Working with Specialty UV Coatings on Press

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PostPress

Specialty UV coatings, such as profile (raised) UV, add visual and tactile effects.

A longtime manufacturer of screen and offset printing presses, Sakurai USA is well versed in the challenges operators face when utilizing specialty coating technologies. With the increased growth of specialty coatings, such as profile raised UV and glitter UV coatings, operators are working with a lot more than just simple spot UV coatings. When asked what advice he would give to print finishers and printers looking to incorporate more offline products, General Manager David Rose provided the following insights into the special challenges faced by those attempting to utilize specialized offline UV coatings.

Offline UV coaters with spot UV, raised (profile) UV and glitter UV technology are in great demand. What should buyers consider before purchasing this type of coater? For companies looking to add offline coating to their product capabilities, the use of screen printing provides the most versatile piece of equipment for all their coating needs. The sheet-fed cylinder screen press is a single-color press. By changing the printing plate (the screen), operators are able to produce UV full-flood coats, UV spot coatings, raised profile, glitter, scratch off, glow in the dark, scratch and smell, matte and soft-touch. It is the coatings that produce this result and the screen printing process that produces the deposit and images.

Companies should look to their equipment suppliers to provide the following information:

- minimum and maximum sheet size of the equipment
- speed of the screen printing process
- thickness of material the press will handle
- what type of dryer is needed for the ink/coating (UV, water or solvent)
- what does it take to make the printing plate (screen)

Given the increase in popularity of specialty UV processes, what type of applications are best served using these specialty processes?

The use of UV clear coats was originally designed to offer a less expensive option to lamination. Some people even called it “liquid lamination” in the early days. UV clear coats offer the look of lamination at a fraction of the cost. Printers could take the clear coat, print it on a pattern or design, and suddenly they had spot coating. With a screen offline coater, more coating can be applied to the sheet than with any other method. Thus, by varying the mesh count of the printing plate, they are able to produce raised, tactile effects. Adding glitter to the clear coat then creates encapsulated glitter that won’t flake off.

There are a myriad of products that benefit from using the finishing screen printing method. Book covers and jackets, cosmetic packaging, presentation folders and – most important – knockout areas for glue flaps are just a few products where the application of specialty processes can help companies stay competitive and profitable in today’s market.

How is encapsulated glitter applied? What are the potential challenges associated with this type of specialty coating?

At some time in our lives, perhaps as a small child, nearly everyone has taken Elmer’s Glue, spread it on a piece of paper and sprinkled glitter over the glue. This basic process still is done today for traditional holiday card applications.
– nothing says the holidays or celebration like glitter on a package or printed communication. Unfortunately, the basic process is messy and a portion of the glitter always comes off in the envelope or on the recipient’s hands.

Today, using encapsulated glitter through a screen UV process, a very similar glitter look can be achieved without the glitter coming off on hands or other surfaces. To apply encapsulated glitter, UV coaters simply add glitter to the base UV clear coat and print the mixture through a screen. When the UV is cured, it captures the glitter particles and seals the flake in the deposit.

UV glitter (ink/coating) is supplied pre-mixed by a number of companies. Most customers will buy the base UV and add their own glitter mixtures. It is beneficial for customers to add their own due to the variety of print engines on the market.

As far as potential challenges or problems for the customer, it’s important to be aware that adhesion of the UV base to digital inks and offset inks is different for each type of ink used. When using pre-mixed UV glitter, companies should make sure the base UV coating adheres before adding the glitter. As most are aware, one UV clear may work well on one supplied sheet and type of ink but may work differently on another. This has become even more important to check in recent years with the growth of digital printing and the different digital inks on the market today.

There is a little more to running glitter than just dumping glitter particles in the UV base. The challenge is with particle size, shape and color of the glitter. Not surprisingly, with a larger particle comes more twinkle effect, as well as a greater percent of glitter load by weight and greater ability of the UV base to carry and keep the particle suspended in the solution. Most importantly, the mesh opening of the screen must be large enough to allow the particle to pass through.

What are some tips for applying raised UV coatings? Are there any special precautions that need to be taken?

Raised UV coating presents its own unique set of challenges. The key ingredient in running it successfully is in how the screen is made and imaged. It is not only the mesh count that determines the deposit, but also the thickness of the stencil (image) on the screen. Keep in mind, the thickness of the stencil or image on the screen – along with the mesh opening – creates a “well” to pass the coating through. The flooding action of screen printing fills this well with coating; the taller or deeper the well, the more coating that is deposited. Experimenting with different thicknesses of image will allow for greater height in deposits.

The viscosity of the coating can help or hurt the height of the deposit – the thinner the coating, the more spread or runout produced. Companies should ask their coating suppliers to provide a thicker viscosity of material.

Press adjustment also can affect the height and sharpness of the image. Speed of the press has an effect, as do angle and type of squeegee blade as a result of filling and emptying a well, or pool, of coating. Change the print angle from 15 to 30 degrees, round the squeegee edge or change to a softer or harder material.

Raised UV spot coating can create eye-stopping effects. Companies will be able to produce the dimensional products they’ve been looking for with the correct screen, tailored coating for the specific job and the correct press.

Are offline coaters now available with LED UV curing capabilities? Are there advantages in using LED?

Yes and no. LED lamp heads are available over a conveyor belt to put behind offline coating equipment. However, they still are limited by ink and coating availability. It still is a somewhat new curing process, so there are not as many types of coatings available for LED curing on the market.

The advantages of LED are many but are limited to the application. LED can provide faster curing times, but there can be challenges with heavy ink/coating deposits by screen printing. There also have been yellowing issues with certain types of LED clear coats. Curing through LED systems will continue to grow, but it is highly recommended that companies check with their ink/coating suppliers to be sure the suppliers have a product that will fit their applications.

PostPress would like to thank David Rose, Sakurai USA, for his assistance with this article. Having recently celebrated its 26th year as a US corporation, the Schaumburg, Illinois-based manufacturer has spent years helping its customers make use of the latest technology in order to stay competitive in today’s challenging economic environment. For more information, visit www.sakurai.com.