

## Invisible Barcodes Should Appear This Year

Mail production executives can thank the guys and gals in document composition for this one. Ever since mail professionals and IT techies got together to print barcodes on documents to bring intelligence and audit trails to mail production, the professionals designing these documents have been searching for a way to get rid of what they view as unsightly black lines (barcodes).

The doc composition folks should get their way in 2003 with the growing availability of invisible ink, and it's an advancement that is being embraced by print and mail executives because it can save money while allowing them to embed more information. Consider the advantages below.

### Flexibility In Form Design

The push for a versatile invisible ink solution for printing control codes first came from the insurance and banking industries. Many of these Fortune 500 companies wanted a way to make the barcodes on their corporate documents less obtrusive.

"These companies are very sensitive to the appearance of their documents," commented Per Hellsund, president of Inc.jet, a subsidiary of Gunther International. "For some, these documents are the only contact they have with their customers, so it is very important to them that their documents look clean and professional."

Inc.jet has been licensed as the World Wide Master Distributor for Hewlett-Packard's Invisible Inkjet Technology. The HP Invisible ink print cartridge was developed to improve document appearance and security by UV/IR invisible to print control codes. The ink is only visible to the human eye when it is illuminated with a UV light source. The IR feature enables machine-reading via a laser scanner or camera system.

Mr. Hellsund said he sees a strong market for this technology because many businesses do not want a big caterpillar barcode running up the side of the document. Since invisible ink eliminates the concern over aesthetics, the barcode can be printed as large as needed to achieve optimal performance from the barcode scanner.

Invisible ink also provides flexibility in form design. "Many data center customers," commented Hellsund, "spend hundreds of thousands of dollars annually designing new forms, and re-designing others just to add and modify machine control codes. In many cases, a design change to one form may affect thousands of other documents as well as applications embedded into their mainframe computers." By using invisible ink, the barcode can be printed over an existing form without disrupting the document's design.

### Driving Mail Production

Another company interested in this development in Microscan Systems, Inc, a manufacturer of automated barcode scanners and a proponent of the invisible barcodes.

According to Susan Snyder, training and marketing specialist with Microscan, the text over-print capability of invisible ink also makes it easier for companies to include multiple types of control codes. This provides the mail operation with additional flexibility. If a package or document is marked with only one type of control code, it limits the equipment the mail operation can use to process the material. By having additional control codes on each document, the mail center can move projects around much more efficiently, enabling them to operate at full capacity.

Two printing companies helping lead the charge to invisible ink technology are Océ and Xerox.

### Océ Enters The Market

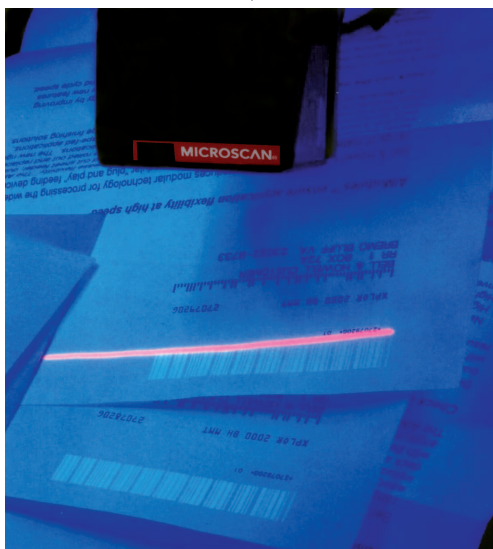
The Océ InvisiVision is a non-intrusive technology for printing invisible control marks on documents. In a document production environment, Océ InvisiVision performs the same functions as visible barcodes, but without any visible appearance on the document or the need to be trimmed off during finishing.

Océ demonstrated this technology by using a multi-vendor application to show how a company creates personalized statements using the Océ InvisiVision in combination with technology from Videk, Kern and Sefas.

The workflow demonstration showcased an application data stream produced by Sefas which is then printed on a new Océ VarioStream high-speed continuous form printer. Once produced, the form passes through the Océ InvisiVision system where the invisible control mark for finishing controls and document tracking is produced. Kern International inserting equipment reads the invisible marks to control mail production. "Barcodes and other marks for document tracking and integrity checks have been widely used for many years. However, the price you paid was the consumption of valuable document real estate," said Robert Raus Jr., director of solutions marketing for Océ Printing Systems, USA. "Now, intrusive barcodes are no longer obstacles to greater document integrity and security."

### Xerox Launches Invisible Ink

Xerox has introduced its Invisible Control Marks (ICM) for data centers and printing operations responsible for building customer documents.



It's what the recipient does not see that makes invisible barcodes a new technology with a lot of promise.

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In the Xerox application, the technology required includes an inkjet-printing unit which runs concurrently with Xerox DocuPrint production printers to apply the invisible barcode, a camera for validating barcode quality, and an illuminator that makes the ink fluoresce for reading by the camera.

Designed for use with the high-speed Xerox DocuPrint 180 or 155 production printers, the ICM solution supports the Xerox LCDS and Metacode transactional printing data streams. In addition, it works with both EPS and LPS controllers without reprogramming the original print job, thus avoiding the cost and delay of application changes.

The Invisible Control Mark (ICM) uses a separate inkjet printing device that sits inside the DocuPrint and possesses a reservoir of ink designed to run for at least eight hours. Once printed, the camera verifies the barcode. These steps help ensure the code is within specification and will be readable when the printed document is run through an intelligent inserter.

These technology initiatives by Oce and Xerox signal good news for businesses looking to adopt this technology.

“We now have a non-proprietary, out-of-the-box solution for using invisible ink,” commented Dennis Kaill, president of Microscan Systems, Inc. “One that is robust enough to recommend to our customers. There are printers that can print it, and bar code scanners that can read the codes. Invisible ink isn’t talk anymore. We’re doing it.”

#### Guidelines For Printing Over Text

The text over-print capability of invisible ink is perhaps one of the most important features. However, not all barcode scanners are capable of accurately reading text over printed bar codes. Even if the scanner is equipped to solve these applications, certain guidelines must be followed when using this ink.

First of all, you need to make sure that the barcode scanner being used is designed to read invisible ink. It must also have a high-performance scan rate. A high-speed scan rate allows for some flexibility in the size of the barcode selected for the application.

Secondly, the barcode must be oriented with the bars and spaces perpendicular to the lines of text in the document. The scan line cannot be skewed in relation to the symbol. The barcode must also be traveling in ladder orientation in relationship to the scanner.

Finally, the bar height must be a minimum of 2.5 times the sum of the line spacing and text height. Since the scanner cannot see the parts of the bar code that are printed over the text, it is reading only on the parts of the code that reside in between the lines of text. For this reason, a high-speed scan rate is imperative because it ensures that the scanner will get enough looks at the parts of the barcode that are visible to achieve a good decode. (From “Guidelines For Reading Over-printed Invisible Ink,” by Microscan Systems, Inc.)

## Invisible Ink: Applications Beyond Mail Production

The primary application for invisible ink barcodes is in the area of mail production, where it can replace the control marks on the side of paper that is used to collate documents, direct intelligent inserters, and track production.

By printing an invisible barcode on the document a company can pack these 2-dimensional and linear barcodes with more information to drive intelligent pre- and post-printing equipment and enable document tracking without detracting from the visible appearance of the document.

Beyond mail production, organizations see a variety of applications:

1. *Envelope Tracking.* Invisible ink is being printed and tested on the outside

of envelopes for routing and tracking purposes.

2. *Security.* Spray invisible ink to add authenticity and security to documents such as insurance policies. Use invisible ink to print a 2D code that can be encrypted and provide a higher degree of security.

3. *Material Handling.* Warehousing operations looking for an alternative to large barcode stickers on the side of their boxes can use the invisible barcode to add more information with a less distracting label.

4. *Accounts Receivable.* Accounting departments can track incoming remittance documents to automate accounts receivable processing.

5. *Marketing.* Companies can use the invisible barcodes to capture demographic and other customer profile data sent back via remittance documents and customer reply envelopes.

6. *Customer Service.* Businesses can achieve higher levels of customer satisfaction by eliminating the need for respondents to provide redundant information, such as name or address in a form or survey.

7. *Record-keeping.* The invisible ink data can create an audit trail for internal documents and other documents.

Invisible ink is no longer a pipe-dream. It’s a reality.