

Postal Handling and Digital Inks: The Need for On Demand Finishing

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What We Know Today

As every printer knows, the printing industry has been undergoing revolutionary changes over the last few years due to modern technology. The integration of digital technology has completely changed the face of some markets and continues to dramatically affect the direction of others from pre-press to shipping. One of the most significant changes that has occurred is that ink finishing has migrated from being a feature add-on for a product to being a necessity for some printers and/or their customers, particularly those that are involved in the digital printing process.

The ability to stay one step ahead of your customers and offer them cutting edge services will set you apart in a extremely competitive market. It is evident that digital is here to stay and each day that passes, more and more digital presses are being installed around the world. Most printers are venturing into this segment in order to be competitive on short-run jobs and the ability to offer variable data printing. The world is becoming smaller and smaller and the ability to personalize products has become a critical selling point. The capability to personalize at incredible speeds is even more important to today's print buyers. The demand for immediacy within the print market today is driving printers to find faster ways of delivering products to their customers.

The Issues

Digital presses are amazing in their abilities to handle variable data and they are very efficient at processing orders but due to the technology implemented for the printing process, they often have issues with soft inks on the final product, which leads to other problems when the printed material is handled. Scuffing, cracking, peeling, and abrasion susceptibility are just some of the issues that pose a threat to the digitally printed product. The soft ink problem is particularly a concern for those in the mailer sectors of the industry because the postal sorting machines tend to handle mail very aggressively and abrasively. This aggressive handling often leads to the delivery of an unsatisfactory product that was perfect when it left the pressroom floorboards.

As of late, much attention is being given to digital inks not being able survive the automated handling of postal stream. This is not a new issue, it has been occurring for some time. Ask any digital press OEM, they are aware of the issue. Interestingly enough just *now* seminars are being conducted, tests are being run,

committees are being commissioned, etc. even though this issue has already been solved and is currently being integrated into digital print shops around the world.

Many printers see the print coming off the digital presses and are very impressed with the depth of color, clarity and overall eye appeal of the inks being used today inside digital engines. The inks have gotten much better, but due to how these inks are applied, ink fragility still exists. Printers do not see this when they do their print runs because they are not putting the digital pieces through its paces like it is being handled through the automated handling of the Postal Service. The fragility of digital inks are tested daily through the global mailing systems and personalized marketing arriving to the recipients that has ink smearing, loss of data, or image damage does little to capture the attention of the recipient. The only way they would see how abused the print is upon reaching a recipient is to be a recipient themselves.

Resolutions and Options

This brings us to the point of the importance of on demand finishing. To resolve this problem printers have turned to a variety of ink finishing solutions to both seal their product and provide customers with better service. Having the ability to run short print runs in a very short period of time is wonderful, but it defeats the purpose of on demand if a printer is outsourcing the finishing (coating in particular) and waiting days for the product to be returned from the trade finisher. On-Demand Printing demands On-Demand finishing.

Application of coatings is by far the most cost effective way to provide ink protection. Also, there are countless varieties of coatings that do not just provide ink protection, but incredibly enhance the eye appeal of the printed piece as well.

What are the alternative technologies that will resolve these issues? After reviewing every type of coating and finishing solution available today, including lamination, both liquid and solid sheet, the most widely accepted conclusion is that UV coating is the best.

UV Coating and laminating (both film and liquid) are the most common procedures for finishing digital inks, but are applied with different processes and differ greatly in their application and cost. The most cost effective solution for ink finishing for both digital and conventional offset printers is UV coating. UV coating is a polymer that cures instantly with focused, high intensity UV light with a process that instantly yields a product that is finished for shipping, cutting, scoring etc. the moment

it exits the machine. This immediate curing process eliminates the need for drying systems thus making the process more cost efficient. Unlike lamination, coating is produced to become part of the printed piece. It is essentially "embedded" into the product becoming one, where lamination is simply applied over the printed piece leaving room for all kinds of issues to occur. Issues such as lamination becoming detached from the piece due to handling, extreme cold, extreme heat, moisture, etc. is very common. Another issue with using lamination as a finishing solution for digital print is the major problem with vehicle retention between the printed piece and the laminate. Often the chemicals utilized to set the digital inks, such as toner are trapped under the laminate, which creates bubbles, pockets, adhesion issues and appearance issues. Laminating an A3 sheet ranges in cost on average as much as 30 times the cost of UV coating. Another consideration with film lamination is that the process emits VOC's (Volatile Organic Compounds). Modern technology has greatly reduced those emissions but it is still a concern for a safe work environment and in comparison, UV coating is not solvent based so it emits no VOC's at all.

Aqueous coating is another solution for protective coating, but it absorbs into printed products like a sponge soaks water. Aqueous also dries via ambient air, which is a tremendous problem for application. It also does not provide the protection or finished look like UV provides. UV coating is made to sit on the surface and be "trapped" (cured or dried) by UV light exposure, thus providing an even thicker and more durable coating to the piece. UV coating also cures instantaneously when exposed to UV light, which incredibly speeds up the printing process from print to ship and it has an incredibly long shelf life.

Another finishing solution known as liquid lamination is applied similar to how liquid coatings are applied, however, it involves the liquid form of plastic, which reduces the costs of coating a sheet compared to lamination, but still does not compare to the low cost of UV coating. Liquid lamination of an A3 sheet is 8 to 15 times the cost of a UV coated sheet. This is less than film lamination and closer to the costs of how much digital inks costs per sheet, but is still much higher than UV coating.

This brings us to the development and testing of clear toners being used as ink finishing by press OEM's. If digital color toner-based inks are coming off the printed product, the same problem will exist with clear toner based finishing. Plus, the costs will be as much or more as colored ink costs when applied to a sheet. The costs of application for finished looks will be astronomical compared to the cost of a UV coating applicator. For example, some digital press manufacturers are using a 5th unit to apply clear toner product. This provides a matte look but in order to achieve a gloss it has to be taken off line to an expensive applicator that bakes and compresses this toner ultimately achieving a gloss. Clear toners or clear inks can provide a nice finished look, but they are nowhere close to the protection of UV coating. It is like putting a rug over a hole in the road rather than repaving the road. It will draw attention to it, but will not solve the issue.

Conclusion

UV coating stands heads and shoulders above all other solutions. Not only is it 80% better in finished characteristics than any coating today, it can be obtained in an incredible amount of finishes that will attract even more attention of printed pieces such as: scratch and sniff, glow in the dark, sparkle, glitter, high gloss, simulated leather, thermochromic, photochromic, matte, satin, and many other finishes. And, applications generally cost less than 1% of a Euro for an A3 sheet

As you can see, testing ink-finishing solutions is very far along. The adoption of UV coating today on a global basis is tremendous. There are multiple types of machines for applying these coatings. It is important that the printers explore their options regarding finishing solutions and understand the differences in technology and application methods in order to be most thoroughly educated to make a decision regarding technology.

Coating can be a tremendous profit center for a printer. Most digital printers get into coating for the purpose of sealing their work. They quickly realize that the demand for coating is so high they can serve others as well, allowing them to trade finish for others in the area, which allows them to break even on their finishing equipment much faster.