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FOOD Manufacturing®

Technology for Today's Food Production & Packaging Market

Vol. 28, No. 6

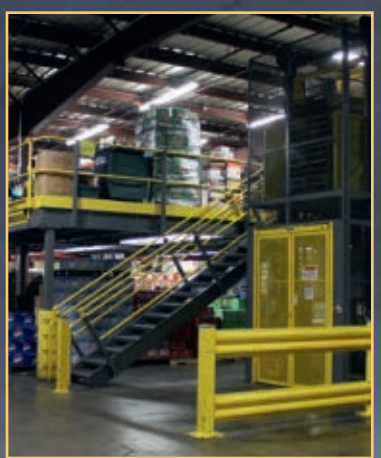
Advantage Business Media

SALT of the EARTH

Jacobsen Salt Co. proudly harvests flake and kosher sea salts from the cold, pristine waters of the Oregon coast.

Cover Story p. 18

Also Inside



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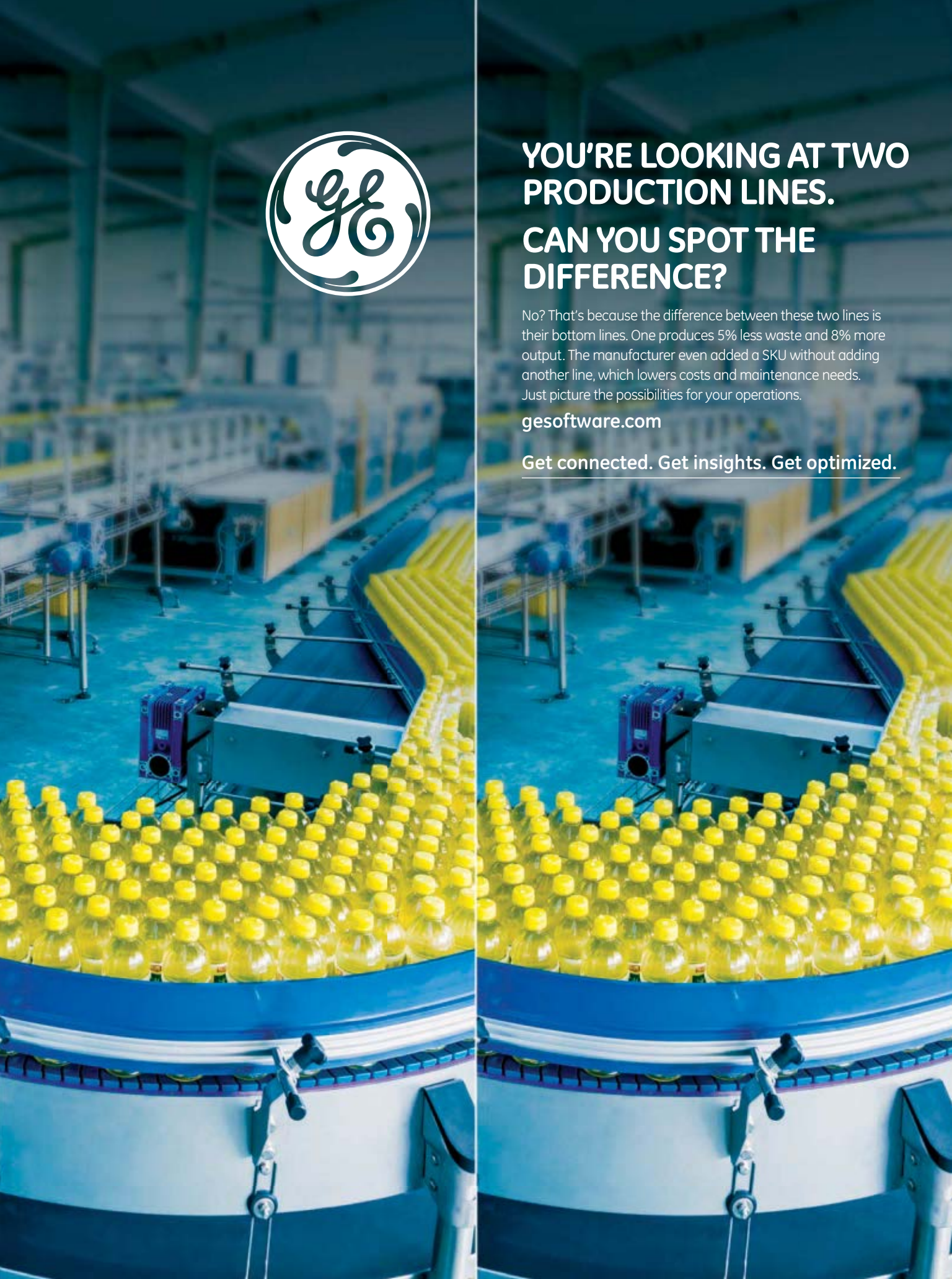

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Salt of the Earth

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New Food Safety Rules Rule the Day

Jesse Osborne, Editor
jesse.osborne@advantagemedia.com

There is no more important consideration in the food and beverage processing and manufacturing industry than food safety. The Centers for Disease Control and Prevention estimates that 48 million Americans become sick each year from foodborne illness or disease. That's 1 in 6 people in this country. Of those 48 million, an estimated 3,000 die, according to the CDC.

You don't have to look far to find instances of companies recalling products due to concerns over salmonella, listeria, undeclared allergens or foreign matter contamination. And fresh in our minds are the prison sentences recently handed out — including the 28-year term handed down to former Peanut Corporation of America owner Stewart Parnell — in connection with a deadly outbreak of salmonella poisoning several years ago.

So it is clear to see why food safety is a priority for both consumers and manufacturers. That's why it was big news when the U.S. Food and Drug Administration in September finalized the first two of seven major rules of the Food Safety Modernization Act.

According to the FDA news release issued Sept. 10 announcing the finalization of the first two FSMA rules:

Today's action is the first step in putting greater emphasis on the prevention of foodborne illness, holding imported food to the same food safety standard as domestically produced food, and developing a nationally integrated food safety system in partnership with state and local authorities.

The FDA news release goes on to say:

The two rules finalized today, the preventive controls rules, focus on implementing modern food manufacturing processes for both human and animal foods. Today's announcement will ensure that food companies are taking action and working with the FDA to prevent hazards to customers on the front end, rather than waiting to act until an outbreak has occurred.

"(This) announcement sets us on the path to a modern food safety system that will prevent illnesses and continue to build confidence in the safety of the food served to our families every day," acting FDA commissioner Dr. Stephen Ostroff said in the FDA news release.

I think we can all agree that these new rules are two big steps in the right direction for enhancing food safety, and ones that will make a significant difference.

A Look Back at PROCESS EXPO, PACK EXPO

September was a busy time for those in the food and beverage processing and packaging industries, with PROCESS EXPO 2015 taking place in Chicago mid-month and PACK EXPO Las Vegas being held at the end of the month.

Food Manufacturing was on hand at both shows, navigating the show floors and taking a look at the newest technologies available in the industry. Our team also had the opportunity to speak with several companies on hand at each show, learning about the latest trends and technologies in various segments of the food industry.

Be sure to check out *www.foodmanufacturing.com* and our daily e-newsletters for exclusive content from both shows over the next several weeks. We'll be featuring some of the new products that were on display in Chicago and Las Vegas, and publishing a series of Q&As from some of the companies we visited with.

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The Path to Proactive Food Defense

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In the Mix: Food Safety Rules Released

TOP NEWS

Coca-Cola: IRS Says We Owe $3.3 Billion in Back Taxes

MillerCoors to Close Brewery, Add to Craft Beer Holdings

Second Death Reported in Nationwide Salmonella Outbreak

Kraft Heinz Expands Kraft Singles Recall

Egg Group Scrambled Over Eggless Mayo Maker

ONLINE EXCLUSIVE

FSMA Preventive Controls for Human Food Rule Now Final: What You Need to Know

By Joe Bove, PE, Vice President, Design, Stellar

Following several years of FDA outreach and industry input, the Food Safety Modernization Act's Preventive Controls for Human Food rule is now officially final. The rule implements elements from the original proposal in 2013 as well as supplemental proposals since then. Several things have changed as a result.

ONLINE EXCLUSIVE

Managing and Coming Back From a Food Recall

By Angela Fernandez, Vice President of Retail Grocery and Foodservice, GS1 US

2015 has seen a number of widely publicized food recalls in various categories. *Food Manufacturing* recently corresponded with Angela Fernandez, and she shared her insights on food recalls.

ONLINE EXCLUSIVE

Cost Savings for Food Manufacturers Can be Found in Smart Equipment Strategy

By Jesse Osborne, Editor, and Eric Freeman, Vice President, Summit Funding Group

Equipment acquisition can be one of the most costly business expenses for food manufacturers. *Food Manufacturing* recently interviewed Eric Freeman, Vice President of Summit Funding Group, to find out what strategies food manufacturers across the U.S. are implementing in order to save costs and boost profits.

what's the buzz?

The United States enjoys the most productive and abundant food supply on Earth, so too much of this food goes to waste.
— Agriculture Secretary Tom Vilsack, announcing a goal to cut the estimated 133 billion pounds of food that Americans waste every year by 50 percent by 2030.

This really represents, to me, the next step in allowing usable information for our community to make better health decisions. My hope is that this impacts not only consumer practices but also impacts the practices of our restaurants.
— New York Board of Health member Dr. Deepthiman K. Gowda on New York City recently voting to require chain eateries to put salt-shaker symbols on menus to denote dished with more than the recommended daily limit of 2,300 milligrams of sodium.

The food safety problems we face have one thing in common — they are largely preventable.
— FDA deputy commissioner for foods Michael Taylor on the new government food safety rules released in September that will require food manufacturers to submit food safety plans to the government to show they are keeping their operations clean.

As a company with more than 120 years in the marketplace, we are thrilled that our iconic brands connect with millennials.
— Michele Buck, President North America, The Hershey Company, after The Hershey Company was recognized as a top company and workplace for millennials in the Youth 100 VoxBurner Report and 2015 Millennial Career Survey by the National Society of High School Scholars.

By The Numbers

The estimated amount of food wasted (in pounds) every year by Americans:

113 Billion

(U.S. Department of Agriculture)

The number of U.S. children that eat fast food every day:

1 in 3

(Centers for Disease Control and Prevention)

The amount B&G Foods paid to acquire Green Giant and Le Sueur from General Mills:

$765M

(Associated Press)

Number of jobs the candy industry supports in the U.S.:

465,000

(National Confectioners Association)

Percentage of Mondelez International's portfolio that will consist of healthy snacks in the next five years:

50

(Mondelez International)

The number of Americans who say they eat breakfast for dinner:

9 of 10

(Krusteaz)

The amount Coca-Cola was notified by the IRS that it owes in federal taxes, as well as interest, for 2007 to 2009:

$3.3B

(Associated Press)

Percentage of Americans that buy "free-from" foods:

84

(Mintel)

Equipment Acquisition/Investment

The Food Safety Update section of *Food Manufacturing* is designed to offer our readers insight into the state of food safety concerns across the industry. We received hundreds of responses to this month's survey on equipment acquisition.

By Jesse Osborne, Editor

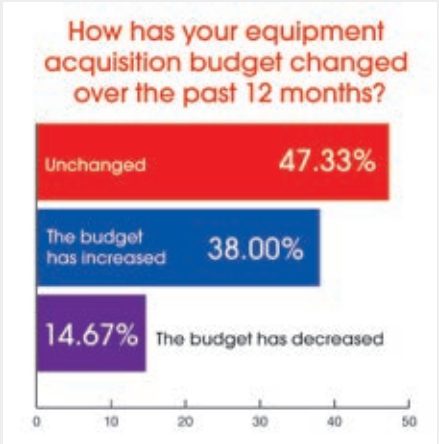
Technology continues to evolve. So do Hazard Analysis and Critical Control Points (HACCP) plans at food processing facilities. And compliance with Food Safety Modernization Act (FSMA) final rules is also currently at the forefront for food manufacturers. Plant equipment, meanwhile, remains an important consideration related to all of the above.

We recently surveyed *Food Manufacturing* readers from across all segments of the industry on trends, topics and considerations as it relates equipment acquisition and capital investment.

Just more than 45 percent of those surveyed said that an equipment acquisition in their facility in the last 12 months has led to an update to their facility's HACCP plans. Just less than 55 percent said it had not.

Approximately two-thirds of respondents said that when purchasing equipment, their facility makes its food safety plans available to vendors to ensure they are able to produce equipment that works with those food safety plans. The remaining one-third of those surveyed said that is not the case.

More than 65 percent of respondents said their facility will adjust HACCP plans to meet the changes brought by the purchase of new equipment. Meanwhile, nearly 35 percent of those surveyed said that their facility will try to ensure that all new equipment purchases require no updates to HACCP plans.



As it relates to FSMA compliance, more than 56 percent reported that their facility has made changes to its HACCP plan as a result. Nearly 44 percent said their facility has not changed its HACCP plan.

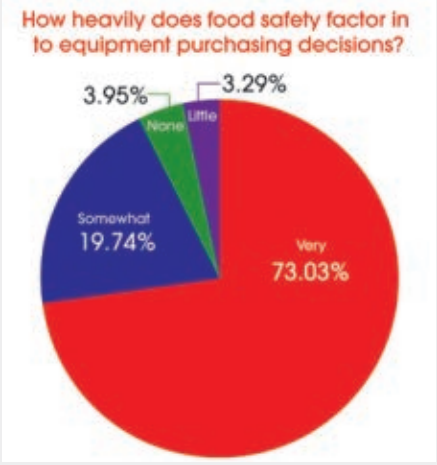
Two-thirds of those surveyed said their facility has not had to acquire new equipment over the last 24 months in order to stay compliant with changing regulations. The remaining one-third of respondents said their facility had purchased new equipment to stay compliant in that two-year time frame.

When it comes to the type of equipment purchases that typically result in an update to a facility's HACCP plan, mixers/blenders/grinders were cited most frequently (53.4 percent) by those surveyed, followed by new packaging equipment (37.7 percent), sensors/detectors (32.9 percent), bulk handling equipment (29.5 percent), large storage tanks/vessels (29.5 percent), form/fill/seal systems (28.1 percent) and conveyors (26.7 percent). Other types of equipment mentioned were: pumps/valves (25.3 percent), HVAC/air handlers (21.9 percent), feeders (19.9 percent) and palletizers/cartoners/stretch wrappers (10.3 percent).

More than 47 percent of those surveyed said the equipment acquisition budget at their facility has not changed in the last 12 months. Exactly 38 percent of respondents said the equipment acquisition budget has increased at their facility in the last year, while 14.7 percent reported that the equipment acquisition budget has decreased during that time.

The vast majority of those surveyed (86.8 percent) said that when discussing new equipment acquisitions, they find that equipment manufacturers are aware of and sensitive to the need for food manufacturers to maintain high sanitary levels and meet food safety standards. Just more than 13 percent reported that was not the case.

When asked how heavily food safety factors into equipment purchasing decisions, 73 percent reported "very." Just shy of 20 percent reported "somewhat." Fewer than four percent of those surveyed reported "little" or "none."



5 Questions Every Food Business Needs to Ask About Added Sugars

By Roger Legg and Beth Vessels, RL Food Testing Laboratory

In March 2014, the U.S. Food and Drug Administration (FDA) issued its proposal for updating the Nutrition Facts label that appears on most food packages in the U.S. The FDA proposes that the label — first introduced 20 years ago and largely unchanged since — be changed in its graphic design and what it measures to reconsider information about serving sizes and nutritional content.

Perhaps the most contested aspect of the FDA's proposal for the new label is added sugars. This past July, the FDA amended its original proposal — which would require listing the amount of added sugars in grams — to also require listing how much a food contains relative to a total daily limit — a measure called the percent daily value, or %DV. FDA's recommended %DV calls for the daily intake of calories from added sugars to not exceed 10 percent of total calories.

As much of the food industry is now preparing for the likely change, there are five important questions about added sugars for food manufacturers to consider.

1. What is an added sugar?

Sugars serve many uses in food processing. Not only does it sweeten or improve flavor, it also can be used as a preservative. Sugar helps jellies and jams from spoiling, aids fermentation in breads and alcohol, and also keeps baked goods to stay fresher longer.

The current label requires declaration of sugars. The proposed new rule would require declaration of added sugars as well, indented under sugars, to help consumers understand how much sugar is naturally occurring and how much has been added to the product. Currently, the FDA food label regulations do not have a definition for added sugars. Under its new labeling rules, it defines added sugars as "sugars that are either added during the processing of foods or during packaging." These can include:

- Sugars, such as cane sugar, beet sugar, brown sugar, dextrose, glucose, invert sugar, lactose and maltose
- Syrups, such as high fructose corn syrup, crystalline fructose, malitol syrup and maple syrup
- Naturally occurring sugars that are isolated from a whole food and concentrated so that sugar is the primary component, such as fruit juice concentrates
- Other caloric sweeteners, including honey, molasses, corn sweetener and table sugar

2. How do laboratories test for added sugars?

It might be surprising to most people to learn that there is currently no laboratory test that can differentiate between a naturally occurring sugar and an added sugar. The FDA acknowledges that because there is a lack of physiological differences between the two types of sugar, there is no current analytical methodology for detecting the difference.

Because there is no chemical analysis to differentiate added sugars, the FDA proposes "an alternative method to assess compliance ... such as maintenance and review of records."

3. How are sugars differentiated on a food label?

The most widely used method for producing Nutrition Facts labels is database analysis. This is done by taking a food product's detailed recipe and entering it into a software program.

Should the FDA pass the new label regulations and include the added sugars requirement, then software programs will have an added column for added sugars and the foods that are known added sugars, per the FDA's definition, will be flagged and their sugar total will fall under an added sugar category. For example, 1 Tbsp (14g) brown sugar that has 13g of Sugar in the current software would be 13g of added sugars.

4. Will there be any lag time between FDA rules and database information?

Leading software providers are already making preparations for the new FDA label and have begun making updates and changes to its classification of food items. However, because many recipes include mixed or processed ingredients, such as enriched flour, cereal and vanilla extract, software databases will not be able to

categorize these foods until suppliers have provided updated information.

Oftentimes, the nutrition label or 100g report of a mixed or processed food is manually entered based on due diligence when completing an analysis. This happens when the software does not have a specific product in its database. Many recipes depend on this for their analysis. But until those manufacturers have updated their nutrition label with added sugars, this cannot be done.

This same kind of informational lag could happen with two other FDA-proposed listings of new nutrients: Vitamin D and potassium. However, with these nutrients, laboratory testing is available for those companies that do not want to wait for their suppliers to update their nutrition information.

5. How will this affect timelines for food businesses?

The FDA has proposed allowing six months for the industry to prepare for the changes, once their final ruling is issued. This is intended for database analysis software companies and laboratories to update their programs so that food manufacturers can begin to update their labels.

Food manufacturers need not panic about the added sugars change. The FDA has proposed giving food manufacturers two years to comply after the initial six months of industry preparation. However, a bit of catch-up time is to be expected as adding mixed and processed foods used in recipes will slow down the update process. Above all, manufacturers should be ready to ask suppliers to make their label change as soon as possible. The sooner they change their labels, the sooner you can change yours.

It's also a good idea to establish a good working relationship with a reputable food labeling and laboratory testing company. As with added sugars, other changes to the FDA Nutrition Facts label are likely to be forthcoming, and having a reliable partner will ensure accurate and timely FDA compliance.

About the authors

Roger Legg is co-founder of RL Food Testing Laboratory, and its senior chemist. Beth Vessels is a director at RL Food Testing, and its resident regulatory expert.

VERYX Digital Sorting Platform

Company introduces the all-new VERYX digital sorting platform, a suite of belt-fed and chute-fed sorters that offer high-performance capabilities and share a common user interface. With unprecedented full object surface coverage, multi-sensor data fusion and the highest resolution cameras and laser sensors available on a digital sorter, VERYX achieves new levels of detection and discrimination of foreign material and product defects. Advanced auto-learn, self-adjusting capabilities and recipe-driven operation will offer extreme ease-of-use and an intuitive user experience. VERYX improves product quality and maximizes yields. Available in a range of product inspection widths, VERYX satisfies small to very large production capacity requirements. For food processors requiring true, full-product surface inspection of each object, the company can configure VERYX sorters with sensor arrangements that eliminate blind spots to maximize FM and defect removal. On belt-fed systems, the bottom cameras are positioned away from product splatter to ensure the lower sensor windows are not obstructed by buildup over time. Eliminating this previously common performance degradation factor keeps bottom cameras continually operating at peak performance and makes VERYX the first sorter to offer sustained 100 percent surface inspection throughout the production cycle. VERYX is ideal for sorting fresh, frozen and dried vegetables and fruits, processed potato products, nuts and other products.

Key Technology www.key.net

Quickfit Conveyor System

Company's new conveyor system for metal detectors has been designed to improve reliability, decrease maintenance and reduce the total cost of ownership for processors of dairy, snacks, meat, poultry, seafood, bakery and prepared foods. Each Quickfit unit is tested to eliminate problems food processors can experience when relying on third-party material handling, fabrication and integration with high-performance metal detectors. The modular design uses common components to reduce total ownership costs over the typical 10-plus year metal detector conveyor lifetime. This helps customers better utilize their capital and maintenance budgets.

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- Fully configured and tested for quality assurance and performance

Thermo Fisher Scientific www.thermofisher.com

Xtreme Metal Detector Enhanced Platform

Company announces the Xtreme Metal Detector Enhanced Platform, which sets a new standard for metal detection and is recommended for the harshest applications. This Xtreme Metal Detector Enhanced Platform adds to the breakthrough qualities of the company's line of Xtreme Metal Detectors. Made for light industry applications, the Xtreme Metal Detector Enhanced Platform boasts a completely re-designed and incredibly user-friendly interface that is ETL/CSA/CE approved. It is also certified for the harshest of wash down environments with an IP69K designation. Other highlights include easy set-up, dedicated reject log and event log. The Xtreme Metal Detector Enhanced Platform offers greater sensitivity with its multiple frequency range and vibration immunity. Many configurable inputs and outputs enable easy installations and give customers the ability to add multiple options. Maintenance is trouble-free with the unit's large control opening for easy access to wiring.

Eriez www.eriez.com

Bulk 540 PRO X-Ray Inspection System

The Bulk 540 PRO x-ray inspection system provides accurate inspection of high-volume dry and wet loose foods such as nuts, grains, sugar, cereals and fresh and frozen fruits and vegetables. Product depth is more uniform across the belt due to the innovative cupped conveyor with raised edges that simultaneously reduces product spillage and limits wasted product, a common challenge with conventional flat belt designs. Efficiency and profitability are enhanced with the Bulk 540 PRO's eight-lane flap rejection mechanism, each covering one-eighth of the belt. Manufacturers can feel safe knowing substandard products will not reach the end of the line because contamination is removed during the production process and rejection of good product is minimized. The Bulk 540 PRO is designed to meet rigorous hygienic standards of the food industry where frequent machine inspections and cleaning are a requirement. Hinged louvers and easy belt removal allow a single operator to disassemble the entire machine in a matter of minutes for thorough sanitation and quickly reassemble to maximize production uptime.

Eagle Product Inspection www.eaglepi.com

Hyper-Detect 5

The system improves metal detection capabilities while eliminating degradation in product transfer to deliver safe product throughput and minimize rejects. The Hyper-Detect 5 is the world's first non-symmetrical balanced coil metal detector and provides optimum sensitivity and consistent performance. The integrated design does not increase the system's height, requiring minimal installation space, plus it can be fully integrated with baggers and weighers to run at faster speeds while maintaining high sensitivity levels. Able to detect ferrous contaminants, non-ferrous pieces and non-magnetic stainless steel, the Hyper-Detect 5 greatly reduces the risk of contaminants entering the value chain, safeguarding consumer safety and the company's reputation.

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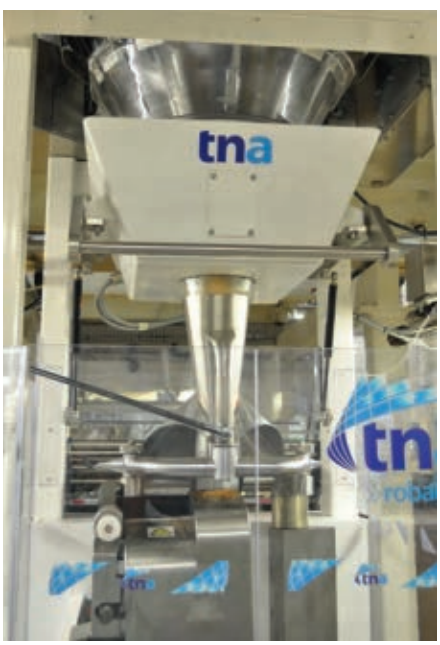


Reclose/Reseal a Growing Trend for Plastic Packaging in Food Applications

By Anh Marella, Senior Product Manager, Select Solutions Collection, Avery Dennison Label and Packaging Materials, and Scott Hetherton, General Manager, HFM Packaging

It's probably happened to you. You buy a package of deli meat at the supermarket. You open the package the next day to pack a lunch and press together the open film ends to reseal the package. It looks like it can reseal itself, but it just won't. You might have had the same experience in trying to reclose the lid of a clear PET container of lettuce. It looks like you can close it, but there's no adhesive to create a seal, and reclosure just doesn't happen. After several attempts, you end up taking the remaining contents and toss them into a reusable, re-sealable plastic storage bag. The original packaging goes into the trash.

That's a real waste — in more ways than one. It's a missed opportunity for the manufacturer, whose packaging — which had the potential to build brand awareness every time it was taken out of the fridge — had little to no positive impact on the consumer beyond the purchase. In fact, it may have had a negative impact due to the annoyance factor involved. Plus it adds a second package — the storage bag — into the waste stream once the product is used up. That's another cost to not only the consumer, but also the environment.

Flexible Packaging — Still Evolving

Plastic and flexible packaging has come a long way in the food arena. It's the packaging of choice. It offers major advantages over traditional, rigid packaging, using less material (which translates into less solid waste), weight savings, reduced shipping costs and reduced shelf space requirements.

Reclose/reseal solutions are used with packaging on products such as deli meats, cheese, snacks and cereals. But the reclose/reseal function hasn't always been so simple. Zippers, sliders and pressure-sensitive seals have their fans — and their detractors — among manufacturers and consumers.

Recently, a reclose/reseal solution that had its origin in the wet wipes arena nearly a quarter century ago is making headway into the food packaging space. The packaging employs a pressure-sensitive adhesive label that combines with an easy-open lift tab. The tab is used to open the package. The label, which contains the resealing adhesive, is used to reclose the package to the die cut film with a dependable, hermetic seal. It can be used again and again, delivering reliable closure for freshness and convenience to the consumer and repeated brand messaging for the manufacturer.

Because it is somewhat early in the game for this food packaging technique, brands that adopt early can leave a lasting impression. Consumers may think of the brand that kept their cheese slices from becoming dried out as one of the good guys — an innovator that saved them from using yet another storage bag on top of the original packaging. There are added benefits. A second tab can be built into the first that provides evidence of tampering, allowing the consumer to pass on the purchase of a package that looks like someone has tried to open it.

And for the manufacturer, the label and packaging combination is robust. It provides barrier properties that offer shelf stability through resistance to moisture, oxygen and CO2 transmission. It's compliant to FDA 175.105 for food adhesives.

Building the Label Directly Into the Packaging

The resealable label option may actually save a manufacturer time in terms of package filling; there's no need to add the primary label to the front of the packaging. The label can incorporate different shapes and sizes. It includes primary graphics and is affixed to the film during the converting process. The packer receives pre-labeled film into its facility, making the resealable film a drop-in process.

Formats include hang-hole or shelved packaging. The preprinted resealable label may also be used for produce packaging on PET thermal form lids. In this instance, the label is pre-applied to the film, easing application in the packing process.

No heat, water or other substance is required to seal the adhesive; simple pressure is all it takes.

The resealable market in flexible packaging is growing rapidly among food

manufacturers for several reasons:

- Extremely user-friendly
- Provides a branding opportunity
- Offers ease of use for the customer and consumer
- Reduces overall packaging; there's no overwrap or secondary packaging required

Some manufacturers have also switched to the new film for food safety reasons, as the reclose/reseal process provides a more reliable package. But, in the process, some manufacturers started to realize they were getting a more consistent, reliable product that actually reduced total cost of ownership. The pre-applied label method significantly decreases defects in the film or labels such as delamination, buckles or bubbles. In essence, this process adds a quality control function for manufacturers, significantly enhancing the quality of finished roll material.

It can also eliminate the use of die cutting equipment and label applicators in the packaging process. One manufacturer — as soon as they put the first roll on the packaging machine — realized "they were never going back; it was the first time the machine ran at the rate at which it was supposed to run." They decommissioned the label applicators and die cutting equipment from the machines. Their new "super plant" doesn't even have die cut and label capability.

Sealing the Deal

There are several variables to consider when thinking about pressure-sensitive reclosure packaging. These include:

- **Peel Feel:** Ensuring label, film and tray compatibility for the proper bond strength and transmission rates can play a role in providing the right "feel" or peel force for opening the package. Different "peel feels" or levels of resistance can be achieved. Some manufacturers opt for a more secure seal to make tampering difficult; others want a smooth, easy peel.
- **Film Sourcing:** Similarly, the right film has to be sourced for the proper oxygen and CO2 transmission rates, depending on the product being packaged.
- **Creativity:** How creative do you want to be? Building the label into the packaging gives the manufacturer an opportunity to brand the product in a unique way. It's not just about clear trays and lidstock anymore. Dark trays, printed films and matte finishes have all been used recently to help brands stand out from the pack. Label shapes and colors can also mean the difference between just another package and one that sticks in a consumer's mind as it is used time after time.

The good news is manufacturers need not go it alone. Consulting with flexible packaging and labeling experts should be the first step in terms of partnering for success.

Who's Using It and What's Really In It For Me?

Pressure-sensitive reclosure packaging is being employed for products such as processed meats, bacon, snack food, pasta, cheese, produce and cereal — but the sky is the limit.

From a cost standpoint, the label/film converting process costs no more to produce. But depending on the application, a cost savings may be achieved in the actual packaging/filling process.

In terms of product differentiation, the only real limit is your creativity. Pressure-sensitive reclosure packaging is an opportunity to brand a package that will be used and reused throughout a product's life cycle. Certainly, the opportunity exists to promote to consumers you've added a packaging feature that will allow them to receive the full value for the price paid and keep the packaged contents fresh for their enjoyment, plus let them know your brand is committed to sustainability goals through this innovative step (and most of that should fit on the label!).

Finally, consumers may also consider purchasing a product in larger sizes with assurances that pressure-sensitive labels will maintain the product's quality and freshness.

Customer convenience. Foods that remain fresher for a longer period of time. Pressure-sensitive reclosure options can differentiate a brand and build customer loyalty while adding to the bottom line. And isn't that the ultimate seal of approval?

Salt of the Earth

Jacobsen Salt Co. proudly harvests flake and kosher sea salts from the cold, pristine waters of the Oregon coast.

By Kari Imberg, Contributor

Creating America's finest flake and kosher sea salts: that is the mission of Jacobsen Salt Co.

Proprietor Ben Jacobsen founded the Oregon-based company in 2011, proudly wearing the title of the only artisan salt company in the Pacific Northwest. Today, the delicate flakes are known for their pure taste, texture and appearance, and are used by chefs around the world.

"My (reason) for getting into it was really just a fascination with how to figure out how to make really great salt," Jacobsen said in a recent interview with *Food Manufacturing*. "It took two-and-a-half years for me to figure that out. And then once I did, a local grocery store placed an order and it was ten times more than I had ever made at once. And after that it just kind of took off."

And so began Jacobsen Salt Co.

Jacobsen, who said he learned to appreciate finishing salts while living and working in Scandinavia following college, turned his interest in salt into something more after moving back to the Pacific Northwest several years ago.

"I was just amazed by how great (salt) made very regular everyday food, and thought that it was so transformative," Jacobsen said. "I'm not a great cook, but by using great salt I can make really average food really exceptional. So that's kind of where my fascination began.

"And then I moved back to the Pacific Northwest, and thought it was strange how nobody really in America was making really delicious, exceptional salts … You could get produce and meats and fish and vegetables and grains and butter from the U.S., but people would still buy salt from France or salt from the U.K. if they wanted

really good stuff. To me, that was strange because I lived in Oregon and the ocean was 85 miles away."

Jacobsen's two-and-a-half year experimentation and testing phase involved searching approximately 30 spots along the coastline of Oregon and Washington for the best possible water source for making salt. He found it in Netarts Bay, which is located about 80 miles west of Portland.

"Netarts Bay water is exceptionally clean and briny. I think it's arguably the cleanest bay on the west coast of the U.S.," Jacobsen said, citing the few freshwater inputs coming into Netarts Bay, tidal changes that replenish the bay every 12 hours, and the significant number of oysters that inhabit the bay and filter water as they are feeding. "You combine that with our process and you end up with this perfect storm of ridiculously clean, pure seawater. And the product is a really beautiful, delicate salt that's very briny tasting, and tastes like the sea with no bitter aftertaste whatsoever."

Now, four years into its existence, the Pacific Northwest's only hand-harvested salt company has evolved into a growing, and thriving, enterprise.

"I had very low expectations when I started this. It was really just on a whim and it was a hobby for a while," Jacobsen said. "It's definitely exceeded expectations. We've grown tremendously. We're four years old now and we're profitable and we've created a brand and really kind of redefined the category of salts in America, I believe.

"We're the first to harvest salt in the Northwest since Lewis and Clark, and that's a tremendous feat in and of itself … To know we're the first company to make salt here is kind of crazy."

One Flake at a Time

At the company's outset, Jacobsen would visit Netarts Bay weekly and hand pump water into plastic drums before transporting them back to Portland where he would collect flakes by hand in a commercial kitchen. "Kind of what I needed to do at the time," Jacobsen said. "(I) did that for nearly two years, and finally got a facility on the coast, and that's where we are now, and we've been in production 24/7 for two years straight."

Jacobsen purchased a former oyster farm on Netarts Bay, which now serves as the company's processing facility. The company's headquarters and warehouse, which is where the majority of the packing takes place, is located in downtown Portland.

Four years ago, Jacobsen brought in a few workers to start them at ground zero — teaching and training them in his operation — and the company quickly began to take off. Jacobsen started out by producing three pounds of salt a week. The company now produces 12,000 pounds a month, and is growing. "We've grown in capacity about 300 percent per year," Jacobsen said. "It's been pretty non-stop. In a good way, though."

Jacobsen and his team are working around the clock to keep pace with the demand. "The whip-cracking never stops," Matthew Domingo, director of sales and marketing at Jacobsen Salt Co., said with a laugh. "The last time there was nobody here, it was for about two-and-a-half hours for a Christmas party."

Domingo said the company is creating an industry that literally did not exist before. "The fact that there are 35 people that work here now, those are 35 jobs that didn't exist. And it's not like when you open up a new restaurant, you bring in 35 people, but they were working at another restaurant. When we brought in people, these were jobs that did not exist before. That's the cool part about this whole thing."

But creating a new industry certainly doesn't come easy. Jacobsen and his team have had to create all of their equipment.

Because there is no salt making industry in the Pacific Northwest, or even one large enough on the Western coast, the tools and equipment used in Jacobsen's salt-making process are all custom-made. The boils and the pans used in the evaporation process, along with the shovels used for scooping the flakes from the water — all of it is custom fabrication. "We made those shovels," Domingo said. "We bought big aluminum grain scoops and then we had to perforate them. Someone literally stood there with a drill and drilled a bunch of holes in it to create what was needed."

Just as there was no way to hire experienced workers, it's impossible for the team to go out and buy the necessary equipment. "When you really think about how this whole manufacturing process has grown, it's insane," Domingo said.

The Process

With a 24/7 operation, the seawater is constantly being pumped in from the bay, where it gets filtered various times in the "pump house." Each time the water gets pumped in, another filtration process begins.

After approximately two days of filtration, the water is moved into 300-gallon boilers that are outside. Here, the bay-water gets boiled down, more water is added, and then it is boiled down again. This process is repeated for several days until a nice, thick brine has settled.

Because making the perfect flake is essential for Jacobsen Salt, every six hours the water is measured with a stick to see how much of the brine has gone into the water and what the salinity is like. The team operates in a very narrow temperature range, because if the water gets too hot or too cold the salt will either be too fine or turn into rock salt. So to ensure its perfectly-flaked salt, the company is constantly checking the temperature range with special thermometers.

Jacobsen Salt does what most artisan salt companies do not – reducing the minerality of the salt by removing some of the calcium and magnesium. While the salt will stay in the solution, the other stuff gets precipitated out and scales to the side of the pot.

Although the water all comes from the same bay, the salinity can vary. "We test the salinity of the water coming in from the bay because after a rainstorm, for example, it will be less salty. And some days it will be more salty. So we change how much brine has to go in based on that because we know what we want out as far as concentration goes," Domingo said.

No matter which salt product is being made, the process is always the same. Once this step is finished, the water is cooled before being pumped into the four big, round tanks to be filtered again. At this point, it's not just seawater anymore. Salt begins to form on the surface, and when it gets too heavy to float, the flakes will fall down to the bottom.

The team then scoops it out with one of its custom-made shovels and transfers it to trays. Here, the salt will harvest from anywhere between a few hours to a few days before being moved into the dehydrator.

Because salt tends to clump when it dries, the team manually sifts through the crystals with its version of a classifying pan. "The equipment is essentially like gold-mining equipment," Domingo said. "It is very hands-on. No automation. We have fantasies of automating a lot of this someday, especially since we are growing so fast."

Success With Salt

Today, the salts claim a diverse group of fans. There are top-rated chefs from around the world. There are purveyors of chocolate chip cookies, ice creams, chocolate candies, cocktails and more. Even specialty shops and home cooks are attracted to the variety of Jacobsen salts.

"It's just one of those things … Who knew that there was so much demand out there for a good salt?" Domingo said.

Jacobsen said his company's salt has three pillars: Taste, texture and color.

Taste: "Our salt is very clean and briny with no astringent aftertaste. And that's very, very deliberate on our part. We're always shooting for that when we make a batch of salt," Jacobsen said.

Texture: "(Our) salt is light and flaky. Beautiful large flakes, but it can also be very easily manipulated in your fingertips and broken up into smaller pieces to spread over food," Jacobsen said.

Color: "Our salt is almost shimmering, translucent white. Almost like freshly shaved ice. And it's really, really beautiful. So, that's again that color that we want to

go for just because it's beautiful. We didn't want a salt that was yellowish or grainy," Jacobsen said.

According to Domingo, the company's PR strategy has been "if you build it, they will come." Chefs from around the world see the quality in Jacobsen salts and have began adopting it into their own cooking. "Without us even asking them to do it, these chefs are turning into spokespeople for the brand. We don't even have to do much of anything, we just have to make sure that the right people have our stuff, and that our commitment to quality stays strong," Domingo added.

Jacobsen Salt produces three kinds of salt: Kosher Sea Salt, Grinding Salt and the Classic Flake Finishing Salt. Beyond its classic salts, the company also boasts an extensive assortment of infused salts, including: Lemon Zest, Pinot Noir, Pinot Blanc, Vanilla Bean, Stumptown Coffee, Smoked Salt, Smoked Ghost Chili, and White Truffle, just to name a few.

Jacobsen Salt believes its infusions are top of the line. "We make our salts, so we can actually control the dampness of it coming out of the evaporation pans. That way, we can create a stronger infusion of flavors, which makes it so much better," Domingo said.

The Pinot Noir infusion, for example, is one salt flavor that takes multiple attempts to make it perfect. "We will add wine to it several times to get it a significantly darker purple," Domingo said. "Then we put it back in the dryers to dehydrate until it gets to the right color."

Infused products such as Habanero Salt, Garlic Salt, and Onion Salt just hit the market and are available at every Williams-Sonoma store in the country. The company is constantly trying out new flavors and infusions, and says it is launching around 15-20 new products this year alone.

In addition to its classic and infused salts, the company also produces a line of salty confections — Salty Black Licorice, Salty Caramels, Salty Honey Nut Chews, and Salty Maple Chews — cocktail salts, and pantry staples, such as albacore tuna, granola, and herb and salt bagel chips. "Last year, our black licorice was the most sold confection product, but this year the caramels seem to be on top," Domingo said.

Jacobsen Salt holds around 1,500 wholesale accounts right now. Its products can be found in almost every state at retailers like Whole Foods, New Seasons, Williams-Sonoma, and small specialty shops. The company also has its products in Japan, Australia, New Zealand and most of Western Europe. And just this past summer, Jacobsen Salt began sending out its candies to the Williams-Sonoma stores in Kuwait.

So what exactly does the future hold for Jacobsen Salt?

"First and foremost, I want to continue to try and satisfy customer demand," Jacobsen said. "We've got a lot of demand out there and we need to just continue with scaling up production … (and) be a really great employer, and really protect our brand, and work with great chefs and retailers and manufacturers that really value great ingredients. That's what's most important to me on a daily basis."

3 Tips for Saving Energy and Increasing Efficiency Inside Your Plant

By Kyle Justice, Product Manager, Rite-Hite

Facility managers are always looking to increase their production while decreasing their annual energy bills. However, doing both at once can be a daunting task. Since loading docks are on the exterior of the building, and interface directly with potentially steamy (or frigid) outdoor environments, they are often the first areas targeted for energy efficiency upgrades. However, many interior sections of food manufacturing facilities are also significant contributors to energy waste and decreased productivity.

Here are three tips for boosting operational efficiency on the interior of your facility — and your bottom line, along with it.

Use Faster-Acting Doors for Cold Storage Areas

There's a common misperception that choosing cold storage doors means making compromises between air temperature control, productivity and low energy costs. In reality, it doesn't have to. Thanks to recent advances in door technology, facility managers can now have their (ice cream) cake and eat it, too.

Refrigerated spaces are designed to trap cold inside and keep heat and humidity out. Traditionally, they have used heavy, insulated, rigid doors with a high R-value. While it's true that higher R-values mean less energy loss through door panels (conduction), there is a downside for high-traffic openings. These side-acting doors are typically slow-moving, resulting in longer door cycle times and higher rates of air infiltration. This not only wastes energy, it makes it harder to maintain temperature control inside the freezer. Furthermore, traditional hard-core doors are susceptible to forklift damage. Unless the damaged door is quickly fixed, there can be substantial energy losses as a result of poor sealing. Thus, for high-traffic openings, energy losses due to the door being open or sealing poorly (infiltration) can represent a significantly larger cost component than energy losses due to conduction.

Recent advances in door design have focused on improved bi-parting doors and insulated upward-acting doors. Advanced bi-parting door designs include high speeds to minimize door open time. Some doors can operate up to 100 inches per second, which is up to four times faster than old-style, rigid side-acting doors.

Additionally, new technically advanced freezer doors have the ability to withstand forklift impact, which minimizes maintenance and downtime while maintaining a tight seal over the life of the door. Torque sensing reversing capability is also available, which eliminates safety and maintenance concerns with doors that use pneumatic or electrical reversing edges for the same purpose.

The most advanced high-speed roll-up doors now use insulated door panels, as well. These insulated curtain panels provide a high enough R-value to avoid needing expensive panel defrost systems. As with bi-parting doors, newer upward-acting doors also incorporate a perimeter thermal air seal for added energy savings through a tighter seal.

Light, Easy-to-Use Blast Freezer Walls

Blast freezers present another set of door challenges — and another opportunity for significant ROI in terms of energy usage and productivity. Used to process everything from TV dinners to fish to ice cream, blast freezers are growing in popularity, since their extremely cold temperatures induce very rapid freezing, which creates smaller ice crystals than conventional freezing does (and thus less damage to food). Once blast frozen, food can be moved to a more conventional freezer for storage, as long as the freezer stays cold enough to keep the food frozen.

Unfortunately the huge size of many blast freezers — combined with other issues like pressure and frost build-up — often makes their insulated panel doors very unwieldy. In some cases, these huge doors (which can be as a large as 25 feet by 25 feet) become so heavy and hard to open that employees have resorted to dangerous methods to open them, such as using a forklift, or have problems closing them, thus wasting energy.

Fortunately, a relatively new building

technology — fabric curtain walls — has now been adapted to provide a light, safe and affordable thermal barrier alternative for blast freezer cells. Blast freezer curtain walls are made of insulated, sliding panels nested in a tubular steel frame. Each panel is constructed of 18-ounce, industrial vinyl fabric surrounding a layer of anti-microbial polyester batting.

Engineered to be light and easy to use, blast freezer curtain walls form a safe and affordable airflow and thermal barrier and can be operated by a single person. Their tight and effective seal redirects the chamber's airflow, making it more efficient, reducing blast cycle times and lowering energy consumption.

Their seal also minimizes the build-up of ice on the floor at the base of the doors, reducing the chance of employee injuries from slips and falls. Additionally, blast freezer curtain walls require minimal long-term maintenance and are generally easier to install and less expensive than traditional doors used for these extreme applications.

Curtain walls can also help save energy in non-refrigerated areas of a food manufacturing facility. A fabric curtain wall can be used in place of a conventional wall in virtually any non-load-bearing application. Available in both insulated and non-insulated varieties, these walls can be installed as stationary systems or sliding units and can be configured for almost any facility space or application.

Insulated curtain walls can maintain a temperature delta of up to 40 degrees Fahrenheit (22C) with R-values of up to 10. While commonly used in cold storage facilities to divide the existing "cold box" into temperature zones, they are routinely used to create treated air space in warehouses or manufacturing facilities to improve employee comfort or to control temperature and/or humidity levels to protect critical equipment and processes.

Combine with HVLS Fans for More Benefits

As space dividers, curtain walls work particularly well when paired with HVLS fans. HVLS fans mix air more efficiently and require less energy than conventional fans, generating an air cycle that allows for a more consistent temperature from floor to ceiling.

In addition to worker comfort, this will equate to significant energy savings. A single HVLS fan can reduce annual heating and cooling costs by as much as 20 to 30 percent, depending on the climate. When used in conjunction with conventional HVAC systems, HVLS fans are a high-value, cost-effective solution to increase air movement and improve overall environmental control. Fabric curtain walls can maximize the effectiveness of this entire environment control system, by segmenting off areas that require more extensively treated air from areas that don't — further minimizing waste.

No Need to Choose Between Energy and Efficiency

Facility managers don't have to choose between boosting productivity and saving energy. By incorporating a synergistic combination of infrastructure upgrades — such as high-speed doors, fabric curtain walls, and HVLS fans — food manufacturing plants can simultaneously lower electricity and other energy costs, improve worker comfort and enhance efficiency.

With James P. Oko, Director of Process Engineering, Stellar

Interview by Jesse Osborne, Editor

Food Manufacturing spoke with James P. Oko of Stellar on the topic of sanitation in the food manufacturing industry.

Q. Which innovations in sanitation should food manufacturers be aware of?

A. Manufacturers should be aware of innovative improvements to clean-in-place (CIP) and clean-out-of-place (COP). Improvements in chemical distribution, nozzle design, pump flow rates and flow patterns have made these systems more attractive than ever for effectively cleaning process systems. Hermetically sealed items, such as motors and load cells, are other innovations that have made once difficult-to-clean areas of a line easier to access and clean.

Q. What plant sanitation techniques can food processors employ to improve food safety in their facilities?

A. Food processors have an arsenal of sanitation techniques readily available to them at their fingertips and a vast array of resources ready to step in when all else fails thanks to the Internet, media exposure and public awareness. It is important for processors to practice top-to-bottom sanitation methods implemented with the appropriate disinfecting agent aimed to keep food contact surfaces clean and dry.

There are systems that meter and control concentration levels and even record the level of "clean" achieved. There are intervention steps such as pasteurization, high-pressure pasteurization and new microwave technologies emerging as potential candidates to add to the tools available to the process.

Right now, there should be an emphasis on training. Training personnel to achieve repeatable excellent results every day will ensure any of these available techniques are successful at improving and sustaining food safety in their facilities. It only takes one instance of failure to erase a reputation of good food-safe practices that may have taken years to build. Processors should invest in their procedures and people to ensure each person with the ability to come in contact with the product or a product-contact surface is properly trained in the sanitation techniques adopted within their respective operations.

Q. How has FSMA compliance impacted sanitation efforts at food facilities?

A. FSMA shifts responsibility of identifying manufacturing risks to the producer. Now, food facilities are more resourceful and innovative with their sanitation processes, encouraging sanitation departments to develop standards to minimize and prevent food safety hazards.

Many equipment suppliers are conducting in-house tests on equipment to validate equipment's sanitation integrity prior to delivery — a smart way to control allergens from the beginning. Some food facilities are also employing in-house food safety experts to keep up with the latest regulations and best practices.

Sanitation technology has improved, as well. There's now even better chemical technology for clean-in-place (CIP) and clean-out-of-place (COP) stations. These are developed with higher concentration levels that not only improve sanitation, but also reduce the amount of time required for cleaning.

Q. What are some sanitary design best practices food manufacturers should be following as they update or expand their plants and incorporate new equipment?

A. When expanding or updating plants, food safety can be a major threat as construction can introduce

unsanitary conditions. For retrofits and renovations, specifically, food manufacturers must focus on plant personnel and traffic flow. Understand how construction will impact personnel's good manufacturing practices (GMP) procedures like hand-washing. Ensure you're clearly communicating ways to avoid potential contamination by developing alternate paths. Airflow is another key factor to keep in mind as you're updating or expanding your plant. Ensure airflow is negative within the area of an expansion so it doesn't contaminate positively pressurized production areas.

In addition to ensuring equipment is designed and built to meet sanitary requirements, it must be installed to those same standards. When incorporating new equipment, specifically, it's important to screen installation subcontractors to ensure they're following sanitary process installation. Prior to selecting a subcontractor, ensure they understand these items:

- The importance of the sanitary hanger system supporting the piping install
- Acceptable methods of constructing the piping system so it can be maintained and kept clean
- Proper method of hanging piping so fluids will run back to the low points and the system will drain
- Dead leg piping and how to avoid it
- Identification of an unsanitary piece of equipment vs. a component or piece of equipment designed specifically as sanitary or hygienic
- Standards and specifications used in the practice of sanitary design as they relate to different industry sectors
- Process for wash downs and cleaning of equipment for sanitary facilities including cleaning clearances, construction materials and sealants, and installation requirements

Q. How are new trends in sanitary equipment design improving food safety standards?

A. Food processing equipment manufacturers are now offering more advanced sanitary solutions via higher-grade stainless steel and anti-stick surfaces. To withstand daily exposure to harsh sanitation chemicals, manufacturers are now using higher grades of stainless steel. Type 304 and 316 are the most common stainless steel finishes in the food processing industry.

There are also new FDA-approved coatings available that reduce the potential for raw materials to adhere to equipment surfaces. These help improve pre- and post-operational performance by providing a better barrier against bacteria colonies and the formation of biofilms that are often resistant to chemicals and inferior sanitation practices.

Optimizing Warehouse and Loading Dock Operations

By Scott Dachel, Senior Outside Regional Sales Manager, Wildeck

Without a doubt, the warehouse is a virtual bazaar of activity, especially when it comes to food processing dock operations. Transport lanes buzz with forklifts speeding with inventory to and from the loading dock. Workers scan barcodes, palletize product and oversee production. Inventory moves in and out of the warehouse all day, every day. And to be frank, this imagery does little justice to the actual scope and breadth of daily warehouse operations.

We know that your food processing loading dock and warehouse operations can get out of hand despite your best efforts. But that doesn't mean the blame lies with your hardworking employees or late shipments. More often than not, the order and efficiency of warehouse operations directly affects how effective warehouse and loading dock operations perform.

Consider for a moment what *optimized* operations means. "*Every element and function within a system integrates and works in harmony at peak performance.*" In other words: *maximum efficiency*.

Your loading dock is the gateway to and from your warehouse. This is the last place inefficiency should live; if things are moving slowly here, every other department of your warehouse grinds to a halt in response. Yet, this happens despite management's best efforts, and upon closer inspection, it's a rather common issue in many warehouses.

Unfortunately, even when you think your warehouse is working at peak performance, it's more than likely it probably isn't … and you didn't even know it.

Creating optimal warehouse and loading dock efficiencies is crucial to the success of any logistics operation, no matter what the size.

Storage

Basically, no warehouse is big enough. Warehouses quickly outgrow their physical boundaries, and then face one of two options: expand by building an addition, or move vertically. Building an addition to your warehouse is extremely expensive and ROI takes decades before you'll ever break even.

The alternative is to move vertically. Building an industrial mezzanine platform is a fraction of an addition's cost, can nearly double your storage and work space, can be custom built to perfectly fit your specific needs/ambitions, and can be installed and functional within a few weeks. Mezzanine platforms can even be built above and up to loading dock bay doors, freeing up space and creating maximum storage/work flow area you may never have realized you even had.

A mezzanine platform comes loaded with potential and practical benefits to operations. By doubling your storage space, product can be more effectively stored and categorized, and inventory can be better managed. Workers are less likely to have run-ins with forklifts or dangerously stacked pallets of inventory because of space constraints. Add all this to the tax depreciation advantage that accompanies an industrial mezzanine platform upgrade and the savings compound. Now that's optimized!

Transporting Product

There are an unlimited amount of conveyor and lift system configurations at any given location in the warehouse. In many cases, there are long lines of conveyor tracks running just about everywhere. This creates an all too common issue; workers either crawl under or even leap over a raised line, while floor level conveyer rollers are blatantly walked on. This is a major safety concern, but it also can damage the conveyors or even product.

Incline lift conveyors pose another problem entirely — they take up a lot of room. With usable space being one of a warehouse's biggest assets, incline conveyor lines eat up a large portion of this valuable real estate. Because they can only lift product one foot for every 10 feet of conveyor track, the amount of track needed is significant. Additionally, these lift lines don't often create optimized workflow from one area to another. It's not ideal to have workers and warehouse vehicles travelling farther because of a lift conveyor path impediment.

So how do you free up your warehouse from these conveyor problems? Again, think up. There are a wide variety of crossover designs that allow workers to safely traverse a conveyor track (without climbing on or around it). These crossovers make it easier and far more efficient to work on larger machines, and in general, can optimize workflow at minimal expense.

Freeing up warehouse space consumed by incline conveyors is easily solved with vertical reciprocating conveyors (VRCs).

With an average of 6x6 footprint, mechanical VRCs are an excellent solution. They free up space, significantly improve travel time between levels, are easier to maintain and operate than elevators and forklifts, save money, and can even be integrated with a conveyor line to automatically lift product without a break in workflow.

Safety

Everything from forklift operating guidelines to packaging and storage and weight regulations have all been enacted by two safety commissions — OSHA and ANSI — both of which have distinct guidelines where safety procedures are concerned. It may seem a bit counterproductive, but the safety rules and regulations put forth by these organizations have both a direct and indirect impact on optimizing warehouse and loading dock efficiency.

Falls are a common injury source in warehouses and loading docks. There are so many reasons why this can happen, but the danger is the same — a fall from any height can lead to serious injury or death. When a worker is injured, there can be no efficiency. Operations are either delayed or halted altogether and it can take a significant amount of time before work can resume. Falls with equipment such as a forklift or pallet jack are equally as dangerous to people, inventory and overall efficiency. A fall can not only injure multiple people, but can damage/destroy product and even a truck bed or trailer. The cost of one bad step is far too great to ignore safety standards.

Vehicle traffic flow, storage and foot traffic lanes come into conflict more often than anyone wants. The damage to product, equipment and people can be devastating. In order to increase safety and efficiency, installing bollards or industrial guardrails is the key. While bollards are an accepted standard, they can't protect against the fork tines potential danger, and when hit, can damage both a forklift and the warehouse floor.

A guard rail system provides a more complete solution because they are easily identified, helping to designate pedestrian foot traffic flow, are customizable, protect against fork tines, and can keep workers from falling over edges. Where swing gates or slide gates are used at elevated levels, installing an open-gate sensor alarm truly takes the next step in optimized warehouse and loading dock safety.

Guard rail installation is OSHA recommended, and depending upon the manufacturer, is rigorously tested to withstand variable speed vehicle collisions. This helps to protect everyone, as well as everything, in the warehouse, and in doing so, workflow remains uninterrupted — which of course optimizes operations.

Warehouse and loading dock operations should always run like a well-oiled machine. By optimizing the installation and safety considerations of your warehouse's operations, you'll maximize everything from productivity to workflow and beyond.

About the Author

Scott Dachel, Senior Outside Regional Sales Manager for Wildeck is an expert in warehouse optimization and safety. Based in Waukesha, Wis., Wildeck is a 100% employee-owned company and the largest manufacturer of safety guarding products, industrial steel work platforms (mezzanines), vertical reciprocating conveyors (VRCs), dock safety gates, stair systems and ladder equipment. For more information, please visit www.wildeck.com, email info@wildeck.com or call 800-325-6939.

Preparing for Recalls Before they Happen

By Alan R. Lyons, Esq., Chair of Herrick, Feinstein LLP's Insurance and Reinsurance Group, and Ronald J. Levine, Esq., Co-Chair of Herrick, Feinstein LLP's Litigation Department

The Food Safety Modernization Act (FSMA), which became law in 2011, seeks to promote a proactive approach to protecting the public from food adulteration and contamination. At the same time, well-publicized outbreaks involving E. coli and other pathogens have cost food companies millions of dollars in conducting recalls, and in lost sales and consumer goodwill. Some have even resulted in criminal prosecution.

A recent report by Swiss Re, a leading global reinsurer, of publicly available food recall data in the United States shows that since 2002, the number of food recalls has nearly doubled. In addition, 52 percent of all food recalls cost the affected companies more than $10 million each, and losses of more than $100 million are possible. These figures exclude the reputational damage that may take years for a company to recover from.

Recognizing the importance of an enforceable recall process, Congress provided the FDA with tools to issue a mandatory recall when a company fails to act. As such, any company in the food industry must be prepared before a recall is necessary. As Benjamin Franklin said, "An ounce of prevention is worth a pound of cure."

It is essential that any company plan in advance how it will address an emergency, and not be taken by surprise. No matter how careful a company may be in trying to avoid a recall, there are no guarantees that it may not have to conduct one. It is critical that any company in the food business have a recall plan, and importantly, make sure that it has adequate insurance coverage to address a recall.

Have a Plan

A formal recall plan is not only an essential requirement of manufacturing best practices, it is also addressed in the FSMA. The plan should include, at a minimum, assignments of responsibility for any recall, key contact information, recall procedures and communication templates. This plan must be more than a document kept in the file drawer.

The company must have a team prepared in advance to implement the recall and be aware of the steps they will take to execute the plan. Those steps will include notification of the parties in the food distribution chain, as well as the public; conducting checks to make sure that the recall is being implemented properly; and the disposal of the recalled food.

It is highly recommended that any plan be tested through a simulation. A mock recall can reveal gaps in the protocols and educate all members of the team about their roles and the procedures to be put into effect in a recall.

Be Ready for the Lawsuit

The recall may not be the end of the story. Well after the recall is over and done, consumers impacted by the adulterated product could file a class action complaint against the company. Both the government and plaintiffs' lawyers may seek access to the company's records. The company must therefore be aware of and maintain thorough documentation of the steps it has taken to address any food safety issues and the recall process. Inadequate compliance with documentation requirements can have serious ramifications for the company. Everyone in the company must be fully engaged and aware of potential pitfalls if they fail to record their actions appropriately.

Get Insurance — CGL Policies

With the potential financial exposure from a recall, the company must assess its insurance coverage. Food companies typically maintain traditional insurance policies such as commercial general liability (CGL) and first-party property insurance policies. A standard CGL policy will provide a defense and indemnity to the insured for lawsuits brought by consumers alleging physical sickness from the insured's product. In order to trigger coverage, there must be actual physical injury alleged by the plaintiff. However, the mere risk

of future bodily injury will generally not trigger coverage under a CGL policy. Moreover, a CGL policy does not cover damage to the insured's own product, and does not cover economic losses sustained by the insured (or by others) associated with a recall of the insured's own product.

First-party property insurance covers the risk of physical damage to the insured's own property and may also cover business interruption losses. However, coverage under property policies for damage to food is often excluded by the "contamination" or "pollution" exclusion. For example, an Ohio federal court found that the contamination exclusion excluded coverage when the insured's meat product was contaminated with listeria bacteria since the policy defined "pollution" to include bacteria.

Added Protection — Recall Insurance

Traditional insurance policies, such as CGL and property insurance, do not fully protect food companies from food contamination and recall losses. In order to fill those coverage gaps, all companies should strongly consider purchasing specialized insurance policies, generally known as recall insurance.

These recall policies typically cover certain defined "insured events," but there is no standard definition of that term. For example, a Liberty Mutual policy defines an "insured event" as follows: *Any*

inadvertent or unintentional contamination or mislabeling of an insured product that occurs during or as a direct result of its production, preparation, manufacture, packaging or distribution, provided that the use or consumption of the insured product has resulted in or would result in bodily injury of any person(s), within 365 days following such consumption or use, or has caused or would cause property damage.

In contrast to a traditional CGL policy, most recall policies do not require actual bodily injury to trigger coverage. Rather, depending on the policy wording, it is sufficient if the contamination would likely result in bodily injury within a certain time after consumption (typically 120 to 365 days). This is important because the FDA has the authority to force companies to order recalls in the absence of direct contamination or actual bodily injury.

Prospective insureds should be fully informed as to the scope of the recall insurance policy before purchasing. Slight differences in policy language can determine whether coverage is afforded. For example, in one case, the FDA had issued an advisory not to eat bagged spinach due to an E. coli outbreak. Based on this advisory, the insured recalled its bagged spinach, incurring about $18.8 million in lost business. The FDA subsequently determined that the source of the outbreak was not the insured's product and retracted the advisory. Based on the policy's definition of an "insured event," the court found that there was no coverage because: (a) the E. coli outbreak was not attributable to an actual contamination of the insured's products; and (b) coverage was limited to those losses "arising out of" and "because of" an error by the insured. Thus, in that case, neither the recall itself nor the insured's belief that the product had been contaminated was sufficient to trigger coverage.

Similarly, in another case, a food manufacturer recalled its product after testing had revealed the presence of listeria. However, after the recall, the listeria was found to be a listeria strain that did not cause bodily injury in humans. The court held that there was no coverage because the contamination did not satisfy the policy's requirement that it "may likely result in bodily injury," even though at the time of the recall the insured may well have acted reasonably in ordering the recall.

Following the passage of the FSMA, many insurers offer "government-mandated recall" endorsements, which cover recalls required (or sometimes recommended) by the government as long as there is a "reasonable probability" that the product would result in bodily injury or property damage. Such endorsements broaden coverage because they often contain no requirement for an actual contamination of the product and no requirement that the potential contamination actually cause, or may likely cause, bodily injury or property damage.

Once an "insured event" is established, most policies cover the following categories of expenses: recall expenses, including pulling the product from store shelves; replacing the product; lost profits; brand rehabilitation expenses; investigative costs; and crisis management expenses. Some policies also include third-party coverage for recall costs.

There is a wide variety of policies and levels of protection available in the marketplace. The policy's terms can often be negotiated with the insurer in order to tailor the policy to meet the needs of a particular

company and to avoid potential coverage gaps.

In sum, being prepared, through proper planning and adequate insurance coverage, can be key to survival to any company in the food industry. No matter how careful the company may be in safe manufacturing processes, a contaminated product could slip through the cracks. The ounce of prevention and preparation for the inevitable storm will pay huge dividends down the road.

Bearing Design Considerations for the Food Industry

By John Wallace, Vice President of Operations, AST Bearings

Reliable, efficient machinery combined with technology plays a key role in the food processing industry. Regardless of the industry segment, equipment must be designed to withstand the rigors and safety constraints of the food processing industry. Bearings are critical components in food processing machinery, and decisions made by designers and engineers — such as lubrication, material and shielding options — are integral in the life and performance of bearings in these applications.

Regulatory Environment and Safety

The U.S. food processing sector is extensively regulated by state and federal agencies. Federal agencies dominate the regulatory oversight: USDA FSIS for the meat and poultry processing businesses and FDA for all other food processing businesses. State agencies also have an active role in overseeing food processing businesses within their respective states.

All materials used in the food processing process, including the lubricants, must comply with federal requirements. And, depending on the application and products, materials and components such as bearings used in machinery may even require USDA/FDA approval.

Lubrication

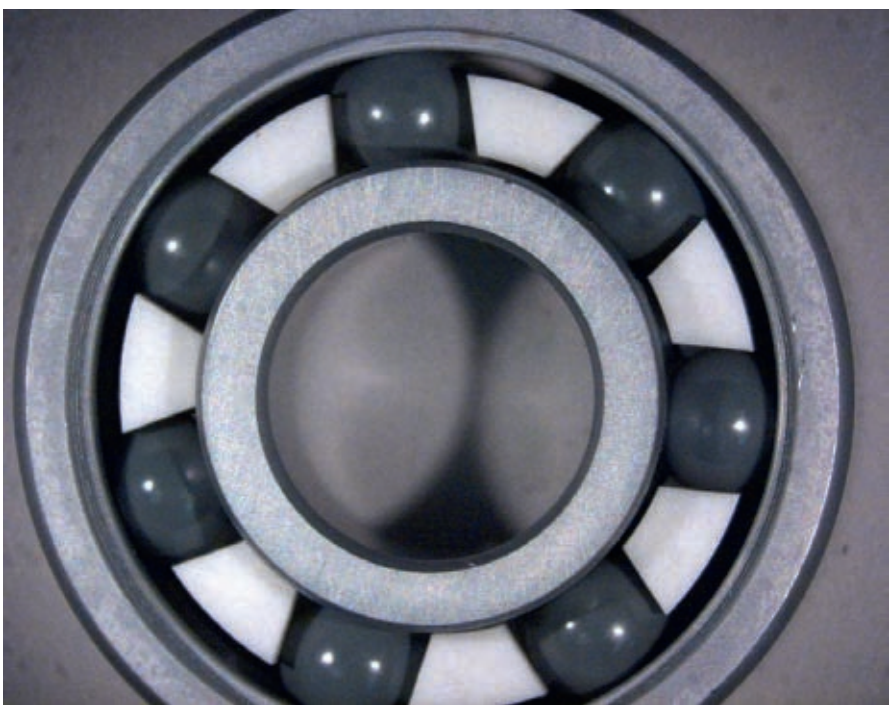
Lubricant selection is critical to bearing performance and life, yet it is often overlooked by designers and engineers. Bearing life in the harsh environments found in food processing depends on proper lubrication in terms of both type and amount. Thousands of greases and oils are available that are designed to function in a variety of conditions. Operating temperature is the primary consideration when selecting a lubricant. Temperature directly impacts the base oil's viscosity, which in turn impacts the ability to support loads.

Lubricant selection not only depends on the operating conditions the bearing will face, but may also be subject to regulatory requirements. Manufacturers of food processing machinery are often required to use "food-grade" lubricants. These lubricant types are broken into categories based on the likelihood they will contact food. The USDA created the original food-grade designations — H1, H2 and H3 — and the designations are described as follows:

H1 lubricants are food-grade lubricants used in food processing environments where there is some possibility of incidental food contact.

H2 lubricants are lubricants used on equipment and machine parts in locations where there is no possibility that the lubricant or lubricated surface contacts food.

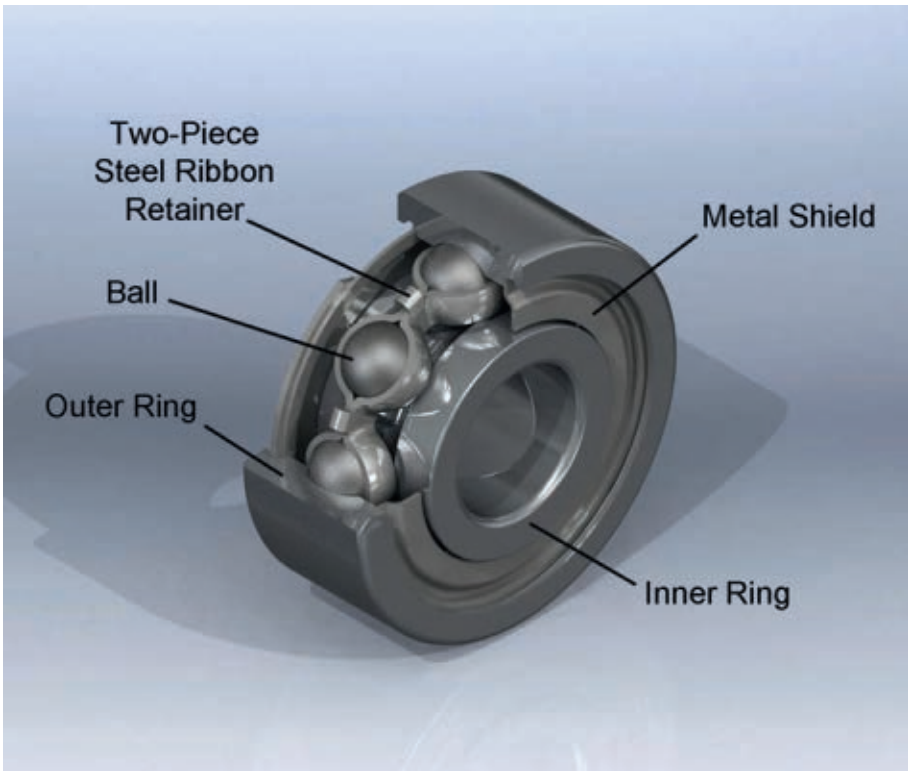
H3 lubricants, also known as soluble or edible oil, are used to clean and prevent rust on hooks, trolleys and similar equipment.



Lubricants should provide good wear and corrosion resistance. Lubricants used in high-temperature applications such as meat, poultry, fruit-vegetable and beverage processing should have high-temperature oxidation stability.

Machinery used in beef, pork and poultry processing is typically exposed to "wash down" conditions using high-pressure water and anti-bacterial solutions which are often caustic, or steam, which can displace the grease. To avoid grease displacement, greases with high resistance to water washout are used and fill 70-100% of the bearing (as opposed to a typical fill amount of ~30%). While this level of filling can negatively affect rotational speed, it significantly improves grease life.

H1 lubricants used in these environments typically have synthetic, hydrocarbon base oils with urea, polyurea or aluminum complex thickeners. H2 lubricants typically have mineral or PFPE base oils with calcium soap or PTFE thickeners.



Polyurea greases typically perform well in smaller ball bearings.

Solid lubricants can be used in very demanding applications. These are oil-filled polymers, or grease and polymer mixtures that solidify once heated and cooled. Solid lubricants can eliminate problems with grease leakage and emulsification when water is present.

Due to the wide array of products along with price and availability, both a lubrication specialist and the bearing manufacturer should be consulted before making a final lubricant selection.

Materials

All bearings should be manufactured using components produced from high purity material. While bearings are most commonly produced from SAE 52100 chrome steel, for most food processing applications, martensitic stainless steel, similar to AISI 440C, is recommended. 400 series stainless steel offers the best combination of corrosion resistance and fatigue life.

For certain sizes of ball bearings, nitrogen-enhanced martensitic stainless steel is also available. This material is more expensive, but offers up to five times the corrosion resistance when compared to traditional "440C type" materials. This material also exhibits very low noise levels and extended fatigue life due to its fine structure that contains smaller chromium nitrides (as opposed to chromium carbides).

Bearing components such as shields, slingers and cages should be manufactured from AISI 302 or 304 stainless steel. While deep groove ball bearings can be manufactured from AISI 300 series steel, which has outstanding corrosion resistance when compared to martensitic 400 series steels, they typically are not used in food processing applications due to their compromised fatigue strength. Load ratings for ball bearings manufactured from 300 series austenitic steel are approximately 20% of the ratings for 400 series. However, if the applied loads are very light they could be considered.

If bearings are required to operate immersed in water or resist chemical attack, hybrid ball bearings can be used. The rings are produced from martensitic stainless steel, and the balls are ceramic-silicon nitride. The bearing cage can be produced from a fluoro-resin or Teflon, which provides lubrication. These bearings are maintenance-free and extend life in these severe conditions.

…equipment must be designed to withstand the rigors and safety constraints of the food processing industry.

Mounted bearings are used extensively in food processing equipment and conveyors. This type of bearing usually consists of a radial ball bearing, sometimes a roller bearing, mounted and held within a housing. The bearing inside is known as an insert. Various housing styles allow for different mounting arrangements. One of the more common housing configurations is known as a pillow block.

Insert bearings should be produced from 440C stainless steel. Other options to consider for the insert are AISI 52100 chrome steel bearings that are either zinc chromate plated or black oxide coated. Several options are available for corrosion-resistant, food-safe housings.

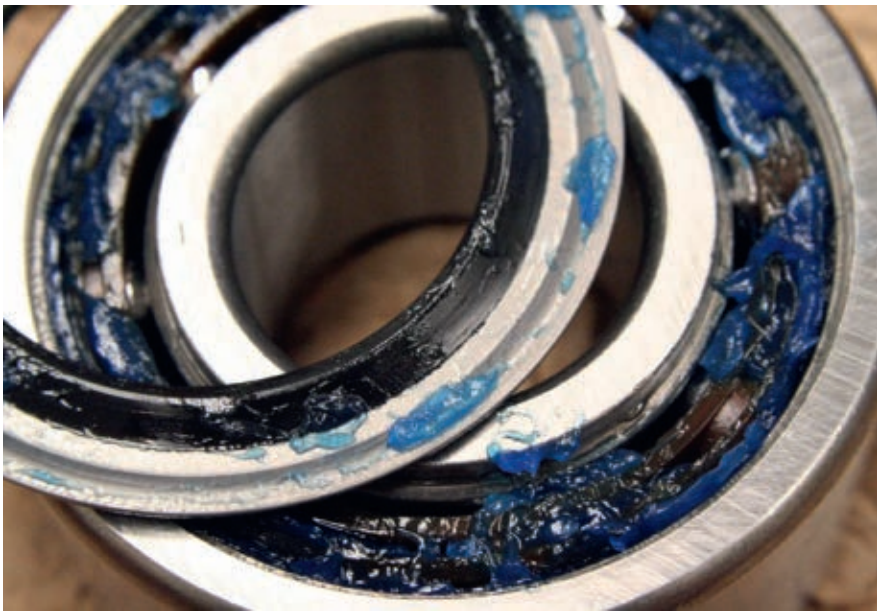
In the meat and poultry sectors, high strength housings are often required. Cast or ductile iron housings with electro less nickel plating offer strength and can withstand most wash downs with the added benefit of being cost effective. However, cast stainless steel, 300 series, is the best choice when facing high concentrations of chlorine or other chemicals in the wash down solutions. Thermoplastic housings are an effective alternative in high moisture environments with caustic wash down solutions. While they are not as strong, they are light weight and do not chip or flake as compared to a housing with plating.

Housing surfaces should also be smooth with flat mounting bases without recessed areas. This assists with effective wash down and eliminates the possibility of food by-products or debris getting caught under the mounting surfaces which can lead to bacterial growth.

Seals

In food processing plants, bearings are continuously exposed to liquids and various types of particulate debris. Sealed or shielded bearings are the best option for keeping foreign debris out of the interior of the bearing and keeping lubricant in.

The most common bearing seal material is a nitrile rubber. This type of seal is typically Buna-N bonded to a steel insert. The seal is fixed into a groove in the outer ring. The maximum operating temperature



is 240° F. This type of seal makes contact with the inner ring providing better protection in contaminated environments than a metal shield. However, this results in an increase in torque and reduces the maximum speed capability of the bearing, but in almost all cases is a design tradeoff that improves the product life.

Certain lubricants and chemicals react with rubber. Aside from the Buna-N and nitrile rubber material, other materials are available for higher temperatures and chemical resistance. These include FDA approved silicone rubber seals that can handle a maximum temperature of 400° F and Viton that has good chemical resistance and a maximum operating temperature of 400° F.

The seal construction can greatly improve its ability to function in extreme environments. Seals can be shrouded in metal, such as stainless steel or galvanized steel. Often called slingers, this type of seal is often found on mounted bearings and the metal shroud helps protect the rubber from abrasion.

The portion of the seal that contacts the inner ring of the bearing is known as the seal lip. Seals can be designed as single, double or triple lips. The seal lips flare out providing effective protection against lubricant loss and wet or particulate contaminants. Triple lip seals provide the most protection, but also increase rotational torque substantially compared to single lip designs.

When lower torque is a design requirement, a non-contact rubber seal based on the labyrinth effect can be utilized. These seals function by creating a path the fluid or debris must navigate in order to penetrate the seal. In bearings, this is typically just a groove in the inner ring. A contact lip seal can be used very effectively in combination with a labyrinth design to provide excellent protection and low torque.

Teflon and glass reinforced PTFE seals are an excellent material choice in food processing applications. They have outstanding chemical resistance, high and low-temperature capability and exhibit less torque than rubber seals. However, depending on the type of bearing and their construction, these seals are not as robust and can be dislodged if hit directly with a high-velocity stream of fluid.

Keep in mind, the seals found on most types of bearings are not designed for immersion and fluid penetration will eventually take place. They offer excellent protection from particulate contaminants or a fluid splash and wipe down situation.

In the food processing industry, bearing life is a major factor contributing to uptime and reliability. The environments bearings encounter in these applications are extremely harsh. Bearings are selected based on operational loads and desired life, but designers must also give careful consideration to protecting bearings from corrosion and contamination and maximizing lubricant life.

As evidenced, there are a wide range of bearing options to take into account for optimal application performance. Food processing engineers and designers are advised to consult a bearing applications specialist for assistance with calculating environmental factors, load capacity, bearing life and attributes.

About the Author

John Wallace is the Vice President of Operations at AST Bearings LLC., an ISO 9001:2008 certified company and a leading supplier of precision bearings and bearing related products. Visit www.astbearings.com for more information on their catalogue of more than 10,000 bearing products, lubrication services, engineering and design services, complimentary white papers, technical articles, 3D CAD models and more. AST's 'Value Beyond the Part' initiative makes a team of tribologists and engineers available to work with you to find the right bearing for your unique food and beverage application.

Brushless DC Motors

Offering greater motion control and automation integration, company introduces availability of CANopen® technology for its Brushless DC Motors. The new communications protocol offering allows design engineers to connect multiple brushless motors to the various components in their system, reducing wiring and installation costs while at the same time increasing system communications and integrity. Brushless DC motors with CANopen interface are well suited for use in a variety of demanding applications ranging from foodservice and precision agricultural equipment to packaging machinery and industrial automation.

Crouzet Motors www.crouzet.com/english/home.htm

Compact, Lightweight DC Drive

Company introduces the PAT 44X-10 Series of compact, lightweight, low cost NEMA 4X-rated DC drives, designed to deliver longer life, better performance and higher corrosion resistance than competitive drives. PAT Series drives accept 115 or 230VAC input for operation of 90 and 180VDC permanent magnet or shunt wound DC motors (50/100/200VDC field voltage) from 1/8 to 2 horsepower. The PAT Series has the same "bolt in" form factors as competitive drives to make changeover easy and cost effective.

Key specifications of PAT44X-10 Series:

- Input Voltage: 115 VAC, 230 VAC
- Output Voltage: 90 VDC, 180 VDC
- HP Range: 1/8 to 2
- KW Range: .10 -.75, .20 -1.5
- Max Current: 10 amps
- UL Listed

American Control Electronics
www.americancontrolelectronics.com

ie3 Premium Efficiency Gearmotors

The new ie3 premium efficiency gearmotors offer increased efficiency over standard IE1 models throughout the speed range and initiate less mechanical stress, which directly translates into long-term energy savings. The ie3 gearmotors run cooler and with less noise and, as they are sealed for life and require practically no maintenance, significantly reduce costly downtime. Two key factors in the enhanced durability of the ie3 gearmotors are the company's ultra-long-lasting e-coat paint and lubrication through premium H1 food-grade grease.

Key attributes of the company's gearmotors include:

- Light, reliable and compact in size
- High torque at low speed
- Sealed for life for maximum efficiency and reduced labor
- Standard high-grade grease for lifetime lubrication and reduced maintenance/downtime
- High-quality, durable, e-coat paint to withstand the toughest environments
- More efficient than worm gearboxes as a result of hardened hypoid gearing

Brother Gearmotors www.brother-usa.com/gearmotors

Stainless Steel Ball Bearings

Company has announced an expanded array of stainless ball bearings — "Value Bearings," "Choice Bearings" and "Classic Bearings." Value Bearings are designed for general use in severe service environments at an economical price. They are 440 stainless steel, wide inner ring, setscrew locking inserts, with ss flingers over single-lip seals. They are available greased or with EDT's 'F' food-grade solid lubricant in the most popular shaft sizes from ½" to 1-1/2" and metric. The Choice series are 440 stainless steel eccentric lock bearings with a 304 stainless steel locking collar. Silicone single lip seals under ss flingers protect the lubricant: either grease, or 'F,' or any of a variety of food-grade solid lubricants available for different environments. The Classic series are the 440 stainless setscrew locking, wide inner ring, inserts the company has offered customers for years. With the most shaft sizes available, Classic bearings are sold with grease or with any of a variety of food grade solid lubricants, which is protected by stainless flingers over silicone single lip seals. They now include a custom anti-rotation pin that allows drop-in fit to most manufacturers' housings.

EDT Corp www.edtcorp.com

8-Piston Bottle Filling System

This eight-piston bottle filling system is fast, accurate and quick and easy to change over to run different bottles or products. Ideal for dressings, sauces, mayonnaise, condiments or other flowable or semi flowable products with or without particulates. Features include hopper agitation to gently maintain the proper ratio of liquids and solids or to prevent coring of viscous product, precise metering using either pneumatic or servo piston drive, servo motor diving spout bridge for bottom–up bottle filling and automatic cycling controls. Unscrambler table, conveyor and accumulator table completes the 8P-32 automatic filling line. Heated versions are also available for hot fill applications.
Hinds Bock www.hinds-bock.com

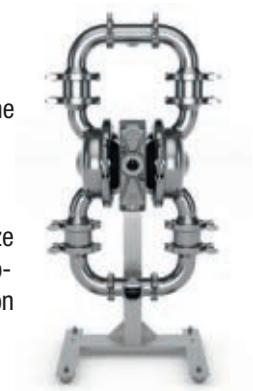
Bulk Bag Discharger

Patented system designed for discharging product into customer's existing process. Unit features dual electric chain hoists and Spider-Lift™ bag lifting frames. Unit features the exclusive Flo-Master™ bulk bag massaging system to promote material flow. Unit includes the stainless steel Seal-Master™ round bag spout access chamber with "gull-wing" doors and a custom 316L stainless steel discharge transition with a fluidizer system for product flow assistance. Unit features the exclusive stainless steel Sure-Seal™ pneumatic bag spout clamping system for dust-tight discharge. Equipment painted an FDA white epoxy finish and includes a NEMA 4 control enclosure. System includes pneumatic piping utilizing 304 stainless steel rigid air lines and stainless steel pneumatic fittings.
Material Transfer www.materialtransfer.com

Vibratory Tables

Vibratory tables are available in a complete line of air- or electric-powered models with load capacities to 10 tons. These versatile vibratory tables are used for settling product contents in drums, bulk bags, portable bins, bulk boxes, gaylords, lever packs, concrete, foundries and moulds. Vibratory tables are available in jogger tables, light duty, flat deck, grid deck, grid deck with rollers, flat deck with scale, and grid deck with scale. They are used in all of the bulk process industries including food, chemical, packaging and pharmaceutical.
Best Process Solutions, Inc.
www.bpsvibes.com

Hygienic Pump



Company announces the release of new Saniflo Hygienic Series (HS) Original Metal AODD pump models that utilize the energy-efficient Pro-Flo SHIFT Air Distribution System (ADS). The new high performance Saniflo HS pumps comply with EHEDG, 3-A, CE, ATEX, USP Class VI, 1935/2004/EC and FDA CFR 21.177 requirements for use in a wide variety of hygienic applications. Pro-Flo SHIFT Saniflo HS pumps are available in 316 stainless steel and nickel-plated aluminum in 38 mm (1-1/2"), 51 mm (2") and 76 mm (3") sizes and feature maximum discharge pressures to 8.6 bar (125 psig), maximum flows to 844 lpm (223 gpm) and maximum solid-handling size to 60.3 mm (2-3/8"). Pro-Flo SHIFT Saniflo HS pumps are available with maximum suction lifts to 5.4 m (17.6') dry and 9.0 m (29.5) wet.

Wilden www.wildenpump.com

High Speed Mini Products Depositor

The 10P-01 high speed mini products depositor provides large production in a small space. Design features allow this 10 piston machine to run up to 1000 mini muffins, mini cupcakes and mini snack cakes per minute. The 10P-01 can be disassembled in minutes without tools for rapid sanitizing and change over for maximum up time. Clean accurate deposits make this an extremely efficient machine. A recipe driven operator interface make product selection quick and easy.

Hinds Bock www.hinds-bock.com

Industrial Cleaner

The new eco-friendly Oil Eater Original is a powerful, water-based cleaner-degreaser for industrial use. It quickly dissolves grease, oil and grime from machinery, equipment, concrete floors, tools, walls and more. Oil Eater's unique formula eliminates the need for multiple cleaning solutions. It is low-VOC, non-flammable, non-toxic, biodegradable and contains no acid, abrasives or petroleum solvents. It penetrates rapidly, rinses off easily, leaves no residue and will not harm the skin. It can also be used in parts washers and pressure washing systems. Oil Eater is available in 32oz. spray and 1-gallon bottles, 5-, 30- and 55-gallon containers and a 275 gallon tote.

Kafko International www.oileater.com

Vertical Form-Fill-Seal Bagging Machine

Company has introduced a bagger geared to the needs of the snack food sector. The BVR 230 VFFS Bagging Machine is a continuous vertical form-fill-seal machine that, in addition to an integrated weigher, features an innovative rotating sealing tool arrangement. The BVR 230 can produce up to 180 pillow bags per minute and perfect bag seal quality can be achieved with a wide spectrum of suitable film qualities. The machine's weigher is mechanically and electronically integrated to the system to achieve the best possible performance without synchronization losses, and a mechanical, separately-driven cutting knife reduces wear and its associated downtime. The machine is also highly user-friendly: the BVR 230 occupies a surprisingly small footprint given its high functionality, with all areas easily accessible for cleaning purposes. All necessary packaging process operating parameters – including product filling time, sealing time, bag length and set performance – are entered, monitored and adjusted at a touch-panel HMI.

Rovema North America
www.rovema-na.com

Pulse Friction Feeder

Patented system designed for discharging product into customer's existing process. Unit features dual electric chain hoists and Spider-Lift™ bag lifting frames. Unit features the exclusive Flo-Master™ bulk bag massaging system to promote material flow. Unit includes the stainless steel Seal-Master™ round bag spout access chamber with "gull-wing" doors and a custom 316L stainless steel discharge transition with a fluidizer system for product flow assistance. Unit features the exclusive stainless steel Sure-Seal™ pneumatic bag spout clamping system for dust-tight discharge. Equipment painted an FDA white epoxy finish and includes a NEMA 4 control enclosure. System includes pneumatic piping utilizing 304 stainless steel rigid air lines and stainless steel pneumatic fittings.

MGS Machine www.mgsmachine.com

United States Postal Service

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16. Publication of Statement of Ownership for a Requestor Publication is required and will be printed in the October 2015 issue of this publication.

17. Signature and Title of Editor, Publisher, Business Manager, or Owner

Barbara Benack, Audience Development Manager (signed)

MasoSine Pumps

MasoSine pumps are a good choice for pumping chocolate, caramel, fondant, thick cream, syrups and liquid sugar. Masosine sinusoidal pumps – which are low shear, low maintenance, and energy efficient, especially with highly viscous products – deliver significant process efficiencies over the equipment lifetime. Featuring powerful suction, high flows, and superior product handling capability, MasoSine pumps maintain product integrity during the transfer process. Due to a unique pump design, the pump can handle bigger particles, resulting in smooth transfer for confections with inclusions like nuts, raisins, cookies, or cereal. The MasoSine pumps' single shaft design and optional heating jacket allows confectionary products to be transferred while maintaining temperature, which is extremely important when working with temperature-sensitive products. The pump's unique rotor has an undulating contour that gently transports the product with low friction, maintaining product quality throughout the entire process. Capable of being cleaned-in-place (CIP), the MasoSine pump meets stringent levels of certification, including FDA or EG 1935 standards, as well as 3-A SSI (3-A Sanitary Standards, Inc.) and EHEDG, depending on customers' requirements. It is also easily disassembled for manual clean-out-of-place (COP) procedures.

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EQUIPMENT AND MATERIAL

Get the Basics on Color-Coding

By Steven Porter, Vice President Manufacturing Sales, U.S., Grainger

About 48 million people (1 in 6 Americans) get sick, 128,000 are hospitalized, and 3,000 die each year from foodborne diseases, according to recent data from the Centers for Disease Control and Prevention. This is a significant public health burden that is largely preventable.* The Food Safety Modernization Act (FSMA), signed into law by President Obama, enables the U.S. Food and Drug Administration to better protect public health and shift the focus from responding to food contamination to preventing food contamination. The following are among the FDA's key new prevention authorities and mandates:

- Preventive controls for food facilities: Food facilities are required to implement a written preventive controls plan. This involves: (1) evaluating the hazards that could affect food safety, (2) specifying what preventive steps, or controls, will be put in place to significantly minimize or prevent the hazards, (3) specifying how the facility will monitor these controls to ensure they are working, (4) maintaining routine records of the monitoring, and (5) specifying what actions the facility will take to correct problems that arise.*
- Produce safety standards: FDA must establish science-based, minimum standards for the safe production and harvesting of fruits and vegetables. Those standards must consider naturally occurring hazards, as well as those that may be introduced either unintentionally or intentionally, and must address soil amendments (materials added to the soil such as compost), hygiene, packaging, temperature controls, animals in the growing area and water.*

One of the most important FDA-proposed rules is HACCP (Hazard Analysis and Critical Control Points). Complying with HACCP regulations is an important part of any food processing operation, and knowing where the critical zones are and preventing cross-contamination from happening is an integral part of this compliance. Currently, there are HACCP procedures for dairy, juice, retail seafood, and retail and foodservice. HACCP is a preventative approach to the identification, evaluation and control of food safety hazards that may cause illness or injury when not properly controlled. Put simply, HACCP is designed to help control the threat of cross-contamination from biological, chemical and physical agents. According to the FDA, "any action or activity that can be used to prevent, eliminate or reduce a significant hazard" is considered a control measure. Color-coding is an excellent example of a control measure.

Once potential food safety hazards are identified, critical control points can be documented. The FDA defines a critical control point in a food manufacturing process as "a step at which control can be applied and is essential to prevent or eliminate a food safety hazard or reduce it to an acceptable level." Knowing where the critical control points exist in a food production process is essential to designing an effective HACCP plan. A comprehensive food safety plan considers the people, equipment, process and environment involved in the food production process. Color-coding can be a helpful system to protect the food product. Color-coding can also help food processors improve productivity as part of a 5S system that integrates color "cues" throughout the work process to reduce waste and optimize productivity.

Common allergens that are often addressed through color-coding include milk, eggs, fish, crustacean shellfish, tree nuts, peanuts, wheat and soybeans. Different colors are typically assigned based on type of food or task, or by "zones" within a food processing facility. For example, typical sanitation zones may be defined as food contact areas, non-food contact areas, remote and/or non-food processing.

While there are no federal or state regulations in place specifically for color-coded tools, the FDA has developed HACCP procedures that recommend the use of color coding on items such as employee smocks, containers, tools, cleaning equipment and utensils. Similarly, no rules exist about what colors should be used for various purposes, but certain colors have become standard in the industry: red for raw meat, blue for seafood, green for produce, white for finished food and yellow for hazardous areas.

Tips for Successful Color-Coding**

- Keep it simple — Color assignments should be logical and not complex.
- Be consistent — Color assignments should be consistent in how they are applied.
- Consider contrast — Color assignments should be easily recognized among food being processed so the tools can be more easily identified when lost or misplaced.
- Communicate your color-coding program — It's critical to make sure all employees are on board. To help assure compliance, some employers recommend meeting with shift employees first, then rolling out to all employees to ensure compliance.

Implementing a well-delineated color-coded system is one of the most effective and straightforward ways of preventing cross contamination and maintaining good hygiene, and it can be particularly effective in breaking down language barriers in multilingual food processing facilities. Through proper training, employees better understand and can clearly identify tools by their various colors. Color-coding is also an effective means of distinguishing between "material handling" and "cleaning/sanitation" within a food processing facility, which saves employees time and potential confusion in between food runs or processes.

During inspections, regulators from the FDA often look favorably upon color-coding as part of a comprehensive food safety plan because it can be easily followed by employees, and easily documented to improve traceability in the case of a food safety recall.

** FSMA website — http://www.fda.gov/Food/GuidanceRegulation/FSMA/*

*** Provided by Remco™ and Vikan™ color-coded solutions.*

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