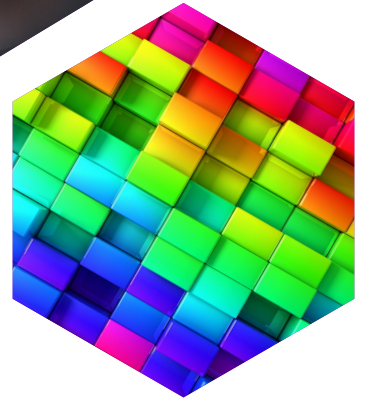# Retransfer Printer with Pigment Ink

The next generation of printing

ENTRUST

SECURING A WORLD IN MOTION

Three challenges facing ID card programs

Organizations face challenges that can be costly when managing their identification card (ID) programs if they don't consider the impact to their business. Some of these challenges are a result of the type of printer ink technology used for ID card programs. Three challenges facing card printer program administrators include:

Environmental exposure. Exposure to environmental factors, such as UV light, can impact a badge when someone wears the badge in a visible way during work (both outdoors and indoors). Exposure to fluorescent lighting can take its toll on the badge and it's even worse when employees are working outdoors. When people get done with work and put their ID badge on the dashboard of their car during the drive home, the effects are compounded.

Many organizations will try to address this issue by buying expensive UV blocker laminates. And they often have a higher reissuance of cards due to damage from exposure to light.

Image integrity. Organizations not using the latest printing technology often struggle to maintain the integrity of the original image when it's printed on a card. For example, when an organization has a logo (such as company name, branding, etc.) or face that they want to print, they often have difficulty matching what they see on their monitor to what is printed on the card. Matching skin tones is also a challenge.

Some organizations create custom profiles for their printers as a workaround – however, the downside is that once one color is fixed, another is broken. Essentially, one color data point is right but others are modified. Other organizations change the colors of the image on the screen to print the desired color on the card. Even with these workarounds, dark colors from dye sublimation will continue to blend into adjacent colors on the card.

Fine-detailed text legibility. Making fine-detailed text such as Kanji characters like Chinese, Japanese, Arabic characters, and 2-point font, legible is a challenge with today's card printing technology. Increasing font size or using smaller subset of characters are potential workarounds for this issue, but they are not all available with 300 dpi.

A new approach to card program printing

The industry standard to date has been dye sublimation ink technology in both direct-to-card and retransfer printing. Entrust is now using pigment ink technology, which has a proven track record in the financial card market, and bringing it to the desktop printer. Here's a look at the basic differences between dye sublimation and pigment inks.
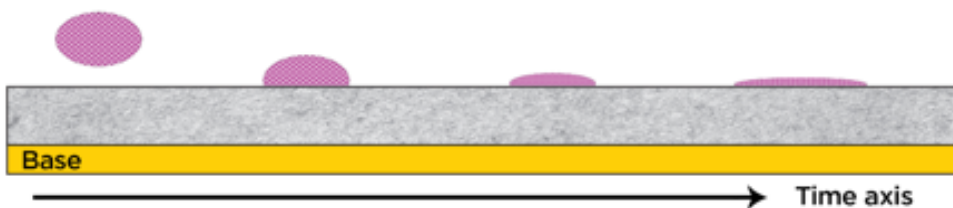
Dye-sublimation inks

Dye colors are made when absorbed into card substrate via heat and pressure. The thermal print head applies the heat by adjusting the temperature to deliver the appropriate color intensity. More heat means more density; less heat means less density. The different dye inks (cyan, magenta, and yellow) will mix together to offer a wide range of colors.
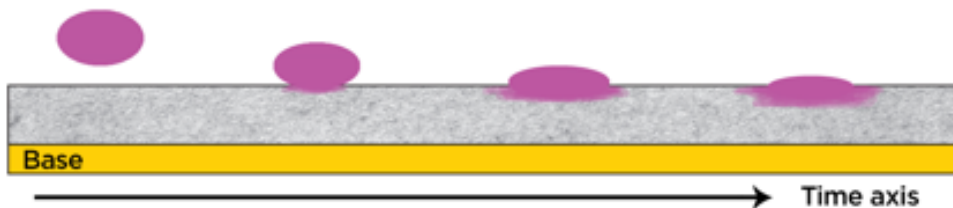
Pigment inks

Pigment inks adhere to the top of the card and are not absorbed into the surface. This results in dots on the card surface. Higher density is created by more or larger dots while less density is created by fewer or smaller dots. Color is created by laying cyan, magenta, yellow, and black dots in between or on top of each other.

The benefits of pigment ink retransfer

Pigment ink has many advantages over dye sublimation and can help solve the challenges commonly faced in the industry and eliminate the need for workarounds.

UV fade resistant

A benefit of pigment ink is that it is UV fade resistant so the cards will not diminish over time. This will extend the life of the card, which reduces the need for costly re-prints due to fading from exposure to light. The graphic shown below illustrates what can happen over time when ID cards are exposed to UV.

Type of Printer   UV Exposure Over Time

Typical Dye Sublimation Printer
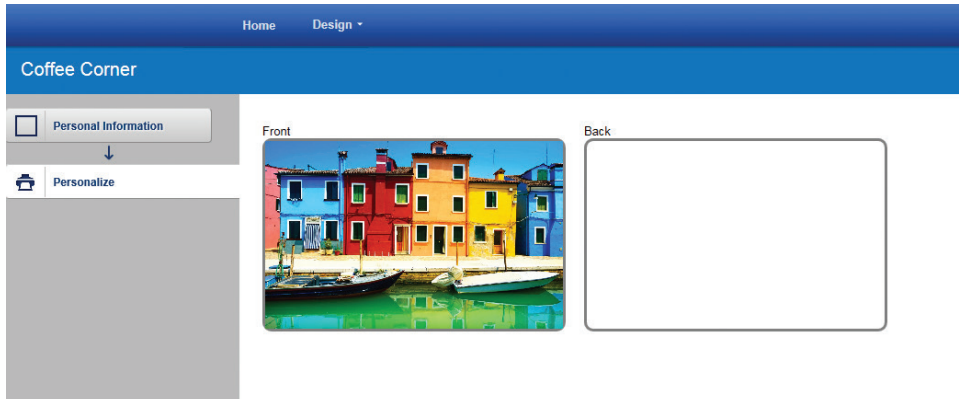
Artista CR805 Pigment Ink Card Printer

Notice how over time the portrait becomes harder to see on a typical dye sublimation printer. The blue bar, for example, has changed so much that it's hard to recognize. Also, the logo in the upper left has become harder to distinguish. And the lighter background details are washed out and difficult to see. All of these features are preserved when using an Entrust Artista® CR805 Retransfer Printer with pigment ink.

True color

Another benefit of pigment ink is that true color allows the original image on the screen to match the printed image on the card. The image below illustrates how the image on the screen can be matched to the image on the card via true color.

Artista CR805 Retransfer Printer with pigment ink

*Typical dye sublimation printer*

Small font printing

Another benefit of pigment ink technology at 600 dpi is the clear, crisp font printing at less than 2 point. In the images below, notice the clarity of the small font and fine line details, such as Kanji characters, on the card.
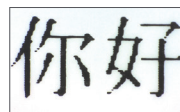
	Artista CR805 Retransfer Printer with pigment ink	Typical dye sublimation printer
Small Font Printing (less than 2 pt)	Entrust	
Kanji Characters	你好	你好
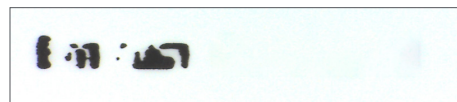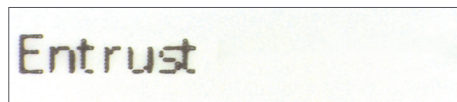
Please note that both of the images listed above were taken with a 20x zoom.

CONCLUSION

Retransfer printing with pigment ink technology delivers quality printing that is not easily matched. The retransfer printing process enables true over-the-edge printing, even on uneven surfaces such as smart cards. When coupled with 600 dpi color pigment ink technology, the retransfer printer produces higher quality images with true color. The image on the card matches the image on the computer screen, text is legible down to 1.5-point font (including Chinese characters and fine line requirements), and UV fade-resistant cards will not diminish at the same rate as typical dye sublimation printing.

For more information

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ABOUT ENTRUST CORPORATION

Entrust keeps the world moving safely by enabling trusted identities, payments, and data protection. Today more than ever, people demand seamless, secure experiences, whether they're crossing borders, making a purchase, accessing e-government services, or logging into corporate networks. Entrust offers an unmatched breadth of digital security and credential issuance solutions at the very heart of all these interactions. With more than 2,500 colleagues, a network of global partners, and customers in over 150 countries, it's no wonder the world's most entrusted organizations trust us.

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