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Pack Expo 2009: Inkjet Coding and Digital Color Label Printing Stories

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Abstract

Pack Expo 2009 took place October 5 - 7 in Las Vegas, Nevada. Not surprisingly, digital printing only accounted for a small part of the event, dwarfed by the hundreds of stands devoted to filling, sealing, molding, and many other types of packaging manufacturing and converting equipment. Nevertheless, there were a few developments and themes at Pack Expo that are quite relevant to the inkjet market in terms of product coding and the full color printing of prime labels. This analysis discusses those developments and their implications.

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Introduction

Pack Expo, the annual trade show of the Packaging Machinery Manufacturers Institute (PMMI), took place October 5 - 7 in Las Vegas, Nevada. Not surprisingly, digital printing only accounted for a small part of the event, dwarfed by the hundreds of stands devoted to filling, sealing, molding, and many other types of packaging manufacturing and converting equipment. Nevertheless, there were a few developments and themes at Pack Expo that are quite relevant to the inkjet market in terms of product coding and the full color printing of prime labels.

In the product coding arena, all of the major continuous inkjet (CIJ), piezo, and thermal inkjet (TIJ) coder suppliers were exhibiting at Pack Expo. Videojet, Domino, Markem Imaje, DDI, Anser, Wolke, Foxjet, Leibinger, and Zanasi all had stands. Each of these vendors had made refinements to their respective coder offerings, but the real developments concerned key themes.

Most importantly, the print capabilities of the different inkjet technologies for the "track and trace" application are increasing. Even continuous inkjet, generally the lowest resolution of the major primary coding inkjet technologies, was shown in Videojet, Domino, and other booths printing GS1-compliant Datamatrix codes on plastic (see Figure 1 below).

Presentation by Clive Hohberger

The Pack Expo conference seminars included one that was particularly relevant, given by Clive Hohberger, PhD. Long a top Manager at Illinois-based Zebra Technologies, Hohberger is now an independent consultant. He gave a compelling presentation at the Pack Expo conference about the outlook for what he calls "mass serialization." Some of his key points included:

- There is good evidence that serialized coding will soon be more common, and that inkjet coding will benefit. Serialization of just lots (whether by date or by shift) does not provide the accountability that retailers, the FDA, Wal-Mart, and other key actors really want. Lot serialization by itself is simple to reproduce, paving the way for counterfeiters and the gray market. By comparison, serialized codes are game changers.
- The Datamatrix code is one of the coding world's most prevalent 2-dimensional codes. It is well suited to high-volume serialized coding and a patchwork of organizations. The Department of

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Defense, Healthcare Industry Business Communication Council, and various government agencies in Europe all use it to different extents to guarantee the identity and origin of weapons, drugs, aircraft parts, blood donations, and other valuable or critical products.

Figure 1: The Datamatrix Code

- Other codes are also under development to support serialized coding. Notably, a new two-dimensional code for inkjet called "DotCode" is being developed, and it would provide a boost to inkjet equipment manufacturers. This code is specifically designed to allow CIJ and other jetting technologies to print serialized, two-dimensional codes easily and accurately.

In fairness, Dr. Hohberger noted that it will probably take a year or two just to get the scanning in place to handle DotCode and receive the approval of key organizations such as the FDA. He also highlighted another hurdle—retailers and manufacturers will need to muster a new level of data management, one to accommodate the storage and retrieval of masses of new information. Nevertheless, there is plenty of indication that the motivation to support serialized coding is there. Other technologies will participate in the coding, including both labels and RFID. At the same time, however, inkjet is the cheapest method for the truly mass serialization that is implied by item-level marking for retail use. Once it is approved and implemented, DotCode will likely go a long way in helping to address the needs of retailers and others who want serialized codes on individual products.

The Importance of Serialized Coding

Why is serialized coding so important, and why is it important to inkjet? Serialized coding is important to the overall market because the world is awash in counterfeit products. This generates immense expenses and also results in product safety issues. Another type of fraud involves the "gray market" distribution of goods by unethical distributors and dealers. Serialization already provides a response to these concerns for the U.S. Department of Defense, because it requires its vendors to use and record Datamatrix codes on each weapon it buys, and each piece of equipment purchased for more than $5,000. This coding and record-keeping process enables the DOD to pinpoint the origin and history of coded items.

The retail world would like the same level of insight into the products that it sells. Drugs are one of the most obvious examples from everyday life. Ethical drugs are critically important to therapies, but they are subject to counterfeiting. The retail world has many other products, though, where retailers would like item-level coding, in categories ranging from food to dry goods. The growth in actual implementation will make inkjet coders more valuable. Continuous inkjet, the giant in direct marking, will benefit the most. That said, drop-on-demand technology will also benefit, particularly thermal inkjet, which is the highest-resolution inkjet coding technology.

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Videojet's Acquisition of Wolke

One news item from the inkjet coding world that was almost concurrent with Pack Expo—and much talked about during the event—was Videojet's acquisition of Wolke Inks & Printers GmbH (Hersbruck, Germany). Videojet is the largest manufacturer of CIJ and other coding technologies in the world. Wolke is an industry pioneer whose coders are based on thermal inkjet technology from Hewlett-Packard. Wolke has been particularly successful in marketing TIJ coders to primary coding applications. Videojet has long marketed TIJ-based systems for envelope addressing applications, but not for product coding. This acquisition will provide Videojet with access to an established TIJ coder product line, adding to types of tools it can offer to its customers.

Figure 2: Wolke 600 Series TIJ Coder on a Cartoning Line

As mentioned earlier, TIJ coders are the highest-resolution inkjet coders in the market. As a result, they are well-suited to printing 2D and other complex codes. Wolke has been especially successful in selling TIJ systems to the pharmaceuticals industry in Europe, where product tracking and serialization are often accomplished with Datamatrix codes. According to Videojet, Wolke will continue to operate as a separate business unit and will remain based in Hersbruck.

HP itself had a big stand at Pack Expo. Unlike Label Expo, though, there were no HP Indigo devices in HP's booth. Instead, HP's displays were almost all monochrome printers and primarily for coding applications. HP's presence at Pack Expo was in keeping with its role as a thermal inkjet technology provider to various companies there besides Wolke, including Anser, DDI, FoxJet, and NuTech/APS. The company is also committed to developing its role in the packaging industry. The lone exception to HP's monochrome-only booth was the display of the latest tabletop full color label printer from VIP Color, a well-known HP TIJ OEM (see description of VIP Color stand below).

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Prime Label Printing

While Pack Expo's digital printing exhibits primarily dealt with coding and logistics label printing (bar code labels, mainly thermal), the show also had several stands devoted to full color POD printing of prime labels. The companies manning these booths, and the customers and prospects who crowded them, provided more themes and a few product announcements to consider:

- From the crowd of high-end color POD printer suppliers at Label Expo, just two (EFI Jetrion and CSAT) had booths at Pack Expo. These companies had an instructive presence, though—they were targeting their sales toward product manufacturers, not the label converters who were in the aisles at Label Expo (both companies and their introductions were described in InfoTrends' coverage of Label Expo).
- CSAT has sold a high-end 2-color electrophotographic system to drug manufacturers since the 1990s. The current version of that system was on display at CSAT's booth during Pack Expo. The company's ITS 600, a Kyocera-based UV curing CMYK inkjet system, was shown during Label Expo. CSAT is marketing its single-pass ITS 600 to the drug industry (which was much in evidence at Pack Expo) and also more broadly.
- EFI Jetrion was showing the Jetrion 4080, the newest, 8.3" version of its UV curing CMYK label press that was first seen at Label Expo last month. At that show, EFI Jetrion shared a speaking spot with a customer, a Swiss drug company that operates 2 EFI Jetrion 4000s in-house. The key message was that the pharmaceutical sector and possibly other industries are prospects for high-end systems that are used "near in-line" (i.e., offline but on-site, right near production).
- After EFI Jetrion and CSAT, the POD color label printer activity at Pack Expo downshifted to lower-end devices—essentially tabletop units that were often based on office-level inkjet or laser technology. Selling for just 5% or 10% of the price of a high end POD label system, the units from Allen DataGraph, Primera, QLS, VIP Color are suitable for in-house use by a range of products manufacturers (gourmet foods, nutritional supplements, cheese, etc.). The vendors demonstrating these products drew plenty of prospects during Pack Expo.

In addition to having a very different focus from Label Expo, Pack Expo had different points of emphasis and lessons. Inkjet and other coding is certainly a point of emphasis. In addition, the lesson about "mass serialization" (it is coming, and CIJ will benefit) is also relevant to high-end color POD label printing, because that technology also supports variable printing at the item level.

Another point of emphasis—and a further lesson—is that at least some pharmaceutical companies and food manufacturers do purchase in-house color digital label printing equipment. Overall, the buyers of color digital label printers are mostly small companies, such as makers of organic foods, and they are buying tabletop units that print at low speeds and may cost as little as $4,500. Big systems such as the HP Indigo and the EFI Jetrion are more typically used by label converters; most product manufacturers do not want to be printers and they prefer to leave label converting to specialists. In fairness, though, the CSAT and EFI Jetrion examples show that drug companies can be a market for high-end color POD label presses. CSAT has sold spot color systems to pharmaceutical companies for years, and it will now target those companies with its new single-pass CMYK inkjet systems as well. Meanwhile, EFI Jetrion has already placed at least 2 of its 4000 Series printers in pharmaceutical manufacturing plants in Europe. Given the caliber of these companies' products and their emphasis on selling to pharmaceutical and other categories of manufacturers, the market may see more drug manufacturers and possibly other sectors adopt "near in-line" full color label printing.

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Low-Cost Color Digital Label Printers

The final portion of InfoTrends' Pack Expo show coverage provides brief descriptions of the low-end color digital label printers that were much in evidence in Las Vegas. Most of these devices are based on TIJ or piezo inkjet technology, but there is a new color laser in the mix as well:

- New Hampshire-based **Allen Datagraph** (**ADSI)** showed its iTech AXXIS Digital Label System at Pack Expo. This system is a complete desktop short run digital label production solution that is made up of two components. The iTech AXXIS Digital Label Printer is based on the Epson D-500BN piezoelectric inkjet printer for short run label printing. The roll-to-roll printer can print in widths from 4" to 8.5", using rolls with a maximum outside diameter of 11". The maximum speed is 20 feet per minute and the maximum resolution is 5760 x 1440 dpi. The iTech AXXIS Digital Label Finisher is a complete digital finishing solution for use in tandem with the iTech AXXIS DigitalLabel Printer. The iTech AXXIS Digital Label Finisher laminates, digital die cuts (vector cutting, so no dies), and strips and rewinds labels at speeds of up to 12 feet per minute. The units are for sale separately, but ADSI aims to sell the iTech AXXIS printer and finisher as a pair. North American pricing is $7,000 for printer, $21,000 for finisher, and $24,950 for both. For more information, visit www.allendatagraph.com.

Figure 3: The Itech Axxis Digital Label Printer (Top) and Axxis Finisher (Bottom)

- Minnesota-based **Primera** showed its new CS 1200 Digital Color Label Press, which is based on a 1200 x 1200 dpi color laser print engine (CMYK). The print width of this roll-to-roll printer is up to 8", and the print capacity is up to 1,250 linear feet of self-adhesive label stock (nominally equal to a 12" OD roll). According to Primera, this printer is capable of outputting on a wide range of paper and film facestocks. In addition, the system's monitoring system continuously monitors and adjusts tension across the web. The CS 1200 Digital Color Label Press is priced at $18,995. Primera also showed its label rewinder, dispenser, and applicator solutions. One of the products on display was the FX 1200 Digital Finishing System, which offers laminating, digital die cutting, matrix removal, slitting, and rewinding all in one unit. For more information, visit www.primera.com.

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- Rhode Island-based **QLS** had its family of color label printing solutions on display at Pack Expo. The QLS-4100Xe is the latest in a long-established line of CMYK thermal transfer printers from QLS, offering 300 dpi printing and a claimed average speed of 3,000+ labels per hour. QLS's newest products, the Vivo and Zeo, really took center stage at the company's booth. The Vivo is a roll-to-roll color laser printer that is capable of producing 39 labels (3" x 4") per minute, or 2,376 labels per hour. It resembles the Primera color laser unit in appearance. The Zeo is a very small desktop color label printer based on desktop inkjet technology. It is designed for very low volume applications and produces 149 labels (3" x 4") per hour. For more information, visit www.quicklabel.com.
- California-based **VIP Color** introduced its latest color inkjet label printer, the VP485. This device is based on HP TIJ 4.0 cartridges and carries a list price of $4,500. It offers a print speed of up to 4 inches per second and a print resolution of up to 4,800 x 1,200 dpi. The VP485 has a Windows driver, a powered unwind that handles rolls up to 12" of outside diameter with a 3" core. The new printer has the same print mechanism and supplies as a popular HP office printer, of which some hundreds thousands have been sold. The VP485 has two shuttling printheads, each jetting two colors. One interesting feature of the printer is that it has a software program that enables users to closely estimate supplies costs per label—the user prints a sample of the label, the program counts the ink droplets used per color, and a spreadsheet function calculates the ink cost per label. For additional information, visit www.vipcolor.com.

Conclusion

Pack Expo 2009 delivered many possible messages about digital printing, and InfoTrends has selected three that it considers the most salient:

- Although serialized coding is currently very young, it is a strong prospect that will spur numerous coding technologies—especially inkjet.
- Color POD presses are growing, and some manufacturers find them useful enough to implement them within their own operations.
- Low-end color label printers are an alternative to high-end POD presses, and they are finding a strong market in among small manufacturers that have a consistent need for very short runs.

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