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The fast-paced lifestyles of consumers are lending to shifts in brand packaging that's not likely to change anytime soon. As a result, flexible packaging is accounting for an increasing percentage of the packaging market. From its initial design to ease of use, flexible packaging is on track to replace much traditional packaging of the past. Innovation and improvements in sustainability provide solutions for converters and package printers.

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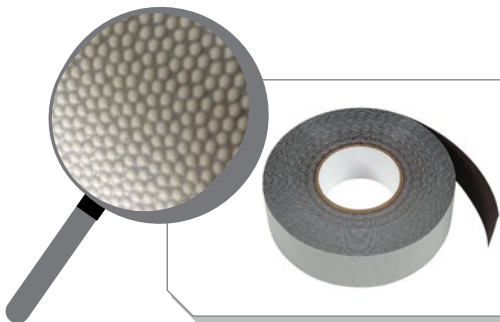
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New Food-safe Laminating Adhesives for Flexible Packaging

By **Junya Aoyama**, Researcher, Toyo-Morton, Ltd.

The global food market has doubled in size over the past decade due to worldwide population growth. Amid the global distribution of food products, flexible packaging materials will play an increasingly important role given that they are lightweight and their shelf-stability is high for long-distance transportation.

In addition, the circular design of food packaging materials is gaining greater attention as an approach to addressing marine plastic waste issues, global warming and countries' toughening regulations regarding the import

and export of waste. Flexible packaging materials could also assist the reduction of food loss by decreasing greenhouse gas emissions that lead to global warming.

Suppliers of materials throughout the supply chain are not just working to protect packaged contents by using flexible packaging and working to conform to increasingly strict regulations and standards, they are also striving to develop alternative packaging materials and solutions with greater environmentally-friendly advantages.

Laws and Regulations Regarding Food Contact Materials

Let's start by taking a look at past changes in key global laws and regulations regarding food contact materials and at recent regulatory trends in Europe (**Figure 1**).

In Japan, the Food Sanitation Act regulates and secures food safety. Laminating adhesives for food packaging applications are subject to the Voluntary Regulations on Adhesives for Food Packaging Materials formulated by the Japan Adhesive Industry Asso-

Flexible Packaging

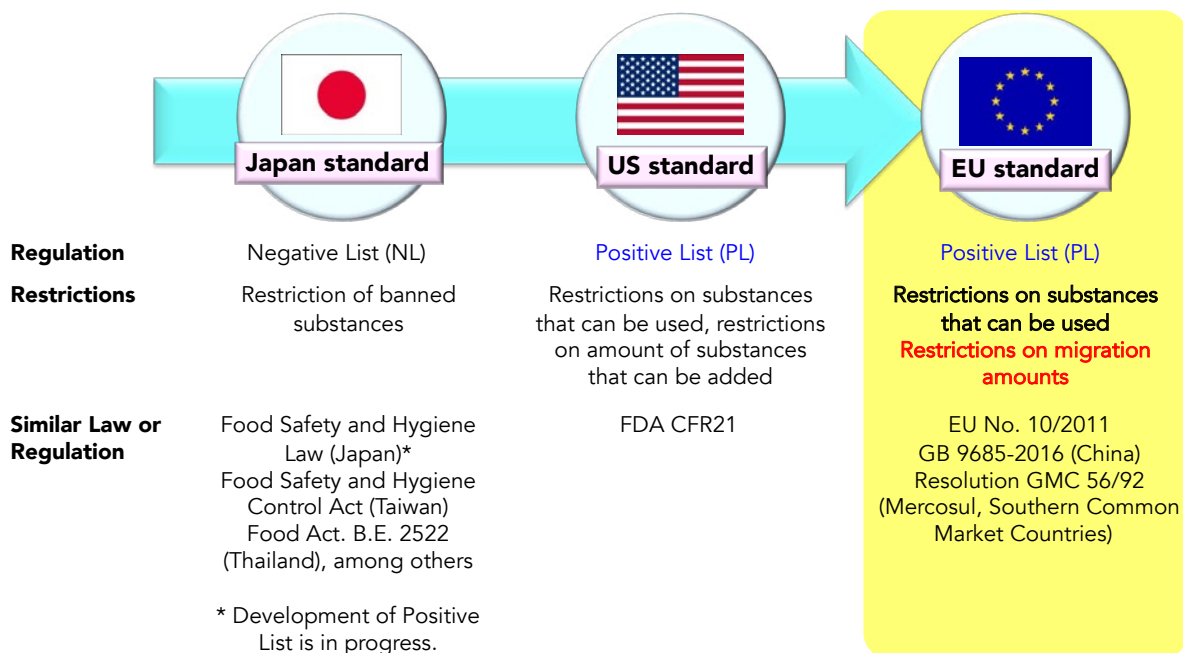


Figure 1 Comparison of Regulations (Japan, US, EU) for food contact materials.

ciation. These laws and regulations provide negative lists (NLs) of substances that are, in principle, banned from use in food packaging. The U.S. has established a positive list (PL) of substances that may be used as packaging materials.

In the Japanese market, packaging materials are required to comply with both Japan's Food Sanitation Act and the regulations formulated by the U.S. Food and Drugs Administration (FDA). Adhesives must satisfy the FDA 175.105, whereas adhesives for retort sterilization at 121°C and higher must meet FDA 177.1390.

The European Union (EU) has long been working to integrate within its member states the comprehensive laws and regulations regarding food contact materials (EC No.1935/2004). In 2011, the EU established the Plastics Implementation Measure (PIM, EU No.10/2011), which focuses

Process	Application	Products (Type / catalyst)	EU	China	USA		Japan	Epoxy-silane compounds	Tin compounds
			No. 10 /2011	GB9685 -2016	FDA175. 105	FDA177. 1390	No. 196 PL		
Solvent Based	Retort Package	TOMOFLEX TM-2300 (Polyester / aliphatic)	✓	✓	✓	✓	✓	None	None
	Liquid Package	TOMOFLEX TM-2470 (Polyester / aromatic)	✓	✓	✓	-	✓	None	None
	Snack Package	TOMOFLEX TM-3040 (Polyether / aromatic)	✓	✓	✓	-	✓	None	None
Solvent Free	Liquid Package	ECOAD EA-N6008 (Polyester / aromatic)	✓	✓	✓	-	✓	None	None
	Snack Package	ECOAD EA-N6001 (Polyester / aromatic)	✓	✓	✓	-	✓	None	None

Table 1 New epoxy silane-free laminating adhesives.

Product	Laminated structures		Pre-retort	Post-retort		Over time (40°C, 4 weeks)	
			Bond strength (N/15mm)	Bond strength (N/15mm)	Appearance	Bond strength (N/15mm)	Appearance
TM-2300 /CAT-RT86	PET/AL/CPP	PET/AL	5.6	4.0	Good	4.1	Good
		AL/CPP	8.7	7.5	Good	5.8	Good
	PET(SiOx)/NY/CPP	PET/NY	3.4	3.0	Good	3.0	Good
		NY/CPP	9.6	5.8	Good	6.2	Good

Coating weight: 4.2g/m², aging conditions: 50°C, 4 days; peel speed: 300 mm/min
Retort conditions: 135°C, 30min; contents: tomato ketchup/vegetable oil/vinegar)

Table 2 Bond strength for retort applications (N/15mm).

Flexible Packaging

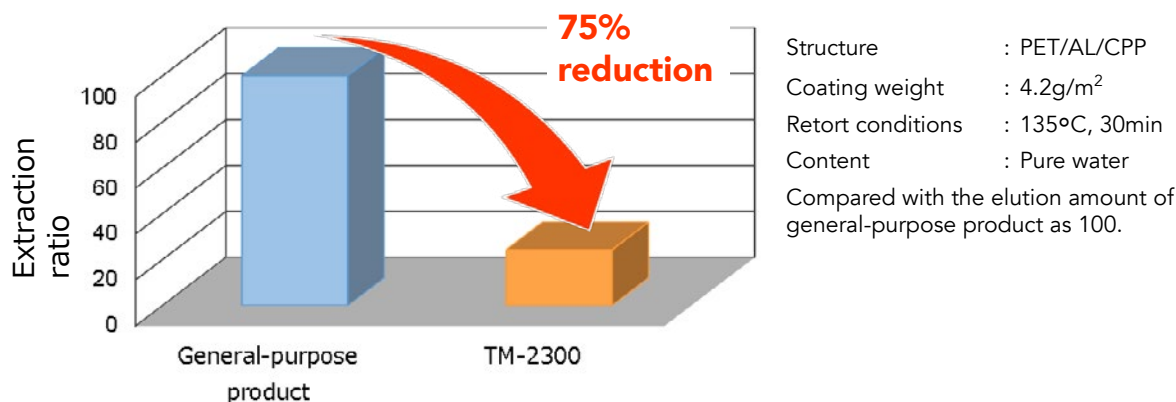


Figure 2 Extraction test results.

Products	Contents	Structure	Initial	Over time	
			Bond strength (N/15mm)	Bond strength (N/15mm)	Appearance
New product TM-2470 /CAT-10	Chili sauce (made in Indonesia)	AL/LLDPE	5.7	9.0 ¹⁾	Good
	Tomato ketchup (made in USA)		5.9	7.4 ²⁾	Good
General-purpose product	Chili sauce (made in Indonesia)		5.6	1.4 ¹⁾	Delamination
	Tomato ketchup (made in USA)		5.5	1.5 ²⁾	Delamination

Structure: PET/AL/LLDPE; coating weight: 3.5g/m²; aging conditions: 40°C, 3 days; peeling speed: 300 mm/min; storage conditions: 1) 50°C, 4 weeks, 2) 60°C, 3 days

Table 3 Bond strength for liquid applications (N/15mm).

on plastic materials and articles intended to come into contact with food.

Unlike the conventional regulations in Japan and in the U.S. that correspond to the amount of additive used, the PIM is unique in that it sets migration limits on individual substances on the list. This means that to comply with the EU regulations, manufacturers must not only create products from safe materials using safe methods but also make sure that substances actually do not migrate into food at levels that could harm.

In addition, since the aforementioned measure came into effect, an independent body as-

sesses food safety and updates the list as appropriate. As a result, the EU's safety standards are so highly objective that China (GB 9685-2016), Latin American countries and others have adopted them in succession. They are quickly becoming the global standard.

New Food-safe Adhesive Products for Demanding Flexible Packaging Applications

Given that global food exports are projected to rise, food packages need to fulfill the laws and regulations in different regions. Table 1 displays a lineup of the latest solvent-based and non-solvent-

based laminating adhesives that are compliant with Japanese, U.S. and EU regulations.

Epoxy Silane-free Adhesives for Retort Packaging

Adhesives for retort packaging must be resistant to heat and water at the time of retort processing, resistant to the package's contents and low in substances that can potentially seep into food. Packaging materials used in retort pouches to be processed at temperatures over 121°C must also meet FDA §177.1390 for enhanced safety.

To fulfill the aforementioned requirements without using the substances restricted by the EU (i.e., epoxy silane and tin compounds), new polymer synthesis technologies and interfacial adhesion technologies need to be applied.

In response to this, adhesive manufacturers have been conducting research and development for these technologies and have developed new epoxy silane-free adhesive systems that prevent the laminated film from coming off (delaminating) during retort processing. As seen in Table 2, laminated structures using epoxy silane-free products show no significant deterioration in bonding strength after processing.

In addition, our proprietary

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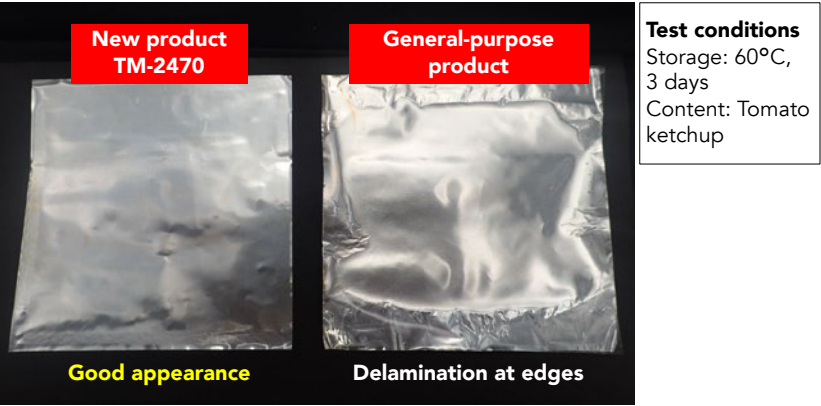


Figure 3 Dipping test results for liquid applications.

synthesis process is very safe and paves the way for the design of polymers with very limited migration of adhesive ingredients into the contents of packages. For instance, a PET/AL/CPP laminate migration test involving retort processing at 135°C for 30 minutes demonstrated that the migration level is around 75 percent lower than the conventional product, minimizing its impact on the taste and flavor of the packaged content (Figure 2).

Adhesives for Liquid Packaging

The packaging of sauces and condiments often contains acidic products, including ketchup, chili sauce and spaghetti sauces. In laminated configurations that include aluminum foil or vapor-deposited aluminum film, adhesives need to have metal adhesion properties comparable with those for retort packaging.

Table 3 shows that new

interfacial adhesion technology effectively controls delamination and the deterioration of adhesive strength in comparison with general-purpose adhesives, even when the package contains highly acidic contents like ketchup or chili sauce.

Of the many tests, the dipping test is a more rigid method of evaluating the package's resistance to the aggressiveness of its contents. In this test, a sample cut from a laminated product is immersed in the package's contents to check if delamination occurs. A test sample of the metallized pouch structure produced using an aromatic polyester adhesive with catalyst was immersed in tomato ketchup at 60°C for three days. The delamination observed was limited in comparison with the test results of a general-purpose adhesive sample. Figure 3 shows the samples after the dipping test.

High Solids Polyether and Polyester-based Adhesives

Solvent-based adhesives have

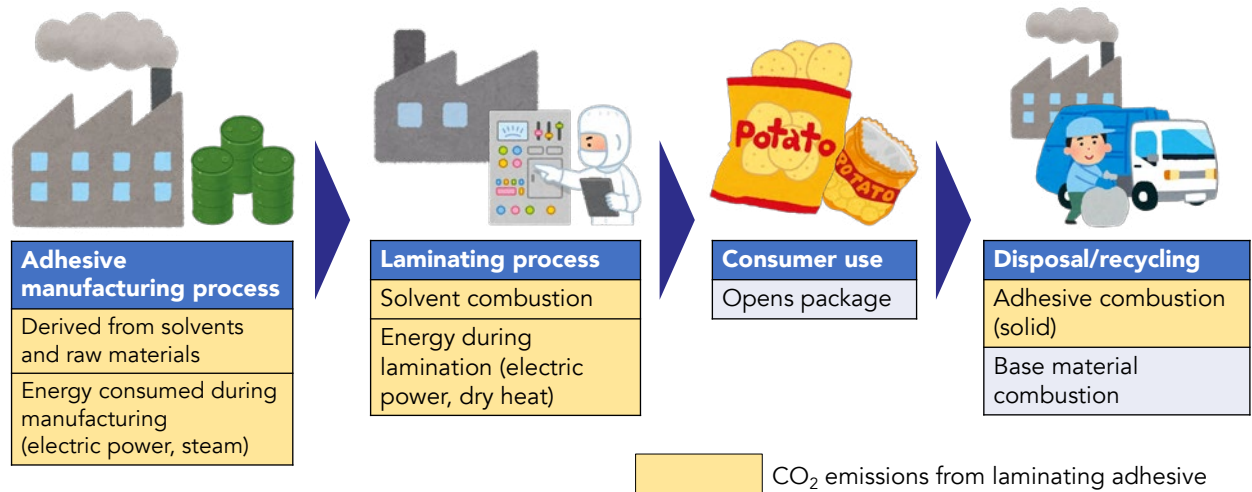


Figure 4 CO₂ emissions from laminating adhesive throughout the product lifecycle

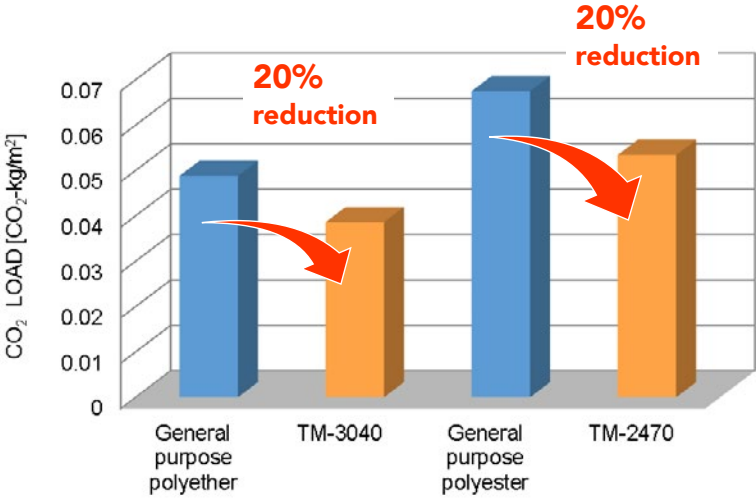


Figure 5 CO₂ loads reduced by 20 percent for both polyether and polyester adhesives.

long been used in lamination processing. In fact, a huge amount of greenhouse gases are emitted throughout the solvent-based adhesive’s lifecycle of production, processing and incineration.

Addressing the emissions issue, newly released high solids polyether and polyester adhesives that are free of any regulated substances are proving effective in reducing solvent consumption for lowered CO₂ emissions. In the lifecycle of laminated packaging, the laminating adhesive is responsible for CO₂ emissions at the stages of manufacturing, lamination processing and the disposal of packaging materials (Figure 4).

Figure 5 portrays a total sum of CO₂ emissions from individual processes and estimated on the basis of the substances that compose the adhesive, their non-volatile content and the amount of application. An adhesive formulation containing 40 percent solids generates CO₂ emissions that are around 20 percent lower than general-purpose products containing 30 percent solids. This increases

food safety while reducing its environmental impact.

As demand for global food distribution grows, so do the calls for safer packaging material design. In Europe, materials that have been used for decades are now coming under scrutiny, while laws and regulations are expected to become increasingly stringent.

In recent years, many countries, including Japan, have started formulating regulations promoting circularity of plastic resources. As this trend is expected to continue for the foreseeable future, we expect to see more innovations in laminating adhesive design that help to not only advance a closed loop economy, but also maintain a high degree of safety and hygiene. ■

*The following was used as calculation conditions.

Products	Solids content	Coating weight (g/m ²)
General-purpose polyether type	30%	2.5
TM-3040/CAT-1040	40%	
General-purpose polyester type	30%	3.5
TM-2470/CAT-10	40%	

*CO₂ emissions from adhesive raw materials are calculated by multiplying the ratio of the constituent substances by the relevant emissions intensity.

Unit of comparison: LCI (Life Cycle Inventory)
Database IDEA2.3
National Institute of Advanced Industrial Science and Technology
Safety Science Research Division, Society and LCA Research Group
Japan Environmental Management Association for Industry

ABOUT THE AUTHOR

Mr. Junya Aoyama is a researcher at Toyo-Morton, Ltd., Japan’s largest manufacturer of laminating adhesives. He is responsible for the design and development of adhesive solutions that are gentle to the health of humans and the Earth’s ecosystems. Toyo-Morton has been delivering highly reliable adhesive systems to the flexible packaging, electronic devices and other industrial markets for over 45 years. Learn more at toyomorton.co.jp/en/.

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Strongly characterized by the constant determination to enhance its offer, **ELBA** decided to innovate the modular structure of the **SA-V pouch-making machine** by making it **compact**, with a minimum length of **9 meters**, for the manufacture of **retort pouches** with bottom-inserted gussets.

Compactness allows to save space and reduce manufacturing scrap, leading to high levels of productivity and efficiency and a more precise production process.

Customization enables meeting specific production requirements: this **SA-V** can be designed with up to four lanes.

New design components guarantee maximum reliability, regarding speed and sealing quality, and minimize maintenance downtime, limited only to wear and tear parts.

Automation allows to reduce time and effort and, consequently, personnel costs.



The machine can be equipped with **new technology** that consists of an integrated web server for remote KPI and energy analysis.

The **compact SA-V 06** is available for materials testing at the **ELBA DEMO CENTER**,

where an **SA-M CH** machine will soon be available, too.

Contact the ELBA Sales Department at sales@elba-spa.it to schedule an appointment.
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Totani Corporation, a Kyoto, Japan based company, is THE world leader in bag and pouch making machines, supplying the industry with over 250 machines annually. Totani America, located in De Pere, WI, is a wholly owned subsidiary of the Totani Corporation. Founded in 1952, the parent company provides both customized and standard plastic bag and pouch making machines with dedicated parts, service and technical support. Totani America sells and services Totani equipment within the flexible packaging industry to converters in North and South America.

Totani is the industry leader in bag and pouch making machine and its current products include pouch machines for the production of the following pouches: three-side seal, shaped, stand-up, spouted, reclosable zipper – both slider and press-to-close, side

gusseted fin seal, side gusseted four-corner edge seal or quad seal, and true flat bottom pouches.

Box Pouch® is the trademark name Totani has given to the flat bottom pouches made on Totani machinery.

Think Sustainability, Think Totani

Sustainable films can be produced at high speeds efficiently. Totani innovations and enhancements have proven effective to improve efficiency in the converting of sustainable pouches. Dealing with heat sensitive films and print repeat control were primary factors that went into Totani's most recent enhancements and new proprietary technology. Furthermore, by utilizing advanced technologies, Totani has been able to greatly reduce set-up times and scrap levels to further help their partners

reach their sustainability goals.

In addition to a focus on sustainable packaging, Totani has implemented a number of environmentally focused initiatives at their head office building in Kyoto. The concept here being the "reduction of environmental impact".

- Solar powered.
- Rainwater basin used for sprinkler system and lavatory.
- High-insulation glass and motion sensors for energy conservation.
- "Green" parking lot.
- Recycling of waste materials from machine production.
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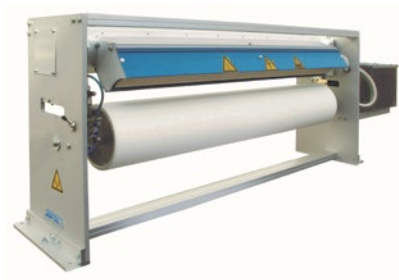


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The printing module is ergonomically designed and user-friendly. It has a sturdy cast iron frame and decks, combined with anti-vibration bearing solutions. The bearings for the plate cylinder automatically open and close, and are equipped with a pre-load system for maximum stability. The deck design avoids deflection and tilting. The highly modular concept enables very fast installation and start-up. The printing module is available as an 8-color or 10-color press.

A flexo press to rely on:

The VISION CI is designed to be flexible and sustainable, while still being compact. It can handle a mix of job lengths, from short to long runs, and deliver consistent, repeatable quality run after run. The two-component chamber doctor blade, the smart inking system, and the easy cleaning system all contribute to increased press uptime and faster time-to-market. The operator viewing platform on the catwalk allows for web monitoring of the print result, and the convenient access to the CI drum ensures higher machine productivity and availability. The smartSET exclusive system for registration and impression setting makes press makeready and job changes fast and easy.

Best in Class performance:

It can handle a wide range of substrate types and thicknesses, and can print with both solvent-based and water-based inks. It consistently produces high-quality results, thanks to the continuously monitored viscosity control system and the integrated inking and cleaning system. The inter-color dryers and bridge tunnel work together to reduce solvent retention on the substrates. Additionally, the accurate process automation results in very low waste, increased cost efficiency, and easy manufacturing.

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Addressing Plastic Waste with Mono-web Coatings

By Rick Stokes, Vice President — Coatings Group in North America, Sun Chemical

As brands continue to focus on ways they can improve the sustainability of packaging, they feel an urgency to address plastic waste, especially plastics in the ocean. According to a [survey](#) conducted by McKinsey & Company in April 2023, of all the various environmental concerns consumers have about packaging, plastic waste is the largest.

A recent [report](#) from The Organization for Economic Co-operation and Development revealed that the amount of plastic waste generated each year has doubled during the last two decades, with about 40 percent of that coming from packaging. It's projected to more than double again by 2040 if significant changes aren't made.

This has led major brand owners to join various regional plastics pacts around the world to address this issue, including the US Plastics Pact, and make public

			Trial Prints
Adhesion		3M/610	100%
Scratch		Fingernail	Pass
Gloss		60°	58.3
Crinkle	Ambient	20x20	Pass
	Ice Water	30' in IW	Pass
Rub Resistance		500x/Ink to Paper	Pass
Water Resistance		10'	Pass
Heat Resistance		350/40psi/1"	Pass
COF	OPV-OPV	S/K	.276/.207
	OPV-Film	S/K	.306/.283
Coating Weight	OPV 2X	lbs/ream	0.24
	Total	lbs/ream	0.67
Transit Testing		90' Paint Shaker	Pass
Blocking		50psi/80%RH/49°C	Pass
APR	ΔL [84.19]	APR < 5.0	2.45
	Δa [-0.45]	APR < 2.0	0.19
	Δb [3.15]	APR < 2.0	1.00

An example of mono-web inks and coatings properties.

Flexible Packaging

commitments to increase the rate of recycling and recycled material use in their packaging by 2025 and beyond.

Single-use plastics are also a focus of legislation around the world to address the plastic waste problem. Canada, for example, published the [Single-Use Plastics Prohibition Regulations](#), designating six single-use plastic product types as toxic and banning them under the Canadian Environmental Protection Act (CEPA) in a staggered timeline from 2022 to 2025.

All of these trends mean that packaging producers must redesign to avoid single-use plastics designations while also enhancing recyclability, reuse or biorenewability.

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. Mono-web structures can also decrease the weight of a package, ultimately reducing transportation emissions.

That being said, lamination has been and continues to be a very popular way to protect consumer goods in packaging. It protects and improves the longevity of the packaging substrate from general wear and tear. Inks and coatings adhere to it relatively easily and it is reliable.

The challenge now is that it isn't always sustainable. Many lamination structures combine multiple layers of plastic films that together are hard to separate from the packaging, making it virtually impossible to recycle, compost or use again in any meaningful way.

Mono-web inks and coatings have been developed to replace



A "5R" framework is a roadmap for existing and developing technology and product portfolios, as well as sustainable operational activities.

multi-play laminate structures using surface printing inks and an overprint varnish. Concern about mono-web packaging structures is that it could give up the protections that lamination offers.

The new mono-web coatings, however, can be very effective at providing many of these same properties. Although not readily visible and seldom recognized by consumers, these coatings bring unique attributes which allow today's packaging to perform as well as it does.

Not only can these coatings provide the scuff and scratch resistance needed to replace a protective layer of film, they can continue to provide the benefits that coatings provide in laminated structures. Shelf appeal can be improved through matte and tactile effects which can attract customers and promote sales. Slip packages within the coatings provide proper frictional properties to allow for high-speed filling, which reduces waste and production time. Oxygen barrier coatings can be incorporated to improve the shelf-life of the packaged foods. The protective coatings can also pull

double duty as a release coating so that cold-seal adhesives can be used to facilitate high-speed package filling.

To achieve both the sustainability and performance attributes required for packaging involves inks, coatings and adhesives working together seamlessly. Being able to provide the full scope of solutions from one source can lead to synergistic benefits where the layers work together for a sum greater than the parts. A mono-web packaging structure, for example, must use inks and coatings designed specifically for that mono-web material.

Mono-web coatings can reduce the amount of plastic used and make plastic waste more recyclable. Investment will be needed in recycling facilities to capitalize on the generation of more recyclable plastic packaging. To learn more about other solutions designed to reduce plastic waste while potentially increasing composting and recycling, visit www.sunchemical.com/sustainability-products. ■

ABOUT THE AUTHOR

Rick Stokes advances and diversifies Sun Chemical's portfolio of coatings, adhesives and sealants by leading an experienced and accomplished team of product management, business development and application professionals. Building on its leadership position in inks, Sun Chemical has grown into one of the world's leading suppliers of coatings and adhesives to the printing and packaging industries. Rick can be reached at naimarketing@sunchemical.com.



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A Comparative Analysis of LAEM IMS' Slitter Rewinders: RB 2 vs RB 4

In the world of converting and manufacturing, the choice of machinery can significantly impact production efficiency and product quality. LAEM IMS – a brand of IMS TECHNOLOGIES – with its broad portfolio of [slitting and winding solutions](#), as well as accessories, is the right choice when it comes to choosing the right partner in the flexible packaging industry.

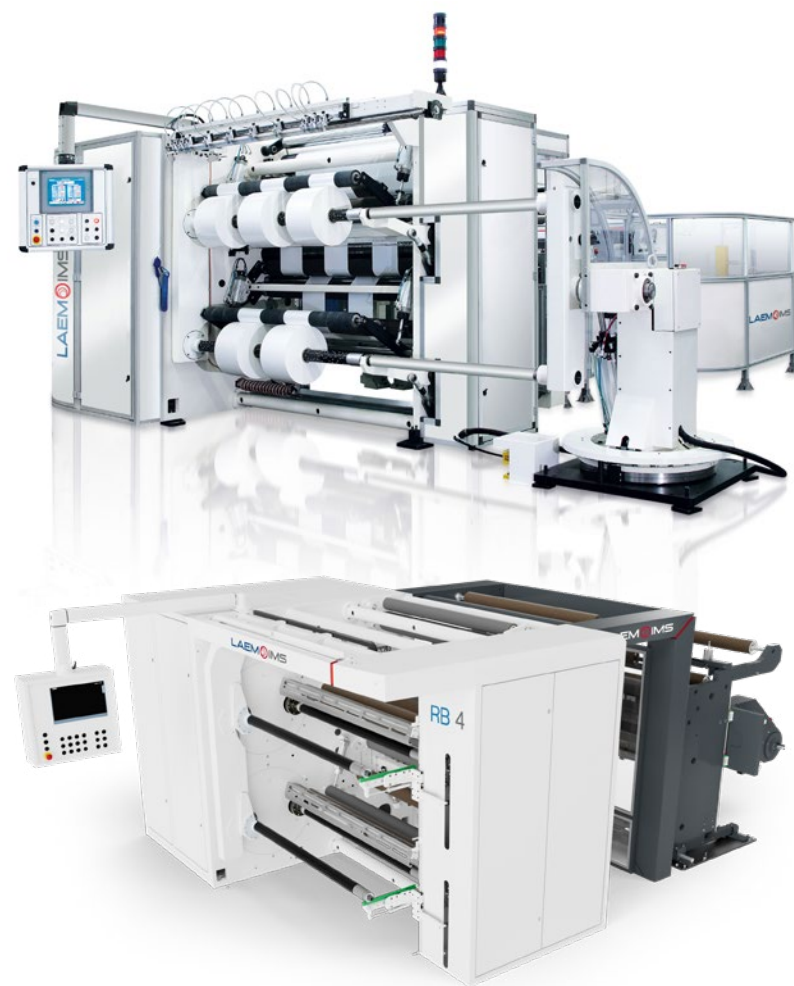
In this article, we will explore the features and capabilities of these two machines of LAEM IMS' portfolio to help you make an informed choice for your specific needs.

RB 2: The Flexible Dual-Shaft Slitter Rewinder

The RB 2 is tailored for medium to large converters seeking efficient production of large finished rolls with precise edges and consistent tension ranges.

The RB 2 boasts a separate shaftless unwinder with an overhead web path. This design facilitates handling of larger-diameter rolls, offers easy access to the slitting section, and protects the web from contamination. Thanks to its modular design, the machine can be integrated with value-added features like perforation units or laser scribing, inspection unit, thus enhancing its versatility.

RB 2 supports various slitting configurations, including oscillating razor blades in-air, razor blades in-groove, and shear cut with circular knives and counter knives. At last, optional assisted



or automatic positioning features can be added to reduce downtime during job changes.

RB 4: The Dual-Shaft Turret Slitter Rewinder for Quick Cycle Times

Designed primarily for film manufacturers and converters needing multiple finished reels of relatively small diameters, the RB 4 offers significant advantages.

Starting from the automatic turret cycle, the machine minimizes cycle downtime with its automatic turret cycle. When reels reach the preset diameter or length, the machine stops, and the automatic turret cycle begins. This allows the operator to unload finished rolls from the stand-by shaft and load cores for the next cycle while the machine continues rewinding on the other shafts.

Technical specifications*	RB 2	RB 4
Mother reel web width up to:	1800 mm // 71"	1800 mm // 71"
Mother reel diameter:	Max 1270 mm // 50" Min 450 mm // 17.7" (automatic lifting)	Max 1270 mm // 50" Min 450 mm // 17.7" (automatic lifting)
Mother reel weight up to:	2000 kg	2000 kg
Maximum diameter of finished reels:	800 mm // 31.5"	600 mm // 23.6"
Minimum slitting width:	80 mm // 3.2" for 6" shafts 40 mm // 1.6" for 3" shafts	80 mm // 3.2" for 6" shafts 40 mm // 1.6" for 3" shafts
Speed up to:	800 m/min // 1.968,5 ft/min	800 m/min // 1.968,5 ft/min

RB SERIES ACCESSORIES

The RB series features also an independent unwinder connected through an overhead web path bridge. This unwinder can be equipped with additional devices like a splicing table, flag detector, register mark counter, and more, enhancing the overall production process.

The Series can be also equipped with a pusher for rolls unloading. This device has been developed to achieve the highest performance in combination with manual dual shaft unloading devices (SC 10 – SC 20).

Comparing the RB 2 and RB 4:

1. Application Focus: RB 2 is suitable for medium to large converters requiring flat-edged, tension-controlled rolls. RB 4 targets film manufacturers and converters needing smaller-diameter finished reels.
2. Cycle Efficiency: RB 4 minimizes downtime with automatic turret cycle, optimizing production efficiency.
3. Slitting Configurations: both machines support a wide range of slitting configurations, offering flexibility. The

- slitting stations can be set manually, with assistance of lateral display or with fully automatic positioning.
4. Technical Data: RB 2 and RB 4 share similar technical specifications, making them adaptable to various scenarios.

Ultimately, the choice between the RB 2 and RB 4 depends on your specific production requirements. RB 2 excels in producing consistent, high-quality rolls, while RB 4 prioritizes cycle efficiency and smaller-diameter reels. Carefully evaluating your needs will lead you to the ideal slitter rewinder for your operation.

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How Brands Can Appeal to Generation Z with Sustainable Packaging Solutions

By **Sarah Stieby**, Fresh-Lock® Marketing Manager

Compelled by legislators and consumers alike, sustainability is a central thought for the packaging industry and beyond. With a new generation of eco-conscious consumers entering the arena, brands and packagers are facing an ever-greater sense of urgency to find and develop sustainable packaging solutions.

Generation Z is likely one of the most influential generations thus far, given their unparalleled access to technology. Through ongoing use of cell phones, computers and social media, Gen Z is hyper connected and can more easily access information on global news — including the current data surrounding climate change and pollution.

Before the pandemic, Generation Z was estimated to have a buying power of nearly [\\$143 billion](#). Now, as more of this generation enters the workforce, that number should be increasing. With this level

of financial influence, brands must take note of these consumers' needs and wants. As Gen Z consumers continue to have conversations on topics of waste, global warming and single-use plastics, brands and packagers are working to identify ways to align business practices with the expectations of these sustainability-minded audiences.

Reclosable Flexible Packaging

With this continued environmental focus, packaging partners are developing solutions targeted at supporting circularity. Reclosable flexible packaging has consistently been a solution helping brands enhance their sustainability initiatives, especially as it relates to waste.

[The Boston Consulting Group](#) currently estimates that annual food loss and waste will hit 2.1 billion tons by 2030. After purchase, it's

vital for packaging to help conserve that product until the final serving is consumed. If the product spoils before it can be fully used, it's not only a waste of the consumer's time and money, but also a waste of the time, energy, resources and labor behind the entire supply chain for that product.

To help preserve food post purchase and combat waste, the proper closure for a brand's product can help extend the shelf life after the package is initially opened and reclosed. A quality closure is ideal because it can go a long way in providing a strong barrier against moisture and oxygen when reclosed properly, helping slow microbiological growth.

Reclosable flexible packaging not only helps in cutting down on waste, but also offers additional sustainability benefits throughout the package's lifecycle. Compared to rigid packaging alternatives, reclosable

Flexible Packaging

flexible packaging is often lighter in weight and takes up less space. This is particularly ideal for transporting goods as it can help reduce a brand's overall carbon footprint — something of which consumers are becoming increasingly aware.

Enhance Reclosable Flexible Packaging Using Recyclable or Compostable Materials

With flexible packaging, reclosability helps ensure products can be stored for multiple servings, helping support the goal of reducing food spoilage. While this is a great feat on its own, brands can take their sustainability initiatives one step further by opting for reclosable packaging composed of fully recyclable or compostable materials.

Recyclable packaging is an

ever-popular choice because it aims to reduce the amount of waste in landfills by reusing materials. Many countries have also introduced legislation to reduce the use of single-use plastics and promote the use of recyclable options.

Compostability, on the other hand, is still growing. Primarily made from plants such as sugar cane, stover, vegetable oil, straw, dent corn and hemp, these organic materials can break down under certain conditions and leave behind nutrients that can be returned to the soil. While compostable products are still new, the long-term benefits they can have really put the opportunity into perspective.

As the technology behind recyclable and compostable packaging formats advances, CPG brands can match quality closures with recy-

clable and compostable films. With a fully recyclable or compostable pouch, brands can still provide the same convenience features of conventional reclosable flexible packaging, but with the added benefit that environmentally conscious consumers will appreciate.

Choosing the Right Sustainable Path

While there are many options available for brands looking to adopt a sustainable approach to packaging, it's crucial that brands invest in the solution that best suits their product and consumer audiences.

While recyclability continues to be embraced by many brands, for a flexible package to be 100 percent recyclable, every component of the pouch must meet individual require-

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Flexible Packaging

ments. If a component of the pouch isn't compatible, consumers may need to remove labels or other parts of the package before recycling it.

To do so accurately, consumers also need to be able to easily identify which part of the package can be recycled and which cannot. If that information is not readily available, consumers may be less likely to follow through with recycling, or they may end up wishful recycling and contaminate the entire recycling stream by not realizing they need to separate the materials. Similarly, recycling may not be practical for certain applications because it would require consumers to clean the material of any oils or residues. For food and organic products that are soil safe, compostability might be the better choice.

Brands looking to improve their

sustainability efforts by providing either recyclable or compostable packaging first need to identify which opportunity is right for their product and consumer audience. To manufacture a reclosable flexible pouch, many materials and components need to be considered. By collaborating with the right partners, brands can get further insight into their options and determine the best course of action.

Cater to Consumer Demand

The call for sustainable solutions is growing, so it's up to CPG brands to determine how they want to get ahead. For brands looking to achieve increased consumer loyalty and improved brand perception, investing in sustainable packaging solutions can only help. Today's

consumers are becoming increasingly conscious of the environment and are more likely to choose products that are packaged in an environmentally responsible way. Investing in sustainable packaging can be a key differentiator, helping to set brands apart from competitors who aren't placing as much importance on such initiatives. ■

ABOUT THE AUTHOR

Sarah Stieby is the Fresh-Lock® marketing manager. The Fresh-Lock® brand is a market leader in press-to-close zipper and track and slider reclosable solutions for flexible packaging. Fresh-Lock® products are designed and produced by Presto Products, a business of Reynolds Consumer Products.

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Innovation in Corona Treatment: QC Electronics' Approach

In the landscape of corona treatment technology, QC Electronics pushes the boundaries of innovation. With an innate ability to adapt and think creatively, QC Electronics innovates on a daily basis.

1. Listening to Industry Needs

A cornerstone of QC Electronics' innovation is our attentiveness to the industry's demands. We don't merely create products; we craft solutions tailored to the precise needs of our customers. By actively listening to the challenges faced by various industries, we develop products that address these pain points head-on.

2. Innovation Fuels Customization

Customization isn't just a service we offer; it's a testament to our expertise and adaptability. When confronted with unique or unconventional processes, we rise to the occasion. QC Electronics is the go-to choice for projects that demand innovative solutions. We think outside the box, devising new methods and techniques that go beyond the standard, predictable proposals of the corona treatment industry, creating results that defy expectations and elevate industry standards. Whether it's adapting to unusual applications or crafting entirely bespoke corona systems, innovation is woven into our daily routine.

3. In Tune with the Science

Innovation thrives when grounded in scientific understanding. QC Electronics stays on the cutting edge by continually monitoring the ever-changing industry, as well as performing our own internal R&D on new substrates and processes. Our designs are based on a deep understanding of what the corona process truly requires to succeed, constant analysis of how materials react to treatment, and monitoring of the entire process both pre and post treatment. Our solutions are rooted in the fundamental science of the corona process and laws of physics, ensuring that each product meets the highest standards of performance.

4. Collaboration

Our innovation doesn't stop at product design. We actively engage with our customers, inviting their suggestions and recommendations to enhance their processes. This collaborative approach allows us to fine-tune our corona treaters to their specific applications and equipment. The result? A level of customization and efficiency that is unmatched in the industry.

5. Holistic Approach

Our innovation extends to safeguarding our equipment from the rigors and elements of the corona process. We understand that durability is as vital as performance, and our designs reflect a holistic approach.

6. Always Advancing

Due to our innovative and boundary pushing nature, we are able to take a leap forward with every custom or R&D project we complete. We are constantly learning and exploring new paths, and our company culture is one of asking questions and pushing the boundaries of what we know today. We believe every day is an opportunity to learn something new, and with this mindset we can present expert solutions that are untouched by standard corona treater manufacturers.

Innovation isn't just a buzzword at QC Electronics; it's ingrained in our DNA. It's our response to the ever-changing applications for corona treatment and a commitment to providing the best solutions for our clients. When you choose QC Electronics, you're choosing a partnership that thrives on collaboration and powerful results.

Flexible Packaging

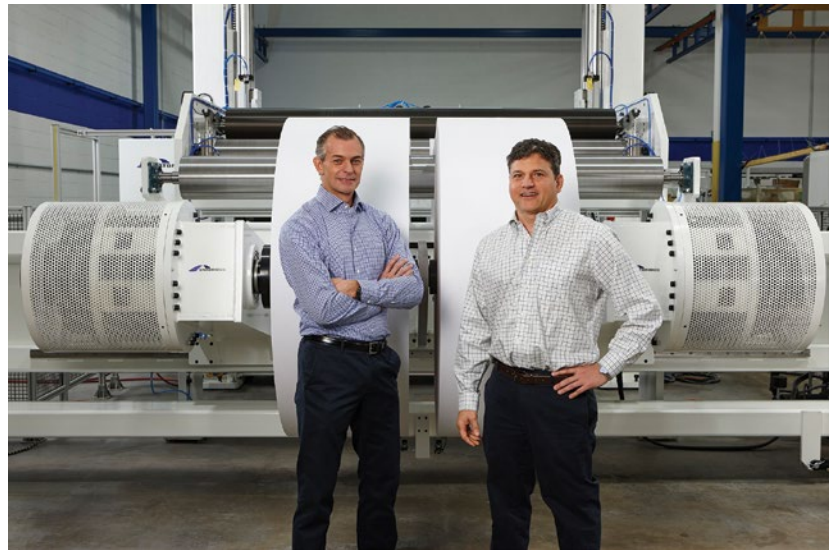
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Catbridge Machinery designs and manufactures innovative, high-performance converting machinery for a wide range of industries including flexible packaging, film, paper, adhesives, nonwovens and building products. In addition to a complete line of slitter rewinders, Catbridge excels at integrating components to build state-of-the-art web converting systems and process lines for coating, laminating and other functions.

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Using an innovative, customer-centric approach to design and engineering, Catbridge has emerged as the leader in state-of-the-art web converting solutions. What makes Catbridge different is their commitment to tailored solutions to meet the customer's needs. Unlike many of its competitors, Catbridge Machinery conceptualizes, engineers, builds, programs, calibrates and tunes every piece of equipment they sell, with customer input playing a role throughout.

Catbridge's highly qualified engineers combine decades of experience in the converting machine industry with the latest computer-assisted design and manufacturing technologies to create the best converting machine design solution for its customers. President,



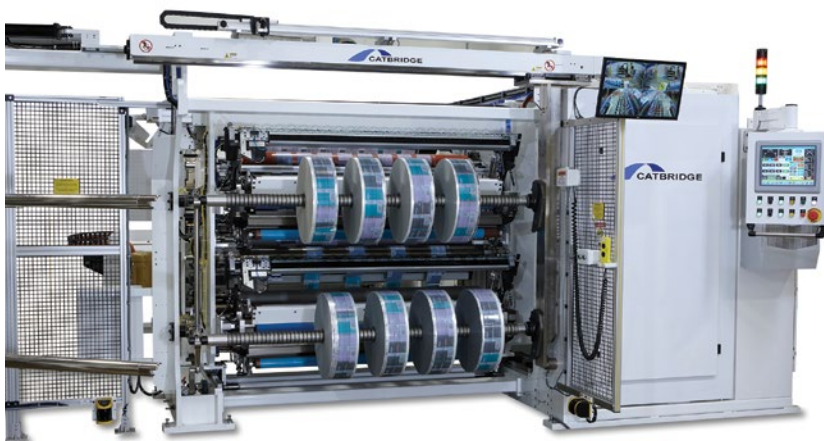
Michael Pappas and Vice President, William Christman, bring an unmatched passion and expertise to the web converting industry. Catbridge Machinery's greatest strength is the ability to provide solutions for a broad range of applications.

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