2011
VOLUME 87

THE JOURNAL OF AMERICAN BAKING 2011

THE JOURNAL OF AMERICAN BAKING

PROCEEDINGS OF THE 87TH ANNUAL TECHNICAL CONFERENCE

PREVIEW:

- Building a LEED Bakery
- Waste to Profit
- Clean Label Strategies
- Oven Technology
- OSHA and Combustible Dust
- Project Management
- Sanitary Design

ALSO IN THE ISSUE:

- 2011 Baking Hall of Fame Inductees
- Food Service Trends
- Industry Updates
- Updated Dietary Guidelines

March 2011

Journal of American Baking

A PUBLICATION BY THE AMERICAN SOCIETY OF BAKING

VOLUME 87

March 6-9, 2011, provided a week crammed with knowledge and networking for members of the American Society of Baking and their industry colleagues and peers.

BakingTech 2011 saw gains in attendance, exhibitor participation and learning opportunities for baker and allied industry participant alike. Held once more at the Chicago Marriott Downtown Magnificent Mile hotel, ASB's 87th annual technical conference attracted 1,030 attendees and 201 exhibitors. They had the opportunity to hear 20 technical presentations as well as reports from the American Bakers Association, the Grain Foods Foundation and many of the ASB advisory and technical committees.

Program Chairman Paul Lattan challenged attendees to get more out of the conference this year, noting that "you get out what you put in." With that in mind, he urged ASB members and conference attendees to get involved, work the marketplace, attend the technical sessions and engage the fullest at the networking events that make the annual meeting "The Best Week in Baking."

ASB Chairman Rowdy Brixey chose a theme with special personal and professional meaning to him — Nourishing for Generations. The son of a long-time bakery engineer, Mr. Brixey has devoted his career to baking and bakery engineering. To introduce the theme to the 2011 audience, he interviewed Morton Sosland, a member of the *Baking Hall of Fame*'s 2006 inaugural class and a writer, editor and publisher who has covered the milling and baking industries throughout his long professional career. The video interview touched on the contributions that those in grain-based foods industry have made to the health and financial strength of this field.

Technical sessions opened with keynote speakers. On Monday, March 7, Ed Viesturs described his adventures climbing the world's 8,000-meter peaks, all 14 of them. He related how risk management, team work, overcoming obstacles, preparation and execution enabled him to reach the ranks of the world's foremost high-altitude mountaineers. On Tuesday, Dr. Lowell Catlett returned to the ASB stage. The noted futurist employed plenty of humor to help conference attendees better understand current business trends and the economy.

ASB announced future meeting dates for its annual technical conference: March 4-7, 2012; March 3-6, 2013; and March 2-5, 2014.

With appreciation,
American Society of Baking

Rowdy Brixey
Chairman

Paul Lattan
Program Chairman

The Latest Advances in Oven Technology

By Dan Malovany and Shane Whitaker
Sosland Publishing Company

SHANE WHITAKER: Good afternoon. I'm Shane Whitaker. Dan Malovany and I are going to be talking about oven technology today, and boy is this a hot subject. Hotter than Charlie Sheen on Twitter. The baking process is not changing radically within the baking industry; however, many new technologies are being introduced to oven systems to improve the baking process and reduce energy costs as well as maintenance. Much of the innovation in ovens is related to energy savings, whether it be through heat recovery, improving burner efficiency, or providing greater control of the baking perimeters. Dan and I will share with you a variety of new technologies aimed at this goal; however, we're not going to be covering all new technologies, but we will be touching on about a dozen or so.

When presented with an opportunity to speak on ovens, we were asked to address a wide variety of technologies within the category. One of the first things that is important to understand is the scope and variety of ovens available to the industry, whether they be deck, rack, conveyorized, tunnel, direct-fired, indirect-fired, thermal, oil, single pass, multi-pass, etc. There are a lot available. Similar products can be baked in different style ovens; however, bakeries need to do their homework and learn what is going to be the best oven for their products, what oven will meet their throughput needs, and how they can be assured their oven is working optimally. Now, I'll turn it over to Dan, who will talk about the tools to determine oven performance.

DAN MALOVANY: Thanks Shane. First, I'd like to thank the dozen or so people out of everyone in this room for sharing their expertise with us. I want to tell you that no good deed goes unrewarded. All right. I'm going to talk about the tools to determine oven performance.

(Slide 2) There are a variety of instruments and other devices that allow bakers to determine an oven's optimal performance for a specific product. For some companies, supervisory control and data acquisition systems have become standard equipment to resolve oven issues, both on premise and even remotely. Other oven manufacturers rely on a variety of computer software, and even production line cameras, to monitor and provide remote assistance and even fix problems from around the world. Many times, when bakers are looking to purchase a new oven, many of them are searching to duplicate some product that has been in existence for fifty years. They may want to upgrade the oven or scale up and produce more tonnage.

To replicate oven performance, a bakery needs to determine the exact amount of energy that's being delivered to the product throughout the baking process. That energy is measured in BTU's per square foot, and it is a mixture of radiant and convection energy, with convection coming from air movement and radiant energy coming from objects. Oven designers rely on such tools as a heat flux sensor, a temperature sensor or ray, an air velocity sensor or ray, and a humidity sensor, just to name a few. Today, I will talk briefly about the heat flux and humidity sensors. The information for this section came from an equipment supplier based in Pennsylvania.

(Slides 3 through 5) The heat flux sensor measures the convective and radiant heat fluctuations at the product level, and it displays the results, as I mentioned before, in BTU's per square foot per hour. Convective and radiant heat is absorbed by the oven band, which serves as a convection mechanism to the product. The sensor travels through the oven with a full load of product to essentially map the oven. Technically, the device has two spaces. One space measures convective and radiant heat fluxes; a second space measures only convective heat fluctuations, while a temperature sensor monitors the free stream air temperature associated with the convection. Mathematical models and computer software are used to create a total heat graph.

(Slide 6) By measuring the different proportions of the various types of heat, one can analyze the precise baking process, and then use that information to control product quality. On the other hand, measuring humidity, specifically moisture in the oven, is critical because every product has a unique moisture profile. A humidity sensor allows you to determine the maximum amount of moisture you want to build in the oven, and then trace the shape of that profile. (Slide 7) In a 300-foot cookie oven for instance, the sensor allows you to indicate where the moisture level hits that peak and when you might want to lower that moisture level to further bake and add color to the product. For cracker production, you may want to hit $^{2}/_{10}$ of a pound of water per pound of dry air at its peak in the oven. (Slide 8) A moist cookie product might be at $^{3}/_{10}$ of a pound of water at its peak, while pretzels might be at $^{4}/_{10}$ of a pound, and bread at one pound of water.

(Slide 9) Bakers need to determine the absolute amount of water they need to get out of a product, then measure to create the desired shape and humidity curve by using exhaust settings in each zone of the oven. Keep in mind that monitoring moisture in the oven should be an ongoing process. Moisture often fluctuates month to month and season to season, so a humidity sensor can be a key to a consistently baked final product. Additionally, the amount of product that you put in the oven can impact moisture. Sending too much tonnage into an oven can increase moisture, resulting in a final product that doesn't match your optimal product characteristics. These characteristics may include color, texture, finished product moisture, and others. Now back to Shane.

SHANE WHITAKER: Thanks Dan. A major bakery equipment manufacturer has introduced a new space age technology for the interior of its ovens that allows bakeries to increase throughput and reduce gas consumption by re-radiating heat. According to its thermal products manager, the company is applying the science to the art of baking by using nanotechnology to broaden infrared emissivity inside the oven. Ninety percent of baking occurs within a range of 0.2 micron to 8 micron infrared and near infrared radiation, and the nano-sized emissive, silica-based particles applied to the steel and ceramics make better use of the energy in ovens. Essentially, by broadening the spectrum of infrared radiation, more energy goes into the products. These nano-emissive particles used in the ovens were originally developed by NASA, and they are used heavily in the aerospace industry.

(Slide 10) The NASA-licensed technology has also been applied to other industries that use high heat, such as the petrol, chemical, steel, and glass industries. According to NASA's website, in baking, this technology improves the uniformity and wave band width of the radiant heat produced by the gas oven. When walls, pans, and burners feature the nano-emissive particles, radiant heat is absorbed by the metal in the walls and the roof, and re-radiated back into the bread baking in the pans, resulting in a more efficient bake. Or, as the company explained, the nano-emissive particles help shorten the S curve of the baking profile; thus, it increases the throughput. Volume, crust, and crumb quality are all improved for products that are baked in the ovens with this technology, according to the oven manufacturer. It also increases the oven capacity by up to 10% and reduces gas consumption by up to 20%.

(Slide 11) Another advantage of this technology is that the gas combustion is more complete in the presence of the nano-emissive particles. Therefore, fewer emissions and possibly less VOC's occur. When it has been used, it has greatly reduced harmful emissions, and in some cases, eliminated the need for oxidizers in certain industries, the product manager added. The technology is available in new ovens from the bakery supplier, and eventually the OEM expects that it will be able to retrofit older ovens with this technology. However, the oven manufacturer also wanted to stress that this is not a coating. Because the particles are baked into the metals and ceramics at very high temperatures of more than 1,400 degrees Fahrenheit, there is no coating that can flake or contaminate product. Dan will next address infrared technology.

DAN MALOVANY: Thanks, Shane. I appreciate it. (Slide 12) For cracker and salted snack producers, infrared oven

Dan Malovany *is the editor of* Baking & Snack *magazine. Since 1987, Dan has covered all aspects of the wholesale baking industry. He has been fortunate to field around 200 major case histories and has received numerous writing awards. He is a long-time member of American Society of Baking. Previously, he was editor of* Snack Food & Wholesale Bakery *magazine, and before that,* Bakery Production & Marketing *magazine. A graduate of Northwestern University with a master's in journalism, Dan also has worked for newspapers throughout the nation.*

Shane Whitaker *has worked at Sosland Publishing Co. in Kansas City, Missouir, for the past seven years. He was hired as an associate editor with* Baking & Snack *in March 2003. In February 2005, he was named managing editor at sister publication,* Meat & Poultry, *where he served for nearly two years before returning to* Baking & Snack *as senior editor. Shane has written on a wide range of subjects for the baking industry, but his main focus is on processing technology and visiting and writing about baking and snack plants. Shane completed the Baking for the Allied Trades course at AIB International. He is a graduate of Northwest Missouri State University in Maryville, MO, where he studied journalism. Prior to joining Sosland, he worked for several weekly and daily newspapers in the Greater Kansas City area.*

technology provides a plethora of benefits, including energy savings and a more consistent bake. The technology I'm talking about today was recently installed in a LEED-Platinum snack facility in Massillon, Ohio. The snack producer uses the technology in a three-pass oven that currently cranks out 3,000 pounds of corn tortilla chips per hour. However, the oven has enough capacity to produce up to 5,000 pounds per hour. The oven is outfitted with 24 infrared burners, but only uses 12 of them to bake corn tortillas. That's because the system's side-by-side, two-side heat distribution is so even and efficient, according to the company.

(Slide 13) Additionally, the oven features an enclosed cavity to prevent unwanted drafting. In a similar sized, older-style oven, 2,400 cubic feet of air would be exhausted. The new enclosed oven sends only 800 cubic feet of air up the stack, and according to the sustainability manager, "It's a common flaw in a lot of oven designs to allow air to infiltrate and cause drafting. Because it is so much warmer inside, the oven will draw air like a vacuum heated, and then discharge it without having any impact on the product. You waste a tremendous amount of natural gas and energy in doing so."

The company also can turn the oven burners on and off to customize the baking process, produce specific product varieties, and to maintain product consistency. As far as quality, the company is always "hitting the gold standard on its product," the sustainability manager said. Now, I'm going to go back to Shane.

SHANE WHITAKER: Earlier I spoke about an equipment manufacturer that employed space-age technology for re-radiating heat inside the oven. Well, here is another oven technology that also uses product originally developed for the space race. (Slide 14) A Texas-based equipment manufacturer began testing a new lube-free conveyorized oven in a large bread and bun bakery this past year. One of the things that makes this loop-free chain possible is a solid, graphite lubricant that is internally bonded to the bearing. The solid, graphite lubricant was initially developed for the Russian space program, and it has been approved by the FDA for bakery use.

(Slide 15) The solid, graphite lubricant replaces the conventional lubricant or grease used to maintain a boundary between moving parts. Here you can see a cross section of the bearing with the solid, graphite lubricant. Because of elevated temperatures in ovens, lubricants, and even synthetic oils, evaporate quickly and carbonize on bearings, which can cause them to seize. These seizures significantly impact track wear, and the metal contact can contaminate product. The lubeless chain never requires external lubrication. The solid, graphite lubricant is bonded to the stainless steel retainer, which provides greater strength and can run more than 1,000 rpm's without cracking. Also, the lubricant is environmentally safe and non-toxic. It will not drip or fling even in extreme conditions found in the ovens, and the solid, graphite lubricant seals to the bearings, protecting the ball path from dust, dirt, and other contaminants that could cause premature bearing failure. But it's not just the solid lubricant that makes the oven chain possible.

The hybrid precision ball bearing that features ceramic balls on steel raises is another change over current designs. The deep grooved, precision bearings offer increased load capacity, as much as 50% over comparable non-precision bearings according to the OEM. It uses proprietary steel raises with high temperature heat, stabilization, and hardness. Its stainless steel shields also protect the bearings, helping to keep the solid lubricants in and the contaminants out.

(Slide 16) The lubeless chain also features several other changes compared to previous oven chain designs. For example, pins and casings are coated with a proprietary, non-toxic, thin film, solid lubricant that undergoes special heat treating. This lasted three times longer than plain zinc plating, according to the company. In addition, vertical bearings are removable, using left and right end cap screws, which are able to handle higher torque than orbital rivets. It also allows single bearings to be replaced as opposed to an entire assembly. As expected, the new lube-free conveyorized chain is going to be more expensive than a conventional chain replacement, but even with the increased cost, the manufacturer's president noted that the chain will have a relatively short payback, with projected annual savings of up to $30,000. A return on investment could easily be achieved in less than two years, he said.

(Slide 17) Now, let's take a look at the conveyorized chain in action. The lube-free conveyorized chain. There it goes. All right. Now, Dan will talk about some space saving oven technology.

DAN MALOVANY: I'm glad to see the video worked. Yes, I'm going to be talking about space-saving oven technology, which is not technically new, but was a big topic of discussion by the supermarket bakers from HEB and Wegman's at the BEMA meeting earlier this week. (Slide 18) Modular, serpentine, and other oven designs can provide bakers with a number of advantages. Such technologies provide space-saving advantages by utilizing the height of the bakery to minimize its footprint. Modular ovens typically travel up and down in pans, peel boards, or trays in individual oven modules, while serpentine baking systems snake back and forth in a horizontal or vertical manner. With modular systems, bakers can produce a wide variety of products including artisan breads that require slow, long, maybe hours of proofing and baking. Steam can be added to various sections to create the proper bake. Also, for production flexibility, par baked and unbaked products can be produced on the line by bypassing modules or the oven chambers entirely. Now, back to Shane.

SHANE WHITAKER: While some companies offer heat exchangers that allow bakers to re-use exhaust heat from their ovens, a new division of a long-time supplier and manufacturer of oven burners is revolutionizing the fuel exchanger concept with its condenser, oxidizer, recuperative exchanger system, which can assist bakeries in reducing their fuel consumption by up to 50%, according to the manufacturer. (Slides 19 and 20) The system recaptures the ethanol produced during the baking process, as a byproduct from yeast fermentation and re-introduces it into the gas stream to help fuel the oven. The ethanol serves as a complimentary bio fuel.

The newly developed energy recovery system, with the proprietary ethanol recovery block, eliminates the need for stack oxidizers that are traditionally used to burn the volatile, organic compounds or ethanol created during the baking process.

Another key component of this system is the evaporative water recovery unit that recaptures water from the water vapor in the oven stack and provides the bakery with recycled hot water for sanitation, washing, and possibly steam for the proofer. The 50% fuel savings achieved with this system results from a combination of the fuel saved by pre-heating the combustion air, a reduction in the proof for energy consumption, the use of the ethanol for the fuel in the oven, and the fuel previously needed for oxidizers and process boilers. So it can dramatically reduce the carbon footprint of a bakery. In fact, the only byproduct of the process is carbon dioxide, which has a temperature of less than 85 degrees Fahrenheit when it is released into the environment. Next, Dan will address vacuum cooling technology.

DAN MALOVANY: Thanks Shane. Now, vacuum cooling may not be a part of oven technology, but it still can be part of the overall baking and cooling process. (Slide 21) Although it has been around since 1934 and remains more popular in Europe than in North America, new vacuum cooling systems can provide several potential advantages to the final baked product. According to one Swedish manufacturer, vacuum cooling can reduce the entire baking, cooling, and packaging process by $^{2}/_{3}$ of the time. Specifically, it can reduce ambient rack cooling time from 45 minutes to an average of 2.5 minutes in the vacuum cooler. The process can lower total energy usage and reduce floor space for cooling racks. By reducing cooling time, there are several potential product attribute benefits as well.

(Slide 22) First, more moisture is retained in the product. Typically, baked products lose moisture as the product continues to bake from the inside out during the ambient cooling process. Second, shorter cooling times and increased moisture retention maintain the texture and cell structure of the bread that can be lost during ambient cooling. Third, the product shelf life can be doubled by retaining moisture. Also, the potential for molding is decreased by minimizing the product's exposure to air. According to the manufacturer, vacuum cooling allows par baked products to be shipped without glass freezing, and the additional moisture retention allows for improved re-heating of the product at retail shops and restaurants. Back to Shane.

SHANE WHITAKER: Earlier I talked about a Texas-based oven manufacturer that has developed a loop-free chain for conveyorized ovens. (Slide 23) Another Texas-based oven manufacturer has also made advances in the past several years in regards to its Chevron beds and conveying services inside the tunnel ovens by reducing the drag and metal-to-metal contact on the belts. Reducing drag on belts reduces friction and prolongs the life of the belt, but also reduces the energy required to convey the belt, noted the company's chief operating officer. He added, "This mechanical improvement has green results. Green as in better for the environment and for bakery's bottom lines."

(Slide 24) The company contends that its hybrid tunnel ovens have been a front runner in green oven technology for a while now. Equipped with catalytic oxidizers and indirect first zones followed by the remainder of the oven being direct gas fired, the hybrid tunnel oven can exhaust the direct zone to the catalytic oxidizer, re-burn the ethanol exhaust, and use it to heat the first zone of the oven before exhausting into the air. The results are cleaner-burning exhaust, the use of latent energy, and lower energy consumption. Add heat exchangers to the oven stacks to supply hot water to the proofer, and your energy consumption is dramatically affected. The initial investment in such systems, however, is higher, but the ROI should justify. The oven manufacturer estimates up to 17% energy usage savings. Now, Dan will talk about some CIP oven technology.

DAN MALOVANY: Notice Shane gets all the more complicated technology to talk about. (Slide 25) With all the talk about food safety and sanitary design, I would like to spend a minute or two talking about clean-in-place oven technology. Now, this is because bakers are producing a wide variety of pizza, stuffed products, pockets, burritos and other premium products that often must meet requirements for

USDA-inspected operations. That means washing down and cleaning the insides of the oven more thoroughly and more frequently. Such down time to eliminate grime, allergens, and other food safety issues can be a costly proposition. That's especially true with an integral piece of equipment such as the oven.

Today's clean-in-place ovens feature stainless steel construction, fully welded interiors, easily acceptable interiors, and sloped floors where baked on spills can be power washed into a drain. The ovens can also be on legs that help avoid hidden sanitation issues from ovens resting directly on a slab or the bakery floor. In many instances, CIP designs reduce sanitation times in half, thus, minimizing downtime and changeovers, as well as enhancing throughput. CIP systems come with a manual or automatic option. Manual options are best for bakers who clean their ovens every 30 days or so. Typically a 120-foot tunnel oven will have upwards of 20 full size metal doors, where sanitarians can manually power wash caked on foods, grease, allergens, and other ingredients from the base or the side of the oven's walls. Products such as pizzas or fatty foods may force some bakeries to clean their ovens daily. A fully automated CIP system with pre-installed nozzles and drainage systems can eliminate product build-up and improve oven efficiency.

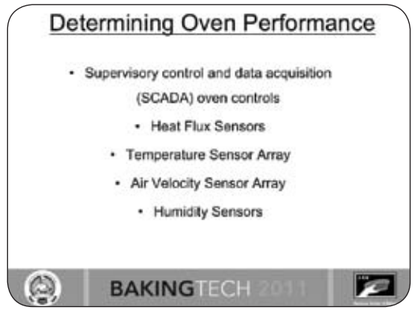
(Slide 26) Now, I'd just like to wrap up a little bit. I would like to talk for a few minutes about the challenges that bakers are facing in the baking process. Many ovens are several decades old. Granted, many have been rebuilt, but you have to ask, do they meet OSHA and other safety standards? That's one of the questions that several of the people we talked to brought up to us. What are some of the other challenges? Here are some good questions from the experts we talked to.

One, is it cheaper or easier to retrofit an oven to add PLC's and other electronic controls or to purchase a new one? Does your oven have a direct-spark ignition, power interruption protection, recipe control, state-of-the-art temperature and humidity monitoring systems and more? One company displayed a new conveyor oven igniter at ASB's conference table top exhibits. That igniter reportedly addresses reliability issues and other challenges that bakers face.

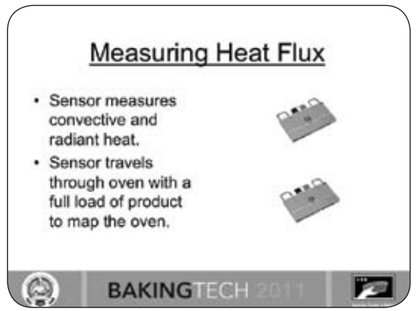
(Slide 27) Now, another question: How much energy is the older oven using, or is it wasting energy? Many older ovens were not only designed to last forever, but they were built when energy was cheap. Many older ovens were built also when dedicated lines were popular and produced only a limited variety of products. You have to ask yourself, "How long does it take to start up or change the oven temperature to switch from one product to another."
(Slide 28) The irony here is that when we discuss the future of oven technologies for competitive reasons, many oven companies did not want to share their thoughts on the future of oven technology, but many did mention that heat recovery and energy savings will be key to the future. As one expert said, "Every major baking company is working on 'the oven of the future'. I don't know where it's going, but one thing is for sure, it has to be focused on energy conservation, and I don't think there is an oven of the future without that."

I'd like to thank you for this opportunity to discuss this topic. I'd like to open up the floor if we missed any technologies that anybody would like to share at this time. If you have any questions, we'll be glad to try to answer them.

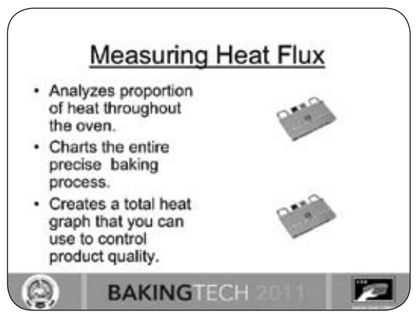
Slide #1



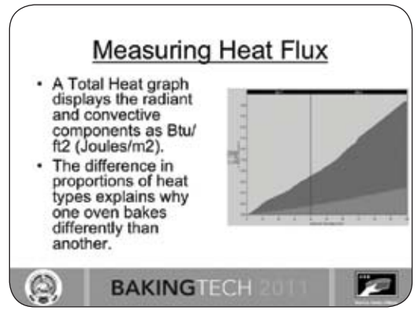
Slide #2



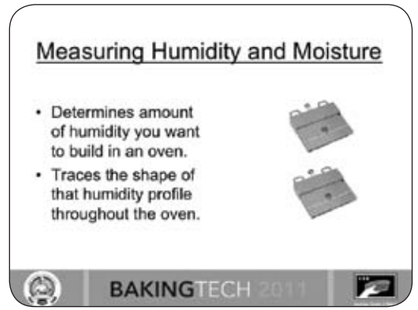
Slide #3



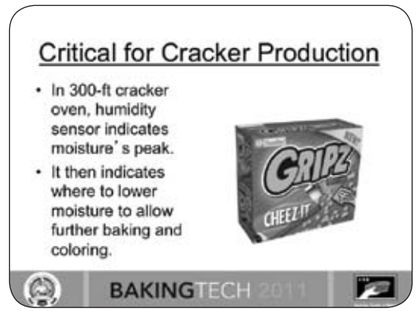
Slide #4



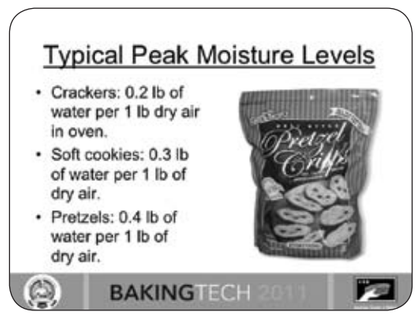
Slide #5



Slide #6



Slide #7



Slide #8

Measuring Moisture Control

- Varies from season to season.
- Vital for consistent production of quality products.
- Can control color, texture, finished product moisture and other vital characteristics.

BAKINGTECH 2011

Slide #9

Nano-Emissive Particles

- Reduce energy by up to 20%.
- Increase oven capacity.
- Improve sustainability efforts.

BAKINGTECH 2011

Slide #10

Nano-Emissive Particles

- Silca-based particles applied to interior of ovens.
- Shortens "S" curve of baking profiles.
- Improves gas combustion, thus lowers VOCs
- Possibly even eliminates the need for oxidizers.

BAKINGTECH 2011

Slide #11

Infrared Oven Technology

- New technology being used in LEED snack facility.
- Perfect for salted snack production.
- Provides energy savings and even side-to-side heat distribution.

BAKINGTECH 2011

Slide #12

Infrared Oven Technology

- Enclosed cavity prevents unwanted drafting.
- Reduces wasted heat exhaust.
- Can turn burners on and off to customize the baking process.

BAKINGTECH 2011

Slide #13

Lube-Free Oven Chain

- Solid Graphite Lubricant.
  - Developed for Russian Space Program.
  - FDA approved for bakery use in 2002.

BAKINGTECH 2011

Slide #14

Lube-Free Oven Chain

- Oiling and cleaning issues make maintaining ovens time consuming and expensive.
- High temperatures cause synthetic oils to evaporate and carbonize, seizing bearings.

BAKINGTECH 2011

Slide #15

Lube-Free Oven Chain

- Pins and casings have thin film of solid lubricant.
- Removable vertical bearings.

BAKINGTECH 2011

Slide #16

Lube-Free Oven Chain

BAKINGTECH 2011

Slide #17

Space Saving Technology

- Modular, serpentine designs utilize height of bakery.
- Ideal for products with long baking and proofing times.
- Flexible systems can produce raw, par-baked or fully baked products.

BAKINGTECH 2011

Slide #18

Heat Recovery System

- Ethanol recovery block eliminates need for stack oxidizers.
- Evaporative water recovery.

BAKINGTECH 2011

Slide #19

Heat Recovery System

- 50% fuel savings.
  - Fuel saved by preheating combustion air.
  - Ethanol to fuel.
  - Energy savings for boilers and oxidizers.

BAKINGTECH 2011

Slide #20

Vacuum Cooling Technology

- Popular in Europe.
- Can reduce cooling times by two-thirds.
- Lower energy use and reduce floor space in bakery.
- Improved product texture and moisture retention.

BAKINGTECH 2011

Slide #21

Vacuum Cooling Technology

- May increase shelf life of products.
- Eliminate exposure that may lead to potential molding.
- May reduce need for blast freezing and frozen distribution.

BAKINGTECH 2011

Slide #22

Green Oven Technology

- Reduce belt drag.
  - Prolongs belt life.
  - Reduces metal-to-metal contact that could lead to product contamination.

BAKINGTECH 2011

Slide #23

Green Oven Technology

- Catalytic oxidizers to reburn ethanol to heat first zone.
- Heat exchangers to supply hot water for proofer.

BAKINGTECH 2011

Slide #24

Slide #25

Slide #26

Slide #27

Slide #28

Slide #29

Project Management

By Doug Taschner
Bimbo Bakeries USA

DOUG TASCHNER: Before I get started, I want to make sure Tracy and Robbie are here. In case I run short of material, I want to be able to crack some jokes. Okay, good. Thanks, Robbie. I just want to be able to make sure you'll bail me out there.

(Slide 2) Before any meeting in Bimbo Bakeries, we start with a safety short, so I want to start with a safety short, and this is really a safety challenge for anybody that's in this room today. In 1980, Mercedes Benz introduced its first vehicle with integrated airbags. Its engineers had figured out how to integrate the seatbelts and airbags into a single unit that would protect drivers in the case of an accident. What the amazing part is, is that instead of their executives saying, "Hey, we now have something that has a competitive advantage against any other company," they said, "We have something that we need to share with every other automobile manufacturer throughout the world, because this is something that we owe to everybody who purchases a car." So, they made copies of the blueprints and sent a letter that said, "Here are the plans and designs behind airbags and seatbelts. You need to incorporate this in the design of your vehicles going forward."

As you look around this room, we can have that same impact on the baking industry. We have the obligation to provide a safe work environment for every one of our associates. We should strive to provide the most effective safety measures for every single piece of equipment that we install in a bakery, and these safety innovations should not be used as a competitive advantage. We should share these so that every piece of equipment that we put into a bakery is put in there to ensure that our associates cannot get hurt. That's my challenge to everybody sitting in this room to do that.

(Slides 3 through 7) Let's talk a little bit about project management. I'm going to start out by first defining what the criteria are that we typically look at to define whether a project is a success or not. I don't think anybody in here would disagree with these first three, because that's what we focus on as we put together projects: scope, schedule, and cost. If you talk to anybody, it's scope, schedule, cost. I'd add one fourth one to that, and I call that deliverables, because it's not just enough to install pieces of equipment, you have to make sure that they meet the criteria for which you install it. For example, if you're installing a bread divider, it's not enough just to install the divider, you need to make sure that the divider is going to meet the standard deviation for weight that you justify the project off of. You can't just put it in there, start it up, and run it. If it doesn't achieve the weight, you haven't done anything.

(Slide 8) As I look at this, this is what we really judge project success against, and most project engineers, I would say, probably spend 95% of the planning phase looking at this. There are a lot of things that we need to do in addition to this to really insure that our projects are successful. So how do we increase the probability of project success? This is really what I want to talk about today.

(Slide 9) Drivers of project success. During the planning process, we should be looking at all these different things to make sure that the project that we put forward has the greatest chance of being successful from the get go. We're going to go into detail on all these at this point.

Doug Taschner *has worked in food manufacturing for 25 years. He was employed for 21 years with Kraft Foods and is currently the engineering director for the northeast and southeast regions at Bimbo Bakeries USA. Doug has a Bachelor of Science degree from Lehigh University in Mechanical Engineering. He has been a member of the American Society of Baking for three years.*