

BAGS & POUCHES: PART 2



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BECAUSE TWO IS BETTER THAN ONE

It's no surprise that the flexible packaging market is growing rapidly, so rapidly in fact that we decided to create a second part to our bag and pouch making eBook. In this second edition eBook, we focus on the growing segment and what future forecasts predict as bags and pouches replace more of the rigid containers Americans use every day. In this eBook, we tap into some industry experts and association insights to paint a well-rounded picture of the market.

According to the Flexible Packaging Association, the total U.S. flexible packaging industry is estimated to have been about \$31 billion in annual sales and 18.1 billion pounds of material in 2015. Representing approximately 19% of the total \$163 billion U.S. packaging industry, flexible packaging is the largest packaging segment behind corrugated paper.

Read on for coverage on what's trending with flexible packaging, from new pouch innovations to converter information, the recycling of pouches, future forecasts and more. **PS**

Best,

ELISABETH CUNEO
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FLEXIBLE PACKAGING

THE FUTURE IS FLEXIBLE

Continued growth, brand value, convenience and benefits play a part.

by **MARLA DONAHUE**, *president and CEO of the Flexible Packaging Association*

We've come a long way since John Glenn ate the first applesauce packed in a tube in zero-gravity atmosphere during the NASA Friendship 7 flight in 1962. Today, we only need to travel down the aisles of our favorite stores to see flexible packaging revolutionizing the way we package, store and ship our food (and it tastes better than the pureed beef and vegetables of early space travel). Mothers are feeding their babies food from squeezable pouches that eliminate the need for spoons, bowls and even bibs. Our crackers and cookies come in resealable pouches that protect and keep them fresher longer. Frozen veggies can be steamed in the microwave right in their bags and our salads stay crisp for days in bags that feature venting technology. And we can enjoy all of this within the earth's atmosphere.

FLEXIBLE PACKAGING CONTINUES TO RAPIDLY GROW

It's no surprise that with flexible packaging's steady technological progression, the industry continues to experience tremendous growth. In fact, flexible packaging is one of the fastest growing packaging segments. The total U.S. flexible packaging industry is estimated to have been about \$31 billion in annual sales and 18.1 billion pounds of material in 2015. Representing approximately 19% of the total \$163 billion U.S. packaging industry, flexible packaging is the largest packaging segment behind corrugated paper. Growth will continue to be driven by the value, convenience and sustainability benefits only flexible packaging can offer.

UNPARALLELED BRAND VALUE AND CONVENIENCE

As evidenced by the rise in snacking that has contributed to the growth of single-serve and resealable flexible packaging, consumers seek products and packaging that deliver convenience for their fast-paced lives. In a recent Flexible Packaging Association (FPA) survey of 2,120 consumers conducted by Harris Poll, consumers placed high value on packaging that is “easy to store,” “easy to reseal,” and “easy to open.”

Consumers in the survey also said they are willing to pay more for benefits like “ability to reseal,” “ability to extend product life,” “easy to store” and “easy to open.”

Brand owners are responding to the need for convenience by strategically matching their products with packaging that fits today’s consumer lifestyles.

A great example is FPA’s 2016 highest achievement award winner, Campbell’s Ready Meals self-venting retort pouch, which is microwave friendly and has an easy-open tear that



◀◀ Consumers seek convenience with resealable, easy to store and open flexible pouches.

creates an instant bowl so consumers can eat right out of the pouch with easy cleanup. Another FPA achievement award winner, Fresh N Tasty® also tailored their packaging to meet customers’ needs by developing flexible packaging with stay-fresh barrier properties, so baked goods still taste like they’re fresh from the bakery days later.

FLEXIBLE PACKAGING OFFERS SUSTAINABILITY AND FOOD WASTE SOLUTIONS

Flexible packaging is also the most sustainable option. Flexible packaging makes everyday products more resource-efficient by using less packaging and lowering overall environmental impact. Compared to alternative packaging types, flexible packaging helps reduce CO₂ emissions and fuel consumption. For instance, it takes 26 truckloads of



Flexible Packaging Extends Shelf Life (in days)

Flexible Packaging Reduces Food Waste

 Zucchini, 1 → 5	 Broccoli Florets, 6 → 20	 Fresh Sliced Turkey, 14 → 21
 Green Beans, 7 → 19	 Bell Pepper, 4 → 20	 Lamb Steaks, 8 → 13
 Banana, 15 → 36	 Mango, 20 → 40	 Provolone Cheese, 190 → 280
 Table Grape, 7 → 70	 Ground Beef, 3 → 20	 Fresh Swordfish, 7 → 12
 Cherries, 14 → 28	 Beef, 14 → 23	
 Pear, 7 → 15	 Whole Chicken, 7 → 20	

Source: FPA *Value of Flexible Packaging in Extending Shelf Life and Reducing Food Waste Report*

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◀◀ Flexible packaging extends shelf life, which reduces food waste.

unfilled glass jars compared to one truckload of unfilled flexible pouches to transport packaging for equal amounts of product.

A favorable product-to-package ratio makes flexible packaging both the environmentally and fiscally responsible option. To package 60 pounds of beverage, it takes 50 pounds of glass, 6 pounds of rigid PET and 3 pounds of aluminum. This is compared to the 1.5 pounds of flexible plastic needed for the same amount of beverage.

Flexible packaging also contributes to lowering food waste. In the U.S., 40% of all edible food is wasted, making up to about 14.6% of the total U.S. Municipal Solid Waste (MSW) stream. This not only impacts the environment but also consumers' wallets. The average American throws away \$28-43 in the form of about 20 pounds of food each month. Wasting 15% less food would save enough to feed 25 million Americans.

Flexible packaging extends shelf life, in turn reducing food waste. Innovations like modified atmosphere packaging, vacuum packaging, active packaging and retort packaging help seal in freshness and lock out potentially damaging environmental elements, helping keep food fresher longer. Flexible packaging can increase shelf life of a bell pepper

from four days to 20 days, ground beef from three days to 20 days, and a whole chicken from seven days to 20 days. The resealable and single-serve/portioned features of flexible packaging formats also helps provide a much-needed solution to America's ongoing food waste problem.

Flexible packaging manufacturers continue to make their packaging even more sustainable. For example, FPA achievement award winner Berry Plastics Corporation designed Cowboy Bath packaging from a reverse-printed trapped ink configuration to surface printed flexograph by using a UV curing ink system. This process eliminated one of the film layers to the design, reducing waste while also reducing manufacturing costs.

PROVIDING INNOVATIVE SOLUTIONS TO COMPLEX CHALLENGES

The flexible packaging industry continues to make considerable strides toward developing new materials, machinery and film technologies that enhance its benefits. Material advancements including increased barrier properties, innovated laminations and coextrusions enable flexible packaging manufacturers to tailor their packaging to a specific product or need. Machinery advancements help the indus-

try reach new levels of functionality – such as the ability to fill packages faster – which also contribute to film innovation advancements.

The flexible packaging industry will continue to innovate; machinery will get faster, films will get thinner



and protect products better, and the overall package will work to keep products fresher longer, positioning flexible packaging to experience progressive growth as consumers continue to demand sustainable packaging that fits their on-the-go lifestyles. **PS**



10 WAYS STAND-UP POUCHES DELIVER FOR CONSUMERS

Forward-thinking CPG marketers are unlocking growth by converting to stand-up flexible pouch packaging like never before.

In fact, this packaging dominates new product releases, growing by 30% from 2012 to 2015.* Established brands, too, are converting from traditional rigid, glass or aluminum formats to drive growth and profitability.

MILLENNIALS ARE HUNGRY FOR POUCHES

A key reason for this shift is the emergence of millennials. According to Mintel, these powerful buyers represent 40% of today's shoppers. Their active, healthy lifestyles and willingness to skip sit-down meals for a quick snack make stand-up pouches the ideal packaging solution. But that's not all they seek.

Here are the ten reasons why stand-up pouches are making such an impact in food and beverage markets.



1. **Product Freshness** – 92% of U.S. consumers believe it's important that a package retain freshness. Stand-up pouches with clear film allow consumers to see the product quality for themselves.
2. **Portability** – More than half of U.S. adults consider it important that a package be portable, whether it's packing a lunch or a snack.
3. **On-The-Go Consumption** – Mobility and convenient preparation are critical and stand-up pouches provide single-serving formats and can even eliminate the need for utensils.
4. **Easy to Open** – Unlike traditional formats that require can openers or scissors, pouches can be designed for unlimited utility.
5. **Resealability** – More than 80% of U.S. adults find a resealable package important. Resealability not only saves money, but also helps to eliminate food waste.
6. **Functionality** – Time-starved consumers love the fact that stand-up pouches can be microwave friendly resulting, in easy-to-prepare food. They also appreciate designs that work



harder. In fact, 76% of shoppers are interested in packaging that doubles as a serving container, according to Mintel.

7. **Home Storage** – There is no more valuable space in the kitchen than the shelves in a refrigerator or pantry. Smaller footprints and collapsible formats preserve this priceless space and can actually demand a more premium price, too. A full 58% of consumers would pay more for a package that's easy to store, while 66% consider easy storage an important packaging trait according to a recent FPA report.
8. **Empty Completely** – Food waste is a global challenge of which millennials are increasingly aware. Stand-up pouches allow consumers to completely and effortlessly empty their contents, ensuring every ounce of soup, sauce, beverage or food is utilized.
9. **Stand Out on Shelf** – According to retail experts, 75% of purchase decisions are made at the point of sale. So the flat billboard provided by a stand-up pouch – versus the curved geometry of a soup can – affords a vibrant and impactful space for brand messaging.

10. Sustainability – Standup pouches decrease CO₂ emissions by up to 93% through less transportation pollution and a reduced carbon footprint. So CPG marketers can reinforce sustainability with consumers.

THE IDEAL E-COMMERCE PACKAGE

As online shopping grows among millennials, CPG marketers are moving to stand-up pouches that are truly “shipping friendly” since glass jars, aluminum cans and rigid bottles are not designed for the rigors of shipping to individual consumers.

Unfortunately for brands, a broken baby food jar or leaky detergent bottle is more than an inconvenience to consumers. In fact, 41% of consumers see this kind of damage as a negative reflection of the brand itself, affecting loyalty and, ultimately, market share.

WE'RE HERE TO HELP

If you'd like to know whether your product should be in a stand-up pouch, talk to Mark Moorhead, director of marketing, at 920-527-5111 or MMoorhead@bemis.com. **PS**

** All statistics from top industry research sources; see Bemis eBooks or ask your Bemis rep for details.*

TAKE YOUR PACKAGING TO NEW PLACES.

Standup pouches keep pace with evolving consumer lifestyles.

Unlock growth and profitability as consumers replace traditional packaging with flexible standup pouch formats. In fact, this packaging dominates new product releases, growing by 30% from 2012 to 2015.

- Reach millennial audiences who demand freshness, portability, functionality and convenience
- Create expanded usage occasions for your product to boost sales
- Appeal to online shoppers with a shipping-friendly format that reduces brand risk

Your brand has everything to gain by embracing this versatile format. And so does your business.



See why so many have turned to pouches. Download your free eBook today at Bemis.com/profit-pouch-ebook

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POUCH MAKING

STAND-UP POUCHES: CONVERTING CONSIDERATIONS FOR BRAND PACKAGERS

With stand-up pouch demand rising, brand packagers face strategic make-or-buy decisions.

by **ROSS BUSHNELL** and **GEORGE WALDON**, *contributing writers*

The stand-up pouch (SUP) continues to be a darling of the packaging industry. Brand packagers are eager to satisfy consumer appetites for pouch convenience, ease of use and quality.

Market data shows SUP demand staying strong for the foreseeable future. Technology research company Technavio (technavio.com) estimates the SUP compounded annual growth rate will be 9.67% through 2019. As well, market research firm The Freedonia Group (freedoniagroup.com) predicts U.S. SUP demand will reach \$2.4 billion in 2018.

Brand packagers have flexibility with SUPs. To cost-effectively fulfill demand and place good-looking product on retail shelves, they can buy pre-made SUPs, make them in-house or pursue both paths. There are advantages and disadvantages to each decision.

Pre-made SUPs can be produced in different pouch shapes and with add-on features such as sliders, spouts and handles. >>



PRE-MADE POUCH PROCUREMENT

When brands buy pre-made SUPs, they can present consumers with novel pouch shapes and innovative add-on features – such as zippers, sliders, spouts, assorted handles, choke-avoidance safety caps for baby food pouches and laser scoring for easy opening. Pre-made SUPs can also have a customized design uniquely contoured for smooth pouring.

Pre-made pouch suppliers can easily change pouch dimensions, shapes, fitments, closures and order quantities to help brands meet evolving demand. The pouches can be configured to include transparent windows, crisp seams and bottom and side gussets, creating a rich canvas for brand graphics and messaging. By comparison, pouches made on in-house form/fill/seal (FFS) equipment are more likely to have flatter, thinner seams and are more prone to film wrinkles.

Brands that work with a vertically integrated supplier



also can benefit from a seamless flow of their packaging through every stage, including pre-production design, film extrusion, cylinder engraving, roll stock printing, laminating, slitting, rewinding and converting into SUPs.

One disadvantage of pre-made pouches is evident in the filling process, which cannot meet FFS' potential for automation. Pre-made pouch filling is a semi-automated activity that can require more employees than FFS processes. So, while buying pre-made pouches reduces a packager's capital equipment requirements, there are pouch filling labor costs on top of the pouch price per unit.

IN-HOUSE POUCH PRODUCTION

SUP FFS cost and efficiency benefits are prompting more brand packagers to consider a transition from buying pre-formed SUPs to producing their own pouches in-house. When

making the move to in-house pouch production, a business typically invests in either vertical or horizontal FFS machinery. With vertical FFS, the product automatically flows vertically down into the formed pouch before the pouch is sealed. With horizontal FFS, the product rolls or slides horizontally into the package before sealing. When integrated with automated feed systems, these machines have very fast throughput. For example, some machines can form, fill and seal 80 to 200 bags per minute.

While SUPs made on FFS equipment tend to be basic in their design, they can incorporate some fitments and special features. For instance, advances in FFS machinery enable it to be upgraded with zipper applications. Also, some roll stock suppliers can embed pre-applied interlock zippers into their roll film, allowing packagers to add a pouch zipper without significant modifications to their FFS machines. Likewise, laser perforations integrated into roll stock enable packagers to incorporate easy-tear openings on their SUPs.



COMMON DENOMINATOR: ROLL STOCK PRINTED FILM

Whether a brand packager chooses to buy pre-formed pouches or make SUPs in-house, a common denominator should be high-quality roll stock printed film. Leading roll stock suppliers have proven track records for providing consistent print and color quality throughout every roll. Their film features a stable lamination bond, reducing risk for bubbles or an “orange peel” mottled appearance. Suppliers also should offer consistent roll configuration so that printed laminate

rolls are wound to just the right tightness and have flush, even ends – both of which help to ensure smooth processing through FFS machinery. To that end, some suppliers provide technical assistance to brand packagers who want to be sure their roll stock is engineered to suit a specific FFS equipment model.

Diverse printing capabilities are crucial for SUP roll stock providers. Top vendors offer rotogravure, high-definition flexographic, standard flexographic and extended gamut

printing all under one roof.

In-house SUP FFS can be an attractive option for brands, especially for products with razor-thin profit margins. At the same time, packagers can deploy FFS pouches in their most price-sensitive product categories and leverage pre-made

pouches, with their aesthetic appeal and higher-quality perception, for products that must stand out in a crowded field of competitors. Either way, the SUP promises to continue attracting consumers with its winning combination of solid branding, end-user functionality and superior convenience. **PS**

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POUCH RECYCLING

HOW TO RECYCLE POUCHES: TWO APPROACHES

FROM FLEXIBLE PACKAGING MAGAZINE

Flexible plastic pouches are easy to use and easy to manufacture – but not so easy to dispose of. The fact that most end up in landfills is a big issue for consumer goods and packaging manufacturers.

Stakeholders are taking various approaches to solving the problem. Here is a look at two of them that were discussed at the recent Global Pouch West event, produced by the *Packaging Strategies* group.

THE RECYCLABLE POUCH

Dow Chemical Co.’s packaging and specialty plastics business is working on creating recyclable polyethylene (PE) resins for stand-up pouches. The project began in 2013 with materials used by Tyson Mexico for chicken packaging; the latest engineering has gone into a pouch released in late 2015 for Seventh Generation dishwasher pods. The pouches – part

of what the company calls the RecycleReady line – can be recycled with plastic bags in collection bins at grocery stores.

The details of the pouch material composition are proprietary, but key is usage of PE. “The general concept is to utilize either all-PE structures or PE-plus specialty compatibilizers with non-PE materials that allow these pouches to be incorporated into recycle streams designed for PE recovery,” says Lamy Chopin, Dow application technology leader.

Typically pouches are multilayer and can be made up of polyethylene terephthalate (PET), polypropylene (PP) or biaxially oriented nylon (BPN) to provide stiffness, temperature resistance, barrier and surface finish. PE is used to provide toughness and sealability.

“Unfortunately these combinations result in a film that is not suitable for a PE recycle stream,” Chopin says. “So the hang-up to making a full recyclable stand-up pouch is to get

sufficient stiffness, barrier and temperature resistance while still retaining the recyclability.”

The company recently partnered with pouch machinery maker Hudson Sharp to demonstrate “that we can get to PET-laminate rates using all-PE film.”

On another front, Dow is also working to on barrier adhesive technology that can provide a PET-like barrier to a PE lamination that would eliminate foil or EVOH (ethylene vinyl alcohol) layers. However, he admits there is still a need for multi-layer pouches and those made with recyclable materials “will probably never cover all the various needs for SUP contents.”

Dow is committed to doing what it can to push the technology forward, Chopin says. “We really want to advance the circular economy and be good stewards. We can’t produce plastics if we can’t have ways to take care of them.”

The Seventh Generation dishwasher pod package was made by Accredo Packaging.

THE REFLEX PROJECT

In the U.K., flexible packaging makes up 32% of consumer plastic packaging waste. More than 560,000 tonnes of food wrappers, pouches, bags and lids are landfilled each year.

The Reflex project (Recycling of Flexible Packaging) was

created in 2014 to create a circular economy for flexible packaging and divert more than 50% of them from the landfill. Funded by Innovate UK, partners include Unilever, Nestlé, Amcor Ltd., Dow and Axion Consulting. Its main mission is to develop a recyclable pouch design.

Research so far has focused on exploring and evaluating alternatives to difficult to recycle multi-layer films, which are potentially more suitable for recycling and yet still deliver the performance requirements and technical properties needed. Early breakthroughs include taking multilayer packaging structures that use incompatible polymers and redesigning them with polymers and structures that can potentially be recycled together.

Richard McKinlay, senior project engineer, said via email that research details are confidential but the team has been “addressing issues such as barrier properties, mechanical properties, heat sealability and how the pack processes on the filling line.”

He said scientists have also been investigating compatibilizers that could “improve the quality of recycle.”

Other activities have included looking at near infrared (NIR) sorting technology at recycling facilities. “Currently there is limited use of NIRs for sorting film especially attempting to sort laminates,” he said. The objective was to be to sort out film and polymers that could be used for recycled content. **PS**



BOSCH

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When quality teams up with efficiency, it's a match made in heaven. Bosch's SVE 2520 DZ continuous vertical bagger gives you the Doy Zip quality you expect from a horizontal machine, but with a lower initial investment. Now you can enrich your brand with a convenient reclosure and boost shelf appeal without sacrificing production efficiency. You get high-speed production of up to 100 Doy Zip bags per minute in a compact unit that takes up only a third of the production floor space of comparable horizontal equipment. The result is lower cost-per-pack and lower total cost of ownership.

Bosch's patent-pending zipper application enables perfect alignment even at high speeds, ensuring that the premium quality of the Doy Zip bag is never compromised.

Achieve sharp, even edges and gas-tight seals, also around the zipper to ensure product freshness and quality. Your customers will experience the difference and reward you with their loyalty.

What's more, the bagger gives you flexibility by offering the most popular bag styles—seven in total: pillow, gusseted, block bottom, corner seal, full corner, 3-sided, as well as doy. You also get a choice of reclosure options. Bosch's proven SVE technology is intuitive and streamlines operation and maintenance, while changeovers are a breeze. It takes just 45 minutes to switch from pillow to Doy Zip style, so you can adjust quickly to evolving consumer demands.

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BOSCH
Invented for life

FLEXIBLE PACKAGING



THE FLEXIBILITY FACTOR

Flexible packaging offers consumers a plethora of benefits.

by **JORGE IZQUIERDO**, vice president of Market Development at PMMI

Flexible packaging continues to take the industry by storm. According to the 2015 Flexible Packaging Market Assessment by PMMI, The Association for Packaging and Processing Technologies, its unique benefits have made it the second largest packaging segment. The dynamic format promises huge potential for brand owners in food, beverage, pharmaceuticals and other products as it can adapt to a wide range of shapes and sizes and features innovative components. Additionally, flexible packaging offers sustainability, extended shelf life, cost savings and convenience – major factors that consumers consider before purchasing a product.

PRE-CYCLE OVER RECYCLE

Flexible packaging is not without its own sustainability challenges. It is common knowledge that while manufacturers benefit from minimizing material use with flexible packaging, the format is less likely to be recycled. On the other hand, according to the U.S. Environmental Protection Agency (EPA), pre-cycling is the preferred method of waste management because it reduces material use at its source. That is, trash is eliminated before it is even created.

The 3 R's of sustainability stand for Reduce, Reuse and Recycle – and it is in that order for a reason. The goal is to generate the minimum amount of waste possible in households and businesses.

FLEXING CONVENIENCE AND FUNCTIONALITY

Many new product developments have helped demonstrate the potential of flexible packaging. For example, Bemis Co. was recently honored at the 60th Annual Flexible Packaging Awards for its self-venting retort pouch, developed for Campbell's Soup ready meals. The pouch allows consumers to heat up a fresh meal in 60 seconds with no cooling necessary. It is

then transformed into a bowl once opened, allowing consumers to eat directly from it and significantly reducing clean up.

Moreover, as one of the most trending flexible packaging characteristics among consumers is the ability to reseal in order to extend freshness, innovations in zip and press closures is projected to support the increase in demand for the format in the coming years. **PS**

PMMI, The Association for Packaging and Processing Technologies, represents the voice of more than 700 North American manufacturers of equipment, components and materials for processing and packaging. We work to advance a variety of industries by connecting consumer goods companies with manufacturing solutions through the world class PACK EXPO portfolio of trade shows, leading trade media and a wide range of resources to empower our members. The PACK EXPO trade shows unite the world of processing and packaging to advance the industries they serve: PACK EXPO International, PACK EXPO Las Vegas, Pharma EXPO, PACK EXPO East, EXPO PACK México, EXPO PACK Guadalajara and ProFood Tech, launching in April 2017. PMMI Media Group connects manufacturers to the latest solutions, trends and innovations in processing and packaging year-round through brands including Packaging World, Automation World, Healthcare Packaging, Contract Packaging and Packaging + Processing OEM. PMMI Business Drivers assist members in pursuing operational excellence through workforce development initiatives, deliver actionable business intelligence on economic, market and industry trends to support members' growth strategies, and actively connect the supply chain throughout the year.

Learn more at PACKEXPO.com, PMMIMediaGroup.com and PMMI.org.

FLEXIBLE PACKAGING



IT'S A GOOD TIME FOR FLEXIBLE PACKAGING

New products, innovations and materials further foster growth.

by **LIZ CUNEO**, *Editor in chief*

Flexible stand-up pouches are one of the fastest growing formats in the food and beverage packaging market. According to the Freedonia Group (freedoniagroup.com), the U.S. market for flexible plastic pouches could top \$10 billion by the end of the decade. Stand-up is the fastest growing type of pouch, growing at a rate of 6.5% per year from 2015-2020. The growth drivers for this market are the lightweight sustainable properties of pouches, their ability to allow for increased marketing differentiation, and through the addition of a spout, deliver a convenient and resealable product dispense.

New innovations in spouts on stand-up pouches further propel the segment forward, and offer more convenience for consumers from childhood to adulthood.

Aptar (aptar.com) has two new innovative spouted pouch offerings, EZ Grip and EZ Twist. Both feature a child-friendly design that is easy to open and close on-the-go. The fitments also possess a unique tamper evidence system that clearly indicates if the package has been opened. Both fitments are SimpliSqueeze® valve capable, which means that the package becomes a spill-proof option, reducing the risk of children causing accidental messes in the back seat of the car, at home or at school.

For the even younger crowd, Happy Baby unveils its new product line of fully transparent food pouches called Clearly Crafted. The baby food in the stand-up pouches is made with premium, organic ingredients that are now fully visible to the consumer, and the parents who buy them.

“Parents are looking for openness and honesty from the companies they buy products from, especially for their baby,” says CEO and founder, Shazi Visram. “We developed Clearly Crafted with this in mind. We want to share every aspect of the product story, from the farms where we grow our ingredients to the recipes that we use. Parents can feel confident feeding their children, by knowing and seeing exactly what’s inside the pouch.”

With Clearly Crafted, Happy Family is also the first organic brand to list its recipes directly on the pouch. With the trend of transparency soaring, both in materials and in food production, these clear pouches offer consumers the perk of more knowledge about the food they are serving to their little ones.

Convenience features are winning consumers over and several companies are taking advantage of this. Ecolean (ecolean.com) presents SnapQuick, a lightweight feature that makes reclosing stand-up pouches well, a snap. The reclosing device is incorporated into the package and designed to be convenient for all users, youth and elderly included. SnapQuick is lightweight and consists of two male buttons, two female buttons and a hinge. After opening the package



⚡ The spouted pouches feature a child-friendly design that is easy to open and close on-the-go.

and deciding to close it, consumers simply fold it and give it a pinch to seal. An audible snap sound will form, ensuring a tight seal. The SnapQuick pouches are available in three sizes, 500ml, 750ml and 1,000ml.

AWARD-WINNING PACKAGES SHINE

At the recent Flexible Packaging Association Awards ceremony, ProAmpac (proampac.com) was awarded two silver

Reader poll: Flexible packaging predictions

Which of the following do you predict will make the most progress in 2016?

29% Advancement of active/intelligent labels

20% Resource recovery of flexible packaging

15% Emergence of new pouch formats

7% Advancement of decorative label

27% More than one of the above

2% Other

<http://www.packagingstrategies.com/polls/64-2016-flexible-packaging-predictions/results>

awards in Packaging Excellence for innovative solutions to common grocery items.

Duke's Mayonnaise is available in an 8-ounce stand-up pouch looking to cause disruption on the shelf among all the

rigid containers of mayonnaise. The hourglass shape is ergonomically designed to fit smaller hands. The reclosable one-piece flip top spout is easy to open, snaps both open and closed, and compared to a traditional two-piece spout and cap, there is

no risk of losing the cap. Designed for either single or multi-use portability on the go, this pouch is a first for mayonnaise.

The second silver award was won by White Lily Flour, a specialty flour in a reclosable box pouch, a first in its category. Flour is traditionally packaged in paper-walled bags that are not reclosable. White Lily highlights its premium product in a package designed for shelf impact and functionality. Box pouches provide shelf-stability and five panels of marketing billboard. The pouch includes a clear window to view the product, improved moisture resistance, and a hook and loop zipper that doesn't clog during contact with fine particles like flour. The registered matte varnish enhances the organic brand's image while leaving a glossy viewing window with excellent clarity.

The healthcare sector also has award-winning and innovative pouches emerging on scene to help healthcare manufacturers. The Autoclavable Dispos-a-vent Barrier Pouch from Oliver-Tolas Healthcare Packaging (oliver-tolas.com) was recognized by the



« The pouch includes a clear window to view the product and a hook and loop zipper that doesn't clog during contact with fine particles like flour.

Association and received a gold award for technical innovation. The pouch provides medical device manufacturers an

innovative packaging design option for devices requiring autoclave sterilization and barrier properties. Dispos-a-vent barrier pouches are designed with a disposable Tyvek® or paper vent for maximum airflow during steam sterilization and a high barrier foil pouch area for easy conversion after sterilization.

So how does it work? Manufacturers seal devices in Dispos-a-vent pouches for sterilization. A second seal is applied to enclose the device in the foil pouch after sterilization. The Tyvek® or paper vent is removed after the secondary sealing process. The final package protects the sterile device in a foil pouch with superior barrier properties.

The design is an improvement over existing packaging options that involve sterilizing in one porous package and then repackaging in a second barrier package. Eliminating the need for a second package has its perks like improved efficiencies, reduced costs and less material waste.

ECO-FRIENDLY MATERIALS PROPEL THE SEGMENT

As more new packages emerge with more user-friendly, functional and sometimes aesthetically appealing features, packagers will need to anticipate future trends within the segment. I asked David Fletcher the senior manager of Strategic Alliance Group, Toray Plastics (America), Inc., what he thinks the next big thing in flexible packaging will be.

“We see new materials and new coatings as the next big things. Toray and its customers take sustainability and the development of materials sourced from renewable feedstock very seriously. One of the areas we are working on is an exciting new line of bio-based polyester (PET) products. Polyester is manu-



◀◀ When consumers close the package, an audible snap sound will form, ensuring a tight seal.

factured by combining purified terephthalic acid and ethylene glycol. By utilizing a bio-based EG in the manufacture of the film, Toray is able to offer CPG’s an environment-friendly PET that is made with approximately 30% renewable resources. Using a 30% bio-based EG significantly reduces greenhouse emissions and brings us one step closer to our ultimate goal: commercializing a 100% bio-based PET.”

Today, Toray is utilizing its bio-based PET with the new LumiLid® bio-based, dual-ovenable lid-film. The films, which were awarded AIMCAL’s Sustainability Award for 2016, are manufactured with Toray’s proprietary sustainable resin blends, which are made with approximately 50% renewable feedstocks. The bio-based films were created to meet the needs of environment-conscious end users and consumers. The films lessen the impact on the environment, as they use fewer petroleum resources while they are being manufactured.

LumiLid films are FDA-compliant for use with oven temperatures of up to 400°F for 30 minutes. They are also Interstate Milk Shippers (IMS)-certified, so they offer another level of assurance for dairy customers. The bio-based films also have a low seal initiation (SIT), broad seal range, excellent seal integrity and are complete with an easy peel for consumer convenience. The new LumiLid films are designed for frozen, wet and dry food, and dairy applications.

As the industry changes, so do demands from customers who want the next big thing and the best option from their suppliers. According to Fletcher, the two top requests from customers regarding packaging materials in the market are innovation and cost-savings.

“The industry is under a lot of pressure for cost containment and productivity improvements. The larger food companies face monthly or quarterly Wall Street pressures. At the same time at the super market level, there are more and more new brands and store brand alternatives fighting to take market share from the national brands. Our customers look to us for ideas about new substrates and coatings, source reduction, and lower cost options to help them improve their operations and differentiate their packaging,” he adds.

New packaging formats, technologies and materials are propelling the flexible packaging market forward, creating an even more vast and diverse segment than ever. **PS**



CAN RETAILERS MEET RISING DEMANDS FOR FOOD SAFETY AND SUSTAINABILITY?

Darfresh® on Tray Meat Packaging Benefits Retailers, Consumers and the Environment

Long challenged by shifting consumer demands, fierce competition and razor-thin profit margins, retailers are now facing a new issue: how to ensure food safety and sustainability without sacrificing sales or increasing costs.

Consumers worry about wasted resources, sustainability and food waste, among other issues – and these worries affect how they view retailers, according to a 2014 Harris Poll consumer food waste study. Eight out of 10 consumers say they feel more positive about stores or brands that try to reduce food waste. They also like retailers that promote efforts to operate more sustainably.

Meanwhile, retailers are looking for ways to reduce a sig-

nificant cost – shrinkage from the meat case. Most retailers experience 2-4% shrink in which they are forced to mark down the price or throw the meat product out. With many types of beef priced at \$6 per pound or more, cutting shrinkage could significantly add to a retailer’s revenues.

Some retailers are turning to creatively designed packaging to meet rising consumer demands and reduce shrinkage. Cryovac® Darfresh® On Tray uses a specially formulated top film and bottom tray to create a secure and hygienic seal that keeps the meat fresh and allows it to be attractively presented to consumers. This new sustainable, case-ready packaging for fresh red meat and poultry not only reduces waste through

the vacuum packaging and efficient use of materials and energy, but it also allows retailers to more efficiently store, display and market the product.

Darfresh on Tray significantly extends the shelf life of meat and poultry and reduces shrink. It also creates a merchandizing opportunity for retailers, enabling them to attractively display more product and increase sales. Darfresh on Tray is 25-50% less bulky than meat packaged in a mother bag process, allowing more product to be displayed in the case. The many color options, including clear, allow the meat to be more visible and attractively displayed in the case and gives it a point-of-sale advantage over other types of packaging.

Consumers also like the convenience of the packaging, which is leak-proof, easy to open and freezer-ready. Consumers concerned about portion sizes like the fact that Darfresh on Tray comes in a variety of sizes, including individual packed portions. Consumers no longer have to remove packaging from purchased food in order to subdivide it for later use, which wastes packaging material and reduces the freshness of the food by breaking the vacuum seal. Consumers

also like the transparency of Darfresh on Tray's clear packaging option (the trays come in any color) – clear packaging gives consumers a direct view of the product, bolstering their trust in the integrity of the brand and the retailer.

One disconnect is consumers don't understand the role of packaging in reducing food waste. Many consumers believe that packaging is worse for the environment than food waste. Their minds change when they are shown that packaging with portion control is environmentally friendly, keeps food fresh longer and reduces food waste, according to the 2014 Harris Poll study. As a result, some in-store education may help consumers understand the sustainability benefits of innovative packaging.

In offering a combination of freshness and more efficient and effective retail presentation, packaging like Darfresh on Tray appeals to customers' desire for high quality products while providing retailers with savings and marketing advantages. By taking proactive initiatives to address food waste and sustainability, resourcefully designed packaging enables retailers to improve brand loyalty and reputation with customers while also increasing sales and cutting costs. **PS**



FOOD SAFETY



OPERATIONAL EFFICIENCY



SHELF LIFE EXTENSION



BRAND BUILDING

EFFICIENT PACKAGING WITH LONG-TERM BENEFITS – IMMEDIATELY.

Sometimes, increases in efficiency are so incremental they're hard to see short-term. But with packaging that saves on labor, material, and distribution costs, you feel the impact immediately. And that's exactly what you get with **Cryovac® Darfresh® On Tray**, innovative vacuum packaging for meat, poultry, and seafood. It cuts material waste by up to 40%, increases throughput by up to 35%, and trims distribution costs by more than 20% through reduced packaging volume.

Find out how much we can help increase your efficiency
at sealedair.com/darfresh-on-tray.



BAG & POUCH MAKING

A ROUNDTABLE DISCUSSION ON BAG & POUCH MAKING

FROM FLEXIBLE PACKAGING MAGAZINE

Six packaging professionals discuss real-world application, new pouch formats and equipment going places in the industry.

FABIO DACÒ: Senior Sales Manager // ELBA S.p.A. (elba-spa.it)

JESSE R. ROSENOW: Field Service Engineer // Totani America Inc. (totani.co.jp/en/)

RAUL MATOS: Vice President // Karlville (karlville.com)

JAMES RUSSELL: President // Modern Manufacturing (modernmfg.net)

SCOTT FULLER: Product Line Mgr., Intermittent Motion; Sales Mgr., N.A., Non-Medical Pouch // CMD Corp. (cmd-corp.com)

SANJAY AMIN: General Manager-Sales, Marketing, Customer Support // Mamata Enterprises, Inc. (mamatausa.com)

Q ■ Other than fast changeovers, how is bag/pouch making equipment becoming more efficient?

FULLER: All equipment manufacturers strive to improve the efficiency of their equipment and obvious improvements arrive on the market about the same time as solutions that are offered by components and controls vendors, bolted on to every pouch machine out there. But true efficiency is measured

uniquely, depending on the customer, and is a marriage between machine performance and flexibility, the customer's process, materials and business model.

Our goal is to advance technology to meet the true efficiency needs of our customers. Equipment is scalable to include those features that work best for a customer's situation. This process of advancing technology is not a cookie-cutter solution available from anyone in the marketplace. It

CMD's 760-IDC steel rule die-cutter >>
universal-shaped pouch-cutting system.



is customized for our customers, who report that the efficiency gains on their machines are significant. In a globally-competitive market, converters have told us they need to set themselves apart. They look for equipment solutions that let them offer customers more and better solutions than what is currently available from any of their competitors in the market place. Advanced efficiency allows cost reduction, saves on scrap, rework and delays, and shortens lead times.

RUSSELL: Modern is currently working on newly patented products that will change the way stand-up pouches are made today. The efficiencies will be gained through speed, in which the pouch can be produced. With our newly patented design, we will be able to achieve up to 500 stand-up pouches per minute, depending on pouch size and material conditions.

BAGS&POUCHES: PART 2

This presents itself as a game changer for the standup markets, and hence changes the efficiency and cost effectiveness of stand-up pouches as compared to other packaging methods.

MATOS: Even with 70% increased cycle time, our new ultrasonic machines demand 75% less electrical energy versus thermal alternatives. As we seal utilizing vibration at 20,000-35,000 vibrations per second, we seal from the inside-out versus outside-in via heat and pressure with thermal alternatives. This is a paradigm change with many advantages as we don't burn plastics, which may release harmful arsenic and CO₂ pollution into the atmosphere. On a cost basis, we save on material by using thinner films. Likewise for added material saving, narrow seals are achieved with ultrasonic that can sum up to 5% material saving for retort/baby pouches. Most importantly, we've eliminated the need for a "heat shield" on the outside layer so we're able to utilize mono structure materials. By optimizing for safety, energy use and materials, we've maximized speed and reliability across the board. That means more product you can count on, faster, and that's efficiency.

◀◀ Karlville’s new partner Widman Machinery Company’s new ultrasonic pouchmaker



Elba’s SA-V automatic pouch machine ▶▶



DACÒ: Our machines use the latest version of Siemens servo motors with a kinetic energy recovery system. This allows us to recover up to 30% of the motor energy and up to 5% of the total machine energy. This solution allows customers to save money and increase their sustainability policy. Furthermore, the HMI based on Siemens Profinet system allows full control of each station granting the perfect setting of all data.

ROSENOW: Today’s machines are capable of speeds of 240 cycles per minute while producing multiple pouches per cycle, greatly improving machine efficiency. Downtime has

also been limited by utilizing web accumulators (“no-stop” roll changes), web-steering devices (higher film stability) and dedication to operator and maintenance staff training.

Pressure, sealing time and temperature are the fundamental adjustment points in making a seal. During the design of a pouch machine if we can make it easier for the operator to understand the relationship so they can more easily and quickly make these adjustments they are more efficient in getting the machine operational. Our machine design has a preset nominal sealing pressure, and as long as you are not running extremely thin or thick material structures, there is little adjustment necessary for pressure. By reducing or eliminating one extra step, the operator can focus on the other two important factors, sealing temperature and sealing time.

AMIN: The most unique feature we offer on our pouch machine is that you can setup the pouch at a minimum possible speed on the machine and reduce your setup waste. Once you find that the pouch is set, you just turn the speed knob to its peak. Once your seal time, temperature and draw speed is set, the machine automatically decides the peak speed it will run. This saves the customer lots of film during the job setup and in turn makes it more efficient.

Q ■ Will a pouch format ever be able to overtake the stand-up pouch? If so, which one, how soon and why?

DACÒ: The stand-up pouch is still the king in pouches. In the short term, I do not see any design that could replace it. Anyway, we are proud to be a partner of some projects developed by customers that are studying new designs and opportunities for the market. Maybe in the near future something could change. In the meantime, our technical team is fully available to share our know-how with those customers willing to promote something new.

AMIN: Yes, the pouch style that can overtake the stand-up pouch is a flat-bottom pouch with zipper. The reason being, it takes nearly 8-12% less film to make a flat-bottom pouch for a given volume compared to a stand-up pouch. However, the reason today for this pouch not being able to overtake is the investment cost of the equipment to make a flat-bottom zipper pouch and the productivity for the given price. The conventional machines available in the market are able to make flat-bottom pouches with terminated gussets and zippers in a single lane. Hence the cost of making this pouch doesn't remain competitive compared to a stand-up pouch. With a machine that would allow customers to make this flat-bottom zipper pouch in 2 lanes with terminated gussets, Mamata is geared to bring down the cost of conversion of this

Mamata's flat-bottom pouch >>

pouch and make it more affordable for the end user and make this shift from stand-up to a flat-bottom zipper pouch.



MATOS: What is interesting to me is not so much that the pouch format is about to change, but the materials. This is a larger impact to the business and critical as we are responsible enabling sustainability efforts at the end of the product cycle. As ultrasonic technology enters our market space, materials will change. Looking to develop more mono structures with PE, PP or PET, our green and friendly machines enable the use of recyclable films. This will become the biggest new challenge for the pouch material suppliers to better understand how ultrasonic will define the new supply chain. Likewise, it will be interesting to see how the waste stream recyclers will react as we change pouches to recyclable mono structure materials.

RUSSELL: The stand-up pouch will remain the king of all pouch configurations. This is because of its vast uses across

so many industries and the ability to produce the stand-up pouch more efficiently than any other competitive pouch on the market. This is why we feel there is no replacement for the standup pouch anywhere in sight.

ROSENOW: The stand-up pouch (SUP) has obviously been part of a world-wide movement from rigid into flexible packaging. The SUP continues to grow the fastest of any category. We see very steady growth in Box Pouch. This is a true flat-bottom format with registered print in all five panels. It has all of the advantages of the SUP while adding additional volume and face panels for product recognition. While there is overlap with the SUP, the Box Pouch is more likely to replace rigid containers than stand-up pouches. We see both for dry and liquid products.

Q ■ Is there anything else you'd care to share about bag/pouch making?

RUSSELL: As the pouching industry continues to evolve, so does the manufacturing equipment. We still see so many growth

opportunities available, and if collaboration can be achieved between equipment suppliers, film manufacturers and converters, we see a very strong future for flexible packaging.

ROSENOW: Film alternatives other than polyester lamination to a sealant PE are starting to become more of a desirable solution by the end user. Furthermore, there is a small but growing niche desire for a recyclable standup pouch and this could be made out of a homogenous substrate, co-ex blend of HDPE and LDPE, and also a lamination using specific PE resins. The complexity of these film alternatives has OEMs looking at innovations and enhancements to machinery that allow for manufacturing to be competitive as compared to the standard polyester structure. The more complex films add a degree of difficulty that Totani has worked to address and is proud to offer as an option on new machinery and will be retrofit capable, as well.

DACÒ: Customers are paying more and more attention on machine quality, reliability and ease of use. We constantly strive to offer to customers tailor made solutions to make them satisfied with their investment.

AMIN: Our flexible packaging industry experts talk about recycling and environment-friendly packaging, and we have the right machine for these needs. Mamata offers its pouch machines with processing ability to run co-ex films with same ease as a laminate. Mamata has demonstrated this feature time and again on its pouch machines. Our pouch machines are capable of running co-ex films with the same speed and ease as a laminate to produce a three-side seal pouch, stand-up pouch with zipper or side gusseted pouches for PET food or fertilizer packaging with quad seal or one edge seal. **PS**

POUCH INNOVATIONS

NEW POUCHES LAUNCH FOR VEGETABLES



P redominantly packaged in an aluminum can or a bag in the freezer aisle, packaged vegetables are now being sold in shelf-stable pouches to make eating healthy even easier.



A first for the vegetable market, Libby's® Vegetable Pouches will sit alongside their canned counterparts on the shelf, but cook in less than 60 seconds in their own pouch – no pots or heating containers needed. The result: hot, nutritious

vegetables in a flash and more time to enjoy food and family.

“Although most parents know vegetables are healthy, they are served at only 23% of dinners[1]. Libby’s understands that parents need options for bringing vegetables to the table that they can feel good about and that help preserve important family time,” says Bruce Wolcott, vice president of marketing for Seneca Foods. “New Libby’s® Vegetable Pouches bring farm-fresh goodness to busy families, providing a wholesome addition that cooks quickly and is easy to enjoy together.”

Libby’s designed these shelf stable, easy to open and lightweight stand-up pouches for maximum convenience. The graphics are simple and prominent, clearly depicting what each pouch contains. The new package aims to make preparing and serving hot vegetables more convenient than ever.

Green Giant® brand, a 100-year-old heritage brand, is re-launching to reconnect with today’s health-minded consum-

ers and their increasing demand for nutritious, time-saving food options that match their on-the-go lifestyles.

Employing a mission-based strategy to help America eat more veggies at meal time and using its heroic Jolly Green Giant® icon as its calling card, Smith Design developed a robust top down visual strategy for the brand and all the design aspects to support it, including brand and package design, photography for pack and recipes, layout of refreshed website, FSI and signage.

Smith Design (smithdesign.com) developed package graphics for 15 new and innovative product SKUs: Veggie Tots, Riced Veggies, Mashed Cauliflower and Roasted Veggies – all contemporary formats of nutritious and convenient vegetables, a natural move for Green Giant in lieu of carb rich and high caloric competitive meal solutions. The packaging aesthetic is clean, inviting and appetizing. **PS**

[1] Wansink B, Shimizu M, and Brumberg A. *How vegetables make the meal: their hedonic and heroic impact on perceptions of the meal and of the preparer.* Public Health Nutrition. 2016.

TORAY

Innovation by Chemistry

THIN, ROBUST, SHELF-STABLE, AND COST-EFFECTIVE BAGS AND POUCHES

by **AMANDA WHALEY**, Product Manager, Torayfan® Division, Toray Plastics (America), Inc.

Flexible bag and pouch structures may be the most enduring and technologically versatile packaging formats in the history of modern packaging. Strong, protective, lightweight, and adaptable, they have proven to be the perfect packaging medium with which to innovate and help CPGs grow business.

As an award-winning global leader in bag and pouch flexible film innovation, Toray Plastics (America), Inc. (www.toraytpa.com), collaborates closely with a wide range of end users, from Fortune 100 brand owners to regional entrepreneurial artisanal food companies. We and our partners have two goals in common: to create robust, cost-effective packag-



ing that is shelf-stable, attractive, and easy for the consumer to use, and to get it to market quickly.

The most popular pouch and bag film technology innovations consistently sought today by our customers are Toray's exceptionally robust, clear and metallized thin OPP and PET films, and our advanced coating and sealant technologies. Toray's advanced thin pouch and bag films offer high oxygen barrier and high moisture barrier, high yield, a stable coefficient of friction (CoF), low seal-initiation temperature (SIT), strong, hermetic seals, and printability with flexo, gravure, and digital ink systems. In addition, they are PVdC-free, solvent-free, and BPA-free. With all that technology and expert consultation at their disposal, our customers are frequently transitioning from conventional three-ply structures to thinner, lighter, two-ply structures that are customized with preferred performance attributes.

Ultimately, packages made with thinner stronger films and stronger seals are structures that have a more economical total cost of ownership. Fewer materials are used, there are fewer steps in the supply chain, shipping costs are reduced, distribution channels can be expanded, packages maintain their structural integrity, and food products stay fresh longer.

Also popular is Toray's new Barrialex® SBR2, a high-barri-



er, transparent, aluminum oxide-coated polyester film for gusseted and non-gusseted retort pouch applications. Barrialex SBR2 has excellent thermal stability and superior mechanical properties, including high-strength and dimensional stability, enabling it to withstand the rigors of the converting process and the intense high heat and pressure of retort sterilization. The film's strength and resilience contributes to the production of a finished, post-retort pouch that has excellent oxygen- and moisture-barrier durability. Barrialex SBR2 is also versatile enough to be used for non-retort clear packaging.



Pouches and bags with sophisticated opening tears that are hassle-free, precise, clean, and straight, are in demand as well. Toray meets that customer need with its TreaTear® LT Series of linear-tear, polypropylene sealant films for any type of non-retort pouch lamination that also requires a low SIT, as compared with traditional cast polypropylene film (CPP), and high heat-seal strength.

Evolving distribution channels are also driving new

pouch and bag enhancements, especially in terms of the need for stronger seals. Consider this successful application recently developed with a snack food customer who was frustrated with the problem and cost of bags bursting when they were transported through different geographical regions of the United States.

In that instance, high-altitude and low-atmospheric-pressure conditions, which decreased the air pressure outside the packaging, caused the customer's bags to inflate. That inflation placed additional stress on the seals, damaged bags, and made some burst. The solution was a switch to a two-ply structure made with Torayfan® Over-the-Mountain biaxially oriented polypropylene (BOPP) film. The new Over-the-Mountain films are manufactured with Toray's proprietary, modified polypropylene core layer and a proprietary sealant, which work synergistically to provide superior seal performance. Seal strength and hermetic seals help to maintain the integrity of the package and protect the oxygen barrier and moisture barrier that allow food to stay fresh.

For more information, please contact Amanda Whaley at amanda.whaley@toraytpa.com, or call 401-667-2023. **PS**

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TORAY
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The only U.S. film manufacturer where you can have it all. For more than 30 years, Rhode Island-based Toray Plastics (America), the industry's leading film innovator, has partnered with CPGs and converters, helping them exceed their expectations and commercialize film projects effectively and efficiently.

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POUCHES

DEMAND FOR POUCHES IN NONFOOD PACKAGING RISING

According to the Freedonia Group (freedoniagroup.com), demand for pouches used in nonfood packaging applications is forecast to increase 5.4% annually to \$2.2 billion in 2020. Gains for pouches in nonfood product uses will be driven by continued development of new applications resulting from such pouch benefits as reclosable zippers that are easier to use, spouts, pouring features, carrying handles and reduced shipping costs compared with rigid containers. Additionally, robust gains are expected for four-side-seal pouches in nearly every category, reflecting continued growth for unit dose and unit-of-use packaging.

Industrial and other niche markets are expected to post the fastest gains, aided by increases in the manufacturing sector and efforts to save materials and costs by introducing unit-of-use packaging and pouches that allow for more precise dispensing. Gains for consumer uses will track the average based on sustained demand for unit dose laundry

products packaged in dissolvable pouches as well as sustainability initiatives that promote pouch packaging. Detergent manufacturers will continue to emphasize unit dose offerings in order to boost sales in the stagnant U.S. laundry detergent market, in which consumers tend to favor low priced products.

Pouch demand in the medical and pharmaceutical market as a whole will also track the nonfood average, with advances reflecting the growing usage of unit-of-use packaging. Gains will be moderated somewhat by the already high penetration of pouches and performance limitations in the packaging of devices with multiple parts or with sophisticated devices vulnerable to damage during shipment. Still, good opportunities are expected in the unit dose packaging of drugs, and in small-to medium-sized supplies and devices. Innovations in pharmaceutical pouches directed at improving both security and functional features will drive value expansion. **PS**

BAG & POUCH CONVERTERS



2016 FLEXIBLE PACKAGING TOP 25 CONVERTERS

Consolidation stands out in 2015 – notably with the big Ampac, Prolamina merger – and is expected to continue in the industry moving forward.

by **ERIC FISH**, editor, Flexible Packaging magazine

The flexible packaging industry is now well ahead of pre-recession levels and it's expected that consolidation through mergers and acquisitions (M&As) will continue. While M&As didn't play quite as big of a role in putting together this list as they did when we put together last year's Top 25 list, certainly the big headline-getter in 2015 was the merging of Ampac and Prolamina to become ProAmpac – and then ProAmpac's subsequent acquisition of Coating Excellence International (CEI).

On that note, we present the 2016 Top 25 Converters, which are based off of 2015 sales. Read on to see how this year's list shakes out, as well as what each company has been up to over the past year.

01 BEMIS
2015 sales (in billions): \$4.1 // Neenah, WI

Bemis introduced Form-Tite, a family of shrinkable forming films able to run on a wide range of thermoforming equipment, in June of 2015. The films present the opportunity to au-

CONTINUED ON PAGE 49



◀◀ Bemis' Smithfield Foodservice Package featuring Form-Tite shrink rollstock film and the Campbell's Soup Ready Meals pouch.

TOP 25 CONVERTERS

	2015 SALES (in millions)	COMPANY AND HEADQUARTERS	LAST YEAR'S RANKING	HIGHEST RANKING OFFICER	PLANTS IN N.A.	EMPLOYEES IN N.A. (FLEX PKG ONLY)	MARKETS SERVED
1	\$4.1B	BEMIS COMPANY, INC. Neenah, Wis.	2	Bill Austen president and CEO	32	10,000	1 2 3 4 5 6 8 9
2	\$3B*	SEALED AIR CORP. Charlotte, N.C.	1	Jerome Peribere president and CEO	107	16,200	1 2 3 4 5 6 7 8
3	\$2.45B	SIGMA PLASTICS GROUP Lyndhurst, N.J.	3	Alfred Teo CEO	43	5,000	1 2 3 4 5 6 7 8 9
4	\$2.35B	BERRY PLASTICS CORP. Evansville, Ind.	4	Jonathan D. Rich chairman and CEO	26	3,397	1 2 3 4 5 6 7 8 9
5	\$1.98B	COVERIS Chicago, Ill.	5	Gary Masse CEO	20	2,500	1 2 3 4 5 6 7 8 9
6	\$1.94B	NOVOLEX Hartsville, S.C.	6	Stan Bikulege chairman and CEO	43	6,000	1 2 3 4 5 7 8 9
7	\$1.3B	PRINTPACK INC. Atlanta, Ga.	7	James E. Love, III president and COO	21	3,500	1 2 3 4 5 6 7 8 9
8	~\$925*	PROAMPAC Cincinnati, Ohio	14/16	Greg Tucker CEO	9	1,500	1 2 3 4 5 6 7 8 9
9	\$797	WINPAK LTD. Winnipeg, Man., Canada	8	Bruce J. Berry president	6	1,750	1 2 3 4 5 6 7 8

TOP 25 CONVERTERS

	2015 SALES (in millions)	COMPANY AND HEADQUARTERS	LAST YEAR'S RANKING	HIGHEST RANKING OFFICER	PLANTS IN N.A.	EMPLOYEES IN N.A. (FLEX PKG ONLY)	MARKETS SERVED
10	\$737*	MONDI NORTH AMERICA Atlanta, Ga.	9	Ross Bushnell President, Mondi Jackson Consumer Goods Packaging	19	430	1 2 3 5 6 8 9
11	\$600	HOOD PACKAGING CORP. Burlington, Ont., Canada & Madison, Miss.	10	Robert Morris president	20	1,900	1 2 6 7 8 9
12	~\$560*	AMCOR FLEXIBLES Mundelein, Ill.	18	Tom Cochran president, Amcor Flexibles	10	900	1 2 3 4 5 6 8 9
13	\$400	SONOCO PRODUCTS CO. Hartsville, S.C.	11	M. Jack Sanders president and CEO	10	860	1 2 5 6 7
14	\$397	AMERICAN PACKAGING CORP. Rochester, N.Y.	12	Peter Schottland president and CEO	3	~800	1 2 3 4 5 6 7 8 9
15	\$375*	BRYCE CORP. Memphis, Tenn.	13	Thomas Bryce chairman and CEO	4	800	1 2 5 6 7 8
16	\$352	PREGIS LLC Deerfield, Ill.	15	Kevin Baudhuin president and CEO	15	940	1 3 4 5 6 7 8 9
17	\$285	SCHOLLE IPN Northlake, Ill.	17	Tom Bickford president and CEO	5	1,000	1 2 3 5 6 7 8 9
18	\$200	INTERFLEX GROUP Wilkesboro, N.C.	20	Stephen Doyle CEO	4	350	1 4 5 6

TOP 25 CONVERTERS

	2015 SALES (in millions)	COMPANY AND HEADQUARTERS	LAST YEAR'S RANKING	HIGHEST RANKING OFFICER	PLANTS IN N.A.	EMPLOYEES IN N.A. (FLEX PKG ONLY)	MARKETS SERVED
19	\$199	ORACLE PACKAGING Winston-Salem, N.C.	21	Jim Squatrito president and CEO	2	313	1 2 3 4 5 6 7 8
20	\$180	LIQUI-BOX Richmond, Va.	24	Ken Swanson <i>president and CEO</i>	4	465	1 2 8
21	\$180*	SHIELDS BAG & PRINTING CO. Yakima, Wash.	22	Lisa Shields-Long president and CEO	1	490	1 2 6 7 8 9
22	~\$125*	OLIVER-TOLAS HEALTHCARE PACKAGING Grand Rapids, Mich.	23	Jerry Bennish president and CEO	3	350	3 4 5
23	\$115*	ST. JOHNS PACKAGING Quebec, Canada	25	Marc Leclair president and CEO	4	500	1 5 6
24	\$110	CLEAR LAM PACKAGING, INC. Elk Grove Village, Ill.	N/A	James Sanfilippo president and CEO	1	362	1 2 6 7 8
25	\$110*	C-P FLEXIBLE PACKAGING York, Penn.	N/A	Tony Vaudo president and CEO	2	N/A	1 2 5 6

**Flexible Packaging estimate, based on information from Hoover's Online database, D&B database and/or the Company's own data.
MARKETS: 1-Food; 2-Beverage; 3-Pharmaceutical; 4-Medical; 5-Personal Care; 6-Household Care; 7-Retail; 8-Industrial; 9-Agriculture*

tomate the packing process, gaining higher throughputs and achieving cost savings. They're also designed to reduce leaker rates and improve pack security with good seal strength. A high oxygen barrier keeps food products fresher for longer. Bemis also earned a 2016 Flexible Packaging Achievement Award in the Technical Innovation category for its Smithfield Foodservice Package Utilizing its Flow-Tite shrink rollstock film. It also received the Highest Achievement Award for its Campbell's Soup Ready Meals pouch.

Bemis | (920) 527-7440; www.bemis.com

02 SEALED AIR CORPORATION
2015 sales (in billions): \$3* // Charlotte, NC

Sealed Air officially broke ground on its new global headquarters in July 2015, which will be located on Cascade Point Boulevard in the Lake Pointe Corporate Center in Charlotte, North Carolina. The new campus will consist of three buildings and house more than 1,200 employees, including leaders from Sealed Air's three divisions and corporate functions. It also will house the company's new R&D facility and a customer learning center. The campus is expected to be completed by the end of this year and Sealed Air is leasing corporate office space until then. Sealed Air's previous headquarters

was located in Elmwood Park, New Jersey. "We are so proud to join the Charlotte, North Carolina business community, and bring our company together as one team, in one headquarters location," says Jerome A. Peribere, Sealed Air CEO.

Sealed Air Corporation | (980) 221-3235; www.sealedair.com

03 SIGMA PLASTICS GROUP
2015 sales (in billions): \$2.45* // Lyndhurst, NJ

In May 2015, Sigma Plastics acquired Forest Park, Georgia-based Tara Plastics Corp., a company that specializes in producing LLDPE film for high-speed converting and mono-layer PE. According to a news release, the Tara Plastics Corp. acquisition marks the 25th transaction as part of Sigma's strategic partnership program since 1990.

Sigma Plastics Group
(201) 507-9100; www.sigmaplasticsgroup.com

04 BERRY PLASTICS CORP.
2015 sales (in billions): \$2.35* // Evansville, IN

In October, Berry Plastics completed the acquisition of AVINTIV – a developer, producer and marketer of specialty materials used in infection prevention, personal care and high-performance solutions – for a cash purchase of \$2.45 billion. "We are

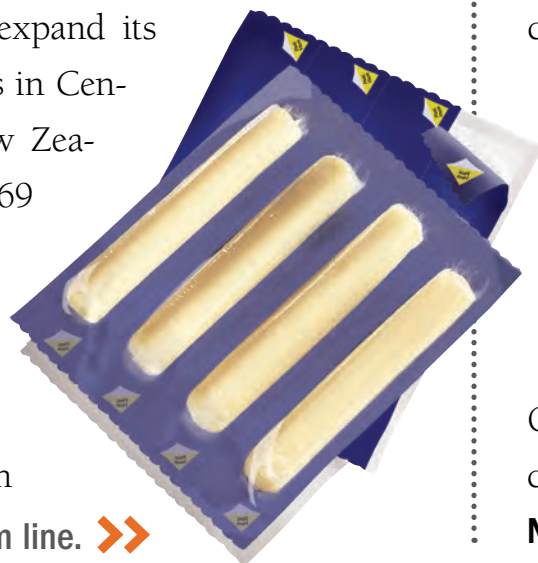
extremely excited to complete the acquisition of AVINTIV and to welcome the AVINTIV team to the Berry Plastics organization,” says Jon Rich, chairman and CEO of Berry Plastics. “The combination of Berry Plastics and AVINTIV creates a global leader in plastics packaging and engineered specialty materials. With this acquisition we have expanded our global footprint, added complementary products to our existing product portfolio and will be able to further capitalize on the rapidly growing global markets for hygiene and healthcare products.”

Berry Plastics Corp. | (812) 424-2904; www.berryplastics.com

05 COVERIS
2015 sales (in billions): \$1.98 // Chicago, IL

In 2015, Coveris continued to expand its global footprint with acquisitions in Central America (Olefinas) and New Zealand (Elldex). The company’s 69 global manufacturing locations, which span 22 countries, provide its customers easy access to one of the broadest packaging portfolios in the industry. In

Coveris’ ENVIO film line. >>



other news, Coveris also named a new president of Americas Food & Consumer Products in Craig Reese and released its ENVIO film line at Pack Expo in Las Vegas last September.

Coveris | (877) 447-3539; www.coveris.com

06 NOVOLEX
2015 sales (in billions): \$1.94* // Hartsville, SC

Novolex continued its recent run of acquisitions in 2015 with the purchase of Wisconsin Film & Bag (WF&B), a manufacturer of custom polyethylene (PE) bags and films as well as a leader in sustainable and recycled materials, in October. Previous Novolex acquisitions include Packaging Dynamics (December 2014), Duro Bag (July 2014) and a portion of Clondalkin Group’s North American Flexible Packaging Division (April 2013). “This is important to us because it will further enhance our high-quality packaging choices for customers while advancing our position as the industry leader in sustainability,” notes Stan Bikulege, Novolex chairman and CEO, on the WF&B purchase. “It’s a great fit for Novolex and we will look forward to integrating the team with our successful Novolex custom film and bag brand. Our focus is to continue to invest in our business and supply our customers with world class paper and plastic packaging products.”

Novolex | (800) 845-6051; www.novolex.com

07 PRINTPACK
2015 sales (in billions): \$1.3 // Atlanta, GA

Printpack scored a major innovation with photochromic ink in 2015, specifically with the development of a process that allows it to be hidden within standard graphics, only becoming visible when it is exposed to sunlight. The innovation marked the first time photochromic ink was added to a flexible film, and is intended to offer a more interactive style of packaging to engage consumers. The innovation scored a 2016 FPA Silver Achievement Award in the Technical Innovation category.



Printpack | (404) 460-7000; www.printpack.com

08 PROAMPAC
2015 sales (in millions): ~\$925* // Cincinnati, OH

News of an Ampac, Prolamina merger started making the rounds last August. It was confirmed in September, and “Pro-Ampac” was announced as the new company name in Novem-



ber. As if the merger of two converting giants wasn’t enough, ProAmpac made waves again in December when it finalized the purchase of Coating Excellence International (CEI) before the end of 2015. “Only a few months following the formation of ProAmpac, we are already experiencing tremendous synergies,” CEO Greg Tucker said at the time of the purchase. “The addition of CEI’s talented employees, machine expertise and capabilities will secure ProAmpac’s market leadership position and strengthen our ability to deliver valuable products and services for our customers.”

ProAmpac | (513) 671-1777; www.proampac.com

09 WINPAK LTD.
2015 sales (in millions): \$797
Winnipeg, Manitoba, Canada

According to the company website, Winpak Ltd. is a manufacturer and distributor of high-quality packaging materials and related packaging machines. Its products are used primarily for the protection of perishable foods, beverages and in health care applications.

Winkpak Ltd. | (204) 889-1015; www.winkpak.com

10 MONDI IN NORTH AMERICA
2015 sales (in millions): \$737* // Atlanta, GA

It was a year of new packaging introductions for Mondi in 2015. In May 2015, Mondi introduced a new flat bottom bag for the likes of pet food and garden items. About a month later, it released the FlexZiBox bag with a side pour function to the American market. It also custom-engineered a flexible pouch to operate with the SYNEK beer dispensing system and invested to expand its pouch spout insertion capabilities at its Jackson, Missouri facility before the end of 2015.



⚡ **Mondi's FlexZiBox bag.**

Mondi in North America
(770) 243-5420; www.mondigroup.com

11 HOOD PACKAGING CORP.
2015 sales (in millions): \$600*
Burlington, Ontario, Canada & Madison, MS

Hood saw a handful of its facilities reach Safe Quality Food (SQF) Level 3 certification in 2015. Specifically, its Burling-

ton, Ontario, Wilmington, Ohio, Montreal, Quebec, Cornwall, Ontario and, most recently, its Goose Creek, South Carolina plant achieved the distinction, which is recognized as being one of the most rigorous and credible food safety management systems in the marketplace. “We are determined to meet the highest food safety and packaging quality standards that our customers require.” says John Edwards, general manager of Hood Packaging for the Montreal and Cornwall sites.

Hood Packaging Corp. | (905) 637-5611; www.hoodpkg.com

12 AMCOR FLEXIBLES
2015 sales (in millions): ~\$560* // Mundelein, IL

In June of 2015, Amcor Flexibles finalized its acquisition of Zhongshan Tiancai Packaging Company, which brought the converter’s footprint in China up to 10 manufacturing facilities. Ralf K. Wunderlich, president of Amcor Flexibles Asia Pacific says, “The acquisition is testament to our commitment to Amcor’s growth in China. As a market leader in flexible packaging in China, it is also an opportunity for us to further build our innovation expertise and product offering for our customers.”

Amcor Flexibles | (847) 362-9000; www.amcor.com

13 SONOCO
2015 sales (in millions): \$400 // Hartsville, SC

Sonoco opened a new \$12 million Innovative Packaging Solutions (iPS) studio at its Hartsville, South Carolina headquarters last October. The studio is designed to be a research, development and innovation center that connects consumer and market insights to the invention of new packaging solutions. Key features of the iPS studio include a consumer interaction space, collaborative spaces where experts can interact with the latest technologies to turn ideas into packaging concepts, technology for the development of structural design and manufacturing options that access potential for commercialization, a pilot plant to test manufacturing performance, state-of-the-art printing capability and rapid prototyping labs that aid in developing engineered prototypes, among others.

Sonoco | (800) 377-2692; www.sonoco.com

14 AMERICAN PACKAGING CORP.
2015 sales (in millions): \$397 // Rochester, NY

American Packaging Corporation continued growing its business and maintained its strong financial position. In 2015, the company completed the installation of a new flexographic press and quickly broke ground on a \$44-million



◀◀ American Packaging Corp. earned a pair of 2016 Flexible Packaging



Achievement Silver Awards for its Tis the Season Gingerbread Ground Coffee and Natural Great Granny Crunchy Apple Chips packages.

expansion project. The company received numerous awards for superior printing, exemplary human resources practices and sustainability achievements including attaining zero landfill status at a second location.

American Packaging Corp. | (800) 551-8801; www.ampkcorp.com

15 BRYCE CORP.
2015 sales (in millions): 375* // Memphis, TN

According to the company website, Bryce develops innovative products and is continuously improving its processes to achieve competitive advantages in quality, productivity, cost, and profit targets for sustained growth. Bryce Corporation strives for innovation in flexible packaging and continues to expand its capabilities to remain a leader in its industry. It continually reinvests in

the development of its people and its processes, bringing state-of-the-art equipment and proven best practices to its organization.

Bryce Corp. | (800) 238-7277; www.brycecorp.com

16 PREGIS LLC
2015 sales (in millions): \$352 // Deerfield, IL

In addition to implementing educational initiatives for packaging professionals, Pregis introduced a pair of cushioning performance films in 2015 – films specifically intended for products that require longer shipping or storage cycles. The films, HC Performance and HC Performance Plus, permit air to be contained within the cells for extended periods of time and provide superior protection for products that require longer storage and shipping cycles. “With international shipping on the rise, packages are going to be subject to extensive handling through the supply chain,” says Tom Wetsch, chief innovation officer. “We developed these new films to address those more rigorous shipping requirements.”

Pregis LLC | (877) 692-6163; www.pregis.com

17 SCHOLLE IPN
2015 sales (in millions): \$285 / Northlake, IL

Scholle IPN has seen rapid growth in its pre-made spouted pouch product, CleanPouch. The CleanPouch line (includ-

ing a rotary filler) is ideal for products like applesauce and other fruit-based, pureed foods. Scholle has also recently placed several of its aseptic-capable SureFill bag-in-box fillers across various market segments, such as dairy food and beverages.

Scholle IPN | (708) 562-7290; www.scholleipn.com

18 INTERFLEX GROUP
2015 sales (in millions): \$200 / Wilkesboro, NC

InterFlex completed a capital investment plan in 2015 that included the purchase of two new 10-color wide web flexographic presses and three new lamination lines that are capable of running solvent, solventless and aqueous adhesives, a variety of decorative coatings such as registered matte over-print varnish, high barrier and other functional coatings and multi-plex structures. Investments in additional new pouch and slitting equipment were also made. It also completed a multi-million dollar expansion to its Wilkesboro, North Carolina printing facility and built a new 80,000 square foot converting and warehouse facility nearby to integrate Star Packaging’s operations, which InterFlex acquired in 2014.

InterFlex Group | (336) 921-3505; www.interflexgroup.com

19 ORACLE PACKAGING, INC.
2015 sales (in millions): \$199 // Winston-Salem, NC

Oracle Packaging’s 2015 was defined by the capital expansions that took place at its Winston-Salem, North Carolina and Louisville, Kentucky facilities that added capacity in both extrusion coating and adhesive laminating. This additional capacity and capability will directly benefit Oracle customers through lower cost material and better operating parameters, according to the company.

Oracle Packaging, Inc.
(336) 777-5000; www.oraclepackaging.com

20 LIQUI-BOX
2015 sales (in millions): \$180 // Richmond, VA



Liqui-Box was officially acquired by private equity firm Olympus Partners last October. The converter also appointed a new vice president of sales for North America, David Klopp, in 2015. Additionally,

◀◀ **Liqui-Box’s Sure Seal dairy films.**

Liqui-Box’s work was rewarded, as it earned a 2016 FPA Flexible Packaging Achievement Silver Award for its Sure Seal line of dairy pouch films in the Technical Innovation category.

Liqui-Box | (877) 267-5949; www.liquibox.com

21 SHIELDS BAG & PRINTING CO.
2015 sales (in millions): \$180* // Yakima, WA

With strong recent growth, Shields Bag & Printing Co. has added substantial capacity in co-ex and barrier film lines as well as added flex and conversion capacity. Shields continues to grow in the banking and security bag industry with added capacity there as well. The company’s recent focus on food safety has led it to get independent certification in the form of FSSC 22000, which uses ISO 22000 and ISO 22003 schemes, and is fully recognized by the Global Food Safety Initiative (GFSI) and accreditation bodies around the world.

Shields Bag & Printing Co.
(800) 541-8630; www.shieldsbag.com

22 OLIVER-TOLAS HEALTHCARE PACKAGING
2015 sales (in millions): \$125* // Grand Rapids, MI

In Q3 of 2015, Oliver-Tolas received an additional high-speed coating line at its Hamilton, Ohio facility and developed a robust

Oliver-Tolas earned a Gold Flexible Packaging Achievement Award in Technical Innovation for its Autoclave Dispos-a-vent Barrier Pouch. >>



validation plan to provide customers ample time to evaluate products produced on the new line. “Producing high-quality heat-seal coated products for the healthcare market is extremely demanding. Our customers deliver life-saving products and we share a responsibility to ensure patient safety with safe and effective packaging materials,” says Russell Douglas, global VP of operations. “The new equipment will provide additional capacity and redundancy in our operation. This is one of many proactive steps we take to insulate our customers from the risk of supply interruptions.”

Oliver-Tolas Healthcare Packaging
(877) 283-3431; www.oliver-tolas.com

23 ST. JOHNS PACKAGING
2015 sales (in millions): \$115* / Quebec, Canada

St. Johns Packaging has emerged as a leader in flexible packaging and is well positioned to take advantage of further op-

portunities in the North American market. However, while St. Johns has continued to grow and prosper, it was met with some bittersweet news in 2015 when its former president, Jacques Leclair, passed away in May. According to Leclair’s obituary in the Montreal Gazette, he remained involved in guiding and supporting the management team at the company until his passing.

St. Johns Packaging | (800) 567-8773; www.sjpack.com

24 CLEAR LAM PACKAGING, INC.
2015 sales (in millions): \$110 / Elk Grove Village, IL

In addition to settling a legal dispute with Frito Lay, Clear Lam released a new line of packaging films at the IDD-BA Dairy-Deli-Bake show. It also entered into a licensing agreement with Triangle Packaging Machinery Co. for its PrimaPak system. The Clear Lam PrimaPak System is a flexible, stackable, reclosable package designed to replace rigid cans, bottles, jars and trays. The packaging retains its shape even when empty, giving it superior merchandising compared to standup pouches and similar packaging that may fall over.

Clear Lam Packaging, Inc.
(847) 439-8570; www.clearlam.com



23

C-P FLEXIBLE PACKAGING

2015 sales (in millions): \$110* // Winston-Salem, NC

In May 2015, C-P Flexible Packaging's facility in York, Pennsylvania successfully completed recertification for SQF Level

II certification. The company has maintained this certification since July of 2013, which helps ensure its customers that its products are safe and in compliance with regulatory requirements and industry codes of practice.

C-P Flexible Packaging | 800-815-0667; www.cpflexpack.com

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