

# Cost-Effective Mandate Compliance Using RFID-Enabled Packaging

## Company Profile

Established in 1991, Normerica Inc. is today one of the largest producers of premium-grade clumping cat litter in the world, processing in excess of 800 million pounds of sodium bentonite clay annually. Headquartered in Toronto, Canada, the company provides private-label pet products to the world's leading retailers and also markets the popular proprietary product lines LifeStages™ scoopable cat litter, Nature's Medley®, VitaLife and Jawbone® dog treats.

## Business Situation

When a major retailer issued a mandate to its leading pet products suppliers to implement case-level RFID tagging in July 2008 for shipments bound to select RFID-ready distribution centres, Normerica used it as an opportunity to move ahead of the industry in regards to RFID-enabled packaging. Rising labour costs, supply chain inefficiencies and high cost of capital were key deterrents to the traditional approaches to RFID implementation, and provided incentives for pursuing an alternative solution. Thus instead of pursuing the common RFID implementation approaches referred to as *slap-and-ship* and *print-and-apply*, whereby technology users are required to either manually apply or purchase automated equipment to apply RFID smart labels to the surface of their cases, Normerica wished to leverage this technology while avoiding the tagging itself and decided to pursue sourcing of RFID-enabled packaging.

Normerica's core competency, which helps it maintain an edge in this highly competitive market, is to provide clients with customized solutions not only in product, but also in packaging. For instance, Normerica is developing thinner-walled plastic pails and litter boxes with integrated spouts to help reduce the environmental footprint of its packaging, and provide its clients with as sustainable a product as can be. Sustainability is in fact an integral part of Normerica's strategic approach, and it was the company's wish to combine it to its implementation of RFID.

## Solution

Normerica determined that deploying RFID across its manufacturing facilities would be a costly and highly inefficient proposition if it had to tag its cases itself. In effect, RFID-enabling 3 case packing lines would have represented in excess of 150,000\$ had the *print-and-apply* approach been used. In terms of consumables, RFID smart labels applied by the automated equipment would have cost 0.16\$ per unit. It turns out the solution Normerica had been looking for had just been made available by its longtime corrugated case supplier, Krupack Packaging, through one of its new divisions, HIDE-Pack.

Launched in 2007, HIDE-Pack is, like Krupack, part of the Kruger family of businesses and has pioneered a unique, cost-effective means of embedding an RFID inlay within the structure of corrugated cases. Naturally, HIDE-Pack first licensed this technology to Krupack, which uses it to produce RFID-enabled packaging in-line, without affecting the cases' physical integrity nor the productivity of the case-making lines. Figure 1 shows Normerica RFID-enabled cases being produced on a Krupack flexo folder-gluer.



Figure 1: RFID-Enabled Cases Produced at Krupack

Krupack is the only corrugated cases manufacturer to have implemented this radically innovative technology in North America. Rob Latter, Vice President of Krupack Packaging, explains the advantages HIDE-Pack-enabled boxes offer consumer packaged goods (CPG) manufacturers like Normerica: “CPG manufacturers and retailers alike gain considerably by using HIDE-Pack smart boxes, enhancing their order accuracy, reducing losses due to internal and external theft, avoiding piracy and greatly simplifying product recalls.”

In order to address any consumer privacy issues which could have arisen from using RFID-enabled containers whose RFID tag is completely covert, and to make internal logistics simpler, Krupack also provided Normerica with RFID-enabled boxes characterized by two unique identifiers (when compared to non-RFID boxes that is): an EPCglobal logo on the case’s side panel, and a coloured line on the crease of the case. These identifiers help ensure Normerica can promptly identify stacks of RFID-enabled boxes in its warehouses, even when they are in bundles of folded container blanks, and that Normerica’s customers are fully aware of the presence of an RFID inlay within the box. Figure 2 illustrates one of these uniquely-identified cases being encoded on a case packer.



Figure 2: EPC-Ready Case Being Encoded on a Normerica Case Packing Conveyor

On the sustainability front, Normerica was extremely pleased with the HIDE-Pack smart boxes, as they clearly represent the simplest and most sustainable form of RFID possible, completely eliminating the need for labels, which typically contain a high percentage of virgin wood fibres. Integrating the RFID technology within the packaging helps Normerica ensure that its customers remain ahead of both the technological and the sustainability curves.

Receiving packaging that was already RFID-enabled meant Normerica paid its RFID consumables 37.5% less than if it had gone the print-and-apply route, and did not have to invest in any hardware other than the commissioning stations provided by Ship2Save. Figure 3 displays a commissioning station in operation at the edge of a case packing conveyor.



Figure 3: RFID Commissioning Station from Ship2Save

Each of these commissioning stations consists in a mobile cart equipped with an Impinj Speedway RFID reader, an associated RF antenna, a PC and a portable barcode scanner. In operation, after a Normerica employee scans the Universal Product Code (UPC) barcode on the first case of product to come through the case packing line, the RFID commissioning station takes

over to encode the Electronic Product Code (EPC) into the memory of the RFID tag that's embedded within the structure of each case as the cases pass through a motion detector on the side of the conveyor. A user-friendly interface indicates the successful completion of the encoding operation, as illustrated in Figure 4.

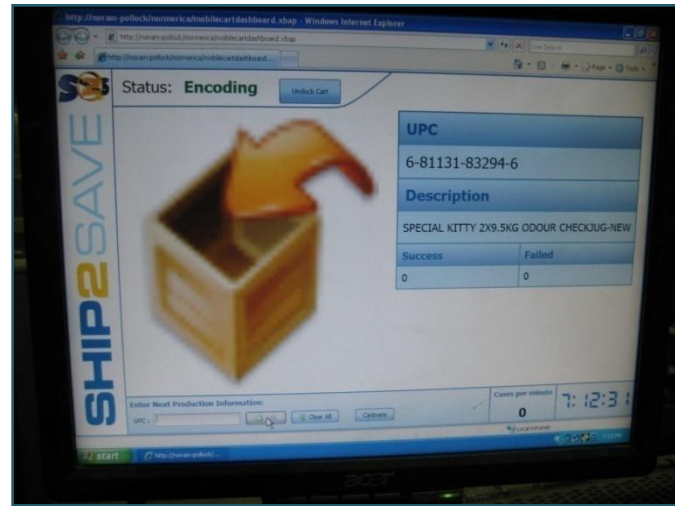


Figure 4: Commissioning Station User Interface Showing the Status of the Encoding Operation

## Benefits

The RFID solution provided by HIDE-Pack, Krupack and Ship2Save proved its worth by delivering the following benefits:

- No impact on the throughput of packaging lines after the RFID implementation
- No additional labour required to roll out RFID in the manufacturing process
- More efficient use of existing labour, and no downtime associated with consumables change outs
- The process bottleneck that *slap-and-ship* and *print-and-apply* would have caused were prevented
- 70,000\$ savings in capital required to implement RFID across 3 packing lines
- 37.5% savings on RFID consumables

- Pain-free mandate compliance and customer satisfaction

## Products and Services Used

The following products and services were used in this case study:

- HIDE-Pack™ RFID-enabled smart boxes from Krupack Packaging Inc.
- RFID commissioning stations from Ship2Save Inc.

## Company Information

<b>Branch</b>	Normerica Inc.
<b>Address</b>	703 Evans Avenue, Suite 600
<b>City, state, ZIP Code</b>	Toronto, ON, M9C 5E9
<b>Phone number</b>	416-626-0556
<b>Fax number</b>	416-626-9266

<b>Contact name</b>	Simon Than
<b>Title</b>	IT Director
<b>Phone number</b>	416-620-8380
<b>Fax number</b>	416-626-9266
<b>E-mail address</b>	<a href="mailto:simont@normericainc.com">simont@normericainc.com</a>

## Our Partners

### About HIDE-Pack

HIDE-Pack is the world leader in providing universal RFID implementation solutions to packaging manufacturers who wish to generate new business and better retain existing customers by expanding their product portfolio with RFID-enabled cases. Established in 2007, this division of Krupack Packaging owns a patent-pending technology which allows for RFID technology to be embedded within the structure of packaging during its manufacturing, drastically reducing RFID implementation costs and significantly improving its reliability throughout the supply chain.



### About Krupack

Krupack Packaging specializes in the design and manufacture of high quality and innovative, 100% recyclable packaging products. Its plants are located in LaSalle (Quebec) and Brampton (Ontario). Its parent company, Kruger Inc., was founded in 1904 and is a major producer of publication papers, tissue, lumber and other wood products, corrugated cartons, green and renewable energy, paper and board recyclers and wines and spirits. The Company is also a leader in paper and paperboard recycling in North America. Kruger operates facilities in Quebec, Ontario, Alberta, British Columbia, Newfoundland and Labrador, in the United States and the United Kingdom and has 9,000 employees.



### About Ship2Save

Ship2Save is one of the industry leaders in cost effective RFID Solutions and is a founding member of the Canadian Microsoft RFID Council, a member of the Microsoft Global RFID Council, an EPC Global Canada Strategic Council Member, a CompTIA RFID+™ Cornerstone Committee Member, and a member of Texas Instruments Tag-It Team. Ship2Save's unique product lines, flexible and proficient software, business development models, and distinctive deployment services, offer customers cost effective and high quality solutions for their RFID needs.

