and text down to 14 point size. On press the screens would easily allow the passage of the correct volume of ink to produce a high quality graphic on most fabrics. The next step up would be to use 55 to 65 lpi at 600/800dpi but each dot would be elliptical and formed using six or eight very small dots to produce one larger dot on the stencil. A true 1200dpi image at 85 lines on a 320 mesh screen will not allow much ink to pass through on a carousel press, and will usually not look as good as a lower resolution screen image.

Print quality is better when several very small dots at a high resolution are used to produce printable on-screen dots at lower resolutions. Finer details can be represented and also the graininess of the print is much less with this process. For water-based inks the lower amount of ink with smaller drops results in shorter drying time – another reason to move towards smaller drops. There is and always will be a trade-off between print speed and print quality using ink-jet printers to produce screen stencils.

Screen shops are different and have unique needs. Therefore, at Acti Cameras we produce our direct-to-screen equipment using print-head technology from Dimatix (greyscale and binary), SII Printek, a subsidiary company of Seiko Instruments, (greyscale) and Epson (greyscale). We currently offer printers in several sizes from 23 x 31 to 64 x 60 inches. ■

Larry Cope is President of Acti Cameras

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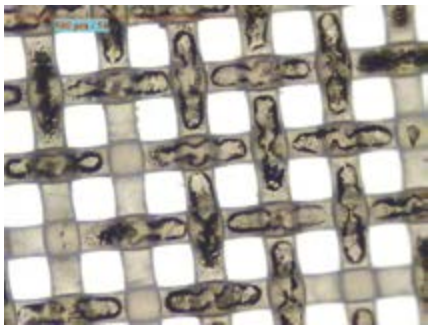
WHAT TO DO WHEN SCREEN-PRINTING STENCIL PRODUCTION GOES WRONG

The final of a four-part summary of the most common errors, their causes and prevention/elimination

12 POOR ADHESIVE TAPE RESISTANCE

a) Adhesive tape adheres too strongly
Use only adhesive tapes suitable for screen-printing, eg: Kiwoband 620.
b) Adhesive tape is torn abruptly
Peel away adhesive tape slowly at a sharp angle.
c) Air bubbles in the stencil
After sensitising, all emulsions should be allowed to stand for at least two hours, preferably overnight to allow air bubbles to escape. Coat with a slow, even pressure.
d) Inadequate stencil thickness
Higher emulsion coating required. First, coat the printing side several times; then build up stencil thickness by a single or multiple coating of the squeegee side. Ensure mesh is completely covered with emulsion.
e) Exposure too short (emulsion remains soft)
Check exposure time and light source (Kiwo Expo Check, Kiwo UV-Meter Pro or step exposure). Follow guidelines in the technical information.
f) Media contains aggressive components
Verify that the emulsion used is suitable for the print medium. If necessary, lacquer over or harden the emulsion (Kiwoset range).


Carelessly cleaned mesh with ink residue

g) Insufficient sensitiser
The sensitiser must be completely dissolved and mixed well in the emulsion.
h) Incomplete drying
Ensure thorough drying before imaging. Ensure fresh air supply (filtered) to the drying cabinet. Do not dry at room temperature; dry at higher temperatures (approximately 35 to 40 degrees C).

13 PARTS OF OPEN AREA CANNOT PRINT

a) Wrong type of mesh
The mesh is too fine and must be matched to the printing task. Pay attention to the type of artwork, the properties of the print medium, the desired ink deposit thickness etc.
b) Rinsing water with dissolved emulsion particles dry in the open areas (run-off haze)
Develop stencil thoroughly, rinse with cold water; then remove excess water by suction, blowing out with compressed air or by dabbing. Dry in a horizontal position.
c) The print medium dries in the open areas.
Clean stencil with suitable cleaner. Stencil may have to be re-made
d) Insufficient density of the copy stencil
The optical density must be at least 3.0 in order to ensure that no UV light penetrates the black areas of the film positive.

14 DECOATING DIFFICULTIES

a) Residual ink on the stencil surface is not completely removed
Treat with water-emulsifiable solvent cleaners such as Pregan C 444 M or C 44 A. Use suitable Kiwoclean cleaner (containing emulsifier) in screen cleaning units.
b) Dwell time of the decoating medium (Pregasol) is not long enough or medium is too heavily diluted.
Carry out decoating according to technical information; comply with prescribed amounts for dilution. Do not let decoating agents dry in.
c) Chemical and physical change in the emulsion due to aggressive chemicals and solvent
Special media (such as aluminium or plastic inks), can create a film on the emulsion surface. Check in manufacturer's technical information that the emulsion is suitable for the printing medium. Exposure times which are too short aggravate the problem.
d) Inadequate equipment
For proper decoating, use the right chemicals (Pregasol or Kiwoclean products) and high pressure water. High pressure equipment with adjustable pressure (50-100 bar) is particularly recommended.
e) Decoating agents have dried on the stencil
Speedy work is needed. Dried-in decoating residue can only be laboriously removed with Pregan Paste or NT Paste, Pregan Megaclean X-Tra and Pregan Combi-Clean (mixing ratio1: 1) and pressure washers.
f) Time-expired emulsion
Pay attention to the storage times and temperatures specified in the technical information. Cool storage extends the shelf life.
g) Emulsion is hardened and / or water-resistant
Water resistant and / or hardened emulsions are inherently difficult or impossible to decoat. Consider switching to a different product, which is easier to decoat. ■

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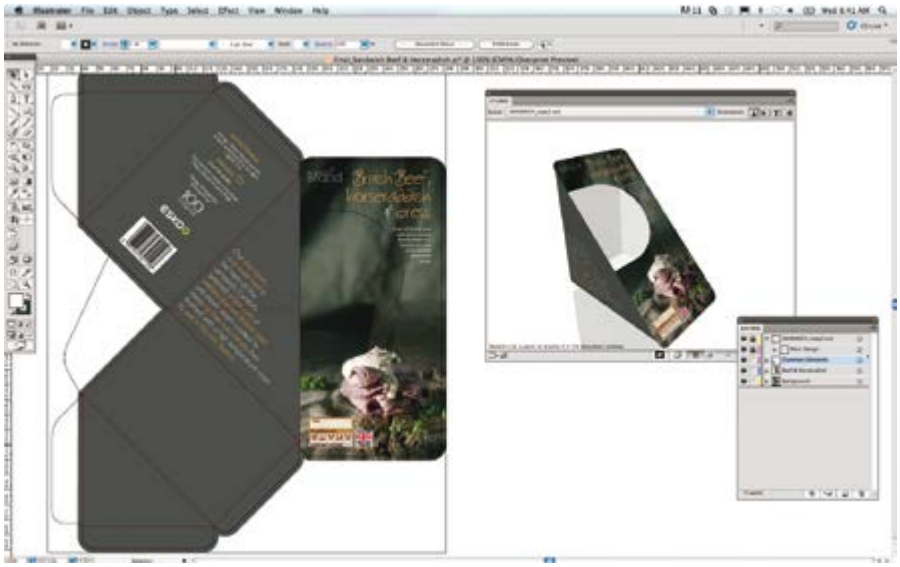
DESIGNING OUTSIDE THE BOX

Sophie Matthews-Paul discusses the advantages to be gained with 3D origination for packaging designers

There is a paradox associated when generating packaging in that, although the end product is three dimensional, using computerised origination has, thus far, meant that designers are limited to working in only two dimensions until a prototype has been generated. Parametric CAD algorithms common with 3D modelling have an important role to play in the creation of packaging and point-of-sale products and, with the latest release of Esko's ArtiosCAD now in version 12, these useful and relevant principles of layout and visualisation are now available to the printing industry.

The packaging sector today is increasingly dominated by consumer perceptions that depend on visual communication, brand awareness and loyalty and, increasingly, in degrees of greater eco awareness. In a world where print is challenged continually by alternative digital technologies, packaging is one sector that can never be superseded by a rival process; the use of innovative designs which minimise waste and optimise creativity is reliant on the right software. ArtiosCAD has long been the most popular choice for designers who need to incorporate folded elements into all styles of folded carton and corrugated boards, and the addition of the third dimension has now unleashed the ability to add and control multiple elements that can be incorporated into the most complex of shapes.



Using Esko Studio, visuals are simple to generate as a virtual product

Graphic raster files can be integrated easily with the vector elements

CREATIVE TOOLS

In addition to creativity, packaging companies today rely on accurate design parameters as a major part of driving increased efficiencies throughout the production chain. This is dependent on designers having the right tools to take them from concept, or the editing and modification of an existing idea, through rendering and visualisation to the result of an accurately conceived end product when prototyped and manufactured. These principles don't only apply to packaging but are just as relevant to point-of-sale applications and FSDU (free standing display units) where creasing and folding precision are vital elements to the final structure, not only from an aesthetic point of view but also in terms of stability through exact construction.

Increasingly designers, agencies and end customers want to view packaging concepts and on-screen proofs in three dimensions to achieve a truly accurate representation of how end products will appear. On-screen visualisations save time and money, as well as logistics if bulky prototypes can be avoided; because shortening time to market is key without compromising quality, 3D animation enables models to be created that not only show review options but also demonstrate folding and assembly directions. With ArtiosCAD this is achieved using an animated VRML file which, in the case of point-of-sale applications, also saves on printed manuals being distributed to retailers.

Esko's ArtiosCAD 12 now takes into account the desire to be able to create accurate three dimensional designs, unlike generic 2D CAD programs which are unable to meet many of the specific criteria used in the packaging and folding carton industries. This is because these areas have very demanding requirements and need specific tools that incorporate structural design, product development, virtual prototyping and manufacturing.

INTELLIGENT FUNCTIONALITY

ArtiosCAD is well established as a highly popular solution for structural design because it incorporates a suite of dedicated, intelligent tools which are designed specifically for the creation of packaging and point-of-sale applications. Unlike conventional CAD, or computer aided design programs, Esko's solution has been configured specifically for working with corrugateds and boards which, mostly, are going to be printed either via an analogue process or, for shorter runs and

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What's App Next?

ArtiosCAD lets users fill a carton, case or tray with the product being packed

prototypes, using digital means.

The intention of ArtiosCAD has always been to simplify the design process by improving quality and consistency, resulting in an electronic file that can be incorporated into a company's workflow and provide real-time access via a local or cloud based secure and managed database. In its latest iteration Esko has moved the software forward and into the third dimension to remove the limitations of working in 2D only while, at the same time, providing end-to-end communication for the entire packaging supply chain, from creation to end customer. This now means that it is easier to generate more products in a faster time and at the lowest cost, respecting compliance to relevant regulations while producing ever more intricate designs with high impact.

With the emphasis on the third dimension, Esko has incorporated a host of innovative and time saving features so that multi-element designs are now simple to generate. For example, the design being generated can be filled, with the click of the mouse button, with the item destined to be packaged thus providing a visual representation and practical application of the end product. Graphic raster files can be integrated easily with the vector elements, and a vectorised outline created around the image.

END PRODUCT VIABILITY

Key to the creation of packaging design is the viability of the end product, both during manufacture and *in situ* within the supply chain. However, the structural design represents only one element, which is to determine the shape and practical construction of the product; graphic placement is also essential in order to gain optimum effect for branding and general information, and ArtiosCAD brings together all required elements to make design and production simple and fast. The move to three dimensional creativity allows native 3d files to be imported quickly from Spatial, Esko's technology partner, generating time savings which are often lacking in the import process.

A special preview feature lets users decide which parts from a model assembly need to be imported, and it is simple to build a design around the 3D item that is to be packaged. This is facilitated by items in the Esko Shapes Store, an online facility which contains objects, including cups, tubs, tubes, bottles, pouches, cans, egg cartons and lavatory paper, with the company offering custom modelling of bespoke shapes which can be made to order.

The growth in demand for multi-part applications is also addressed with ArtiosCAD incorporating options that enable users to fill a carton, case or tray with the product being packed just with a single mouse click. This capability considerably cuts back on hours when working with multi-part designs, aided further with a Collision Detection feature that provides a visual warning or feedback should two designs intersect.

The complexity of compound, unique components, incorporated into today's packaging designs, is transformed into logical and accountable progressions using ArtiosCAD. This is particularly apparent when manufacturing assembly drawings that are being compiled for the production of specialist designs, such as those that comprise packing instructions. Constructed manually, these elements can take more than an hour to create but, with the help of the Collision Detection feature, placing of the components correctly into a box takes place automatically, and can be completed in just a few minutes.

CORRECT PRIORITIES

Packaging is also reliant on the correct priorities for panels in the folding process, with similar principles applying to FSDUs and three dimensional point-of-sale applications for final construction purposes. Using ArtiosCAD 12, flap priorities are generated, with bands for finished edge calculations, and partial cuts or reverse v-notches simplify the precise construction of even the most complex shapes and angles.

Working with ArtiosCAD's 3D features, visualisation is a valuable benefit to prepress operatives and designers, and also assists clients who want to view concepts on screen before committing them to print. Using Esko's Studio, visuals are simple to generate as a virtual product as they integrate with Adobe® Illustrator®, ArtPro and PackEdge. Likewise,

An example of a point-of-sale application created with ArtiosCAD

as the PDF format supports interactive 3D content, Adobe Reader enables viewers to share ideas and see them as three dimensional images via a technically correct and accurately rendered step prior to prototyping. This is a major asset when checking for structural errors, and Studio is also able to perform advanced distortions for shrink wraps, removing the need for lengthy manual tests.

The combination of ArtiosCAD's powerful tools and the versatility of Studio results in an integrated three dimensional design and visualisation solution, essential in today's packaging market. Saving man-hours and origination costs is complemented by significant reductions in trial and error, wasted procedures and materials, all factors which lead to higher margins and shorter times to market.

Common sense decrees that, when producing three dimensional packaging and point-of-sale displays, working in three dimensions is an essential prerequisite within the design environment. But versatility is also of the essence, and ArtiosCAD's ability to import most industry standard 3D formats and to create models and animations, along with JPG and PNG support for the export of individual images, makes this program an extremely comprehensive solution for packaging and point-of-sale creation. ■

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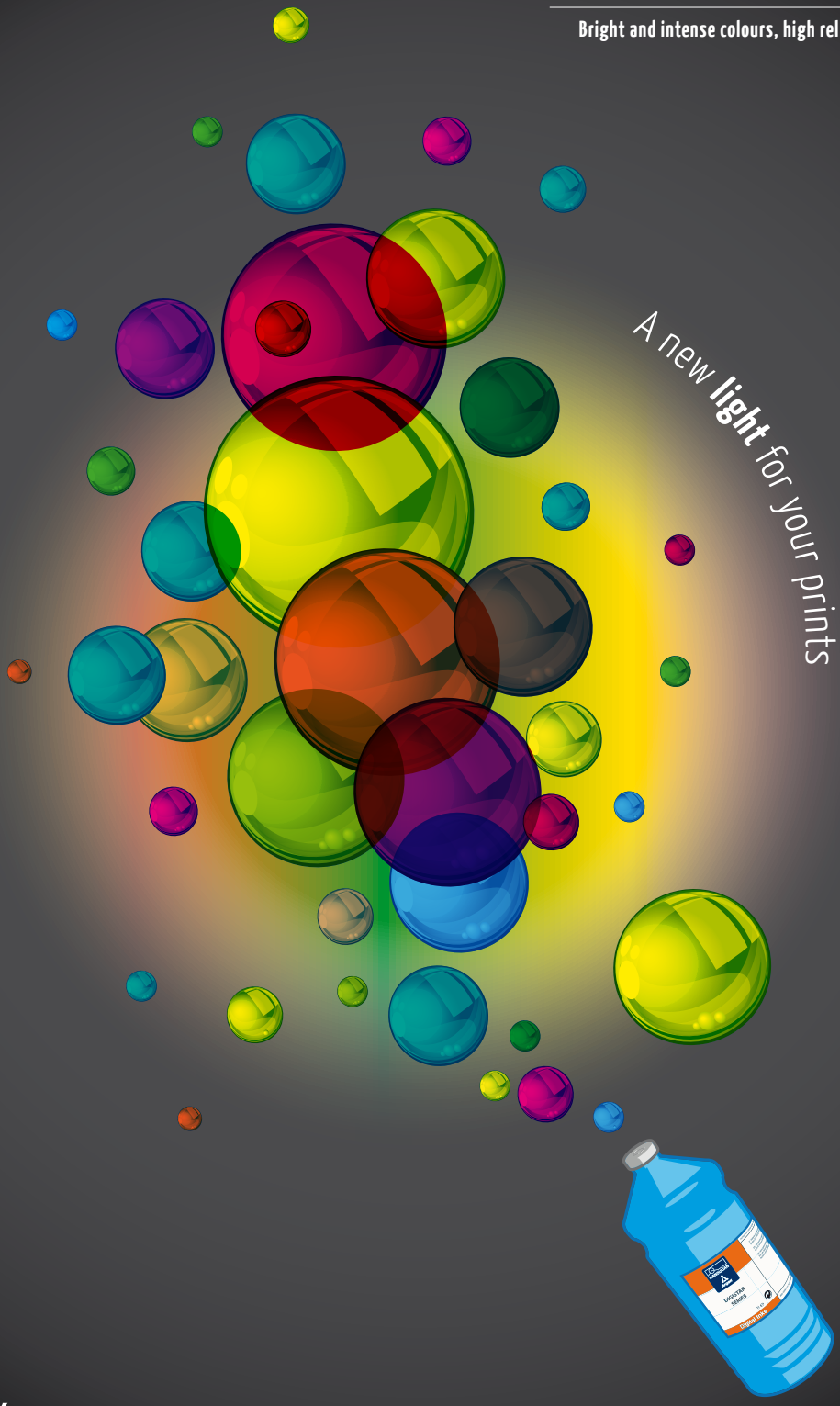

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IT'S WHAT CAN'T BE SEEN IN SCREEN MAKING THAT MATTERS

Alan Buffington looks at the issues often neglected in the screen room

Screen room personnel often fall into a repetitive cycle in screen making. Handling screens becomes a repetitious work pattern where little thought is given to the condition of the emulsion, the screen room, the exposure process, or the condition of their equipment and the presses. They are constantly in a production 'pinch point' where a finite amount of screens can be processed through their area. Between sampling needs, production, and replacement screens for any that have broken down in production, they often aren't aware of anything but the need to line up the art and get another screen shot. They work at near capacity throughput for their system.

Screens that are made in a hurry and rushed to production often look identical to any other screens. They are coated the same way, the exposure is the same time, the block-out and tape job are identical. One screen may last thousands of prints while one rushed to a press may breakdown in 300 to 500 prints – same emulsion, same exposure time, same personnel; yet some screens work well, some breakdown. The faster they go, the more issues production has on press. So what is wrong with this picture? How can we change the process to make life easier for everyone in the shop and, with this process, improve profits and company stability?

The problem with the above scenario is this: the screen issues cannot be seen with the naked eye. It's what we don't see that causes most of the problems, so let's look at areas that we find are often neglected in the screen room.

CAREFUL COATING

Coating the emulsion should not be done haphazardly. The thickness of the emulsion along with mesh type, colour of the mesh and, more importantly, the type of emulsion determines the exposure time. It amazes me how many shops I go into where this is simplified down to two to three exposure times for any mesh in the shop. Some mesh will be underexposed, some over, and some exposures are plain lucky and just right with this method.

The issue is that the screen maker cannot see exactly how thick the coated and dry emulsion is without a tool like a thickness gauge. His 110 TPI screens may vary from 0% emulsion over mesh to 25%+ emulsion over mesh and, in almost all cases, he will look at a chart for exposure times (if he is lucky to have one) and punch in the numbers. The 7 to 10% EOM screens shoot fine, the 0% can be over exposed but, more importantly, the 25% EOM screens will be underexposed. On press the 25% EOM screen will break down sooner on a discharge ink print and another screen will be rushed to press, often under exposed or under dried and break down even sooner. Nothing is predictable if only the naked eye is used to qualify the process; everything that needs controls is invisible to the worker. Creating predictable results requires knowing what is happening in the areas you can't see. Proper coating technique creates predictable exposure times since the EOM (emulsion over mesh percentage) is consistent. [Figure 1]

This is one reason to get an automatic coater if you are a large production shop. Consistent coating thicknesses yield predictable exposure times and stronger screens on press. Again, in this case, emulsion thickness is something we cannot see with the naked eye; it needs to be quantified and not an assumption that all the hand coaters or coating machines are doing it right. 7 to 10% EOM is a starting point for a stronger screen; only a thickness gauge can make this measurement. I have seen shops where it varies by 25% with different people coating during the day, or worse when the accepted process is just to coat the screen as fast as possible. These habits are hard to break, but better to break them than the company going broke due to unseen problems!

So let's say we place an automatic coater into the screen making process to get consistent emulsion thickness, or train workers to coat slower with a firm pressure. This should fix the problem; we have consistent emulsion, accurate exposure time for this thickness so our screen strength should be as good as it can be. Nope – there are still more areas we can't see that can affect stencil strength that we simply cannot see with eyes alone.

HUMIDITY PROBLEMS

Wet floors, foggy or rainy days, developing screens near your screen storage area are also part of the breakdown issue. It's really tough to know when the inside of a screen is dry just by touching the emulsion. Yet personnel in the screen room pat the screen to feel if it is dry. As long as no emulsion sticks to the hand they shoot the screen. Pat it again to see if it is dry, then tape it out and get it to the press. But they cannot determine what the moisture level is inside the emulsion coating, the part right next to the mesh which needs to be as dry as the surface for a good exposure. This unseen moisture prevents good bonding of the emulsion to the mesh during the exposure process, inhibits cross linking within the emulsion and, once on press, can make a production manager on a tight deadline go crazy. Again, it's what we can't see with the naked eye here that matters. [Figure 2]

The solution is to think of your screen area as an ocean and the desert. Screen reclaiming and developing is the ocean side of

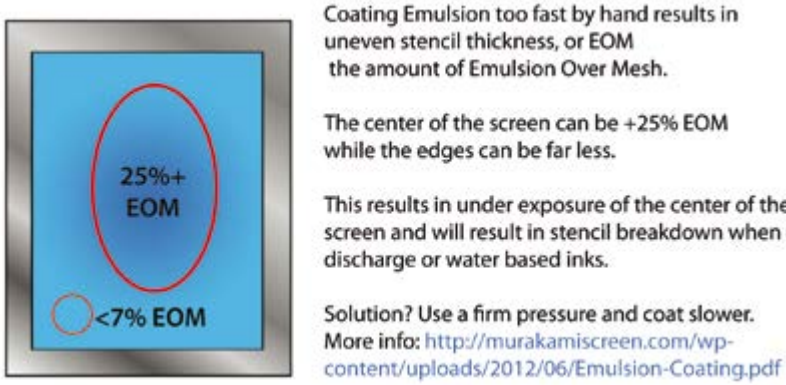

Figure 1: The results of coating too fast by hand

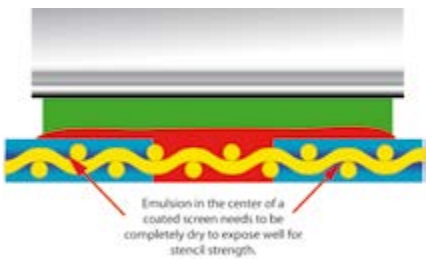

Figure 2: Moisture inside the screen

Figure 3: A moisture meter removes the guess work

the operation; your coating and screen storage especially is the desert side. Screens must be as dry as possible for optimum exposure and predictable performance. You can separate the two areas with different rooms, add dehumidifiers to the screen storage area, and add ventilation hoods over the sink to keep overspray from increasing humidity levels in the screen making area. Ovens can be used to help dry screens quickly before exposure as well as drying them well before going to press to make sure the emulsion is dry as it can be.

A moisture meter used to test the interior wetness of the emulsion is the only way to know when a screen is dry, even when drying ovens are used. [Figure 3] Touching it by hand simply is a guess, good luck. If the screen drying room can be controlled to 35% humidity 24 hours a day, then drying the coated screens overnight will yield a predictable screen that will perform. Drying one in ten minutes and rushing the exposure and post-dry process is a disaster waiting to happen.

Use drying ovens to speed up the process. If you use diazo in the emulsion keep it at 80 degrees F to prevent dark hardening where the image won't wash out. SBQ photopolymers can go higher to 100 degrees F. Strong screens come from the quality of the process used to make them. Quality of the emulsion is also critical. Like a car lot, there are many types and some definitely out-perform the competition.

EXPOSURE LAMPS

One of the most overlooked areas of screen making is the type and condition of the exposure bulbs. Fluorescent lamps are for small shops where run lengths are short; they cannot produce screens well for automatic textile production. The exposures are adequate, but quite long which can prevent low tonal percentages from exposing well. Typically under-exposure is used to get details resulting in weak screens, rather like putting a

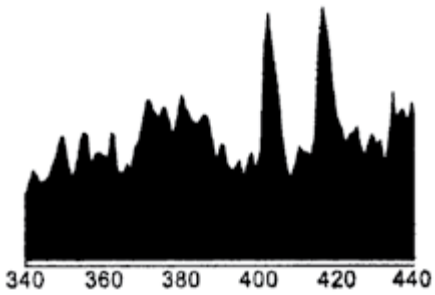

Figure 4: Quality lamp sources generally provide a histogram

gallon of gas in your car and trying to drive 200 miles. It just won't happen, and it's the same for an automatic press.

Just up from this level of lamp are 1kW lamps. Yes they can expose a screen okay, and do a decent job on half-tones due to the pin-point nature of the light. But, like the analogy above, a half a tank won't let you drive the car all day either. The stronger the lamp the better the exposure, especially strong multi-spectral lamps that have strong wavelengths in the 380 and 420 nanometre range. The histogram above from a 5000 Watt UV lamp shows spikes in these important wavelengths as well decent amplitude in the surrounding spectrum. Quality lamp sources generally provide a histogram [Figure 4] on the lamp box.

Continued over

Figure 5: Shop dust causes pinholes

So just buying a 5kW lamp or higher solves all the issues right? Hardly! How old is the bulb in the lamp? I ask this question a lot when I enter a screen room. "Oh we bought the lamp a couple of months ago." This is fine if the equipment was brand new but, after more questioning, I find out it was a used piece of equipment. In this case we have no idea how old the 'bulb' is. Just because the lamp has a bright white light tells us nothing about the UV output of the bulb, nor does it tell us the spectral output of the bulb.

Even a good 5kW system needs new bulbs regularly; even if you are getting the emulsion to expose, it may be a very weak exposure after only six months of exposing several hundred screens a day. Again we can't see the quality of the light, the UV light that exposes the emulsion best. Warning: never look at any exposure lamp with your eyes; you can permanently damage your eyesight. There are tools to measure the lamp output and UV; your eyes aren't one of them. We just assume the lamp is working properly when, in fact, it struggles to burn screens due to very little UV output. Replacing the lamp with an original manufacturer's lamp can work wonders for the strength of the screen. If the screen is breaking down on press with a 5kW light system it's due to a bulb that is so old it simply can't make UV light well anymore and it is something we cannot see. You get what you pay for in lamps. I recommend buying original equipment lamps as they often last longer and have a better spectral output to expose screens.

DUST ISSUES

Have you ever worked in a textile shop that had a shaft of light coming into the building from an opening in the roof? While the air outside this column of sunlight looks virtually clear, the shaft of light from the sun is swimming in dust particles and lint. This unseen dust migrates into the screen room, gets captured by drying fans and deposited onto fresh, wet emulsion that has just been coated onto the screens. The first time this result is seen is in the form of pinholes after exposure or on press. Dust and contaminants are small enough that they can't be seen with the naked eye. Screen rooms that haven't been cleaned in years cause huge issues here. I have seen rooms where cardboard is in layers on the floor to cover spilt emulsion, while dust from the cardboard breaking down is causing pinholes during production. [Figure 5]

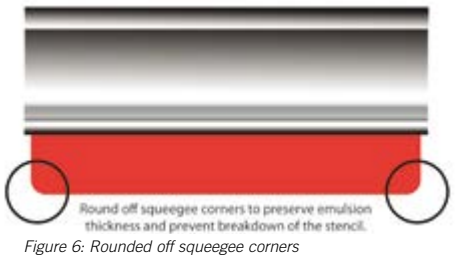

Figure 6: Rounded off squeegee corners

Housekeeping should be a daily ritual. The floor should be mopped, not swept. Rolling racks that can be moved around to allow cleaning is better than fixed racks with inches of dust build up underneath the screens that the fan will pick up and place on the screens. The screen drying area should not be used as a storage area of odds and ends. Fans should be up off the floor. Air should be filtered by any fans pulling air through a wall from the production floor which generates lots of fine dust particles. A clean screen room kept at 35% humidity, with an ambient temperature of 70 to 80 degrees F produces better screens.

Okay, so now after reading this you have fixed the coating issue, all screens are hitting 7 to 10% EOM; you are drying them in a nice climate controlled screen drying room where there is no water on the floor, you have changed from floor fans to ones you can raise up, and yet the screen is still not performing well. So what could be next?

EQUIPMENT MAINTENANCE

Even if we control all the exposure variables there are other gremlins in the shop that can render a good screen unusable. Squeegee corners should be rounded. Granted we can see this. If that is the case, why do 90% of the shops continue to leave 70 and higher durometer squeegees as sharp as a knife on the outside corner? We cannot see that these ultra-sharp corners are carving a line in the emulsion that is being softened by discharge or water-based inks. There can be as little as four to five microns of emulsion covering the mesh knuckles, yet companies leave them square and wonder why the emulsion breaks down.

Look at the Grand Canyon in the USA. Water eroded rock away into a canyon thousands of feet deep. On a microscopic level your squeegee is doing the same thing to emulsion and you only see it when the discharge ink explodes through the emulsion. Round off the squeegee corners; use as little squeegee pressure as possible to get a good print [Figure 6]. Like my buddy Mark Gervais said at the SGIA show in Las Vegas recently: "We sell T-shirts, not pallets." We don't need to use so much pressure that the pallet is covered with the design. This extra pressure causes un-rounded corners to carve away at both emulsion and mesh.

To print better and reduce squeegee pressure, change the mesh to a more open S-mesh, or to a softer edge for water base or discharge. Back off the squeegee pressure until you don't see it print. Add squeegee pressure sparingly until you get an even print. The head may have been used with a totally different ink, like plastisol, when the next print is a discharge print. Leaving the squeegee pressure cranked down to plastisol printing levels is not needed for a discharge print.

EMULSION CHOICES

You have many airline choices when you travel. Some are far better than others (trust me on this one as I have spent days waiting for my luggage in the tropics while having only a flannel shirt that I wore on the plane). The emulsion you choose to use, and especially what the screen worker likes to use, is often chosen based on price; or maybe it's their buddy who they like that sells them emulsion Or simply it's what they have always used and maybe changing to another emulsion changes exposure times for workers who don't know how to determine exposure times.

There is a huge difference in how the components used to make the emulsion are produced, or the type and quality of the SBQ or diazo sensitisers used and the quality of the manufacturing process and the engineering skills of the company making the emulsion. Just because the company sells emulsion doesn't mean they know how to make emulsion. Talk to some industry experts.

At the recent SGIA show in Las Vegas, several of our Murakami super-stars sat down and brought samples of their prints and talked shop. You couldn't get them to change their emulsions and mesh if you tried; they know what works and it was a pleasure to listen to Mark Gervais from Ningbo in China, one of the world's largest print shops, or Kevin from Forward Screen Printing in Oakland who prints incredible discharge prints, or Tom from Motion Textiles in Sacramento who produces a lot of the guitar/band shirts I use for quality print examples. We sat in a circle and they one by one blew me away with prints they have done. State of the art stuff, and they all would agree; you can only print as good as your mesh and emulsion. It's what you don't see that matters. Expose the quality.

SGIA show prints can be seen at www.murakamiscreen.com/sgia-show-las-vegas/ ■

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ADVANCED FUNCTIONAL & INDUSTRIAL PRINTING CONFERENCE RETURNS IN 2013

In recognition of its importance on the global printing events calendar, ESMA are pleased to announce that the Advanced Functional & Industrial Printing event will return to Düsseldorf on 6–7 March 2013.

Expert speakers will offer printers, OEMS and Tier 1 suppliers a series of presentations covering the best practices, as well as offering an invaluable insight into the latest technologies available. Applications to be covered include automotive, film insert moulding, nameplate, fascia, printed electronics, circuit, label and solar cell technologies.

Confirmed keynote presentations to complement the technical programme include Professor Gunter Hübner of Hochschule der Medien addressing 'Functional printing with screen or digital' and 'Volume printing of multilayer products' by Swansea University's Professor Timothy Claypole.

Advanced Functional & Industrial Printing 2013 will take place at the easily accessible Radisson Blu Scandinavia hotel in Düsseldorf. The conference programme will be presented in dual English and German, and will be supported by regular intervals dedicated to an accompanying tabletop exhibition of leading manufacturers of machinery and consumables.

ONLINE REGISTRATION OPEN

With limited space available because of the hotel venue, delegates can register online now at www.AFIP2013.org

Registration includes access to all presentations, exhibition displays, refreshments, lunch and dinner. Further discounts are available for multiple delegate bookings and ESMA members.

PROVEN TRACK RECORD OF SUCCESS

Advanced Functional & Industrial Printing 2013 follows on from the 2011 event which incorporated the Membrane Switch Symposium and was deemed an outstanding success by an international audience of over 140 attendees from 19 different countries. 100% of attendees stated that the conference programme was good or very good, and 98% said the 20 presentations would be useful to their business.

Printers enjoyed networking opportunities in the tabletop exhibition at the 2011 event.

Technical presentations were made by representatives of Agfa, Algra, Bayer, ColorGATE, Conductive Compounds, Folex, GC Limited, KIWO, MacDermid Autotype, Marabu, Natgraph, Pröll, Sefar, SignTronic and Xennia. Keynote speakers included Ed van de Kieboom of the Plastic Electronics Foundation, Gunter Hübner from HDM Stuttgart, Lumoza's Wouter Moons and Peter Kiddell of PDS Consulting.

ORGANISERS

Advanced Functional & Industrial Printing 2013 will be staged by ESMA, a European association for specialist printing manufacturers of screen, digital and flexo technology. Members are manufacturers of machinery, equipment, software or consumables. The event is supported by Chameleon Business Media, publisher of this magazine and *Glass Worldwide*. Both partners have proven track records of staging highly successful educational conferences and exhibitions, including Advanced Functional Printing, Membrane Switch Symposium, GlassPrint and CTS & Digital Work Flow. ■

The 2011 event attracted 140 attendees from 19 different countries.

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ENERGY EFFICIENCY IN STENCIL CLEANING

Manuel Schöllig describes how screen-printing plants can save more than one ton of CO2 in a year

Energy efficiency is becoming an increasingly important catchphrase in today's world. The production of energy (eg: as heat, electricity) depends on so-called energy sources (coal, oil, gas, wood, etc), which release energy through combustion and which are also converted into electrical energy (electricity). For years, rising prices for energy sources has led to ever-increasing energy costs. Against this background, the energy efficiency of cleaning processes is becoming more and more important because, to a considerable extent, the unit costs in the value chain for businesses will also be determined by the running costs.

In an age of increasing expansion of renewable energies, more than 60% of electricity generation is done with fossil fuels (petroleum, natural gas, coal). So there is a direct correlation between the amount of electricity generated or used and the resulting CO2 emissions. Depending on the type of the power plant used when generating a kiloWatt-hour of electricity, the following amounts of CO2 are produced:

- Natural gas-fired heat and power plant: 148 grams
- Natural gas-fired power plant: 428 grams
- Coal-fired heat and power plant: 622 grams
- Lignite-fired heat and power station: 729 grams
- Coal-fired power plant: 949 grams
- Lignite-fired power plant: 1153 grams

For cleaning stencils, screen-printing plants essentially use electrical energy (electricity) for the operation of automatic washing and decoating units, distillation equipment and pressure washers. Here, the share of a screen-printing company's total energy consumption just for stencil cleaning, depending on the cleaning technology, could be 15% or more.

Manuel Schöllig


Using Kiwoclean improves energy efficiency in stencil cleaning

By the co-ordinated use of cleaning chemicals, an important contribution can be made both to reduce energy consumption and for cleaning stencils:

CALCULATION EXAMPLE:

Screen-printing plant: 60 stencils/day, format: 1 square m stencil area
Cleaning technology used: chamber washing unit with distillation

CLEANING MEDIUM CONSUMPTION DATA:

400 litres/month of cleaner with flash point >55°C (including evaporative losses + distillation waste)
Distillation: 14 day cycle in a vacuum distillation unit

AFTER USING KIWOCLEAN LM 789 E:

240 litres/month of cleaner, with flash point approximately 100 degrees C (lowest evaporation, no distillation necessary, long bath life, biodegradable)

The following energy requirement can be determined:

ENERGY REQUIRED FOR DISTILLATION PLANT:

Vacuum pump: Power consumption: 8 kW – pump running time: 6 hours
Energy consumption/distillation: 48 kWh

Heating energy consumption: The hot oil or cleaner to be distilled has to be heated up from room temperature (20 degrees C) to about 185 degrees C. For 400 litres of cleaning medium, the following amount of energy is required:

320 kg (400 litres) x 2.5 kJ/kg and degree of heat (heat capacity) x 165 degrees (temperature difference) = 132,000 kJ, which corresponds to approximately 36.7 kWh

The total energy requirement for two distillation processes per month is only for generating vacuum and heat treatment for preparing 400 litres of cleaning medium:

(48 kWh + 36.7 kWh) x 2 = 169.4 kWh

With an assumed average CO2 emission volume of 0.5 kg/kWh (the average for all power generation facilities) the following monthly savings amount of CO2 emissions for the model plant is:

169.4 kWh x 0.5 kg CO2 per kWh = 84.7 kg CO2

By using Kiwoclean LM 789 E, this screen-printing plant would thus save more than one ton of CO2 each year.

Why not make your own contribution to climate change? Let us tell you more about our innovative cleaning solutions and KIWO Cleanline products, synonymous for process and energy efficiency in screen-printing production. ■

Manuel Schöllig is Product Manager of Cleanline at KIWO, Kissel + Wolf ■

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THE LOGIC OF INVESTING IN GRAPHIC CONSULTANTS

Mike Ruff explains the relevance and importance of industry specialists


Mike Ruff

As I begin this article on the logic of investing in graphic industry consultants, I want to make it clear that this writing is not to entice you to hire me as a consultant. My objectives are not selfish and I feel this is information all graphic arts manufacturers should know.

As I look back on my career in this business, I wish that someone would have told me what I am about to tell you in about 1,200 words or less. "Using consultants to drive profitability in your business will pay off if you do it with focus, purpose, commitment and choose the right consultant." With that said, the scope of this article is for business owners that may be looking for answers related to growing their business. This article is for business owners that may be working harder but struggling to move past production barriers that are hurting profitability and stopping growth. I am convinced that if you apply the simple principles I will set forth in this article, it will help you in the process of unlocking the potential you already have in your business through the logic of investing in graphic industry consultants.

KNOWLEDGE IS POWER

In 1979 I was half owner in a small screen-printing and sign business. By 1984 our little business had grown to what we thought was big. We were young and worked like sled dogs but our business was maxed out and it seemed we had hit a ceiling. My business partner, Jerry Barham, came to me with an idea of bringing in a well-known consulting firm to evaluate the potential of our successful but stagnant business. The cost in 1984 was $20,000. That was a lot of money to us. But Jerry said: "Trust me, this will work."

It was a tremendous success. Our business exploded. An outside source that knew little about our business but a lot about business implemented simple systems and strategies that drove our business forward at warp speed. Through this experience I learned that "knowledge is power" and knowledge is for sale.

Today I am a consultant. I travel mostly in North America. My job is to evaluate the potential of consulting programmess and then build a plan for implementation. As a result of this exposure, I see hundreds of graphic production facilities. One thing is common in most of these facilities. "They don't know what they don't know." Just like I was in my first screen-printing business, I had tunnel vision. What I was doing was what I thought everyone was doing. I thought how we did it was the best way to do it. I didn't know what I didn't know. What a consultant knows and is able to teach and implement is of tremendous value.

A QUALITY CONSULTANT'S VALUE

The vision of an experienced consultant can see a path to productivity you will probably not see. There is a methodology, best practices and a knowledge base beyond what your internal people have. No matter how smart and dedicated they are, there is no way they will ever have the experience a quality consultant will have. The difference is, the internal employee does not solve problems in different print facilities every week, year after year. They don't see and learn from working through challenges and difficulties like an experienced consultant has the opportunity to do. This experience has been called 'priceless'. But a consultant's experience is for sale. Purchasing the knowledge is faster and less costly than struggling along for years at half your potential as you try to develop it on your own.

CHOOSING THE RIGHT CONSULTANT

A critical part of using consultants is choosing the right one. The first rule to look for is experience, but not just experience in years. Experience in working with companies similar to yours is most important. If your business is screen-printing, a consultant that has had success in your type of screen-printing is what you want. If your company is digital, a consultant that understands the options inherent to digital productivity is important. If he or she does not understand the entire process of what you want to hire them to do, find someone else.

This does not mean they need to know how to run every piece of equipment in your facility. It means that they know exactly what to expect from every piece of equipment in your facility. If you need help with offset production or flexographic production or digital production, the same principle applies. Look for proven experience and front-to-back knowledge.

Where do you find the best consultants? First look to the associations you trust. Organisations like SGIA, Fogra, IDEAlliance, PIA, NPES or other non-profit organisations have your best interest in mind. The success and growth of their members will increase the growth of the organisation. Check out expert organisations like ASPT (Academy of Screen Print Technology) on the SGIA web site for screen-printing. There are more than 50 of the top consultants in the world listed. Check out the choices, read the résumés and ask for multiple references. Call and make sure the skills you want for your consultant project are what you need.


A critical part of using consultants is choosing the right one

AFTER THE CHOICE OF WHOM, THEN WHAT?

The first order of business in your consulting project will be establishing critical success factors (CSFs). Critical success factors are deliverables. This will be what you expect to see happen. CSFs must be in writing and agreed to by both parties. You will also need to establish measurable CSFs.

CSFs that state merely to make my printing better are worthless. What is the definition of better? See the problem? Can you define better? These CSFs must be specific and you should try to not have more than three at a time to keep a focus on a clear goal. The way to boil the CFSs down to what you need and want is to ask "why" five times.

For example:

1. Make my printing better? Why?
2. Improve our quality? Why?
3. To eliminate down-time adjusting colour. Why?
4. Improve productivity? Why?
5. Make more money. Oh … I get it.

IMPROVE PROFITABILITY IS THE FIRST CSF – RIGHT?

Every CSF must have a purpose in order to eliminate spending expensive consulting hours on the wrong thing. Don't set short-sighted objectives that won't drive dollars to the bottom line. An example is "train my pressmen". This is a short-sighted CSF. Training your pressmen will not directly link to the bottom line unless you train the pressmen to be more accurate, which makes them more productive. So a good CSF might be to decrease four-colour process set up time by 50%.

A CSF that will improve profitability will require every step from sales, to estimating, to production art, to printing. It will require a consultant that can create a teamwork environment and encourage people to work together focused on the success of the company based on the CSFs that are agreed upon. With the right consulting talent, achieving your critical success factors can become fun and a passion for the company. When this happens it has no chance of failure.

COMMITMENT

The last point I will cover here is commitment. There are two commitments that are essential to maximising your return on investment. The first commitment is the commitment of the consultant. Good consultants won't take a project that has a low degree of success probability. So ask the consultant to come and visit your company. A consultant that is not willing to make an investment of time to qualify you as a client after a brief phone interview is just telling you they want you to take all the risk. Good consultants do not want any project to fail.

The second commitment is you. Consultants need the commitment of the management and the people in the company that they are training. Consultants need time in every key process area to accomplish the CSFs that have been established. Make a commitment to give up some production time to be the best you can be. If you do this right, I assure you that new found productivity potential will amaze you. ■

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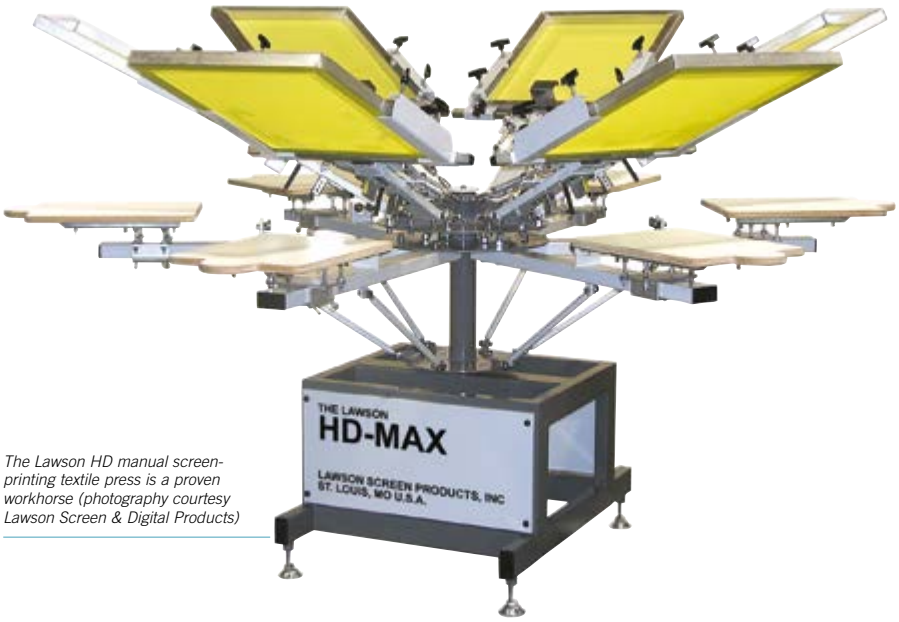
INVESTING IN A PRINTING SET-UP

Matthew Rhome compares digital and analogue start-up options

While attending shows and industry events, I get to speak with quite a few future garment decorators who are trying to decide what imprinting method should they buy that makes the most sense for their business. The most common question I am asked is: "Should I purchase a screen-printing set-up or a direct-to-garment printer?" How do I reply? "Maybe you should buy both."

Being very active in the direct-to-garment printer industry, most people don't expect to hear that type of answer from me. But the fact is that digital technology is not the only way to decorate a garment, and for your specific business need it may not always be the best way. There are many factors that come into play when selecting which type of equipment to purchase and, with the economy being so tight, one does not want to make the mistake of choosing the wrong type of decorating equipment.



The Lawson HD manual screen-printing textile press is a proven workhorse (photography courtesy Lawson Screen & Digital Products)

MARKET EVALUATION

Before you decide on any specific equipment type, one of the first things you should do is take an intense look and really evaluate your market. Understand what type of items you are going to print and who your customers are going to be. Don't assume you know what they will want printed; research your market and find out what they really need printed.

Closeup of digital garment printing on the GraffiTee GT-381

Unlike screen-printing inks, most direct-to-garment inks do not adhere to flame resistant clothing, Teflon coated fabrics, nylon jackets, or some 50/50 or 100% polyester materials. If you think that you are going to print primarily on those types of fabrics, then screen-printing may be a better option for you. If the majority of your customer base is going to want standard designs for church, clubs, schools and athletic wear, you should be able to produce most of what you need on a screen-printing setup. If you are making shirts with lots of colour, detail, photos, or producing small order quantities or with sequential numbering, direct-to-garment might be a better choice. Getting answers to these questions will really help with your decision process.

BUSINESS LOCATION

Next look at where you are going to be working. Screen-printing can be messy and may require more floor space than a direct-to-garment setup. Starting out, you may want to locate your business in your home and there could be some issues with your landlord or homeowners' association if you want to run a screen-printing operation from your garage. Direct-to-garment is very clean and the set-up is compact enough possibly to locate the equipment in a back room or basement with little issue.

Sample T-shirts created using direct-to-garment printing technology

The Brother GraffiTee GT-381 garment printer

Another item to consider is the cost of ownership and the auxiliary factors of both processes. The cost/print with screen-printing is often very low but you must factor in the auxiliary costs involved with the screen-printing process. This includes art preparation, producing a positive, screen making, alignment, set-up, and the whole clean-up process. Screen-printing's cost benefit is often with longer runs or short runs with one or two spot colours, but it can get expensive when you need just a few pieces of a shirt with a multi-coloured design. The initial investment in a direct-to-garment printer and auxiliary equipment is more expensive when compared to basic screen-printing equipment, but it has advantages over other decoration methods. With the exception of pre-treating dark garments, direct-to-garment has minimal set-up or post production costs and it can be more cost effective when producing short runs of multi-coloured designs, design with high detail or gradient, sequential numbering, or when printing just one shirt.

As an example, to produce 100 black shirts with a one colour design for a local motorcycle club would not be as cost effective with direct-to-garment as with screen-printing, because of the production time, ink and pre-treatment costs. On the other hand, if this same club wanted twelve shirts in full four-colour process you would not want to screen-print them for the same reason.

IN SUMMARY

Each decoration method has its pros and cons and each is specifically suited to its task. One decoration method is not going to be cost effective for all your printing needs. If you can afford to invest in both, this may be ideal for your business. I would recommend it. If you need to start slowly, evaluate your market, invest in the method best suited for your needs, and plan to expand at a later date. ■

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FUNCTIONAL FINISHES

Pedro Martinez and Jean Potier outline why revolutionary materials are challenging the chemistries for screen-printing inks

The output of new and revolutionary raw materials allows screen-printers to develop cutting edge products, hardly imaginable a few years ago. Our goal is to discover useful products featuring unique and new characteristics on the market, offering inks that have something extra.

ANTI-GRAFFITI SCREEN INKS

The daily sight of graffiti shows that efforts to keep our cities clean do not give the expected results for the visual pollution they cause. Linking this with our research and development of chemicals, we launched a program to provide a real solution to the problem of graffiti.

Investigating anti-graffiti products on the market, we realised that none could meet, at the same time, our two basic requirements for protection – total efficiency and total respect for the environment.

From the beginning, we devoted ourselves exclusively to water-based systems that comply with the most stringent environmental protection. After a long and arduous investigation, we can say that our product exceeds the most demanding rules on anti-graffiti performance – durability, weather resistance and other factors.

The ERES product line (extremely resistant ecological shield) is unique because:

1 - it fully respects the environment;
2 – it has an extraordinary resistance (withstands more than a hundred cleanings);
3 – it offers full protection for many years;
4 - in most cases, it has a spectacular repellent power, rejecting the graffiti, discouraging graffiti artists to continue painting their 'works'.

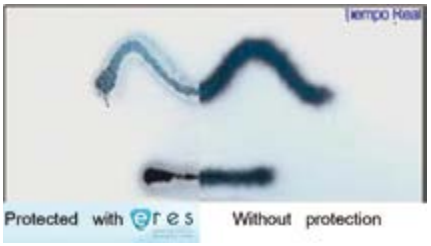
It is a two-component water based ink that can be supplied as a varnish or ink.

FIRE-PROOF FINISHES AND FIRE SHIELD INK

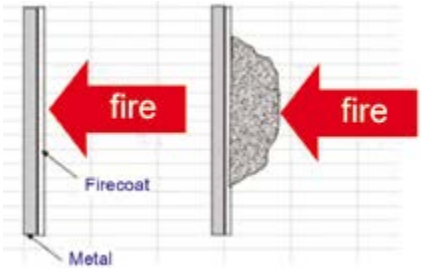
This is a one-component ink suited for printing mainly on wood and various plastics. We decided to create this ink with new and extremely useful features in order to fulfil strict fire protection requirements (fire class B1). This performance would not be possible without the decisive contribution of new raw materials.

This new ink has to be printed with a coarse mesh (not more than 77 T) to provide an adequate ink layer.

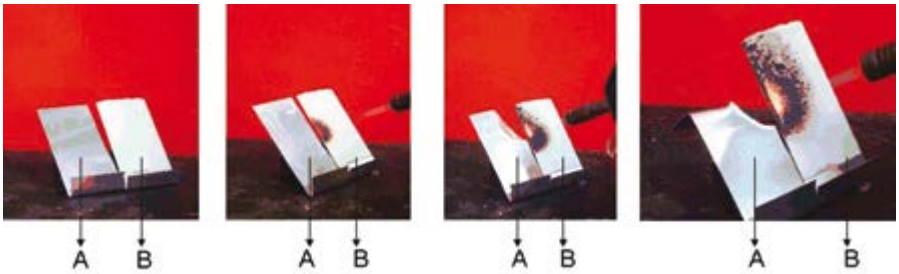
Before testing the fire-resistance of the ink it is important to wait two to three days to provide a complete drying of the layer.



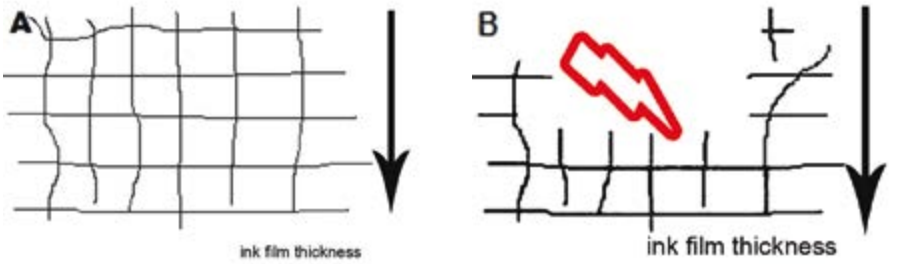
An example of an anti-graffiti panel



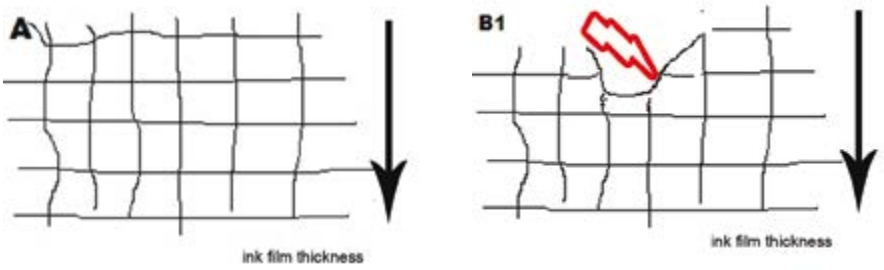
Protection mechanism against fire



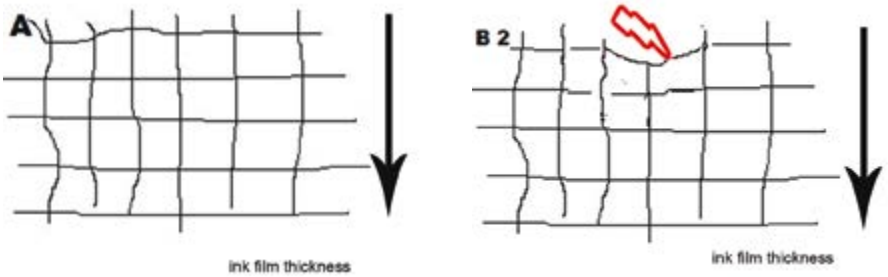
A comparative panel test showing A without protection and B with Fire Shield ink protection



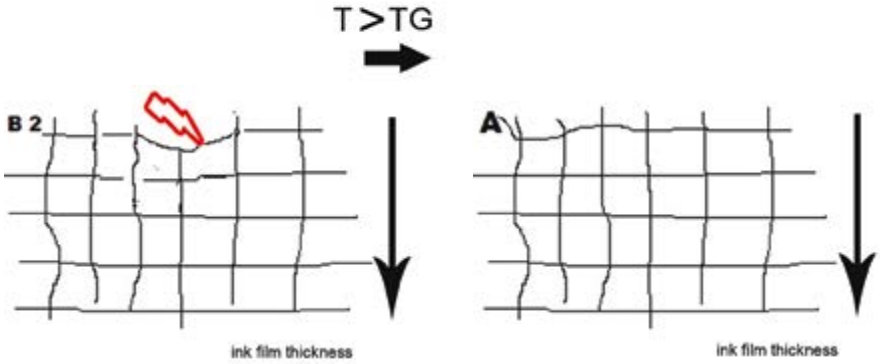
Normal self-healing ink (A) showing how the ink film is deeply affected by scratches (B)



A normal self-healing ink (A) and (B) how its high flexibility is more resistant to scratches



Afford self-healing ink [A] showing harder film [B] without losing any flexibility



Reflow effect (application of heat, hair dryer at maximum heat for example for 15 to 20 minutes)

TAILOR MADE SOLUTIONS

We have the possibility of adapting our fire-proof ink by adding special properties without changing the anti-fire characteristics of the product

1 Anti-fire ink with anti-bacterial characteristics

This special product is suitable in printing works which have to be exposed in health centres or clinics.

2 Anti-fire ink self-washable.

This new characteristic, without changing the base product, is a very suitable ink for printing in public sites where maintenance costs have to be kept low.

3 Odourless anti-fire ink

Another very special characteristic is tailor-made for applications in closed locations like schools and public administrations which require all the previous properties but also need products with no residual odour.

SELF-HEALING FINISHES

Due to the introduction a few years ago of special raw materials, it has been possible to develop systems that allow ink formulations having a certain memory that allows them to recover from scratching or clawing through the heat.

Afford's new miracle screen ink is mainly suited for metals and wood but can be used on a large variety of substrates.

We succeeded in providing a normal self-healing two-component ink with an exceptional hardness and without losing the great flexibility of the base product.

At Afford we tried to improve these characteristics by working on improving the hardness of the ink film, without, of course, reduce the memory effect. We succeeded making it more tenacious by providing a reflow effect.

In summary, we are presenting a product which is extremely resistant to scratching while keeping intact its self-healing properties. ■

Pedro Martinez is Technical Director at Afford Industrial

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PHOTONIC CURING FOR MILLISECOND-DRYING OF THIN FILMS

Stan Farnsworth and Kurt Schroder discuss the benefits of thermal processing

Photonic curing has been shown to be effective in heating inks and functional films to very high temperatures, in excess of 1000 degrees C, on low-temperature substrates such as polymers and paper. The use of this thermal processing method has been explored previously in the literature for sintering, annealing, and reacting materials such as metal-based electrically conductive inks. The authors have applied this technique to drying, and show that pulse conditions as well as pulse architecture play a key role in producing good results.

PHOTONIC CURING IS A HEATING PROCESS

Photonic curing is the high-temperature thermal processing of a thin film using pulsed light from a flash lamp. When this transient processing is done on a low-temperature substrate, such as plastic or paper, it is possible to attain a significantly higher temperature than the substrate can ordinarily withstand under an equilibrium heating source such as an oven. In this way, photonic curing is a non-equilibrium-based thermal processing method as the film is preferentially heated over the substrate.

Equilibrium-based processing methods, such as traditional ovens, heat both the thin film and the substrate to uniform elevated temperatures. The maximum temperature is often limited by the substrate. In contrast, photonic curing makes it possible to thermally process films and depositions on plastic and paper that previously required more expensive, rigid, high temperature substrates such as glass or ceramic. Typical processing times are about one millisecond or less, meaning that a quality photonic curing system can cure a wide range of films and depositions near instantly. Photonic curing, as a non-equilibrium process, also allows oven-capable materials to be processed much faster than with equilibrium-based oven heating.

As an example of photonic curing, consider the material stack in Figure 1.

Figure 2 shows the results of a 300 microsecond exposure of the stack by a photonic curing tool. The resulting thermal profile at various locations in the material stack is calculated with a thermal stack simulation (SimPulse™ by NovaCentrix) as real-time measurement methods are inadequate to capture this information.

The rapid temperature rise is a result of the films absorption of the flash lamp output. It continues to rise for the duration of the 300 microsecond flash lamp pulse. After the pulse's cessation, the surface is cooled due to conduction into the bulk of the substrate which prevents it from being damaged. After about 35 ms, the entire stack is in thermal equilibrium and has risen to only 90 degrees C.

Continued over

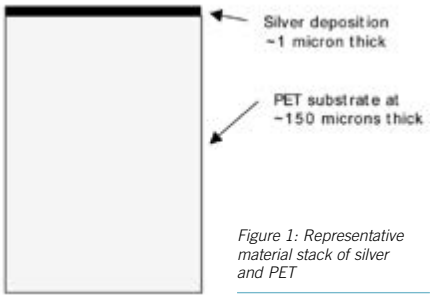

Figure 1: Representative material stack of silver and PET

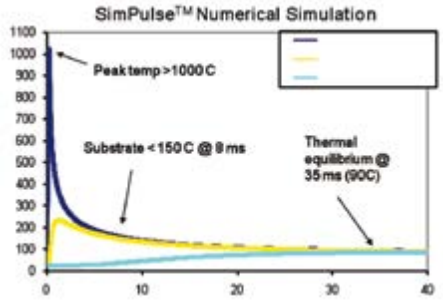

Figure 2: Thermal simulation of the photonic curing process (300 microsec, 1 J/cm2) for a 1 micron thick silver ink-jet film on 150 micron thick PET

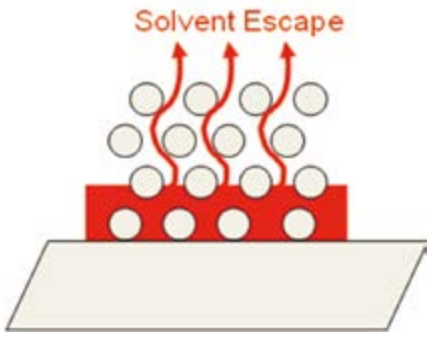

Figure 3: Idealised, simplified depiction of a nanoparticle-based deposition of <1 micron thickness undergoing drying

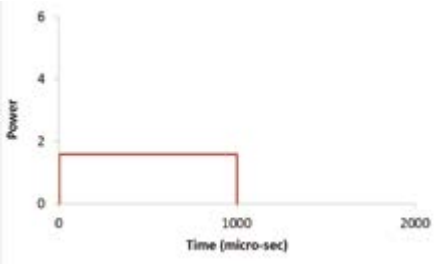

Figure 4: An arbitrary intensity and pulse length of a single light pulse, used for heating a thin film stack such as for drying of inkjet depositions

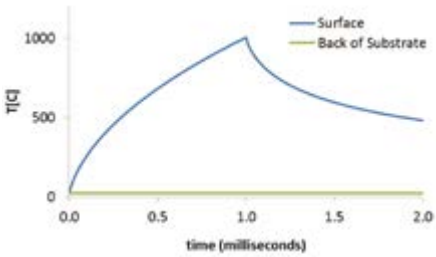

Figure 5: Graph showing the temperature versus time of a deposition and substrate system after irradiation by the single light pulse from Figure 4

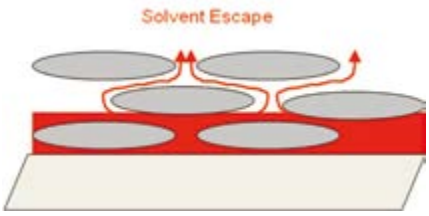

Figure 6: Idealised, simplified depiction of a micron-flake deposition of tens of microns thickness undergoing drying

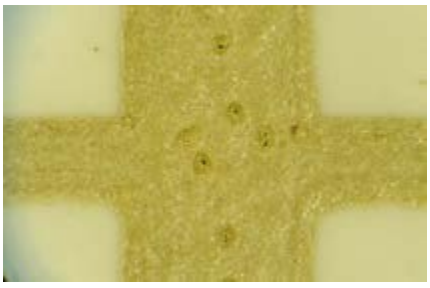

Figure 7: Commercial screen-print silver ink at >10 microns thickness made up of micron-scale flakes after application of standard-structure photonic curing pulse. Note the occurrence of crater-like surface structures

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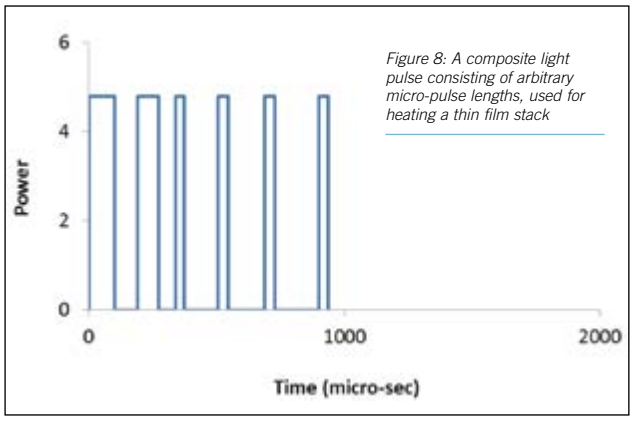

Figure 8: A composite light pulse consisting of arbitrary micro-pulse lengths, used for heating a thin film stack

(For extensive details on photonic curing including technical papers, articles, and patents, please refer to www.novacentrix.com .)

PHOTONIC CURING APPLIED TO DRYING

Thermally driven processes, such as drying (ie: driving off carrier fluids and solvent), are governed by the Arrhenius equation. The time for such a process to complete is related to the processing temperature in an exponential fashion. Hence, a small reduction in the drying temperature will require a significantly longer drying time and more energy, which translates to a more costly drying operation. It is well known that durations of five to 30 minutes or longer are often required for drying some inks, and this drying time results in the need for lengthy festooning ovens for production processing. Consequently, it would be desirable to provide an improved process for thermally processing thin films located on inexpensive substrates without extending the processing time. Photonic curing is such a process.

Consider the idealised, simplified deposition of nanoparticle-based ink, such as by ink-jet, in a drying state, depicted in Figure 3. In such a system, the carrier fluid solvent vapours have a short escape path through the thin (<1 micron thick) deposition. Because of the nanometre-scale size of ink-jet nanoparticles, the tortuosity is also very low (even in cases of agglomeration). Consequently, the system is readily heated and dried using photonic curing. A typical standard pulse profile structure for drying such a system is shown in Figure 4, showing a one millisecond pulse duration and arbitrary units of power. The thermal response for such a pulse is depicted in Figure 5.

In Figure 5, note that the time duration of the pulse of light must be shorter than the thermal equilibration time of the entire stack or the photonic curing effect cannot be realised, and one is again limited to the equilibrium thermal limit of the substrate.

MICRON-SCALE FLAKES

Now consider a deposition composed of micron-scale flakes such as by screen-printing which may be tens of microns thick. The thickness through which the exiting carrier solvent vapours must pass is much greater. Additionally, the micron-scale flakes provide much greater tortuosity than the nanometre particles. This scenario is illustrated in Figure 6.

When we apply the type of standard pulse structure seen in Figure 4 to dry an actual screen-print deposition, the results are less than satisfactory. The observed crater marks in Figure 7 are typical of an initial skinning effect during drying, wherein the topmost layer of the deposition is dried and perhaps even sintered. This closes the travel path for the underlying carrier fluids as they volatilise and erupt through the surface. Consequently, as the deposition becomes thicker, it becomes more and more problematic to remove the solvent with a simple pulse structure from a flash lamp.

We have determined that a shaped pulse structure on the same timescale as a single pulse is better able to process thicker films without damage. Figure 8 depicts such a shaped or segmented profile, composed of multiple light pulses in a specified timing.

When this type of pulse input is entered into the thermal stack simulation,

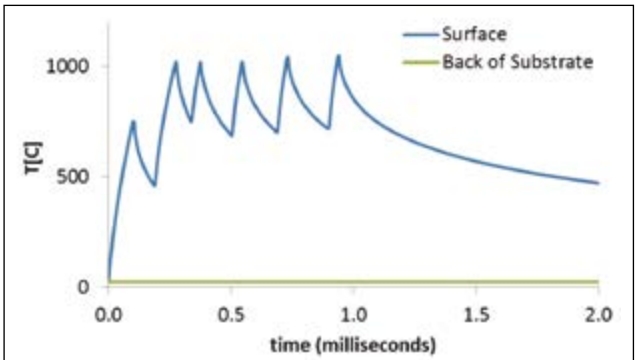

Figure 9: Graph showing the temperature versus time of a deposition and substrate system after irradiation by the composite light pulse from Figure 8

the thermal profile shown in Figure 9 results. Although the peak temperature reached and total pulse length are identical as in Figure 5, the simulation in Figure 9 shows the film is allowed to release solvent or 'breathe' during the heating process instead of after, thereby preventing damage. Furthermore, the amount of time spent at elevated temperature is actually longer than in Figure 5, resulting in increased solvent removal for the same input energy. The exact configuration of this profile is heavily dependent on the thermal properties of the target material and the details of the pulse power and segmentation applied. Timing of each individual pulse is controlled to the micro-second by software and is predicted by the thermal stack simulation. To affect such drying requires the use of a photonic curing tool with micro-second control and maximum configurability of each pulse event.

Importantly, as can be seen in the thermal results, the composite pulse sequence is still at a time scale below the thermal equilibration time for the materials. By judiciously tailoring the pulse conditions, it is possible to construct a pseudo ramp-and-soak processing step. This type of processing is well suited for drying applications and is more effective than having multiple simple low power pulses. The composite pulse, like a simple pulse, can furthermore be synchronised to a high-speed web for uniform cures over an arbitrarily long length.

The result of an optimised composite, segmented pulse profile on an identical screen-printed film is shown in Figure 10. As can be seen, the cured print is defect free.

SUMMARY

The authors have described the photonic curing process and applied that process to the drying of silver-based conductive inks. Thin nanoparticle depositions such as that applied by ink-jet are effectively dried with a simple pulse structure. Thicker depositions such as those applied by screen-print and including micron-scale flakes may require the use of an optimised shaped pulse consisting of multiple smaller pulses. The requirements of a photonic curing tool to effectively develop and deliver an optimised shaped pulse structure are quite rigorous and additionally require the use of thermal simulation to optimise the process. ■

Stan Farnsworth is VP Marketing and Dr Kurt Schroder is Chief Scientist at NovaCentrix

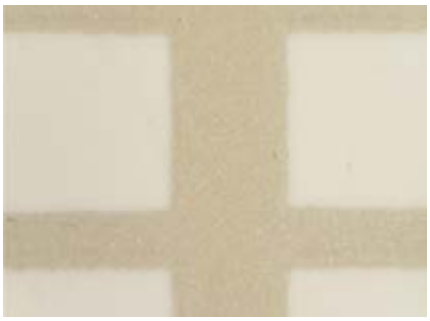

Figure 10: The same print as shown in Figure 7 except it has been dried with an optimised composite pulse structure. Note the avoidance of drying defects

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READY, SET, GO?

Ulrike André questions whether marketing and advertising really hit the target

A few weeks back some of my colleagues from the marketing department here at Stahls' met for a brainstorming session to get ready for upcoming product launches and trade shows.

I like these brainstorming sessions a lot. In these sessions, we share and discuss, collaborate, enticing one another to look at things differently and hopefully becoming better marketers. In the end we become more efficient in marketing our products and services.

There is so much information about marketing available today and I continuously see it is very hard, if not impossible, to keep track of all the many available tools which inspired me to choose my topic today.

Most of us know our businesses well. We know our industry, we know what we are offering, and we know our limits. In addition, we also know who are customers are, how we want our products to be promoted. But the question still remains - are we reaching them? Are our marketing efforts paying off? Is our ROI (return on investment) satisfactory or even exceeding expectations? Do we have all the tools in place that can help achieve our sales goals – efficiently?

DO YOU HAVE A MARKETING PLAN?

As I mentioned above, it is difficult to keep up with the many marketing choices available to us. And, if the abundance of available tools, websites, social networks, language does not overwhelm us, then the rate at which we are being introduced to these novel technologies will certainly do its job and keep our heads scratching.

One can break it down, however, into a few categories and take it from there.

Print advertising speaks to all the senses

Depending on your product or customer you are looking to attract, geographic area, business model – one might work better for you than another.

PRINT ADVERTISING

I know many are being left to think that anything printed on paper is not as effective as the world wide web but the fact is that we still very much need all that print offers.

Newspapers and magazines across the globe are 'going digital' or worse – closing their doors. However, for many people, a newspaper, magazine, or brochure is the only marketing that speaks to all our senses. They are dimensional. Reading something printed tends to make us concentrate differently than reading online. Many tend to take (make) more time when holding a printed version versus its electronic counterpart. Printed advertising can capture audience wonderfully. And, besides, there are still many of us that enjoy reading printed pieces. In some cases, print advertising might be the only way to reach certain customer groups.

Concentrating on local publications, such as printed place mats in a restaurant, church bulletins, school and club newsletters, direct mail and hand-outs can be just as effective when trying to introduce a business to a village or smaller city. Printed advertising helps get the word out and you can make it as lavish or as simple as you want, keeping a very close eye on the cost involved and the ROI and your local audiences likes and dislikes.

RADIO AND TELEVISION

In addition to reading, people still listen to the radio. Call me old-fashioned, but a spot and interview on the local radio station can do wonders for your business. A friend of mine started his little shop about a year ago in a small town with sparse infrastructure. He is very creative but had a hard time spreading the word that his shop even existed. He contacted the local radio station and told them how he had personalised T-shirts for a local non-profit group and that was all it took. The newspaper picked up the story – people started talking about him and traffic to his shop blossomed.

Local and Cable TV work very similarly; if you have something to say, if you have a message, a story, a cause … chances are that a news station would like to talk about it and that the news, your news, will spread fast.

YouTube goes hand-in-hand with a company's website

ONLINE AND WEB MARKETING

In 1984 the number of Internet devices was approximately 1,000. This year the number has risen to more than 9.8 billion and by 2020 will reach a predicted 28 billion (source: IMS Reseach, 4 October 2012). Your website is, quite possibly, the most important tool there is. This is your 'split second introduction' to the world. SEO (search engine optimisation), great photography, and smart copy are of utmost importance to capture the shrinking attention span of site visitors.

To market your products and services successfully, a good website is only part of the equation. Social media platforms such as YouTube, Facebook, Twitter, and LinkedIn, Xing, and w-k-w go hand-in-hand with a website. There is an abundance of forums and associations available that can help get the word out as well.

My colleague, Josh Ellsworth (cadcutdirect.com), has been posting videos on YouTube for several years now. His creativeness, personability and knowledge of heat presses and consumables have helped him create a following of people interested in what he has to say. Josh is now recognised as a trusted expert and the products he suggests hold and deliver what he promises.

Mobile advertising, with the ever-growing number of users and technological advancements of smart phones is, by comparison still in its infancy. The rate at which this segment grows is astounding. I attended a seminar last month and the statistics given were mind-blowing – global mobile will exceed fixed desktop access by 2013/2014 (source: *infographic*). Cisco's 2010-2015 Data Usage Projection claims it already has. One in three searches is mobile

today. Samir Janveja, Strategic Partner Manager at Google, participated in a webinar this summer sharing that after looking up a local business on a smart phone, 60% of users called the business while a staggering 58% visited the very store. Best make sure your website is compatible to be viewed using smart phones, tablets and the like.

We are in an industry that supplies tools, products and services for people to set themselves apart. We all want to leave our mark; online advertising promotes and spreads our message across the globe – instantaneously. Our hope is that our idea, picture, upload, share, tweet, like, connect, goes viral.

TRACKING AND TRACKING METHODS

Having the right tracking tools in place will help you determine if you have the right media mix, if you are sending the right message. Furthermore, it gives you vital information about the quality of leads and helps you allocate monies from your budget.

There is an abundance of tracking methods available. CRM (Customer Relationship Management) might not be practical or feasible to implement for smaller businesses but is a must for larger sized businesses in order to keep track and grow.

Below is an excerpt of what is available and obtainable for most – time is the most important investment you will have to make!

Google Analytics and Google Tracking Tools are probably the most popular, extremely user friendly, and did I mention – free of charge?

Setting up the account is easy as child's play and once you get started you can get lost with all the options you can utilise to perfect your website, eComms, and all other advertising strategies that you wanted to measure but did not know how to. The Google URL builder allows you to track any campaign in place, whether on paper, in print or in the virtual world.

Measuring the ROI of our advertising monies is finally less tedious and clearly no longer impossible to do. It's another huge step closer to a business plan, marketing plan making sense and being optimised.

QR CODE (QUICK RESPONSE CODE)

It seems like these little black and white squares just showed up over night. They are free, easy to create, their open rates can be tracked easily and they are fun, to boot. All one needs is a smart phone to 'translate' the QR code – that's it. For someone who has a video to share, or a landing page with more information and a message to convey, a QR code might be the perfect tool. Add the benefit of guiding people to your website, enhancing visibility and, hopefully, generating so much interest that will translate into sales.

READY, SET, GO

Seth Godin speaks of 'whisperers' in his book 'Purple Cow'. A whisperer is a person who, due to his/her own experiences with a product or service, recommends it to his/her friend. This might possibly be the best, most convincing, marketing there is. Chances are I will trust a friend's opinion or experience more than an anonymous advert from a company I had no dealing with until that point.

In order for us to generate our own whisperer following, we must have vision and a clear concept in place. One, that has to be changed, adjusted and tweaked on a continuous basis until we get it just right – realising that these 'adjustments' are most likely going to be part of an on-going effort in order to meet the latest, fast changing tastes, likes and demands.

Free and easy to create, QR codes' open rates can be tracked easily

Being present in the right places, utilising the right mix of Medias requires a lot of work, time and money, granted. The tools available to track and measure our work are making it easier and easier to be most precise helping us to keep focus and grow. And they are readily available now. What are you waiting for? ■

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IDENTIFYING WEAKNESSES AND CLARIFYING INTERPRETATION

Elaine Campling explains the regulatory revisions for biocidal products

The Biocidal Products Regulation, (EU) 528/2012 was officially adopted on 22 May 2012, repealing the Biocidal Products Directive (BPD), 98/8/EC and will apply to Industry from 1 September 2013, though some transitional arrangements have been put in place. Biocidal products are considered necessary to control organisms that are harmful to human or animal health and to prevent damage to natural or manufactured materials.

However, biocidal products can also present risks to humans, animals and the environment due to their intrinsic properties and the way in which they are used, which is why regulation is considered necessary.

According to the Biocidal Products Regulation (BPR), a biocidal product is:

"… any substance or mixture, in the form in which it is supplied to the user, consisting of, containing or generating one or more active substances, with the intention of destroying, deterring, rendering harmless, preventing the action of, or otherwise exerting a controlling effect on, any harmful organism by any means other than mere physical or mechanical action …"

The regulation also applies to substances and mixtures generated from substances or mixtures not covered above, but which are intended to be used for the same purpose.

IDENTIFYING WEAKNESSES

The revision to Directive 98/8/EC was considered necessary to address identified weaknesses, particularly in relation to the scope, authorisation of use, data requirements, data sharing and to simplify some of the processes involved. The BPD is reported to have been very expensive for industry, resulting in the withdrawal of several active substances from market, due to the cost involved in supporting them.

There are a number of interesting points to note about this new legislation:

Firstly, the Directive is replaced by a Regulation. A European Directive is a guiding legislative instrument that each European Member State must transpose into national legislation (within defined timescales) and can therefore be subject to interpretation and consequently variation across Member States. A regulation does not require transposition into national law and is binding on Member States, resulting in uniform implementation and applicability at the same time.

It was previously unclear whether some products were in scope of the BPD, resulting in the need for guidance documents, which were issued by the Commission. However, guidance documents are not legally binding, representing an uncorroborated legal framework for regulators to operate. The revision both clarifies and extends the scope, which now includes certain articles and materials treated with biocidal products, e.g. furniture and textiles that were not previously covered. Due to the omission of these articles from the BPD, there was no restriction on the import of articles from third countries (non Union) treated with biocides (eg furniture treated with wood preservatives), which are not authorised (or banned) from use in the European Union.

'Treated articles' that are in scope of the regulation will not be permitted to be placed on the market unless all active substances contained in the biocidal products with which they were treated (or which they incorporate) are approved in accordance with the Regulation.

AUTHORISATION

Biocidal products require Member State authorisation under the BPD before they can be placed on the market (with approval of active substances at Union level). The new BPR creates a new centralised European authorisation scheme for biocidal products based on new active substances and low risk biocidal products, which is to be the responsibility of the European Chemicals Agency (ECHA), though there remains an alternative option for product authorisation at Member State level. Once authorised at Union level, these biocidal products may be placed on the market throughout the Community. All other biocidal products will require national authorisation by Member States.

The more hazardous of active substances will be subject to exclusion from use, eg: substances which are persistent, bio accumulative and toxic (PBT), though derogation is possible, for example in the interests of public health and where no suitable alternative exists. Some active substances will be identified as 'candidates for substitution', based on comparison with less hazardous alternatives and socio-economic analysis. In other words, biocidal products containing active substances identified as candidates for substitution will be prohibited or restricted, when it can be demonstrated that other authorised biocidal products or non-chemical prevention methods are sufficiently effective and "present a significantly lower overall risk for human health, animal health and the environment and offer no significant economic or practical disadvantages".

The new Regulation is the first piece of legislation to build in the new Commission definition on nanomaterials. It will be made clear that any approval of an active substance will not include a nanomaterial form, unless specified.

The number of animal tests will reportedly be reduced by compulsory data sharing with regard to vertebrate animal studies and the rules for data waiving are strengthened, so that only necessary data is to be requested from applicants. There will be a new IT system for submitting applications and a Register of Biocidal Products established and maintained by the Chemicals Agency to facilitate for the exchange of information. It therefore appears that the new 'harmonised' BPR will be administered by ECHA in a similar fashion to the REACH Regulation, based on similar principles of information sharing and data exchange via a centralised system. ECHA will begin recruiting more staff, developing further technical guidance and IT tools to manage the BPR in the coming months. ■

Elaine Campling is Chairman of ESMA's Health, Safety and Environmental Protection Committee and Product Safety Manager for Fujifilm Speciality Ink Systems

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THE BENEFITS OF COOLER CURING AND LOWER ENERGY

Timothy Klee outlines how LED lamps have transformed a screen-printer's production methodology

Located in Onalaska, Wisconsin, USA near the banks of the Mississippi River, Empire Screen Printing seems to have taken on the spirit of the early river explorers. Just as those intrepid adventurers had to find clever ways to cope and prosper in a challenging environment, Empire has demonstrated its own resourcefulness by coming up with creative and effective ways to solve its problems.

To compete with lower priced foreign printers, Empire figured out how to produce the same amount of goods with 33% fewer employees. To lessen the wait-time in the manufacturing process, caused by the need to cool off heated materials before they could be processed again, Empire turned to LED lamps to cure the UV ink, eliminating the heat caused by the mercury lamps. The use of LED lamps had other benefits as it would improve the health and safety of its employees since LED lamps do not produce the ozone generated by mercury lamps. Costs would be lowered, as the LED lamps consumed significantly less energy and did not require a ventilation system to remove ozone from the air.

John Freismuth, president of Empire Screen Printing

NEW SCREEN-PRINTING PARADIGM

While curing UV inks with LED lamps was a good solution to their problem, there were no screen-printing systems like this on the market. Empire invested three years of research and development to come up with a system that delivers a new level of screen-printing capability using UV LED ink curing. To make this the next level screen-printing system, Empire specified that the printer should have the highest level of print accuracy to produce tight register jobs along with a roll-to-roll system to take advantage of roll-fed productivity. Empire ultimately chose the Kammann K-61 Eco roll-to-roll machine as the printer. According to John Freismuth, President of Empire Screen Printing: "We chose Kammann because of its reputation for quality. We needed a machine that could do perfect register jobs. It has to hold the required tolerances."

The roll-to-roll machine enabled Empire to generate material savings of 15 to 20% as it was able go from 90# to 50# liner material. The new system not only can handle a wider range of substrates but it minimises distortion due to its sophisticated tension mechanism. Because of the K-61's modular design, it's easy to add plug-and-play components to expand the system's capabilities. In terms of meeting foreign competition, Freismuth claims that: "The Kammann allows me to do with one person what it takes five people to do on other machines. I can see a time when we are doing the majority of our work on roll-to-roll Kammanns. We need to take advantage of their productivity."

The roll-to-roll Kammann K-61 Eco at Empire Screen Printing

RESULTS

"The print quality is amazing," states Freismuth. "I originally didn't believe the salesman's claims. I thought it was just another example of a salesman overselling his product. Now that I've seen this machine in action, I truly believe he undersold its capabilities. The Kammann can hold print tolerances of 0.002 to 0.003 inch while the typical tolerance of our other screen-printing machines is 0.008 to 0.01 inch. Quality sells. We recently did a small job on the Kammann for a customer who was so impressed with its print quality that he has since awarded all of his screen jobs to us."

ENVIRONMENTAL AND COMMUNITY COMMITMENT

Another aspect of Empire's core values is its commitment to the environment and the community. 'Above and Beyond', the Empire Screen newsletter, is filled with stories of employee involvement through volunteer efforts and charitable giving. Empire has printed the 'Children's Miracle Network Holiday' card for the last 25 years. The company's environmental commitment does not stop at UV LED technology; it has implemented a myriad of programmes to meet the three Rs of Reduce, Reuse, and Recycle. At the same time, customers also want to go green but are reluctant to pay more if the recycled material adds to the overall cost of the product. According to Doug Billings, VP of Sales/Marketing at Empire: "We have something great to offer to those customers because the Kammann system builds green into the process."

BACKGROUND

This innovative company began in a garage as a screen-printing company in 1960. Today, with its 250 employees and over 150,000 square ft of manufacturing space, Empire is an industry leader in the latest printing processes, including flexographic, doming, digital printing, as well as screen-printing. ■

Timothy Klee is Marketing Consultant at Kammann USA

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STRONGEST EXPO TO DATE

Record-breaking 2012 attendance highlights growth of imaging industry

The 2012 SGIA Expo, which was held in Las Vegas from 18 to 20 October, has been given the accolade by the association of being the largest event to date. The exhibition showcased the most innovative technologies in the speciality imaging market-place. With a total number of 529 exhibitors attracting more than 22,000 visitors, the show also attracted 38% first-time attendees, with the top five American states being California, Nevada, Texas, Illinois and Arizona. Outside the USA, the top country for registrants was Canada, and overseas registrants representing 18.5% of the overall.

The 2012 SGIA Expo Platinum Sponsors were Agfa Graphics, Durst Image Technology US, EFI, Epson, Fujifilm North America Corporation Graphics Systems Division and HP. Gold Sponsors were INX Digital International, Novus Imaging, Roland DGA Corporation and Stahls.

This year's highlights included SGIA's six Expert Advice Zones, each offering live demonstrations and presentations with industry experts. Visitors were also able to attend the Keynote Breakfast with Todd Cohen, who spoke to a packed room about innovative sales strategies. Additionally, the SGIA Printed Electronics and Membrane Switch Symposium joined the Expo for the first time, giving attendees the best of both worlds.

Imaging professionals also had the opportunity to talk one-on-one with industry-leading manufacturers and suppliers who filled the Las Vegas Convention Center. Many exhibiting companies demonstrated their commitment to sustainability by supporting the Sustainable Green Printing (SGP) Partnership and actively promoting sustainability within their print manufacturing operations, with Gold Platinum Patrons 3M, HP and Hexacomb being complemented by Gold Patrons DuPont, Fujifilm North America, Laid Plastics and the Specialty Graphic Imaging Association, and Silver Patrons Durst, INX Digital, Top Value Fabrics and Xpedx.

Screen-printing remains well represented at SGIA Expo

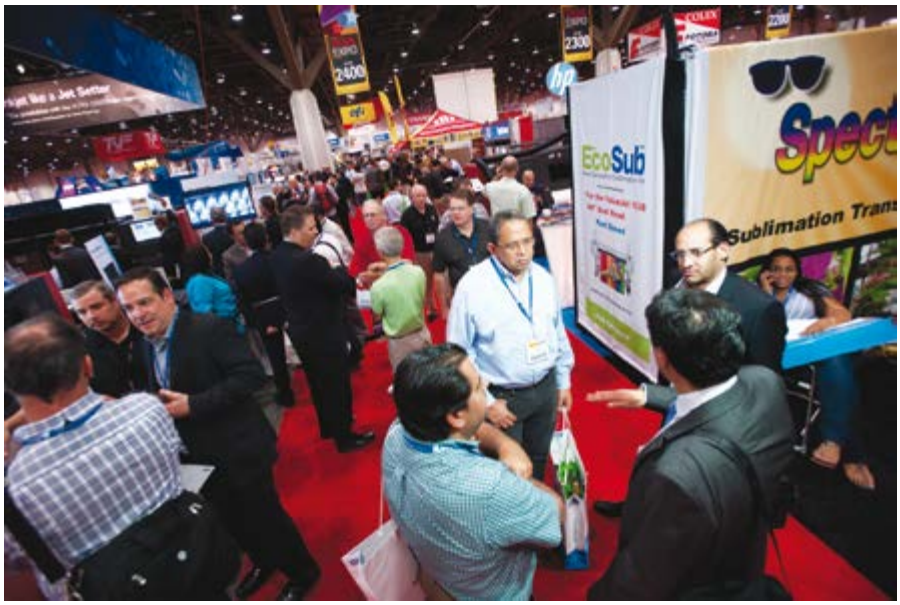
The SGIA also announced the winners of its Product of Year Award competition which recognises the latest speciality imaging equipment and supplies currently on the market. The winners included HP's latex printing technologies in the Digital Inks category, Dreamscape's Silver Flash for Media Vinyl, Continental Grafix HydroSol 205STLR for Media Films, Pacific Coast Fabrics Deko-Green 7058RCFLBS as the victor in Media Textile and Horizons Imaging Systems Group's AlumaJet in the Media Rigid section.

The winner of the Finishing Display Exhibit Hardware was Visual Magnetics VM-InvisiLock-30HP, while FLEXcon's FLEXmark floor art OV6604 (Safari Overlaminate) was awarded the prize for Finishing-Laminates, Adhesives, Films, Coatings.

In hardware, MCT MasterCut's Digital Finishing System was victorious in the category for Finishing Equipment, while Mutoh America's ValueJet1638 scored in Poster Size Solvent/Latex Printers less than 2.44m (96 inches). In the section headed Flatbed Rigid Substrate UV Printers, Océ's Arizona 480 GT won the award in the sub-$200k sector with Durst Image Technology taking the prize with its Rho P10 250 for printers priced at greater than $200k. For Flatbed Rigid White Ink UV less than $200k, HP Scitex's FB500 was the winner.

Mutoh America scored again the Grand Format R to R Solvent & Latex Inks section with its ValueJet 2638 while, for Media Non PVC (Non-woven): FLEXcon's COUNTERdeco Advertising System non-vinyl, FDA Indirect Food Compliant was the winner. Finally, for Media Vinyl (Pressure Sensitive), the award went to Continental Grafix panoRama 1520.

Next year's SGIA Expo returns to Orlando, where the Industrial Fabrics Association International (IFAI) will be co-locating at the Orange County Convention Center. The event takes place from 23 to 25 October 2013. ■



Some of the 22,000 visitors who attended this year's show

Further information:
web: www.sgia.org

THINK WIDE, THINK SGIA

Michael E Robertson reflects on this year's event and looks ahead

Michael Robertson

The annual SGIA Expo is the leading marketplace for wide-format imaging in the Americas. This year's 2012 Expo was the strongest in our history. By taking a close look at why the SGIA Expo is so successful we'll gain some valuable insight into the changing market dynamics in the Americas.

STRONG TRADITIONAL SGIA COMMUNITY

For many years, SGIA has been the core information resource and market-place for the screen-printing community. As companies within the traditional SGIA community incorporated digital imaging, SGIA took a proactive role in helping them transition and maximise the profitability of these new technologies. Today, graphic producers are using both digital-imaging and screen-printing technologies to increase their value to their customers. It's clear that the SGIA community has become competitively stronger with the mix of analogue and digital technologies.

WIDE-FORMAT IS A PROVEN REVENUE STREAM

Companies from many printing and manufacturing sectors, primarily commercial lithography, photo imaging and sign-making are connecting with SGIA because the SGIA Expo is the primary market-place for wide-format solutions. Not only is the SGIA Expo the best place to see the full spectrum of wide-format technology, but the SGIA community has the most experience using these technologies. To illustrate this point, at the 2012 SGIA Expo, 39% of attendees were first-time participants! (Most were from the three sectors mentioned.)

EXHIBITORS ARE SUPPORTING FEWER SHOWS

Manufacturers and suppliers of equipment are reducing the number of shows in which they exhibit. As the market-place becomes more saturated with digital imaging technologies, it's more cost effective to support fewer shows and drive additional markets to those events. This not only saves money for the exhibitor – money that can be used for R&D – it also creates a more dynamic learning experience for attendees.

Wide-format digital imaging is capturing the headlines, but it's important to note that screen-printing is alive and well in the Americas. Although a relatively small percentage of the graphics community is adding screen-print technology today (when compared to adding digital solutions), those graphic producers that have it are using the versatile imaging technology to further improve their competitive position.

SGIA is focused on wide-format and related imaging applications. Our clearly defined focus is bringing diversification to the SGIA community as interest in wide-format imaging grows. Within the SGIA membership and at the annual SGIA Expo we're seeing representatives from many different print sectors and manufacturing interests – all with a common interest in wide-format imaging capabilities – share ideas and experiences.

The convergent dynamic that we experienced at the 2012 SGIA Expo was an exciting example of how the exchange of ideas among a diverse group, with a common technological interest, can lead to creative opportunities. These are very exciting times for the SGIA community. ■

Michael E Robertson is President and CEO of Specialty Graphic Imaging Association (SGIA)

Specialty Graphic Imaging Association

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FESPA BRAND MOVES TO BRAZIL IN 2013

Event to run beside ExpoPrint Digital and offer comprehensive print showcase

Fespa is forming a joint venture with Brazilian event company APS, the organiser of ExpoPrint, the largest digital printing event in Latin America. The joint venture company's first initiative will be to launch Fespa Brasil alongside ExpoPrint Digital 2013, which takes place in Expo Center Norte, São Paulo, from 13 to 16 March 2013.

By co-locating Fespa Brasil with ExpoPrint Digital 2013, the organisers say the event will now have a dual focus, offering visitors a comprehensive showcase of the latest innovations in wide-format printing (screen, digital and textile), garment printing and digital signage. ExpoPrint Digital will continue to provide an overview of transactional printing, direct mail, variable data printing, digital publishing, digital label and packaging.

Fespa Brasil 2013 will combine a high-quality exhibition consistent with Fespa's events worldwide with educational features delivered and tailored to the Brazilian market's specific requirements. These will include a Fespa Brasil Conference, a Fespa Planet Friendly programme of environmental content, a Brazilian Fespa Hall of Fame, a Brazil Wrap Cup vehicle decoration event and an applications' showcase reflecting the most exciting growth applications for the Latin-American market.

The joint venture between Fespa and APS gives Fespa 50% ownership of Fespa Brasil. Fespa's share of profits from the event will be deployed as part of Fespa's global 'Profit for Purpose' reinvestment programme, to benefit the global Fespa community of print service providers.

Neil Felton, Managing Director of Fespa Exhibitions and Events explains: "Brazil is recognised as one of the world's most rapidly developing economies, and the FIFA World Cup and Olympics will deliver a huge boost to this already vibrant marketplace for wide format print.

"We've been evaluating this market for several years, and liaising with local trade associations to understand the opportunity and demand for Fespa's event proposition. We feel that this partnership model with a leading show organiser in the region is the best, allowing us to combine APS's Brazilian market knowledge and contacts with our recognised global expertise in delivering content-rich visitor experiences for wide format printers."

APS is the appointed organiser of the main four-yearly ExpoPrint event on behalf of exhibitors association Afeigraf. ExpoPrint attracts over 35,000 visitors. APS also licenses the ExpoPrint brand from the association for its more regular ExpoPrint Digital event.

Felton continues: "ExpoPrint is a strongly established brand in Brazil, and we are all confident that by co-locating Fespa Brasil with ExpoPrint Digital, we can offer regional visitors fresh perspectives. We know there's a strong appetite in Brazil for the compelling educational and inspirational content that is such a popular feature of our events elsewhere in the world."

Alexandre Keese, Director of APS, adds: "The market will be surprised at the quality and content of the exhibition that Fespa will bring to Brazil. The visitor will experience a show of great solutions, gaining knowledge that helps his professional life along with conferences and other actions that we are planning."

Fespa's venture in Brazil follows the organisation's four-year success story in Mexico, where it took over an established visual communications event in 2008, which has subsequently enjoyed 30% growth under the Fespa Mexico brand.

The joint venture between Fespa and APS will be directed by Neil Felton, Fespa's Managing Director of Exhibitions and Events, and APS Director Alexandre Keese. Brazilian sales and event operations will be managed by the local Brazilian APS team, specifically Sales Manager Sandra Keese. International sales and marketing will be managed by the Fespa team from the UK, specifically Americas region Exhibition Manager Michael Ryan and Americas Marketing Manager Lorraine Harrow, who will have the Brazilian assistance of APS Marketing Manager Leandro Causo. ■

RECORD BREAKING ATTENDANCE AT FESPA MEXICO 2012

Fespa Mexico 2012 has been the most successful to date, reflecting the continued positive evolution of the Mexican show. The fifth Fespa Mexico event attracted 9,198 visitors, up 11% from 2011, representing a 38% increase since Fespa acquired the exhibition in 2008. The ratio of decision-makers also rose this year making up 48% of the total visitor turnout, an increase of 7% from last year.

The 10,500 square m show took place from 20 to 22 September 2012 at the Centro Banamex, Mexico City, with 125 exhibiting companies, many of whom had increased their booth size, and with more international presence due to the growing importance of the Mexican market.

This year's theme 'keep your business moving' reflected the importance for Mexican printers to embrace opportunities and the need for PSPs to evolve their print offerings continuously. Visitors took this on board with many machines at the show displaying 'sold' signs and exhibitors reporting a high quality generation of leads during the event. Five-time exhibitor Sebastian Saidman, General Manager of DT Tec, comments: "We have had a great show; we have secured more sales leads and closed more business at the show than ever. The quality of the audience was great – the exhibition attracts professionals who have come prepared to buy equipment and do business."

Fespa Mexico Exhibition Manager, Michael Ryan states: "Fespa Mexico's record-breaking attendance saw eager visitors lining up to attend the exhibition features. The conference was constantly overflowing into the aisles with attendees keen to ask questions. The huge success of the show demonstrates the increasing enthusiasm of printers in this region keen to grow and develop new ideas to improve their business."

The Wrap Cup Masters Series returned following its success at Fespa Mexico 2011. Sponsored by 3M and with support from leading manufacturers Corel, Leister and Epson, the series attracted significant crowds, with 28 participants competing for the Mexican 2012 title. This year's winner, confirming his place in the Grand Final, is reigning 2011 champion, José Antonio Ramírez from Imagen Digital Movimiento. He will have the chance to battle it out with 28 other regional winners to be crowned the

Fespa Mexico 2012 saw record attendance

ultimate Fespa Wrap Cup Master at Fespa London in June 2013.

Other highlights at this year's show included the garment workshop, which gave visitors a great opportunity to learn from'Dr Print', Charlie Taublieb. The workshops received a focused group keen to obtain tips and advice on garment decoration including hands on experience and technical guidance. The free conference programme which ran for the duration of the show drew crowds of more than 550 visitors, covering a mixture of topics such as planet friendly printing, digital textile printing, design, and print applications and new markets. A particular attraction was the daily session from software company Corel, as well as Michelle Olmas who gave an interesting session on digital social media and marketing.

Fespa Managing Director of exhibitions and events, Neil Felton, concludes: "FESPA Mexico is a lively and enthusiastic event attracting quality visitors from the region. We hope that printers have left the show inspired and armed with new ideas to diversify and grow their business. Fespa consistently delivers positive market-leading exhibitions, demonstrating our ability to organise premier events around the world and reach focused print professionals. We look forward to bringing more regional events to the global community over the coming year, such as Fespa Brasil running from 13 to 16 March and Fespa Eurasia which takes place from 3 to 5 October."

FESPA Mexico 2013 will take place from 15 to 17 August at Centro Banamex, Mexico City. More information is available at www.fespamexico.com ■

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RAISING THE PROFILE OF SUSTAINABILITY

Leadership and insight combine for the birth of a new community in sustainable print

The launch event of EcoPrint 2012, the world's first exhibition dedicated to sustainable print, held in Berlin on 26 and 27 September, has been declared a success by the organisers, visitors, exhibitors and EcoPrint Ambassadors. Following its debut, EcoPrint is now claiming to be well positioned to continue its concerted effort to raise the profile of print for those in the creative community, while working to help make print a sustainable business to be in.

The evidence for this was illustrated by the packed-out seminar theatres and conference spaces and the diversity of the nearly 2,000 people that came through the doors during the two days. Feedback from exhibitors is that the quality of conversations was excellent, with many highlighting a number of serious, strategic business discussions with senior representatives who have the power to implement change at their organisations.

EcoPrint 2012 attracted leaders from throughout the supply chain, such as brand owners, agencies, printers and manufacturers. They came from all over the world, including Australia, Europe, Middle East, US, UK and Asia, truly capturing the imaginations of those with a strategic interest in sustainability.

The breakdown of visitors was 15% brands and agencies, 55% print service providers with the remaining visitors from print press, marketing and business media, manufacturers, consultants and specialists. These were drawn from 37 different countries and from the world's top print businesses, brands and agencies including Volkswagen, Deutsche Post, DHL, Lego, Estee Lauder, Toyota, Coca Cola, IKEA, Bertelsmann, Thyssen Krupp, Scandic, Dusseldorf Airport, Imperial Tobacco, TBWA, DDB Realisation, BBDO Proximity, Dan Pearlman, Create Berlin, Triad and Art Directors Club among others.

Frazer Chesterman, Co-Director of EcoPrint, comments: "During a Drupa year, it was clear that launching a new event concept would be challenging for the market as well as for us as exhibition organisers. However, the successful launch of EcoPrint proved there is a need for high quality information and insight in sustainability for the print and creative communities. The popularity of the conference sessions absolutely exceeded expectations and the international brands and visitors who made the effort to attend EcoPrint 2012 provided genuine input in seminars, sessions and discussions. Visitors attended from 37 different countries, demonstrating that the appetite for sustainability is strong, globally, and this also gave exhibitors and printers present an opportunity to look outside of the industry and consider their businesses in a global context."

Co-Director, Marcus Timson continues: "EcoPrint broadly established a new concept – an event dedicated to sustainability - and validated the fact that a focus on sustainability is needed in our industry. This was particularly clear from the standing-room-only conferences and seminars where the emphasis on sharing knowledge couldn't have been clearer."

Two themes prevalent throughout the show were eco-standards/labels and price versus sustainability. Despite their proliferation being a headache for printers, many felt well researched and fully-consulted upon labels might still have a place in our industry, helping to establish criteria for printers to follow in order to align with buyers' requirements and helping establish fact from fiction. Meanwhile, it was clear from the various price-versus-sustainability debates that although pre-occupation with price can turn buyers away from sustainable print at present, huge market share awaits the printer/manufacturer that can achieve price parity or near parity, with the potential rewards justifying the research.

Having injected fresh impetus into the sustainability in print debate, the EcoPrint team is keen to maintain the momentum and last week also revealed details of EcoPrint 2013. Next year, the show will return to Berlin, co-locating with the WAN IFRA 'World Publishing Expo' at the Berlin Messe, on 8 and 9 October. It will feature even more opportunities for networking with a new, higher-profile venue and improved visitor experience.

Concludes Chesterman: "Sustainability is a journey and EcoPrint 2012 has re-invigorated the sustainability debate in our industry – given it fresh focus and renewed momentum, and we now have a rare opportunity to promote print's enviable sustainable performance to our own community of leaders as well as specifiers, agencies and brands. We are, as Michael Braungart said, 'a forming community' and I'm looking ahead now to EcoPrint 2013 with a great deal of positivity and excitement as we begin to evolve the event in line with feedback gathered from our experience last week."

Drawing upon the considerable high quality insight from EcoPrint 2012 – an EcoPrint Report will be published in November to put out on record for the sustainable print community the themes, discussions and visions emanating from EcoPrint 2012. ■

ESMA attended the inaugural EcoPrint show

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The CLEANLINE team will gladly demonstrate this innovation on your premises.

Please contact us
for an appointment:

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