Packaging Safety

A CALL FOR

FOOD SAFETY FOR

PACKAGING SUPPLIERS
Typically, food safety issues are associated with manufacturing facilities and ingredient suppliers. These are the companies that spend millions of dollars each year developing and implementing prerequisite programs, upgrading their production equipment, conducting HACCP-based risk assessments, and educating and training their employees in order to eliminate hazards and prevent unsafe products from reaching consumers.

But, who is responsible when food safety issues are linked to packaging and labeling materials? Is it the food manufacturers’ or the packaging suppliers’ responsibility to establish control and minimize the occurrence of food safety errors? Moreover, how common or serious are these issues in the grand scheme of things?

Most food industry professionals would argue that food manufacturers and packaging suppliers are equally responsible for understanding the implications of food safety concerns, identifying hazards, and improving their practices to minimize incidents.

For years, food manufacturers have used Hazard Analysis Critical Control Point (HACCP) programs to evaluate ingredients and processes in order to prevent or reduce product contamination. Most manufacturers require their ingredient suppliers to use HACCP-based approaches to food safety, but traditionally the same has not been expected from packaging suppliers.

However, hazards related to packaging and labeling materials are just as serious as those related to the actual food product.

**MIXED PRINTED MATERIALS.** Mixed packages are the biggest concern that food manufacturers and packaging suppliers share. In 2006, mislabeled food products were the number one cause of recalls. Mislabeled products are misbranded according to the FDA, so they must be recalled.

Unidentified allergens are the primary packaging issue that food manufacturers face. The consequences of a mislabeled food product, which contains allergen ingredients, being consumed by a person who is allergic to that ingredient are substantial and sometimes deadly.

Mislabeled products with potential dietary requirements are another serious packaging issue. For example, if a fat-free or sugar-free label is placed on a regular product, it can cause dietary concerns, especially with diabetic individuals. The nutritional information must also be correct. Kosher and diabetic consumers need to know that they are buying the product that the label indicates.
A third critical type of mislabeling occurrence involves temperature-sensitive products. Products containing raw meat and other temperature-sensitive ingredients are required by law to have warning labels and preparation instructions, such as cook temperatures and times, included on the package. These warnings and instructions are critical to prevent microbiological concerns such as *E. coli*, *Salmonella*, and *Listeria*.

Packaging is a serious regulatory issue. The label must be correct. But, as indicated by last year’s statistics, mislabeled products are the main cause of recalls in the United States. So, how are mislabeled products reaching consumers? The main issue food manufacturers face is receiving mixed printed materials. There are three levels of mixed packaging: mixed pallets, mixed cases, and mixed cartons.

**MIXED PALLETS.** Mixed pallets are the easiest type of packaging error to catch before leaving the manufacturing facility. The following is a scenario where mixed pallets occur.

At Snack Wrappers Inc., an employee is preparing an order of three separate product packages to send to the manufacturer. Since the first load he is transferring to the shipping area is uneven, he stacks a case of Chocolate Chip Bar boxes on the pallet of Granola Nut Bar boxes to even out the load. He makes a mental note to remove the single case of Chocolate Chip Bar boxes when he wraps the pallet, but forgets to do so after he loads the remaining skids. Now, the skid of Granola Nut Bar boxes has one case of non-nut packages. If the manufacturing plant employee who retrieves cases from storage to bring to the product line does not realize the mistake, then the Granola Nut Bar product will be placed in the Chocolate Chip Bar carton. In the unlikely event that this mislabeled product is consumed by someone allergic to nuts, serious health consequences could occur.*

In this particular scenario, equipment such as a skid scanner would have prevented the mixed pallet from leaving the packaging facility. These machines scan the lot code located on the outer box of all cases on the wrapped skid. If the scanner identifies any cases that do not match the correct product code, an alarm activates and alerts quality personnel of the issue.

**MIXED CASES.** The next level of mixed packaging is mixed cases. These instances are not as easily identified as mixed pallets. See if you can determine where the error occurs in the following situation.

On a particularly hectic day, a temporary employee is assigned to pack bundles of cut and stack labels into product cases. This employee does not speak English well, and can only read English at a basic level. She is assigned to the Cream of Chicken Soup label line. Her product case supply runs out and she is about to ask for more when she

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*A All company names used in scenarios in this article are fictional. These examples are based on real-life incidents.
notices an unused stack of cases nearby with the word “chicken” on them. Assuming that these boxes are for her to use and in an effort to save time, she starts placing the labels in these boxes. We later find out that these cases are marked Chicken Noodle Soup 10 oz, but the labels inside are for Cream of Chicken Soup 10 oz.

There are several issues in this scenario. First, we can assume, that since she is a temporary employee she has not received detailed plant training. She is probably not aware of the seriousness of the food safety issue at hand. Second, she has a language barrier that prevented her from reading and understanding the difference between the two “chicken” products. Third, she did not verify that the carton labels are consistent with the product cases she placed them into. The error occurred because she grabbed the wrong outer case to use for the labels that were being boxed. Finally, and perhaps most importantly, whoever was responsible for the stack of Chicken Noodle Soup boxes did not properly secure them. Whether these boxes need to be disposed of, placed back into storage or used for a future line run, they need to be properly secured so that mixed packaging issues do not occur.

**MIXED CARTONS.** Mixed cartons are the hardest type of mixed packaging to catch before reaching the consumer. These incidents are almost never caught at the manufacturing facility, so it is extremely important that packaging suppliers are aware of the problem and have implemented programs and procedures to minimize the risk. Mistakes that result in mixed cartons can cause product holds or even recalls, which creates downtime and costs money. Snack Foods USA recently had to recall their popular cracker product because several consumers reported finding Cheese Snackers in boxes labeled Peanut Butter Snackers. The company automatically knew that this was a packaging issue because one packaging facility produces cartons for Cheese Snackers (which are only produced at the Smithville Plant) and Peanut Butter Snackers (which are only produced at the Westcenter facility). After an investigation, it is found that approximately 160 Peanut Butter Snackers cartons were mixed in a single case of Cheese Snackers cartons. The line clearance policy at the packaging facility was not followed properly. During the Cheese Snackers carton run, a partial case was placed to the side of the sorting table. After starting up the Peanut Butter Snackers run, a partial case was created by a jam-up on the automatic case packer. The employee noticed the two partial cases on the sort table and combined them into one. Since this facility did not require multiple sign-offs, the mixed case was not detected and reached the consumer.

Similar errors have occurred when packaging technicians did not follow line clearance procedures by securing all cartons from the prior job before starting the new job. If all pre-printed labels aren’t removed from the packaging line at changeover, then the previous product label in the machine will run until it is out and until the new product label appears on the packages. Technicians sometimes sign off that they removed all the materials from the previous job on the closeout checklist, but neglect to actually do so. In these instances, multiple verifications, including double and triple checks before start-up, are critical.

Other mixed packaging issues are the result of film that has been incorrectly spliced or cut-and-stack labels that are mislabeled. In all of these instances, the manufacturing operator should recognize that the label or carton is incorrect, but most times they work so fast that it goes unnoticed.

Mixed packages are difficult to detect without the proper equipment or standard operating procedure (SOP) at every step in the process. Potential food safety issues in the packaging industry, such as printing errors, mixed pallets, and mislabeling, can be controlled through proper training and awareness efforts, more robust SOPs, prerequisite programs, vision detecting equipment, and keeping open lines of communication between manufacturers and packaging suppliers. If suppliers know what manufacturers are doing to check for these issues, they can compliment those preventative actions in their plants, rather than duplicate those that may not add value.

**OTHER PACKAGING CONCERNS.** Besides mixed packaging issues, there are some physical hazards and quality concerns that are linked to packaging materials.
GLASS BREAKAGE. The No. 2 cause of food industry recalls in 2006 was glass contamination. Although this concern is not as common in the packaging industry as it is in the food manufacturing industry, it still needs to be taken seriously and addressed with rigorous plant programs. A Glass and Brittle Plastics Program is a valuable and effective tool used to identify sources of glass and brittle plastics and establish checklists that can be reviewed against during self-inspections. Packaging warehouses should have protected lights and windows so that if breakage occurs, glass will not get in containers. Also, transportation policies should require trucks to be cleaned out before packaging materials are loaded so that potential glass from a previous load doesn’t get in the food containers.

Suppliers that produce glass containers should be aware of how defective or misshaped containers can produce splinters and breakage. In the following scenario, broken glass jars are arriving at the manufacturing plant.

Zoom Foods is finding broken jars in cases they receive. At the packaging supplier facility, new employees at the hand packing station are not ensuring that the box partition that separates glass jars is inserted fully. Because of this, the partition rises in the box before it is closed. In transport, the glass jars touch and cause breakage. To correct the problem, the packaging facility posted work instructions at the hand pack station to ensure that all workers understand the partitions must be fully seated in the box before they are sealed.

Although carton and partition design may play a role in the glass breakage, the hazard is best controlled with bottle handling procedures and other specific work instructions for employees at the hand packing station.

QUALITY. Biological food safety hazards are not as commonly linked to packaging materials as they are to food manufacturing processes. However, they should still be included in a hazard analysis.

Quality issues, on the other hand, are just as significant and include mold, product leakage, transferable ink, etc. For example, shelf-stable food products can be severely compromised with mold due to faulty cans or packaging containers that do not meet the food manufacturer’s specifications.

Odor is another quality issue that packaging suppliers should take into account. Take the following scenario for example:

Mojo Foods received a dry ingredient in a 1,000-pound sack. Upon opening the sack, a strong chemical odor was detected and the material was rejected back to the supplier. Upon investigation,

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it was determined that the supplier had recently changed the type of liner inside the sack to a different material, which reacted with the ingredient to cause a strong odor.

To prevent similar issues from occurring, packaging facilities should test their containers, cartons and other packages with the ingredients and food products to be used in them to make sure that no reactions will occur. Each time a new type of packaging material is introduced, this testing should be done.

WHY DO THESE ISSUES OCCUR? As displayed in the scenarios presented in this article, food safety issues in the food manufacturing and packaging industries are the result of human errors, which are unpredictable and difficult to control. Although most of today’s manufacturing processes are fully automated, it is impossible to remove the human element from the process. Even with the most automated functions, we will always need maintenance technicians, equipment operators, packagers, drivers, etc. to make sure the entire operation runs smoothly.
TEMPORARY WORKERS. With record employee turnover rates and seasonal product trends, more and more companies in the food industry are beginning to employ temporary workers. This is a great payroll solution for most companies, but what is the overall cost? In general, the people who fill the temporary employment pool do not have the education and industry knowledge needed to offer valuable skills. They are unaware of the implications related to the tasks they are assigned, making them more apt to make mistakes that lead to food safety issues. Human errors occur when workers are not familiar with food manufacturing and are not properly educated about the processes and tasks they are performing.

AUTOMATED EQUIPMENT. Automated equipment greatly increases production rates, cuts down on the number of necessary production employees, and removes some of the chances for human error to occur. With that being said, there is still the potential for failure with these processes. Many packaging facilities use automated printing equipment to produce nested containers. A product label is printed on the containers, which are then automatically stacked before they come off the production line. Workers are then responsible for placing the nested stacks in the appropriate cases before they are shipped to the customer. Since the workers cannot see 100 percent of the containers, it is possible for mixed containers to be packaged within a case.

It would take a long time and be an unnecessary task for workers who handle the nested stacks to visually check each individual cup before placing it in the case. With that being said, there are plant procedures that can greatly reduce the occurrence of mixed products at this level. During changeover, the plant could have a procedure requiring signatures from the operator, his or her supervisor, and someone from the quality department, to verify that all previous printed materials and packages have been removed from the line before starting the new run.

DATA ENTRY. Not every employee can be right 100 percent of the time. People make mistakes; it’s a fact of life. But even the seemingly smallest data entry error could cause huge problems...
if it is not caught. Let’s say a normally perfect data entry typist makes one small keystroke mistake on a label or product order. If that error is not caught before the job is started, the entire batch will be incorrect. This is another situation where multiple signoffs play an important role. More checkpoints and more intensive label verification are needed to solve the problem before mislabeled products reach manufacturing facilities.

UNAVAILABLE RESOURCES. Food safety programs and training options are endless for food and ingredient manufacturers. Unfortunately, the industry is already lacking in the availability of resources that are specifically geared toward packaging suppliers, especially secondary packaging. Manufacturers and trade groups need to communicate and work together to provide programs on HACCP, prerequisites, allergen control, labeling, etc. that are relevant to the packaging industry.

WHAT’S THE SOLUTION? The motto for today’s consumer-driven economy seems to be “more is better.” This is obvious with manufacturing plants that operate 24 hours a day, 7 days a week, including holidays. Today’s manufacturers work so fast trying to fill orders and keep up with automated equipment that they often don’t notice label errors or mixed materials. This is why it is so important for food manufacturers and packagers to cooperate and implement hazard-based analysis programs that will recognize potential food safety issues before they reach consumers.

HACCP PROGRAMS. Until recently, risk-based programs, such as HACCP, have been most widely used in the food industry by ingredient suppliers and food manufacturers. However, some manufacturers are now asking their packaging suppliers to implement formalized HACCP programs and food safety practices to identify potential hazards. This value-added approach to plant operations takes food safety out of the hand of the operator and puts it in place of HACCP systems.

Some large food companies, such as Kraft Foods, have been requiring their suppliers to implement HACCP programs for a few years.

“Food safety is a top priority for General Mills”, said Wynn Wiksell, the company’s manager of packaging quality. “Everywhere we do business we apply stringent safety and quality standards. HACCP is one of many programs in place to ensure food safety.”

Companies should look at their processes to evaluate the potential risks. With the information obtained, Critical Control Point programs and procedures, such as verification and accountability, can be implemented to reduce identified food safety and quality issues, including mixed materials and glass breakage.

INDUSTRY-WIDE INVOLVEMENT. In order for HACCP or other risk-based programs to work in the packaging industry, greater cooperation between food manufacturing and packaging professionals is needed to make sure all systems are synchronized. Suzanne Matuszewski, manager of product safety at Sonoco, a global manufacturer of industrial and consumer packaging products said, “Assumptions of what your customer is or should be doing are not acceptable. Packaging suppliers need to know what controls food manufacturers have in place in order to assure both systems are functioning with the same focus. Sometimes packaging suppliers have a good idea of what the cause could be and it’s great to have a customer-supplier relationship where we can talk about our suggestion.”

Manufacturers need to tell packaging suppliers their expectations and the end results that they expect. A “one-size-fits-all” set of guidelines will not work for the packaging industry as a whole because there are so many different types of packaging materials: cut-and-stack and pressure-sensitive labels, composite cans, glass jars, rigid plastic, flexible packaging, film, etc. Each type has its own series of concerns and issues.

Manufacturers: Educate your packaging suppliers about food safety risks and work with them to develop ways to control or eliminate issues.

Packaging suppliers: Make sure you understand the risks associated with your products and the resulting issues if these hazards are not controlled. If you have questions, ask your customers — they are always willing to work with you in order to prevent food safety issues from occurring in their facilities.

RESOURCES. As indicated earlier, food safety resources directed at the packaging industry are few and far between. Packaging-specific guidelines and risk-based models are an excellent way to get the plant employees to keep food safety foremost in their minds. The food industry needs to work together to create training specific to packaging suppliers and to design basic food safety checklists and general guidelines to hold suppliers accountable to manufacturers’ expectations. With resources tailored to the packaging industry, these companies will be better able to implement HACCP programs and food safety practices that will effect changes in the food supply chain.

THE CALL TO ACTION! If you didn’t realize it before, food safety is an industry-wide issue. Mixed products, mislabeled food, and physical contamination are all very serious issues that can cause grave health concerns, enact product recalls and lead to fierce legal battles, all of which cost money. Food manufacturers and packaging suppliers are equally responsible for understanding the implications of food safety concerns, identifying hazards, and improving their practices to minimize incidents. Changes in the current food chain production system are imperative. Manufacturers need to provide more specific resources and recommendations for their suppliers to address food safety issues relevant to their materials. Packaging suppliers need to cooperate with their customers’ requirements and strive to successfully operate production environments that place food safety at the front of their processes. AIB

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