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ELECTING TOLL/  
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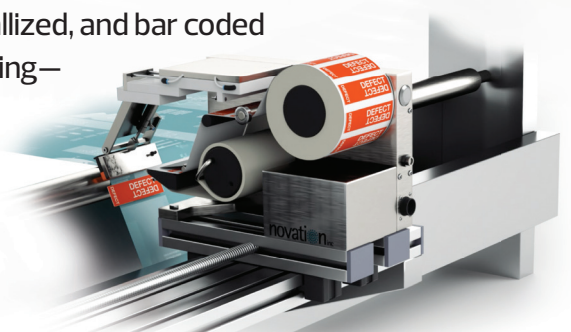
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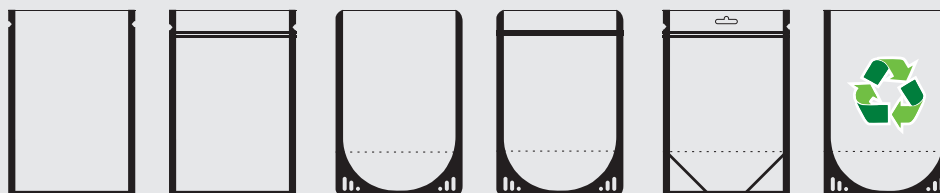
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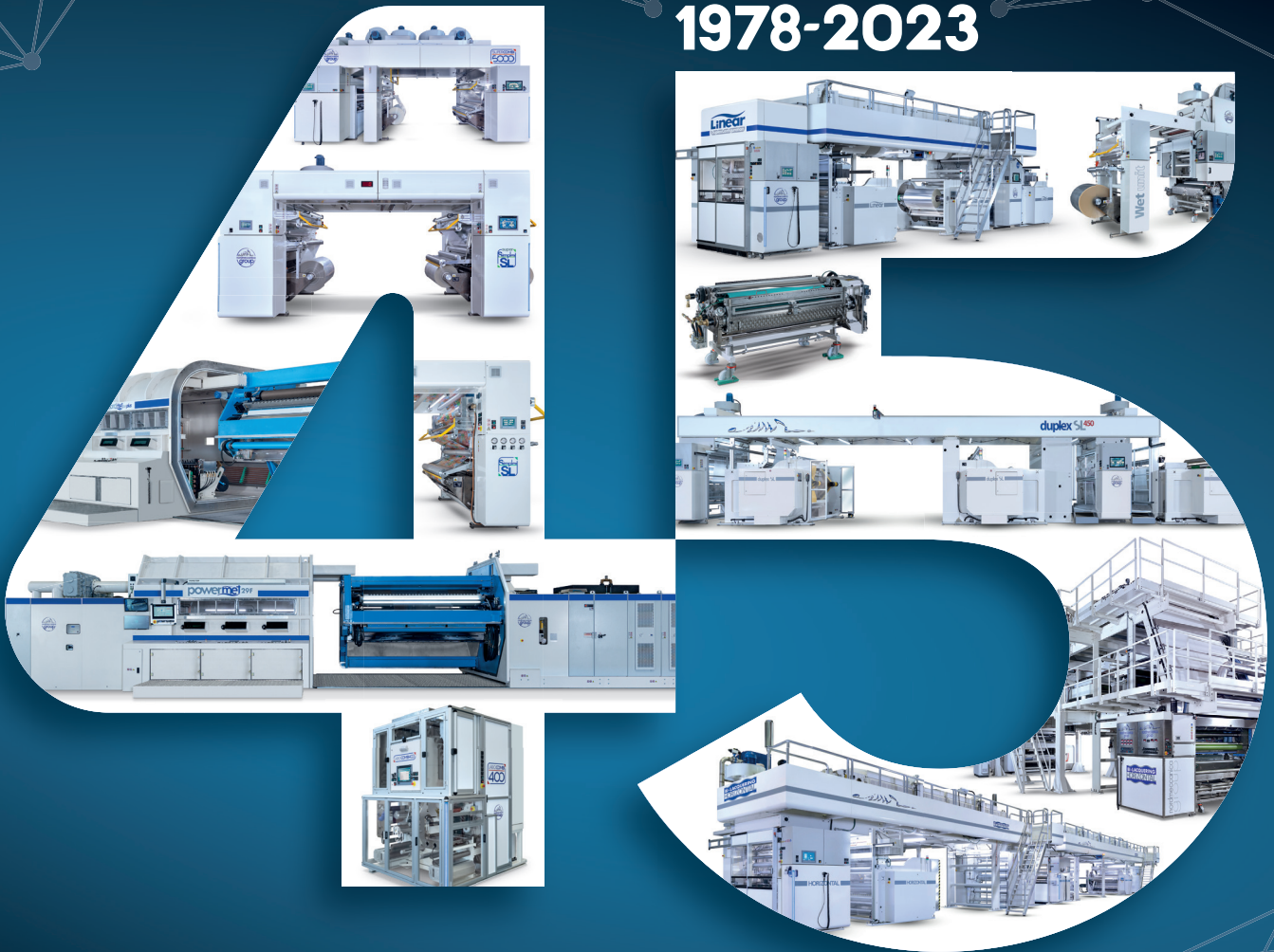
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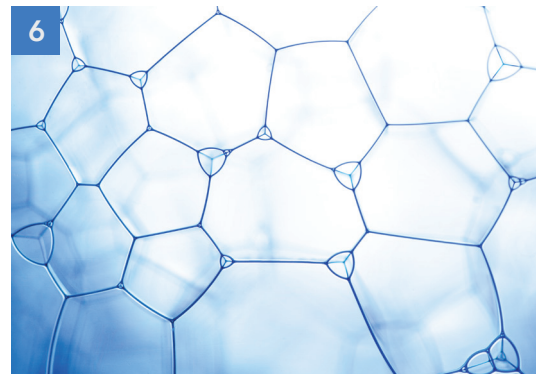
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## The Road to Motherhood



**Angel Morris**  
Editor

I drove my son to school each morning through graduation, because he was one in the growing number of teenagers who wasn't in any rush to get his driver's license. Some parents asked if I was in a hurry for him to drive. If I'm being honest, no. Never mind the increase in car insurance we could expect, I just didn't have that many opportunities for the quiet, uninterrupted time together our morning commute offered. On one hand, I was counting the days until he graduated high school; on the other, I wanted to hold on to my baby as long as possible. Such are the ongoing contradictions of motherhood.

Another difficulty being a mom brings is the realization that your child is not necessarily the same as you. I'm a stickler for detail. My son doesn't sweat the small stuff. I'm a planner. My son lets the chips fall where they may. (Including the literal chips. On the floor. In his bed. Wherever the chips fall, they stay until ants carry them away.) There are things about him that drive me crazy and traits I truly admire. He is intelligent but innocent. He is loyal to a fault. He is witty and, in many ways, wiser than I will ever be. Most importantly, he is kind. Perhaps my favorite thing, he absolutely loves to write (so, maybe he is a little like me).

There are so many opposites to motherhood: joy and sadness, courage and fear, elation and frustration, to name a few. Like moms, industry leaders are always searching for ways to better themselves. This month, the president of the Paperboard Packaging Council discusses what's driving the folding carton market, like sustainability and recyclability demands, as well as digital customization opportunities. He also underscores the opportunities PPC members experience, particularly in their support of each other. Another industry expert shares key considerations for choosing toll slitting services — emphasizing experience, flexibility and strong communication. Ironically, those are also things that help turn a good mom into a great mom. Here's to working in ways that would make Mom proud.

Thanks to all the moms out there who gave us our drive!

**Angel Morris**  
*Editor-in-Chief*  
angelm@rdgmedia.net



**A RDG Media, Inc. Publication**  
P.O. Box 529  
Estero, FL 33929  
586.227.9344  
[www.pffc-online.com](http://www.pffc-online.com)

**President/Group Publisher**  
Randy Green  
randy@rdgmedia.net

**Publisher**  
Lori Pisano  
lori@rdgmedia.net  
814.616.8380

**Editor**  
Angel Morris  
angelm@rdgmedia.net

**Accounting Manager**  
Kristin Green

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# The Feat of the Foam

*Defeating Foaming in your Aqueous Coating without Additives*

By **Farrah Nuzzo**, Global Marketing Coordinator, Apex International

Foaming is a pesky problem many printers battle throughout their web coating applications. There are multiple factors that can cause the aeration of your aqueous coatings during production. Ink pumps, doctor blades, end seals and anilox rolls are often the top culprits of foaming in your system. In this article, we'll walk through each of these components to help find and defeat the source of your coating foam, without the need for de-foaming additives that could impact coating quality.

## Is it the Pump?

Aqueous coating, in itself, does not foam. It is when coating moves through the delivery system that it can start foaming. The first step when resolving foaming issues is to check your delivery pumps.

If using a centrifugal pump, having a top fed pump sucking

up air may be the source of your problem. Bottom feeding your centrifugal pump and maintaining coating levels, with the appropriate amount of clearance, can help avoid aeration in the system. If using a peristaltic pump, ensure the pump tubes are long enough and your coating levels remain high to ensure no air is sucked through.

Foaming can occur in both your pump intake and outfeed. When coating is returning to the chamber, check that the return line is submerged deep enough in the reservoir, so it is not splashing at high velocity, causing foaming.

## Is it the Consumables?

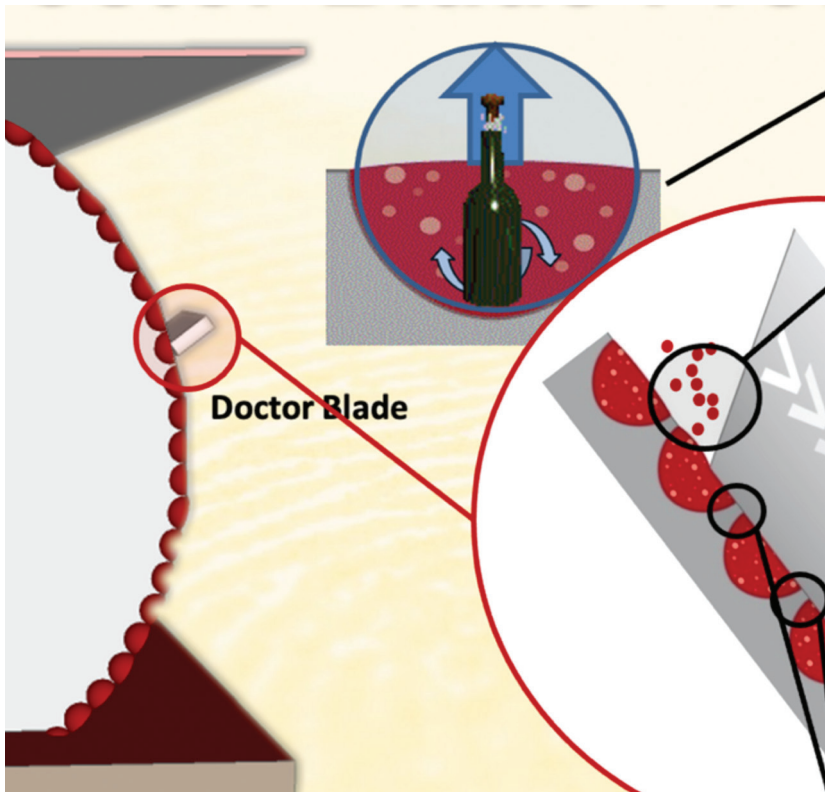
By taking these measures with your pumping system, air in the delivery system can be greatly reduced or even eliminated. However, the pumping system is

not the only place that can allow air to enter. Doctor blades and end seal quality, along with the pressure of the system, can cause aeration during coating laydown.

An easy fix, check your end seals for any wear and tear that may be allowing air into the system. End seals are used in chambered doctoring systems and keep an air-tight seal on the sides of the chamber. If this seal is broken or damaged, air can leak into the chamber and cause foaming in your coating. It's important that your end seals are the right material for your coating and are evaluated and replaced regularly.

Doctor blades are designed to wipe excess coating from the anilox for a uniform laydown. During this wiping action, micro-vortexes can occur within traditional 60-degree hex anilox cells, causing air bubbles to





**Figure 1:** Micro-vortexes can occur between the doctor blade and anilox, causing micro-foaming.

form within the cells (Figure 1). Accentuated by higher press speeds and larger cell dimensions, this micro-foaming between the blade and the anilox can cause defects in your coating. Re-evaluate your doctor blade material type, blade angle, blade tip geometry and the doctor blade-to-anilox pressure to find the right specifications to reduce aeration and foaming in your system. If these steps have been taken and your coating is still foaming, it's time to evaluate your anilox roll.

### Is it the Anilox?

The anilox roll is one of the most important components of the flexo printing process. Its cells carry a measured amount of coating from the pressurized doctor chamber and transfer the coating onto the printing plate or print substrate, depending on your application.

It has been established, that even when you can ensure there are no sources of air leaks or suction within the circulation system, the problem of aeration can still occur in the anilox-to-doctor blade

interaction during print production (Figure 2).

Aerated coating in the doctoring chamber results in a combination of coating and air being deposited onto the printing plate surface. This will impact quality and performance, causing defects such as pinholing and a dull coating appearance.

To tackle aeration at the root anilox cause, Apex International evaluated an open cell structure anilox engraving, the patented GTT anilox engraving. Completed through an independent third-party testing partner, Apex found that this open cell structure eliminates the friction between the doctor blade, coating and the HEX cell walls.

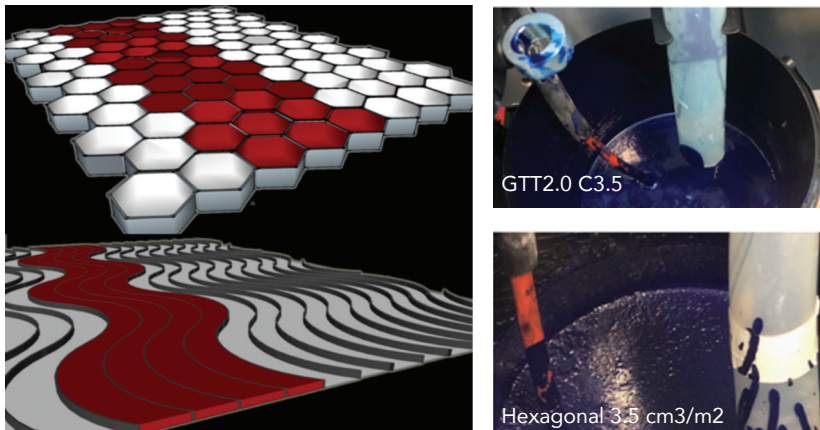
This open slalom channel geometry significantly reduces the formation of micro-air bubbles in the anilox cells and improves coating laydown and quality.

The tests as conducted were designed to create the ideal circulation situation so that the foaming reported was likely only the result of the different screen-roll screenings and not influenced by the metering system. With all factors controlled, the tests were completed on a traditional 60-degree HEX anilox roll and a comparable open channel anilox roll; and the results were clear.

When all print variables are at their optimal specifications, using an anilox engraved with an open channel structure will significantly reduce, if not eliminate, foaming in your coatings (Figure 3).



**Figure 2:** Aerated coating within the anilox cells due to doctor blade-to-anilox friction.



**Figure 3:** Foaming in the open-channel anilox engraving (GTT) reservoir is significantly less as compared to the foaming in the cell-based hexagonal engraving reservoir.

## Fight the Foam!

Fighting the issue of foaming should not be a win that causes you to lose on coating quality or

press performance. Utilizing these troubleshooting tips can help you quickly diagnose and solve the source of your foaming issues, without using de-foaming agents.

Evaluating your pumps, consumables and potentially switching your anilox engraving will help you fight the foam, while achieving high press speeds and high profit margins. Fight the good fight, friends! ■

### ABOUT THE AUTHOR

Farrah Nuzzo has been providing industry-leading solutions with Apex International ([www.apex-international.com](http://www.apex-international.com)) for more than 15 years. With seven production facilities on four continents, a strong portfolio of clients in over 110 countries and a high-performance continuous improvement culture, Apex's value proposition is founded on developing solutions to satisfy the complex challenges its customers face every day.

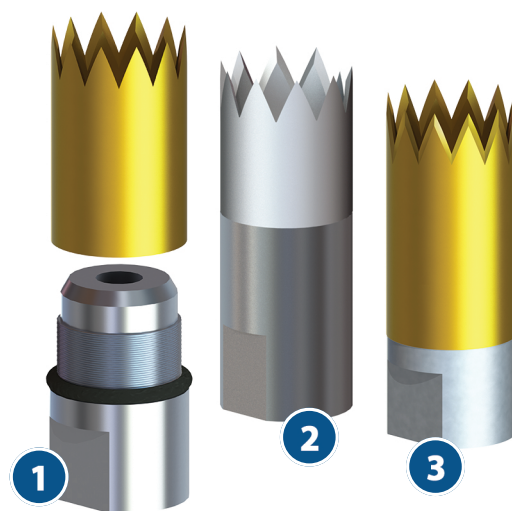
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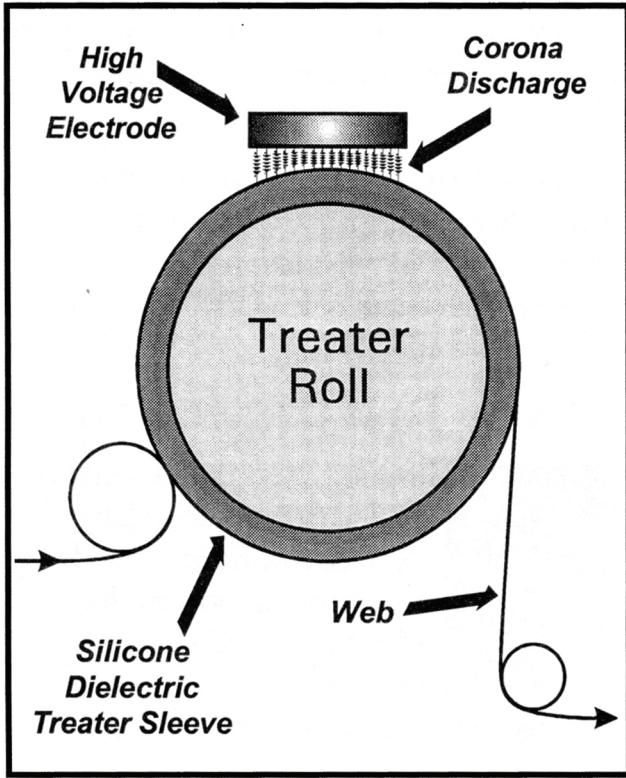


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# Steady Growth & Sustainability for the Folding Carton Market

By Ben Markens, President, Paperboard Packaging Council

Among the many packaging options available today, paperboard remains key for branding, product protection and sustainability. From high-volume folding cartons for cereal, to highly stylized (and sometimes even handmade) rigid boxes for luxury items, paperboard packaging offers great versatility and the promise of a highly renewable and recyclable substrate. Here's a high-level overview of the current state of the folding carton market.

## Steady, Dependable Growth Ahead

When evaluating the carton market, I like to start with economic data. Each year, FastMarkets

creates the Trends Outlook and Market Data Report (Trends) exclusively for PPC members. The 2022-23 edition predicts that demand for cartons will grow by 1.3 percent annually, with the market reaching 5.4 million tons by 2026. The moral of the story? Steady and dependable growth for folding cartons.

Beyond the high-level carton numbers, the Trends Report states that general economic fundamentals in the U.S. economy will remain strong through the coming years. Other factors playing a vital role in our industry include changing consumer spending habits, substitution away from plastic packaging, and efforts to reduce plastic waste. Shipment growth is

predicted through 2026, with the total value of carton shipments at an estimated \$13.6 billion.

The report warns about some short-term challenges. A short economic downturn is expected this year, and competition from alternative packaging methods and materials will also remain challenging. Interested parties can download a summary of this data through PPC's website (members can download the entire 140-page report).

## The Big Switch to Paperboard

After economic trends, I look at the state of design and converting. As I covered briefly above, brands continue switching from plastic to



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Standout entries from PPC's annual design competition in 2022 focused on sustainability.

paperboard packaging as consumers become more concerned with sustainability, recyclability and Earth-friendly choices.

A fantastic example of plastic-to-paper substitution took the top prize at PPC's annual design competition in 2022. A

new Mentos paper bottle won Paperboard Package of the Year with a unique design that consists of 90 percent renewable fibers from sustainably managed forests — replacing the previous 100 percent rigid plastic container. The bottle is the first product in the gum category from a significant global confectioner to be delivered in paperboard packaging. Bottlers are expected to notice and be motivated to make a change when renowned companies switch to sustainable packaging.

Additionally, a paperboard yogurt container made for Chobani took home the Sustainability of the Year Award. This project put paperboard to the test, pushing the limits of the substrate. Not only did the new material have to keep the yogurt fresh, have a high standard for odor and taste neutrality, and be certified for product and hygiene management, it also needed high strength at a lower basis weight to improve material efficiency and allow the material to be precision formed into small container shapes.

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**Customization Continues**

The growth of digital printing over the past decade has made room for innovation and customization in the folding carton space. We've seen serialization and customization become increasingly refined during the past few years. Often, these digital projects have compelling stories that highlight how cartons can add value to brands.

For example, the 2022 Digital Application of the Year winner from our competition was a digitally printed Cinnamon Toast Crunch "Cinnamoji" set of cereal boxes. In order to engage young consumers, the cereal brand chose five different celebrities to animate into cinnamojis and feature on

the boxes. With a short print run of only 10,000 boxes highlighting each star, digital printing provided the speed and embellishment capabilities needed to fulfill this project.

**Supporting Our Community**

In addition to the technical aspects of our industry, I would be remiss if I didn't mention our camaraderie and community. PPC hosts conferences across the country twice per year, and I am consistently awed and impressed by the lifelong friendships I witness. The professionals in our field are keen to share experiences and best practices to grow together with a pro-competitive spirit. We are stronger together,

and together we can elevate the industry and create a promising future. We like to say that, "There is great power in Association, especially at PPC." ■

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For over 90 years, PPC has served as the premier North American association for converters of paperboard packaging and their suppliers. PPC works to grow, promote and protect the paperboard packaging industry while providing its members with resources and tools to compete successfully in the marketplace. For more information, visit [www.paperbox.org](http://www.paperbox.org).

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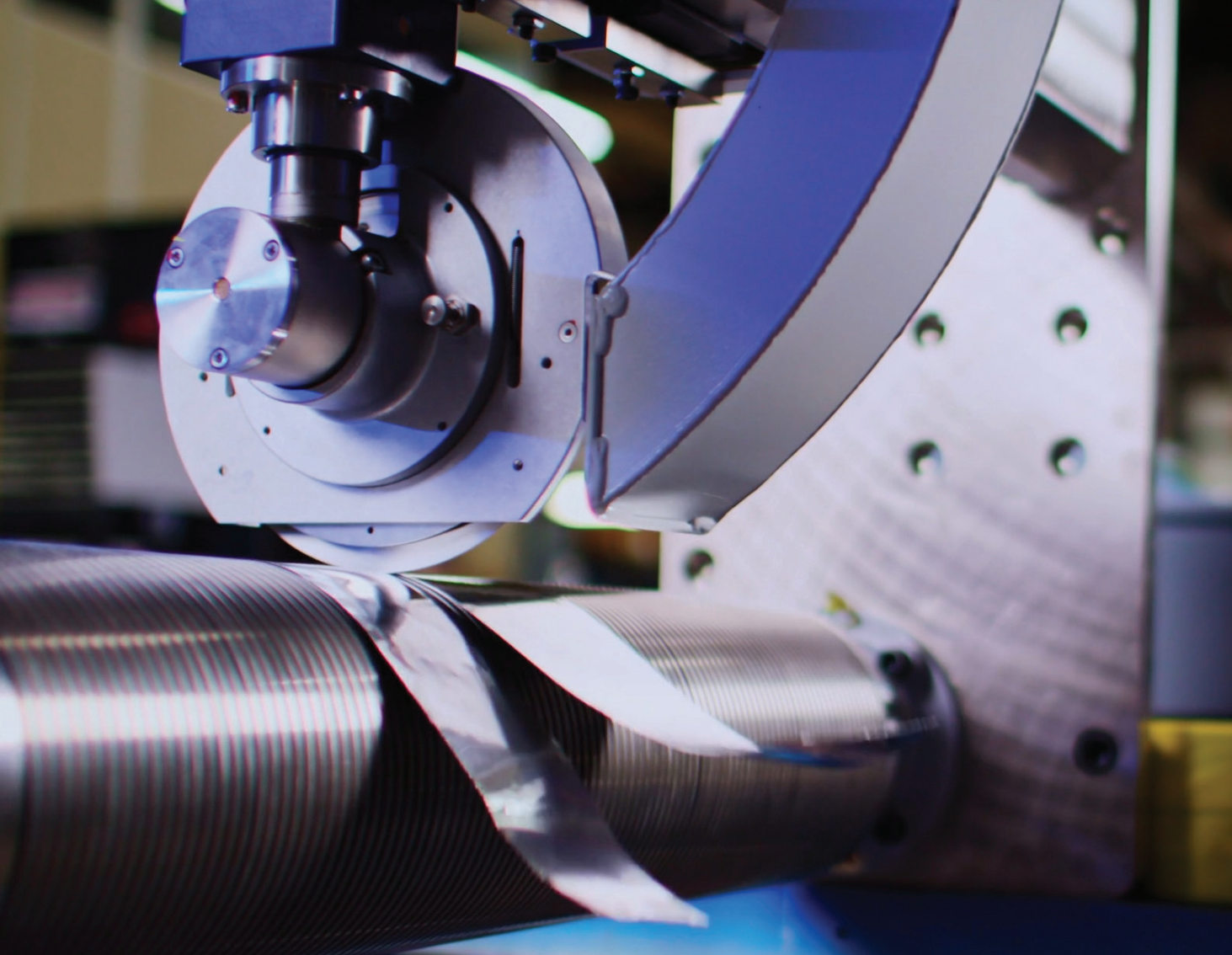
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## DIENES

# Static Control for Dryers Prevents Ignition

By Dr. Kelly Robinson, Founder, Electrostatic Answers

Dryer static control has two objectives: prevent fires and neutralize static charges on the webs exiting dryers. First, let's look at ignition risks.

Static sparks can ignite flammable vapors. Control static near solvent coaters to prevent coater fires. Static sparks have also ignited dryer fires. In normal operation, the high air exchange keeps the solvent concentration too low for ignitions to occur. However, dryer fires can happen when an unusual circumstance such as an air handler (fan) failure allows the concentration to get too big.

Figure 1 shows the ignition properties of toluene where the energy needed for ignition on

the vertical axis varies with the concentration on the horizontal axis. Energy is measured in joules. For our needs, measuring energy in thousandths of a joule or a millijoule (mJ) is a helpful.

Each major division on the vertical axis is a factor on 10 on this logarithmic scale. Ignition is possible when the concentration is in the red zone between the lower flammability limit (LFL) and the upper flammability limit (UFL). The LFL is also called the lower explosive limit (LEL). Similarly, the UFL is also called the upper explosive limit (UEL). Toluene ignites at the lowest energy, the minimum ignition energy (MIE), when the concentration is 4.1 percent.

Common electrostatic discharges easily ignite toluene. The energies of common electrostatic discharges (1-100 mJ) in yellow in Figure 1 are much higher than the 0.24 mJ MIE of toluene. To get a feel for spark energy, most of us can feel a common "carpet spark" that occurs after you walk across a carpet and reach for a door knob. This carpet spark has an energy of about 60 mJ, which is 250X bigger than what is needed to ignite toluene. Another energy "stake in the ground" is that we cannot feel a spark when an energy is less than 5 mJ, which is the threshold for human sensation. Toluene may be ignited by a spark that is 20X too small for us to feel.

To ignite a fire in the dryer in Figure 2, the solvent concentration must exceed the LFL. This can happen in at least three different ways: 1) Air handler (fan) failure, 2) Air recirculation or 3) Solvent overload.

**Air Handler (fan) Failure** – A belt-driven fan is prone to failure because the belt can break. Often, an air handler is verified by monitoring the fan motor drive current or by using a shaft rotation sensor. To detect a belt failure, use a shaft rotation sensor on the fan shaft rather than on the motor shaft.

**Air Recirculation** – Air flow is designed to remove solvent from the coated layer by diluting and removing the vapors. Dryers

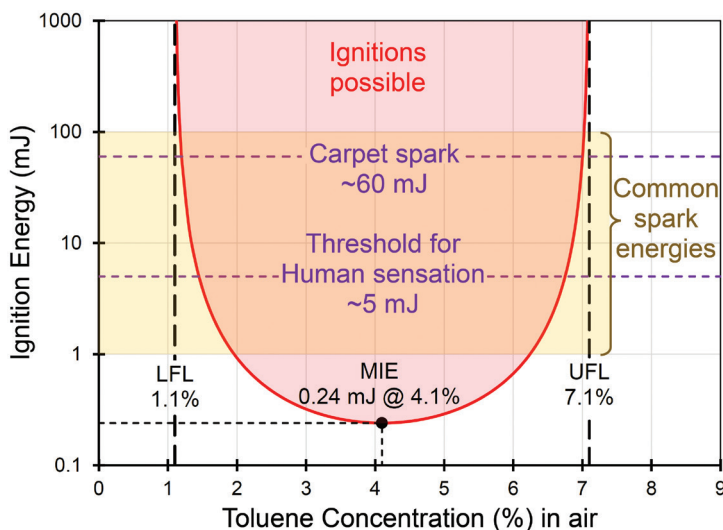


Figure 1: The minimum ignition energy (MIE) of toluene is well below the threshold for human sensation.



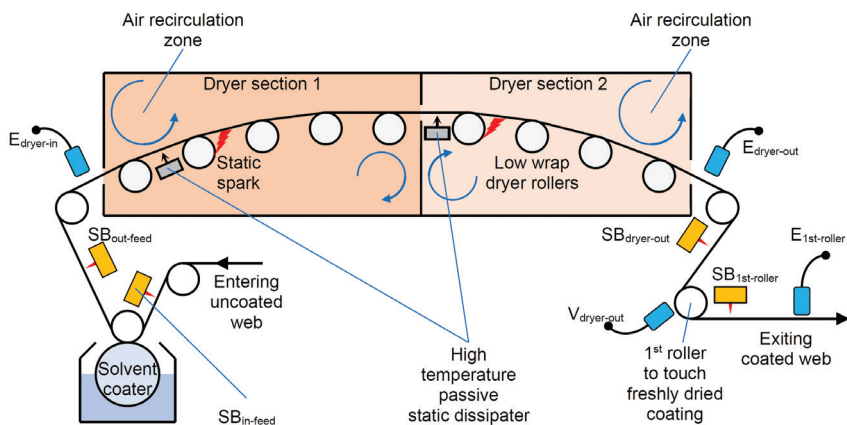


Figure 2: Static control elements and measurement locations.

are designed to avoid air recirculation zones illustrated in Figure 2. However, field modifications such as adding the second dryer section in Figure 2 can cause air recirculation zones. Solvent vapors

that accumulate in these zones can cause the concentration to exceed the LFL.

**Solvent Overload** – One fire was caused by a web wrinkle transported through the coater

that scooped up a large amount of solvent. This “bucket” of solvent was transported into the dryer and caused a momentary high concentration of solvent in the first dryer section.

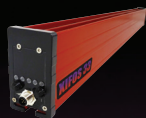
Normal dryer operation can be disrupted by these unusual circumstances. The static control best practice is to install passive static dissipaters in dryers to suppress sparks. This way, when some unusual circumstance causes the solvent concentration to increase, there will be no sparks.

Two, high-temperature static dissipaters in Figure 2 are located at the entrance of each dryer section. The dissipaters must operate at the highest dryer temperatures. Metallic tinsel or needle bars are commonly used to

## Is Static Electricity A Problem?

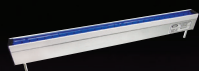
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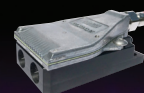
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dissipate static charges in dryers.

The second objective for dryer static control is to neutralize the static charges on webs exiting dryers. I have measured high static charges on webs exiting dryers caused by touching the dryer idler rollers. These low-wrap rollers can deposit significant amounts of charge on webs. No static charges are deposited on the web in air flotation dryers because there are no idler rollers. The fast moving, hot, dry air deposits no static charges on the web.

The best practice is to use two, powered static dissipaters to neutralize static charges on web exiting dryers. Powered static bars are recommended because the winder is often near the dryer exit. Static dissipaters installed just

upstream of a winder should be powered dissipaters to minimize static charges on the web entering the winding roll. Powered static bar  $SB_{\text{dryer-out}}$  in Figure 2 dissipates static charges on the back, uncoated side of the web from touching the dryer idler rollers.

The first idler roller to touch the freshly dried coating in Figure 2 can deposit a large amount of static on the web. Powered static bar  $SB_{\text{1st-roller}}$  dissipates static charges on the freshly dried coating from touching this first roller.

Dryer static control has two objectives. The first is to prevent sparks inside the dryer that might ignite a fire. In normal operation, the solvent concentration in the dryer is well below the LFL and

ignitions cannot occur. Drier fires are caused by unusual circumstances where something else goes wrong such as an air handler (fan) failure that allows the solvent concentration to exceed the LFL. The second objective is to minimize static charges on the web exiting the dryer. The best practice is to use two powered static bars to neutralize static on the web exiting a dryer. ■

## ABOUT THE AUTHOR

Kelly Robinson, PE, Ph.D., is the owner of Electrostatic Answers, an engineering consulting company dedicated to eliminating injury and waste from static electricity. You can reach Kelly directly at [Kelly.Robinson@ElectrostaticAnswers.com](mailto:Kelly.Robinson@ElectrostaticAnswers.com).



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# Considerations for Electing Toll/Contract Slitting Services

By **Rob Tiller**, Managing Director, PennPac

When it comes to primary flexible film processes like extruding, laminating and printing, partnering with a detail-oriented secondary slitting support organization can provide numerous cost-reducing benefits and supply chain efficiencies. You'll want to feel comfortable with your partner's level of industry experience and ability to effectively

move material in and out of their facility. Toll-slitting programs can be very complex, often executed behind the scenes, similar to contract packaging, and must be seamless to the end user.

The primary objective of many flexible film manufacturers and converters is to engage in continuous improvements, allowing for reinvestment into the primary

operation. Extrusion plants are engaged in costly upgrades to increase throughput and resin flexibility, facing increasing global demands and environmental regulations. Flexographic press technology is rapidly evolving, placing increased demands on output and complex printing capabilities. Marketing teams are pressured for enhanced shelf



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presence, designing complex pouch structures and graphics. All of which strive to satisfy challenging global sustainability efforts.

As such, the successful advancement of finished goods to the end of the supply chain

without operational challenges yields favorable results for all, including the consumer. This article will present insight and recommendations to consider when deciding on a strategic partner to assist with toll-slitting

activities, so you can focus on your core business.

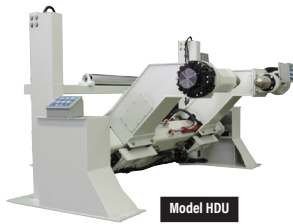
## Experience and Flexibility

Does your finished product portfolio contain endless web width and roll diameter combinations? Furthermore, challenged by both printed and clear, across many different material types like PET, PP, CPP, PE, or even Metallized? Do you require a toll-slitting partner capable of webs from 1” to 92”, on either 3” or 6” cores, printed or clear? How about the need to rework a truckload quantity of printed film because the customer decides that the unwind direction needs to adjust from a #4 to a #2? Yes, it can all be done under one roof!

Having the right tool for any job is not something all toll slitters may have at their fingertips. Research will show, a well-established slitting partner has the means necessary to handle virtually any slitting or rewinding scenario. Preferably, operating within a globally recognized Safe Quality Food (SQF) based system. Quality above all else!

“Tools,” figuratively speaking, are not just versatile slitter/rewinder machines, generating finished flexible packaging film products. Foremost, a team of legacy machine operators working in unison with a highly experienced and talented planner, handling millions of pounds of customer and company-owned film inventory is something to consider in a toll-slitting partner. In essence, an organization that successfully balances technology, material reconciliation and people, will consistently provide a timely, cost-effective and reliable customer experience for you.

## Want More Production?



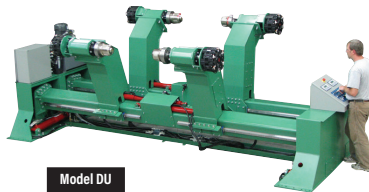
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Confiding in a toll-slitting partner with valuable inventory, delivery commitments and confidential customer information is understandably concerning. With the appropriate partnership, this anxiety is dissolved allowing you to focus your time and resources to your primary converting or extrusion activities.

### Warehousing and Distribution Capabilities

In today's erratic distribution landscape, exceeding customer delivery expectations continues to be a daily challenge. Downtime, natural disasters, labor shortages and linehaul breakdowns are just a few disruptions driving significant setbacks in distribution efforts. Such challenges may be minimized by collaborating with a toll-slitting provider that offers redundant warehousing and delivery service options. With multiple facility locations, LTL and FTL shipments can often be rerouted to avoid delay.

Fundamentally, it all starts with brick and mortar! Strategically located company-owned cGMP facilities that maintain a vast selection of open-stock inventory, combined with an extensive fleet of slitting assets for quick turn custom slitting, make for a reliable option to mitigate disruption. A clean, secure and well-organized facility will ensure your material is safe and replenished accordingly.

Choosing a toll-slitting partner who can

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reduce delay by holding to a production schedule is imperative. Real-time communication should be maintained so you know at all times when your film supply will start its journey to your customer. It is recommended to identify a toll slitter who can build a customized program tailored to your specific needs. A “one size fits all” approach will, in most cases, yield less favorable results since tolling programs can vary in volume and complexity.

All said, what if your toll-slitting partner was able to apply your logo and information on roll and pallet labels, could replicate your packaging and palletizing specifications and ship direct to your customer ... essentially, taking the entire process out of your hands!

These benefits, along with many others can provide significant cost and time reductions. Successful toll-slitting organizations will operate exactly like a fulfillment center; completing orders on your behalf, sending them exactly where you need them and when you need them.

### Final Thoughts

There are many strong flexible packaging film toll-slitting providers, all offering a broad range of service capabilities and capacities. Investigate your options thoroughly, understand your needs entirely and communicate them effectively to find the best fit. Working together with a solid understanding of expectations will

help facilitate a positive result for both sides, trickling down to the end user. Ultimately, your reputation, product line and customer base should be invested with care in a secure and experienced facility. ■

### ABOUT THE AUTHOR

As Managing Director, Rob Tiller surrounds himself with a talented team of industry experts, together providing PennPac's customers with a friendly and reliable experience. Customers around the country and across many industries – food and beverage, consumer healthcare, industrial, fulfillment, medical and more – trust PennPac's customized solutions for their supply of flexible packaging films.

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# Thin and Accurate is Slot Die Coating Standard

By **Scott Zwierlein**, Coating Engineer, FRONTIER – a Delta ModTech Company

Roll-to-roll slot die coating has become the industry standard for extremely thin and extremely accurate coating. Just how thin can slot die go? With a slot die, you can achieve an attainable wet coating thickness of <2 micron, but only slot die can achieve this level.

Why? It is the nature of the equipment design. Other methods will flood a large amount of coating, and then wipe it away. Slot die does the opposite. It applies the exact amount to the substrate. Everything the pump delivers is applied to the substrate

— there is no waste.

Other methods, such as reverse roll, knife over roll and comma coating, use a device to wipe away excess coating leaving just the thickness desired. In this scenario you are requiring a blade or bar to be positioned 2 microns away from a substrate and that is almost impossible.

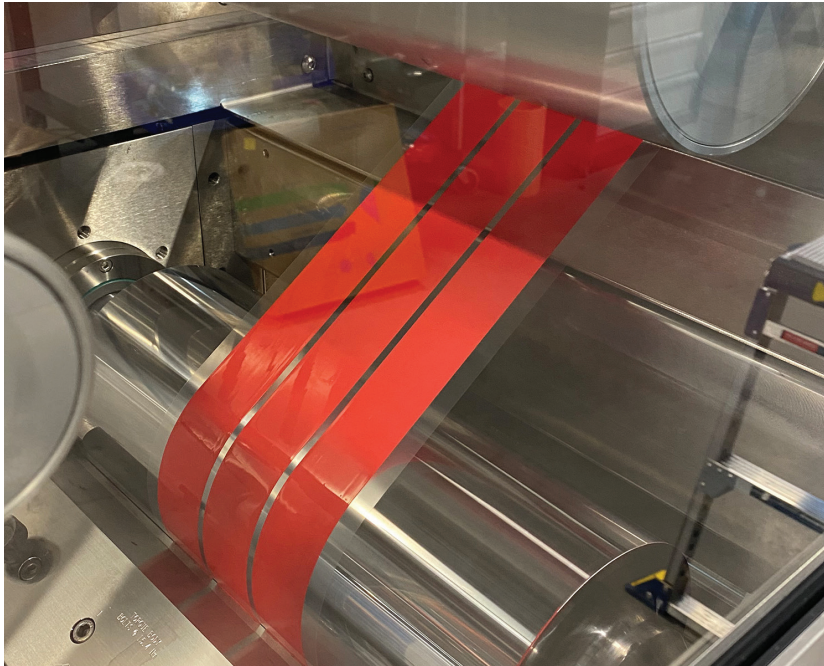
## Extreme Accuracy

Accuracy is based on the amount of material you want to put down, how close you are, and how uniform you want it to be. You might

be able to achieve 2 microns with other methods, but you cannot match the accuracy of slot die. With other coating methods the gap set for the blade, or the bar is fixed and the substrate and coating fluid pass through it. If the substrate thickness varies, the thickness will vary. The substrate you coat on is never that flat.

## Important Attributes

A number of attributes need to be present to help slot die deliver on its promise. These attributes result in significant benefits over



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traditional methods in terms of functionality and cost savings:

1. Precision pre-metered fluid delivery;
2. Extremely flat and straight die surfaces;
3. High-precision backing roll;
4. Accurate and precise positioning of die to the substrate;
5. Precision Die Vacuum System for coating bead stabilization; and,
6. Contamination-free environment.

### Stripe Coating

In battery and capacitor applications, for example, stripe coating is the preferred method when you are producing a narrow strip with exposed foil along one or both

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**It is also essential to have accurate width control and good edge quality — accurate shim design and fabrication is important to maintain the proper alignment.**

edges. One requirement for good stripe coating is uniform coating thickness — proper cavity design is essential.

You need proper die shim thickness for optimized die pressure; that produces the right uniformity for cross web production. It is also essential to have accurate width control and good edge quality — accurate shim design and fabrication is important to maintain the proper alignment. A die vacuum is used to fine-tune

the width and to ensure there is no saw tooth or waviness.

**Slot Die Coating Industries**

Slot die is becoming increasingly necessary in a number of industries. Here are just a few applications: Micro-electronics (flat panel displays, thin circuits), batteries and capacitors (lithium-ion battery electrodes, multilayer ceramic capacitors), barrier films (food and medical packages), solar photo-

voltaic (solar cells require thin coatings) and medical diagnostics.

Variations in thickness can lead to differing results. The more accurate you coat the transdermal, the more accurate the dosage. ■

**ABOUT THE AUTHOR**

As a Coating Engineer and Lab Manager at FRONTIER — a Delta ModTech company — Scott Zwierlein works directly with customers to develop solution-based coating and drying equipment. Solutions span a variety of industries, including batteries and capacitors, fuel cells and medical parts. With extensive problem-solving experience in the coating industry, Scott has been with Frontier (www.frontiercoating.com) for the past 20 years.

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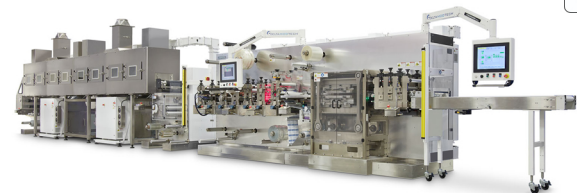


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# Planning, Labs and Trials

By **Susan Stansbury**, Industry Consultant

It's useful to know where you can find a laboratory to do initial testing of your product idea or improvement. Then, you may need to run machine trials to get a first impression of how your goals will be met.

## First, Do the Planning

The old phrase "garbage in, garbage out" is not only true, but can be devastating to budgets and timelines. Without going into a treatise, I note that it's critical to do the up-front work before thinking about laboratory resources and selecting equipment to run the trials. Some steps should lead to the hands-on work. A basic overview look comes first.

Prior to development, some issues are resolved. In packaging, they include:

1. Choosing materials for performance and delivery of features;
2. Selecting materials that can be recycled, reused or offer other environmental benefits;
3. Considering design of packaging life cycle for reuse, refill;
4. Packaging that optimizes labeling, printing and benefits;
5. Effective design, with cost targets, being highly competitive;
6. Asking: Does the package provide good access to the product?;
7. Asking: How well does the package protect its contents?;
8. Keeping ingredients/content fresh and intact use after use?; and,

9. How well does the container open after repeated usage?

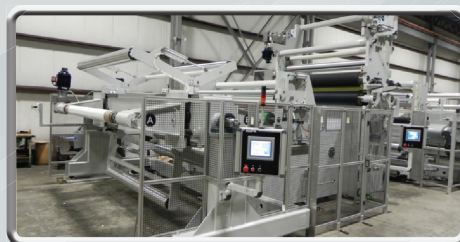
## Laboratory Support

Your team will likely devise a set of questions to help you select a lab to meet your needs. For example:

1. Do you know any laboratory prospects? Can a supplier assist?;
2. What labs work in your product or market world?;
3. Does your product have to

- meet hurdles like FDA or other regulatory requirements? What labs work in this world?;
4. Can one lab carry out multiple requests?;
5. What materials, chemicals or elements will the lab use?;
6. What confidence will you/the lab demonstrate in results?;
7. Are there special capabilities the lab may have? (e.g., skin sensitivity, shelf life, deconstruction/reverse engineering);
8. Does the lab test pre-product and post-production (meets

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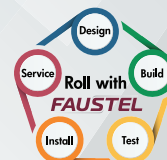
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- your/your customer requirements, specifications); and,
9. Can the lab assist with developing testing protocols?

Lab choices include professionals in the paper industry such

as intertek that offers a full scope of testing to standards from the Technical Association of the Pulp and Paper Industry (TAPPI). Another paper industry option is SGS-IPS Testing whose work includes abrasion resistance, wet

and dry ink rub tests.

Specialty labs like NSF (National Sanitation Foundation) can assist with suggestions as well as testing. For example, one team worked with its specialty group on N-95 mask requirements.

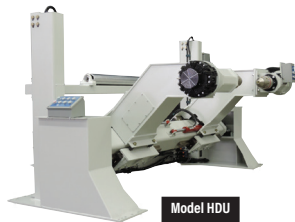
At Press Color Inc., Amber Schuh, Vice President, explained her background and approach: “Although my day-to-day tasks have taken me a bit away from the biochemical pathways my dissertation was on, I continue to use my Ph.D. experience for experimental design in our research and development pursuits. We tailor our inks and coatings for each individual customer to optimize performance on their specific equipment. Whether that is meeting a customer’s end use resistance requirements, CoF specifications, desired gloss or a variety of other parameters our lab works one-on-one with our customers for optimization of their inks and coatings.”

## **Trials: Size, Materials, Testing**

Selection of where to run trials or just prototype prior to scale-up can make or break the project. For example, your trial may necessitate bringing in raw materials to the converter. The substrate may need to be cut to a size that accommodates the product specification. The whole effort can include:

- A particular substrate at a certain width and thickness. It could require a slitting company that handles narrow webs or diameters. Sometimes the trial provider has this on hand or can do the slitting-winding.
- The substrate may need to be pre-printed, coated or

## Want More Production?



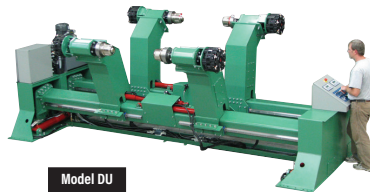
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laminated prior to the trial where, for example, it becomes a pouch, a wipe in a canister, a package, a pressure-sensitive label or release liner.

Telling the product developer that the trial will require work with three companies during development is not easy. And the cost may be well beyond the anticipated budget.

Prototyping to a high standard is not common. An exception is Rebel Converting's capabilities in the world of wipes in a canister. This Milwaukee-based supplier uses full digital technology which allows Rebel to provide customers with sample canisters identical to those from a final production run. It becomes easy to prototype can-



Lab support should include one-on-one with customers for optimization of inks and coatings.

isters for customers to test market new products, various label brands and designs.

In the nonwovens industry, there are a myriad technologies, so

a supplier like Biax-Fiberfilm/5K Fibres transforms resin polymers into various nonwovens and often accommodates needs for widths, performance parameters ranging from HVAC filtration to N95 mask media.

For laboratory assistance and machine trials, it's crucial to do enough investigation prior to the rollout of your innovation. ■

#### ABOUT THE AUTHOR

Susan Stansbury is a converting advocate with extensive experience in paper, converting, printing and related industries serving in roles including sales, marketing and product development.



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## Martin Automatic - Creatively Stewarding Resources for Your Advantage

*Nick Coombes recently had the opportunity to sit down and catch up with Gavin Rittmeyer, VP of Sales and Marketing for Martin Automatic at the company's headquarters in Rockford, IL. They spoke about the changes at Martin from recent investments to new market opportunities.*

**NC: Martin's HQ looks different to the last time I was here. Can you tell us about some of the changes you've made over the past couple of years?**

**GR:** Well, on the production floor we have continued to invest in multi-axis and automated machining centers. The mix of automated lathes, 3- and 5-axis vertical and horizontal mills along with a 5-axis gantry machine makes 12 new machining centers we've brought online since 2019. These investments are geared towards the new talent that we are looking to recruit and our long-standing common-sense use of technology to make us more efficient. We continue to cross train new and seasoned machinists in the different technologies that we have in the machine shop – again, a focus on keeping everyone sharp, engaged, and efficient at all levels. The new machining centers augment this process really well.

**NC: You appear to have extended the assembly area – what's in there right now?**

**GR:** We have expanded the bays, and in particular the tall bay where we build our high-speed paperboard and wide-web non-woven machines that run 700



Gavin Rittmeyer is VP Sales & Marketing at Martin Automatic

– 900m/min. One of the largest machines we manufacture can take up to 23 seconds to complete a splice, and the festoons for these machines require a very tall bay. We managed to enlarge the bay by repurposing storage to give us about 20% more production space – all without engaging in a costly addition to the facility.

**NC: And I see there's now a demo center too – how is that working out?**

**GR:** We're very proud of the new demo center area that currently features our space-saving MBS butt splicer that has 1.7 m footprint in the running direction for a 430 mm wide web. We're also showing our LRD rewinder with another keen space-saving device for installations that are short on space, and a Lemu model GTU multi-spindle finishing turret rewind. All three machines are in-line and show how converters can use a jumbo roll rewind and finishing turret rewind on the same line

for maximum flexibility, and all in the smallest floorspace possible. We are delighted to be working with Lemu – their multi spindle turret rewind and label converting systems, which include automatic packaging of finished rolls, are thoughtfully designed, and well made – their design philosophy and business practices closely align with ours. We supply them with butt splicers and they supply us with finishing turret rewinds when the application calls for it.

**NC: It's always fascinating looking out over your production floor – why is there such a great variety of equipment?**

**GR:** It's because we are fortunate to work with and supply so many different market sectors. Looking at the shop floor now and for the coming months, nearly every market segment that we target from building materials to lottery tickets, labels, disposable hygienic, disposable plates and cups and folding carton are all represented. The variety of colors, representing all different OEMs is interesting and tells a great story – we have learned to work with a wide cross section of converters and converter OEMs and have come to understand their different processes and the specific needs of customers in these varied markets.

**NC: What is that monster out there right now?**

**GR:** It's a unique machine that we call our MTL 11-67-96 that has just been approved for shipment by the customer. It's one of our largest machines by volume,





Designed to handle 2mm thick fiberglass for roofing shingles, the MTL takes 23 seconds to complete a splice on 1.7m wide web using hotmelt.

consuming around 19m of floor-space in the running direction. It unwinds and splices non-stop a 2mm caliper fiberglass matt web that's 1.7m wide and has a 2.5m diameter at speeds up to 350m/min. The process this machine feeds is used to make asphalt roofing shingles – the entire production line is well over 150m long.

**NC: Martin is probably best known in the printing industry – what's happening for you there?**

**GR:** The digital press industry is showing a lot of promise for growth. The automation of unwinding and rewinding webs of material on digital presses or finishing lines was previously overlooked because of short run lengths, narrow web widths, and slow running speeds. However, there has been a shift in attitudes, and cost models are being re-evaluated. Most recently, Martin has

been accredited by HP technicians in Tel Aviv to work with their Indigo 6000 and 8000 lines.

The principles of integrating with digital presses are similar to those of analogue presses. Martin's automation is already in use in commercial production on various presses, such as Domino, Gallus, Kodak, and HP, producing products ranging from self-adhe-

sive labels to toothpaste tube laminates, direct mail pieces, and paperboard products.

**NC: Looking ahead, what else do you see on the horizon?**

**GR:** We are always seeking new markets and high value-added webs to automate. Newer markets include highly engineered anode and cathode webs used in the high-volume manufacture of batteries for EVs. We are also finding success with filter media webs and specialized tube webs for food casing and C-folded webs for garbage bag production.

**NC: One final question – what is that up on the roof?**

**GR:** You've noticed! Our rooftop solar installation has now been online for just over a year. It's a 1.2-megawatt system consisting of over 2800 solar panels, making it one of the largest solar installations in Northern Illinois. And it's performing exceptionally well – we've seen up to a 75% saving when comparing monthly energy costs year on year. Another great example of Martin looking ahead! ■



Martin Automatic's new roof with solar panels

**TAPPI Names Woman of the Year Award Recipients**

TAPPI has announced Beth Cormier, vice president of Research, Development and Sustainability for Sappi North America, and Jennifer Piercy, assistant dean for advancement in the College of Natural Resources and president of the Natural Resources Foundation at North Carolina State University, winners of the Women In Industry Division's 2023 Woman of the Year Award. The award recognizes women who have demonstrated excellence in leading, motivating and developing others within the forest products industries.

A member of Sappi North America's leadership team,



Beth Cormier



Jennifer Piercy

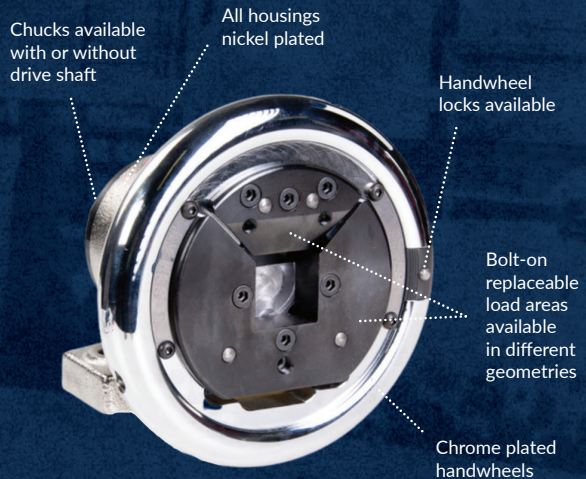
Cormier is focused on driving sustainability initiatives that help Sappi contribute toward a circular economy. She also directs continuous improvement initiatives through the Lean Six Sigma discipline. She is a member of TAPPI, serving on the Women in Industry Executive Committee and the International Research Management Committee. She also serves on the board of Bio-renewable Development Consortium, is board chair for the

University of Maine Pulp and Paper Foundation, and is a member of the USDA Paper and Packaging Board.

Piercy served 10 years as NCSU's director of student recruiting for the Paper Science and Engineering program and was executive director of the Pulp & Paper Advisory Board. She holds bachelor's degrees from NCSU in Pulp & Paper Technology and Chemical Engineering. She previously worked for Willamette Industries, Wilcopy and then Procter and Gamble as a process engineer, machine manager and department manager. She is a member of TAPPI and dedicates her time to the Women in Industry Division, student chapters and the TAPPI/PIMA Student Summit.

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## New eBook Analyzes Corrugated Industry Trends

Baldwin Technology Co. Inc. has launched a new set of resources for corrugated packaging manufacturers, centered on a new eBook entitled “From Beast to Beauty,” analyzing trends facing the industry.

The introduction kicks off Baldwin’s PrintEconomic\$ resource hub, housing separate eBooks, industry organization and trade publication links, and a host of podcasts and instructional guides to help printers maximize profitability in the corrugated, narrow web and offset printing spaces.

“From Beast to Beauty” explores four primary trends impacting box-making facilities:



Download the free eBook, “From Beast to Beauty,” at [printenomics.com](http://printenomics.com)

E-commerce, Brand Protection, Sustainability and Labor Challenges.

“Baldwin has put together a

very thoughtful, well-researched and useful eBook for the industry,” said Len Prazych, president/publisher and editor-in-chief of Board Converting News. “The more we share best practices and insights, the better all of us can navigate the challenges and opportunities we face in 2023.”

Download “From Beast to Beauty” [printenomics.com](http://printenomics.com).

## Flint Group Confirms Commitment to SBTi Initiative

Flint Group, a leading supplier of consumables and equipment for the print and packaging industries, has confirmed its commitment to the Science Based Targets Initiative (SBTi).

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Learn more about the Science Based Targets Initiative at [www.flintgrp.com](http://www.flintgrp.com)

The SBTi is designed to ensure companies commit to combating climate change by agreeing to reduce their greenhouse gas emissions in line with science-based targets. Targets are considered 'science-based' if they align with the decarbonisation goals of the Paris Agreement

– limiting global warming to 1.5°C above pre-industrial levels.

Steve Dryden, Flint Group CEO, commented: “Committing to the SBTi process is a significant step for Flint Group, which is accelerating its progress towards a more sustainable, lower-carbon future. The benefits of committing to a science-based target are numerous for our customers, our suppliers and Flint Group. Not only is it the right action to take for the planet, but it’s right that we support our partners deliver on their own commitments.”

**Sun Chemical Receives 2023 FTA Sustainability Excellence Award**

Sun Chemical has received the



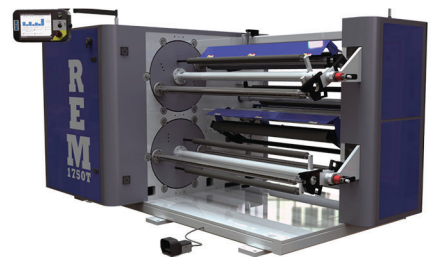
Sun Chemical is recognized for its innovative sustainability efforts.

2023 Flexographic Technical Association’s (FTA) Sustainability Excellence Award for Innovations in Sustainability competition.

The award recognizes Sun Chemical’s portfolio of mono-web protective coatings which enable mono-web film structures as alternatives to lamination structures common in label and flexible

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packaging, such as wrappers and pouches. The transition from lamination to mono-web structures can save on the use of adhesive, film, processing time and final label weight—all of which reduce the environmental footprint and use of virgin resources.

“To be recognized for our mono-web coatings and the impact they have on driving circularity in packaging is tremendous as it recognizes our approach and commitment to the market. And we’re not done,” said Heather Buchholz, Manager, Global Marketing, Sun Chemical. “This award reinforces our drive and commitment at Sun Chemical to continue innovating solutions that will solve our customers’

sustainability challenges and benefit the markets we serve.”

### **Dow Technology Receives RecyClass Recyclability Approval**

Conducted by AIMPLAS in accordance with RecyClass Recyclability Evaluation Protocols, Dow RecycleReady Technology is the first compatibilizer to obtain a Recyclability Approval. The technology was found to be fully compatible with the European flexible polyethylene (PE) recycling stream.

RecycleReady is a PE coextruded film containing EVOH. In addition, the film contains the RETAIN™ 3000 compatibilizer, which limits the

yellowing effects linked to EVOH degradation.

Within specified parameters, this technology is compatible with both the natural and colored flexible PE recycling technologies, and recycled material containing up to 25 percent of film can be used in high-quality applications such as PE blown films.

This approval points to benefits the use of compatibilizers brings as it boosts the recyclability of plastic packaging compared to classic tie layers, which only achieve limited compatibility. With this newly generated know-how, the plastic industry can continue accelerating the transition toward a circular plastic future.

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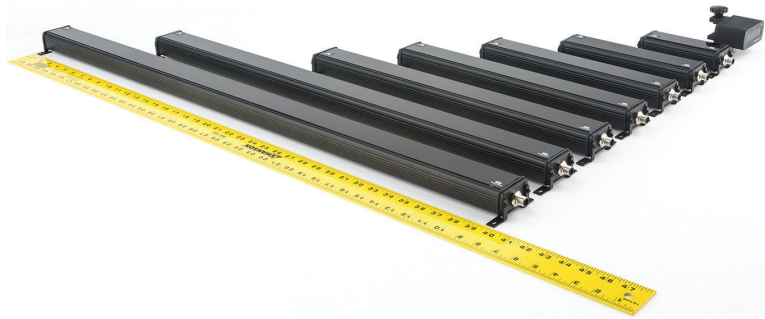
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**Roll-2-Roll Technologies  
Introduces ODC 960  
Sensor**

Roll-2-Roll Technologies recently introduced the ODC 960 sensor, boasting a sensing range of 37.8 inches and a resolution of 0.005" or 0.127 mm, the ODC 960. The technology mimics camera-based systems, offering superior measurement accuracy and resolution. Combined with the user-friendly Roll-2-Roll® Controller, the system delivers a streamlined, easy-to-use solution.

ODC 960's one-sided sensor design allows for installation near or on a roller. This provides benefits including web stabilization, air removal and a compact footprint fitting into tight



spaces, minimizing risk of sensor damage from threading errors. The design also enables downward-facing installation, leveraging gravity to reduce dust accumulation.

The modular design integrates the light source, optics and 1D camera within a compact profile, facilitating close web installation and enhancing

measurement resolution and accuracy.

Furthermore, the linear optics deliver 1:1 magnification with higher resolution, mitigating lens distortion or aberrations associated with circular lens optics. The camera's field of view does not affect measurement resolution or working distance, offering unparalleled accuracy and precision. ■



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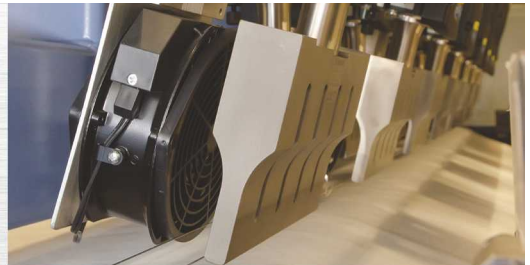
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