



Paul de Blois,
Vice-President and
General Manager,
HIDE-Pack



A cutaway view inside a HIDE-Pack-enabled 'intelligent' box reveals the RFID inlay hidden within the corrugated packaging, with a circular hole pinpointing the inlay's exact location.



RIDING THE WAVE

A new inlay embedding technology enables Canadian corrugated manufacturer to turn out value-added packaging with on-board RFID tracking capabilities

Although it's been around since the end of World War II, the science of radio frequency identification (RFID) is still in many ways a technology waiting for its mainstream acceptance.

While the technology's many benefits have been widely lauded by its proponents—notably through concerted efforts by the retailing giant **Wal-Mart Stores Inc.** to mandate its suppliers to start using RFID to track the movement of their goods through the supply chain—technological hurdles, a multitude of different standards, and prohibitive costs have so far prevented RFID tags from replacing traditional barcodes as the preferred means of product identification in the global CPG (consumer packaged goods) industries, despite the considerable 'buzzword' factor generated in packaging industry circles earlier this decade.

While numerous RFID technology developers are working furiously around-the-clock to make RFID tags more

cost-justifiable for tracking a broader range of goods on the item level, there is still a significant cost overhead related not only to their physical cost, but also the cost of time and labor involved in applying these tags to a label—either manually or via the so-called "slap-and-ship" method of having these tags applied with specially-designed printer-applicators.

However, a small upstart company based in Montreal thinks it has finally developed a cost-effective way of making RFID tags part of the physical product packaging by simply embedding an RFID inlay within the structure of a package in such a way that the inlay remains completely invisible on the outside or the inside of that package.

"Basically, the RFID inlay becomes an integral part of the packaging medium," explains Paul de Blois, vice-president and general manager of the privately-owned **HIDE-Pack**, a fledgling, eight-employee company started up in October of 2007.

"We came up with the idea to use the container's manufacturing joint to encapsulate the RFID inlay, thus rendering it completely covert," adds de Blois.

Jointly developed by HIDE-Pack's vice-president of technology François Bozet, the proprietary method involves the embedding of RFID inlays via a specially-designed application system—utilizing a cold-set adhesive—just before the packages being processed on a folder-gluer machine are folded shut.

Says de Blois: "Because the embedding process takes place on the machine that constructs the packages—for instance a flexographic folder-gluer in a corrugated box plant—the utilization of the HIDE-Pack process can result in large savings for consumer goods manufacturers."

Large enough savings, de Blois contends, to spare consumer goods manufacturers from investing significant resources into dedicated RFID printers-and-applicators



During the recent trials performed at KruPack's facility in LaSalle, Que. facility, Alien Technology's RFID equipment successfully scans and reads the HIDE-Pack inlays after they've been applied to a sheet of corrugated board.

At the moment, the patent-pending *HIDE-Pack* technology is available commercially through **Domino Integrated Solutions Group (ISG)**, a leading global supplier of integrated track-and-trace systems, leveraging Domino's vast and extensive experience in developing leading-edge product identification, data collection, mobile computing, RFID and wireless technologies.

While Domino uses its global network to offer its customers turnkey solutions for their specific track-and-trace needs, *HIDE-Pack* is primarily responsible for the distribution of the low-cost RFID inlays used in systems, while also assisting new customers with the technology's deployment.

Recently, this technology got a good look in the trial runs conducted at a **Kruger Packaging (KruPack)** plant in LaSalle, Que., where a *HIDE-Pack* custom-manufactured inlay application system was put to work in concert with a **Bobst Martin FFG 924** flexographic folder-gluer to produce medium-sized boxes ranging in size from 260x730-mm to 900x2,400-mm.

Throughout test trials, the *HIDE*-technology was tested against a broad range of hostile environmental conditions, according to de Blois, proving itself a very capable performer in both high-humidity and below-freezing conditions.

"And to be fair, the equipment has been designed to be suited for various models of RFID tags. *HIDE-Pack* will supply the RFID tags at a very competitive cost."

Rob Latter, vice-president of Kruger's containerboard division, says the company is currently on the verge of installing a new, second-generation *HIDE-Pack* applicator at its sprawling 325,000-square-foot production facility in

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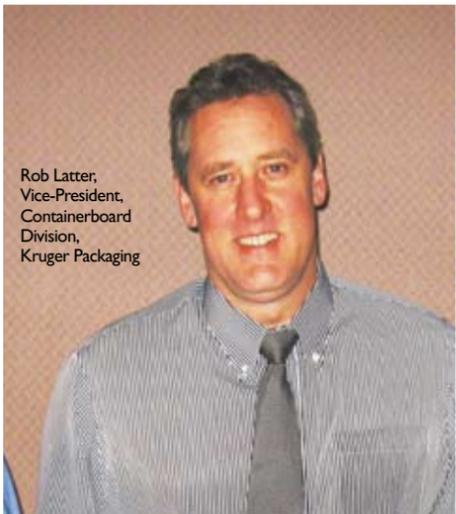
on multiple case-packing line by installing *HIDE-Pack* technology on a single package-making line.

In fact, de Blois claims that the overall cost of producing RFID-tagged boxes with *HIDE-Pack*'s technology is less than that of the traditional 'smart label' approach to RFID tagging.

"Our research shows savings of at least 35 per cent when using our inlays instead of labels," states de Blois, pointing out that hiding the RFID tag within the packaging structure also offers it better protection from any sort of external and internal trauma—thereby significantly increasing its reliability.

According to de Blois, the cost-savings enabled by *HIDE-Pack* technology are rooted in moving the RFID application back in the value chain—right into the process of manufacturing the packaging medium.

"The *HIDE-Pack* method also provides



Rob Latter,
Vice-President,
Containerboard
Division,
Kruger Packaging

an environmentally-sustainable approach to RFID use that reduces capital costs associated with automated systems," he points out, "and improves labor productivity over the 'slap-and-ship' approach, as no one has to peel off and stick a RFID label onto a package."

Subsequently, there is no label stock or other consumables involved in the process, de Blois adds, "and we're also quite proud of the fact that our RFID inlay does not affect the recyclability of the package, as the boxes remain 100-percent repulpable and recyclable after use."

There are other significant practical advantages offered by embedded RFID inlays, including enhanced protection for friction created in casefilling operations, friction between cases coming in contact on conveying systems, lift-truck and electrostatic discharges, adds de Blois.



RIDING THE
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RFID inlays are being printed on a Label-Aire label printing-applicating machine at KruPak's LaSalle plant just prior to being embedded into a corrugated board sheet.

“We’re proud of the fact that our RFID inlay does not affect the recyclability of the package”

Brampton, Ont., alongside that plant’s *Martin FFG 924* flexo folder-gluer.

“We have been more than impressed with the results we have seen from our trial runs at our LaSalle plant,” Latter told *Canadian Packaging* in a recent interview.

“We saw no discernible effect to our productivity when we ran the HIDE-Pack inlays on one of our flexographic folder-gluer at a range of speeds between 6,000 to 18,000 units per hour, with a final package reject rate of

0.1-percent or less.”

Latter says that the corrugated industry has been looking for years to discover cost-effective methods for applying RFID tags to the material within a corrugated structure.

“We’ve long been interested in RFID,” Latter states, “and the recent installation of a HIDE-Pack system—the most innovative and sustainable approach to RFID-enabled packaging—allows our facilities to embed the RFID tag within the box structure, thereby improving the tag’s reliability and eliminating the need for a RFID label, which has been the conventional way of applying a RFID tag.

“In using HIDE-Pack-enabled boxes, customers not only save on the cost of the labels, but also use an approach to RFID that is environmentally sustainable, as it drastically reduces consumption of label stock, backing paper and ink,” Latter adds.

According to de Blois, the HIDE-Pack inlay application system is compatible for working with any type of a folder-gluer, without any compromising of the corrugated packaging’s compression strength, while also helping deliver significant environmental benefits.

According to HIDE-Pack’s own research, a large-sized U.S. retailer can save between 90,000 and 125,000 trees; between 8,000 and 10,000 tons of emissions; and between 9,775,000 and 29,587,000 gallons of fresh water per year by using the company’s system instead of other existing methods.

HIDE AND SEEK

“When we first conceived the idea of hiding the RFID tags,” recalls de Blois, corrugated packaging was our first choice, but now we are looking to expand our options by starting to develop a process for inclusion of the HIDE-Pack technology within the folding-carton industry, as well as for letter envelopes.”

In fact, de Blois is adamant that sky is indeed the limit for HIDE-Pack and the various sundry applications of the RFID inlay, with any type of packaging utilizing a glue-tab being a good candidate for putting the technology to productive use.

For example, KruPack’s tissue-manufacturing sister company **Kruger Products Ltd.**, producer of the popular *Cashmere*, *Scotties*, *SpongeTowels*, *White Cloud* and *Purex* brands of paper-tissue products—has already been enlisted to participate in a project that will see it ship its paper-towel products to a major retailer’s distribution center (DC) facility in Mississauga, Ont., in RFID-enabled corrugated boxes.

“We’ll be using HIDE-Pack-enabled boxes for case-level tagging of paper goods, and are also being asked to have 20 SKUs (stock-keeping units) RFID-ready—that’s 750,000 cases,” states Latter.

“And with the clear success of the HIDE-Pack inlay we have witnessed through our trials at the LaSalle plant,” Latter predicts, “we really will not have any difficulty in meeting our customer’s deadline.” ♦

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