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LUBES'N'GREASES

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By JOE BEETON

ll of us in this room are losing money," Bill Paddison declared to the Petroleum Packaging Council, during its March meeting in Tampa, Fla. The growing dilemma for many lubricant packagers, he added: loss of profit due to counterfeiting.

The national account manager for Batavia, Ohio-based labeling company Multi-Color Corp. kicked off the conference's "Innovations in Packaging" session, but was not the only one to air this issue. The conference was abuzz with talk of potential solutions, innovations and

workarounds for the problems packagers face in keeping their products tamper-resistant and inimitable in the industry's increasingly global supply chains.

While many anti-counterfeiting tactics mentioned at the conference's trade show and technical sessions focused on packaging materials such as lids and seals, Paddison professed that labels could employ security features.

Some of Multi-Color's security solutions are visible,

Sharpen Your Wits Against Counterfeits



Paddison said, mentioning difficult-to-replicate features such as thermo-chromic inks, effect pigments, holograms and diffractions, as well as more traditional means, such as barcodes. However, the company is also focusing on providing covert applications, such as nearly invisible micro-text along with taggant technologies for tracking products.

Paddison also highlighted Cryptoglyph, a concept

developed by the Swiss digital product-authentication and counterfeit protection firm Alpvision.

Cryptoglyph is a digital identification system composed of invisible microdots printed directly on a product's label with ink or varnish, using normal offset printing processes. It can also be applied using rotogravure and flexography printing. Unlike other security measures, Paddison

noted, Cryptoglyph is one of the only systems that does not require highly specialized detection equipment. The microdots are generated in a pseudo-random pattern, and can be identified locally or remotely using an office scanner or smartphone.

Most lubricants packages, however, have limited space on labels for marketing and branding graphics, let alone security features. With an increasing need for information in multiple languages,

hazard communication mandates such as OSHA's Global Harmonization System protocols and other regulatory certifications, many packagers say they are running out of real estate on their labels. That's why Multi-Color's Extended Content — a cut-and-stack, glue-applied label — goes hand-in-hand with Cryptoglyph, Paddison pointed out.

Allowing labels to be two-ply, three-ply or four-ply, this system adds extra space for informational copy and graphics, Paddison said as he demonstrated the concept at

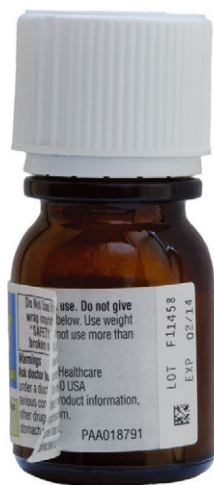
To frustrate counterfeiters, the spout on this pail lid is molded in, not crimped on later, and has a breakaway seal on its pull-ring. (Photo: Letica)



the PPC's exhibition. The top layer(s) can peel up and then be smoothly reapplied, thanks to a coating of liquid adhesive.

Tom Bishop, of container manufacturer Letica Corp., Rochester Hills, Mich., also focused on anti-counterfeiting measures during the Innovations in Packaging session. Unlike a label, however, the solutions he presented rely primarily on hardware to provide evidence of tampering. Through its partnership with APC Products Ltd., Letica offers an injection-molded plastic pouring spout for its plastic pail lids.

Rather than employing a spout that is inserted or crimped on, the APC-7 technology allows the spout to be added as the lid is in the mold. "By insert-molding the pail closure into the cover during the cover's



An Extended Content label has stacked, self-adhering layers that provide more space for information and graphics. (Photo: Multi-Color)

would require breaking or cutting the seal. There would be clear evidence of tampering."

Now with international patents and a U.S. patent pending, the APC-7 insert-molding closure was initially developed in 2008 for a U.S.-based pail manufacturer

a plastic-to-plastic bond."

APC anticipated the benefit of reducing tampering as key to developing closure sales in offshore markets, Sturk said, and that spurred the company to begin researching, developing and integrating APC-7 into its portfolio of solutions for its petroleum products customers.

"Another competing technology employed to bond a plastic pail cover is ultrasonic welding, which is effective in providing tamper evidence," Sturk pointed out. "The welding process, however, is limited by its slower cycle and higher labor requirement.

"Using insert-molding technology to install plastic pail closures, in my opinion, improves the performance and security of the package through filler and distribution to the end user," Sturk

packaging copy-proof, concurred Christian Musiol, sales director of closure manufacturer Bericap. However, he stressed, "you need to get transparency on the costs of 'not acting.'"

"Individualization and protection will add costs to your packaging," said Musiol, who is based in Budenheim, Germany. "You need to balance the costs of implementing technology with the costs of not adding the technology, and running the risks of being counterfeited," he continued. "There is no 100 percent protection [against tampering], but better-protected packages are less affected by counterfeiting and can be easier identified [versus] counterfeits."

The petroleum packaging industry is relying too much on standard packaging components and manufacturing technologies, Musiol cautioned, despite the growing need for individualization. Beyond adding decorative elements and elaborate colors to clearly identify your brand, it's imperative to incorporate technical hurdles into your packaging, he said.

Such hurdles come with challenges as well as advantages, he added, demonstrating the pros and cons of some of the innovations he highlighted.

For example, adding a side security label to the closure — a simple tab which easily breaks or is bonded with a special adhesive — is a great way to add a technical discipline to the manufacturing process, ensure copy protection and manipulation protection, and add space



Side markings on closures can be difficult to fake, especially if they conform to the structures or run across the tamper-evident band. (Photo: Bericap)

injection-molding process, the pail cover and closure body become a single unit," APC's president, Ron Sturk, told *Lubes'n'Greases*. "The closure body is further protected with a pull-ring seal in the neck. Exchanging pail contents through an insert-molded closure

who wanted to automate the lid production process. "By using robots to feed closures to pail cover molds, they projected factory labor savings," Sturk explained. "They also anticipated quality improvements by replacing metal crimp- or press-fit closures (which can leak) with

continued. "Years later, I can say the high research and development costs have been worth the investment. The APC-7 closure is our fastest growing product in sales, and has received very positive customer feedback."

R&D costs do play a factor in making your product

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for printing marketing material, he said. However, if the closure isn't completely cylindrical, then it would need to be redesigned. It also requires an additional manufacturing step and is prone to physical stress and aging risks.

Another option is to use a tool to emboss or print on the side of the closure. Side-embossing requires stress deforming of the closure from the mold, which adds both a technical and a quality hurdle to the design, Musiol said, all while adding a marketing feature. However, there needs to be



Christian Musiol

enough vertical space on the side of the closure and/or its tamper-evident band, in order to fit the tool insert-imprinted lettering.

Side laser marking, meanwhile, uses laser technology for contact-free marking which can be applied even to closures with knurls and structures. The marking can be branding material or a barcode, or both, since it is done in high resolution. While laser marking is a technical discipline that is hard to replicate, he said, the technology and machine investment also add variable costs to the manufacturing process. Laser marking, however, can be applied at the closure manufacturer's plant, imparting no additional burdens to the customer, he added.

Laser marking can also be applied to the tops of the caps. "Advantages of top

printing with individual laser marking include a combination of visible and hidden protections and a nice appeal of marketing features," he continued. Laser marking the top of the closure adds the possibility of including hidden ultraviolet printing and verification codes, along with customizable branding opportunities. This technology adds costs to the clo-

sure, however. It requires feedback logistics for the verification, for example, and it should be combined with an individual coding on the bottle, Musiol added.

Digital printing is a more versa-

tile solution. With contact-free application using digital ink-jet printing, this newer method allows for decoration to run across structures and over knurls, even on HDPE. "In contrast, older technologies fail on adhesion and structures." It's also a great marketing feature, Musiol added. "Digital printing allows for individual decoration of each closure with text and pictures — and offers excellent copy protection."

Counterfeiting is a global problem, with some regions being "strongly affected by manipulations and copies," Musiol concluded. "You need to get transparency on the costs of 'not acting' — in order to set the right priorities — and define your maximum willingness to pay for the individualization and protection of your packaging." ■



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