

Packaging theft protection

Hidden sensors tucked away in meat and poultry packages sound the alarm against retail theft in supermarket and grocery chains.

Steve Ennen, Senior Editor

Meat appears to be one of the most tantalizing items to steal from supermarkets and grocery stores. Big-ticket products such as tenderloin and T-bones all too often make their way out of refrigerated bins in pockets or purses. According to the 1999 Supermarket Shrink Survey conducted by The National Supermarket Research Group, shoplifting is responsible for 25 percent of all retail theft, or "shrinkage," from these stores in 1998. Meat is among the prime targets of these shoplifters, costing hundreds of thousands of dollars in losses.

But one pair of innovative packagers has teamed up to take a bite out of grocery crime. Sensormatic and PaperPak, Packaging Products, have combined to create a security system tucked deep within packages that most supermarkets and grocery chains, such as Food Lion, use for meat, fowl and fish. Using Universal Product Protection (UPP®) system of electronic article surveillance (EAS), an electronic source tagging program in which anti-shoplifting sensor labels are inserted into products during packaging, the team has created an invisible, effective monitor for products in the meat case. In the past, electronic sensors were typically topically applied to products such as meat and

were visible, or even removable, offering thieves a chance to slice through loss-prevention methodologies.

In this system, Sensormatic's Ultra•Max® anti-shoplifting labels are inserted between the absorbent plies of PaperPak's Ultra Zap® soaker pads—tissue pads that rest underneath the meat, poultry or fish product. Tucked within the soak pad layers, the UPP device is invisible to the potential perpetrator, yet signals a resounding alarm should the package leave the store before a cashier disarms it.

"We've been working with



Label-Aire's 3114 Tamp-Blow EAS Sensormatic Labeler



Sensormatic for about five years on this project and brought it to an end result about six months ago," says Jim Gillispie, PaperPak vice president of marketing and sales. "Within the retail grocery organization meat is an item that experiences significant shrinkage. It is an item that, until now, has been unprotected though EAS processes."

Several supermarket chains and superstores are currently using the Sensormatic/Paperpak UPP system. To date, it seems to be working. Statistics from the Supermarket Shrink Survey relay that stores implementing the EAS technology reduce the meat shrink rate by eight percent. For all supermarket products, the study says, shrinkage was reduced by 13 percent when using EAS for loss prevention (see sidebar).

Prime defense

Naturally, a variety of elements in the EAS create the recipe for success. The sensor must be moisture resistant, slender enough to remain inconspicuous and stand up to both freezer and microwave without interfering with the product. The sensors, relatively low-tech in their construction, stand up to the chill of a meat bin, the frost of a freezer and the heat of a microwave without any ill side effects.

"This product is microwave safe," says Barbara Matooka, Sensormatic marketing manager. "We understand that the customer typically takes this product home from the grocery store and puts it in a freezer. We purposely identified that this should be microwave safe, because it would come out of the freezer and into the microwave. That may not always be the case, but we knew that is what a typical shopper does with

meat."

Each Ultra Zap soaker pad is made of several absorbent tissue layers that protect against inherent leakage of meat, poultry, fish, and offer greater 'soaking power' to keep the food looking palatable. The Ultra•Max label is small, just 1/2-in wide and 1/16-in thick and embedded deep within the absorbent layers.

The UPP system also features a bit of cloak and dagger in that, generally, not all of the meat packages are labeled. Even if potential shoplifters know some of the products are tagged, they have no way of knowing which ones, making it virtually impossible for thieves to be selective.

"One of the reasons the retailer chooses this technology is that we are not affected by moisture. There is really no issue of any kind with the compatibility between the sensor and the environment," explains Matooka. "We are excited about this opportunity because we have the ability of going 'inside the product,' versus being topically applied. We know the environment inside the product will not affect our label and it will be able to work at the cashier and at the exit."

The UPP system also helps retailers protect other goods within the stores. Christened "the halo effect," Gillispie says that the UPP in the meat packages offers "sympathetic" protection to other products that tempt carnivorous shoplifters.

"The more product categories the retailer is able to protect, the more of that halo effect you have on other products," says Gillispie.

Between the sheets

Much of the machinery in the production of the Ultra Zap product is custom-built by PaperPak at the company's La Verne, CA, plant and considered proprietary. The application of the labels, however, is accomplished on a Label-Aire applicator fitted with some minor modifications.

Above: The new EAS system is invisible to the eye of any potential perpetrator when the product is in the shelves. The sensor material is immune to the cold of meat bins and is microwave safe.

Middle: The sensors are applied to one of the tissue sheets during the production phase and subsequent layers are applied on top of the sensor.

"The label is inserted early in the production line between the plies of tissue, prior to the [pad] product being formed, laminated and sealed," explains Gillispie. "The absorbant material is then enclosed inside a polyethelene laminator."

Much of the customization is geared to keep the machines on pace with the production speeds. Gillispie says PaperPak runs the line at 200 to 500 feet per minute depending on varied production goals.

"We worked with Sensormatic with sales support personnel and technical support personnel and identified Labeltronics, a distributor of the Label-Aire equipment. That is the equipment we purchased so it was pretty much an off-the-shelf machine with some tweaks," says Gillispie. "We have a machine with multiple rolls of tissue on back stands going down the production line. The Label-Aire machines blow/tamp the labels to a [single] tissue layer. Additional layers of tissue are then placed on top of the label before it goes through a forming process where the tissue is enclosed inside a polyethylene [laminator]."

The big challenge in the construction of the PaperPak line, up and running for several months, was to keep the speed fast enough for production rates, yet accommodate the tender tissue.

"The machines have to match up with our [standard] production line," Gillispie explains. "There are timing issues we needed to address, such as the placement of the labels on delicate tissue material at high speeds of several hundred feet per minute. There were a few challenges just getting the label placement [accurate]."

"It is actually applied to only one layer of tissue," adds Matooka. "And then it is combined with [subsequent] layers. It's not necessarily inserted into the tissues."

The tissue sheets, complete with sensors, then roll on to a customized slitter and onto a cutting mechanism where the prepared, sheeted goods are cut for packing into cases distributed to retail grocery stores and supermarkets. In the supermarket/grocery arena, the common dimensions of the soaker pads are 4- x 7-in.; 4.5- x 7-in.; 3-1/8 x 6-in. Absorbency specifications vary according to the pad size and the needs of the product resting on the pad. The smallest pads offer 25-gram per square inch absorbency rating, measured, in part, by the tissue per ply times the number of plies. The 4- x 7-in. pad offers 40 grams absorbency per square inch, and the 4-1/2

x 7-in. pad has 50 grams in absorbency. Typically, the soaker pads are encased, stretchwrapped by Lantech machines and distributed to the retail outlets in quantities of 2000 pads per case.

"The number of plies in the soaker pad varies according to the absorbency requirements of the customer," says Gillispie. "On average it is five or six plies. Different meat products, be they poultry or red meat, have different moisture levels."

PaperPak also has the ability to run the sheets straight through to a rewinder and generate roll goods that it sends to converters of the polystyrene trays or wholesale meat distributors.

The type and density of the tissue is inconsequential to

Electronics offer solid protection

Shrink Percent By Department & Type of Store

	Conventional Supermarket	Super Store	Overall Average Shrink
Grocery	1.23%	1.19%	1.22%
Meat	4.28%	4.48%	4.35%
Produce	4.88%	5.17%	4.98%
Deli	4.31%	4.13%	4.34%
Dairy	.90%	1.11%	.97%
Bakery	4.70%	4.82%	4.78%
HBC	3.45%	2.71%	2.88%
Overall avg.	2.48%	2.23%	2.48%

It seems that more and more retailers are integrating electronic article surveillance (EAS) methodology to prevent merchandise theft, and they need it. The 1999 Supermarket Shrink Survey (SSS) asserts that: "Assuming an average net profit of 1.10% and a shrink rate of 2.48%, for every \$1.10 a company makes in net profit, that same company loses \$2.48 [in retail sales] to 'unknown' shrink." The study points out that 60% of this theft comes from the perishable departments including meat, produce, deli and bakery. These items make up 33% of the stores' total sales—meat alone accounts for 15.7% of these total sales. Shoplifting gobbles a huge chunk of retail items. At least 25% of all supermarket shrinkage comes by the hands of shoplifters.

The success of the EAS method of loss prevention is catching on. A second study, the National Retail Security Survey, performed by the University of Florida, relates that 67.5% of the retail respondents use some type of EAS tags in their stores. Sixteen percent reported stocking items that contain some brand of vendor/source EAS tag. That seems like a logical progression realizing that shoplifting is the second most costly source of shrinkage, or theft, in retail supermarkets or grocery stores. The SSS asserts that the top cause of shrinkage in stores is employee theft. The SSS claims that "as EAS continues to mature and as source tagging continues to expand, EAS will become more mainstream." The SSS reports 25% more shoplifting apprehensions from stores using EAS than non-EAS stores.

Companies that utilize the EAS methodology generally recover more of the dollars associated with lifted items than the non-EAS stores.

the performance of the sensor in the stores. Signals carry strongly through polystyrene trays, or coats, or just about any cover-ups potential shoplifters may attempt.

The meat of it all

The Ultra•Max sensor is essentially a polystyrene cavity with a metal alloy strip within. All of the Ultra•Max sensors are produced by Sensormatic on customized equipment.

"Label-Aire works with Sensormatic as a company to automatically apply our products," explains Matooka. "If somebody wants to apply our product, they can easily use a blow/tamp applicator designed for the Ultra•Max."

One of the unique properties to Ultra•Max is that the transceivers at the retail levels work at 58-kilohertz frequency. It is an uncommon frequency, tracking the unique identity of label, but the frequency avoids interference from transistor radios, garage door openers, cell phones, etc. The unique frequency also prevents any electronic confusion during transportation.

The sensors are made of a resonating material and a bias that shifts the frequency so that the receivers can no

longer detect the signal. Retail stores may incorporate several types of deactivation devices at checkout that render the sensor innocuous after the product has been purchased. These devices may vary from store to store.

"Our labels don't have a range in so much as the equipment at the cashier and at the doorway has range," explains Matooka.

Tomorrow's plate

This type of loss prevention seems to be working. The Supermarket Survey says that EAS technology has helped to reduce meat thefts by eight percent on the national average. Matooka says the UPP system creates new avenues for loss prevention that can protect retailers even if the packaging does not originate in their store.

"Not only are we meeting the needs of our retail customer today," says Matooka. "But as the grocery market evolves, we are going to find that less opportunities will be presented at the retail end for the butcher or retailer to actually package the meat. This will be something that offers protection at any level."

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