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A Seed is Planted

By John O’Brien, Managing Editor
jobrien@paperage.com

While I was putting together our cover story about Resolute Forest Products, I came across a sidebar that I didn’t have space for within the story itself (pages 22-25), but fits nicely right here. It’s about a cucumber-growing project (yes, you read that correctly) that Resolute and its Saint-Félicien pulp mill in Quebec became involved with in 2014 — Serres Toundra Greenhouse.

Toundra Greenhouse is a cucumber-growing complex in which Resolute owns a 49% joint-venture interest. The greenhouse is situated on a 45-hectare piece of property donated to the project by Resolute, and the land happens to be located adjacent to Resolute’s Saint-Félicien pulp mill, which, in turn, supplies enough low temperature hot water to fulfill 25% of the greenhouse’s heating requirements.

Resolute was instrumental in getting the project off the ground. Initially, the town of Saint-Félicien had been evaluating the viability of an economic development project to build a greenhouse that could use the energy produced at the town’s thermal power plant to grow vegetables. The idea was pitched to Resolute in February of 2014 and a month later the company offered to donate land next to the Saint-Félicien pulp mill on which to build the greenhouse, along with the supply of hot water from the mill.

Resolute isn’t alone in the the Toundra Greenhouse joint venture. It also involves the City of Saint-Félicien and over 50 local investors in the Lac-Saint-Jean region of Quebec.

Inaugurated in December 2016, the $100 million greenhouse covers 1 million square feet (8.5 hectares), produces 45 million Lebanese and English cucumbers annually, and employs over 100 workers. By 2020, the complex will cover 4 million square feet (34 hectares) and create 500 jobs in the region.

Resolute and Toundra Greenhouse also have an agreement with CO² Solutions Inc., a Quebec-based company that specializes in carbon capture technology, to reduce carbon emissions at the Saint-Félicien mill by reusing captured CO² in the greenhouse. A carbon capture unit has been built to collect up to 30 metric tons of CO² per day from the mill for controlled injection into the greenhouse, enhancing photosynthesis. This phase of the greenhouse project is expected to be operational before the end of the year.

The complex will recover 11,000 metric tons of CO² annually, which is the equivalent of removing 2,300 vehicles from the road every year. The majority of CO² captured at the Saint-Félicien pulp mill will be used by Toundra Greenhouse to accelerate plant growth.

In addition, 90% of the greenhouse’s water requirements are fulfilled by recovering rain water and snow.

The greenhouse is an environmental and economic success, with some 95% of the produce already sold and some 500 jobs expected to be created by the time the fourth and final phase of the project is completed in 2020.

Toundra Greenhouse has also been recognized by Canada’s Clean50 organization, placing it on the Clean50 Top20 Projects list for 2018. The awards recognize outstanding sustainability or “clean capitalism” projects from across Canada that innovate, inform and inspire Canadians to do more.

I’m not subtly suggesting that pulp and paper companies across North America considering growing vegetables on the sites of their mill operations. No. It’s just that Resolute deserves a lot of credit for keeping an open mind and understanding the value the project would have for region where it conducts business.
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Clearwater Paper on Aug. 21 sold its Ladysmith, Wisconsin facility to Dunn Paper for approximately $72 million. Clearwater said that it intends to use the net proceeds to help fund the expansion of its Shelby, North Carolina facility and opportunistically pay down debt.

“In our Consumer Products business, our strategy is focused on network optimization to match the growing demand for the ultra-quality segments of the tissue category. As a result, we elected to sell our Ladysmith facility, which manufactures recycled paper and does not align with that strategy,” said Linda Massman, President and CEO of Clearwater Paper.

As of Aug. 21, Ladysmith employees became employees of Dunn Paper.

Brent Earnshaw, CEO of Dunn Paper, commented, “Ladysmith is a critical piece of our strategic growth at Dunn. The additional capacity at Ladysmith will enable faster growth in the specialty tissue/absorbent market and their recycled fiber source is well suited for a variety of applications within the Dunn portfolio.”

Dunn Paper is a manufacturer of high-performance, advanced paper materials for lightweight technical food packaging and tissue products throughout North America. Dunn currently manufactures products at six locations across the Midwest, East Coast, and Ontario, Canada.
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**NORTH AMERICA**

**Cascades to Close Two Corrugated Sheet Plants in Ontario by Year-end**

In late-August, Cascades announced plans to close two corrugated sheet plants in Barrie (Jellco) and Peterborough, Ontario, as part of its ongoing efforts to reorganize and optimize its corrugated packaging platform in Ontario.

“We are announcing [on Aug. 28] that production from the Barrie and Peterborough plants will gradually be redeployed to our other facilities in Ontario. This decision will enable us to better align our existing production capacity and to improve service for our valued customers,” said Charles Malo, President and COO of Cascades Containerboard Packaging.

The two plants will be closed no later than December 31, 2018, affecting approximately 65 employees.

**Kruger Products to Invest $575 Million to Build New Tissue Plant**

KP Tissue Inc. (“KPT”) and Kruger Products L.P. (“Kruger Products or “KPLP”) in August announced plans for a capital investment of $575 million in the Brompton area of Sherbrooke, Québec, to build a new tissue manufacturing plant that will feature a through-air-dry (TAD) tissue machine. The project will create more than 180 new jobs in the region.

The new plant, which will be adjacent to an existing facility of the Kruger Group, will produce at maturity approximately 70,000 metric tonnes per year of bathroom tissue and paper towels which will enable Kruger Products to increase its offering of ultra-premium tissue products under the Cashmere®, SpongeTowels® and Purex® brands.

The project is supported by the Government of Québec through Investissement Québec, which has agreed to invest $105 million by way of a convertible debenture. The remaining financing for the project is currently being finalized.

“This project is on an unprecedented scale for Kruger Products and will give us the additional capacity to continue to grow our business into the future,” said Dino Bianco, CEO of Kruger Products. “This new facility combined with our Memphis TAD location will allow us to rebalance our ultra-premium tissue capacity to better serve our customers across North America.”

Construction of the project is expected to begin in early 2019 and the plant is slated to begin production in early 2021.

**Resolute to Sell Fairmont Recycled Pulp Mill to Nine Dragons**

Resolute Forest Products on Aug. 30 announced that it has entered into a definitive asset purchase agreement with ND Paper LLC, a subsidiary of Nine Dragons Paper, for the sale of its Fairmont, West Virginia, recycled bleached kraft pulp mill, for US$55 million plus certain elements of working capital, payable in cash.

The Fairmont pulp mill has the capacity to produce about 218,000 air-dried metric tons per year of recycled bleached kraft pulp (RBK).

In addition to nine paper mills operating in Asia, Nine Dragons, through its wholly-owned subsidiary ND Paper, also operates two U.S.-based pulp and paper mills in Biron, Wisconsin and Rumford, Maine.

ND Paper has agreed to offer employment to Fairmont mill employees, effective upon closing of the transaction, which is expected within the next two months.

"We are proud of the progress we have made together with the mill employees over the years to improve the Fairmont operation," said Yves Laflamme, President and CEO of Resolute. “We are pleased that the local community and broader region of the state will continue to benefit from the economic and social impact of the mill's operation.

"Proceeds from this asset sale will enable us to further increase liquidity, and continue to improve our balance sheet and financial flexibility," Laflamme added.

Laflamme noted that Resolute plans to optimize its recycled bleached kraft pulp business at the company’s Menominee, Michigan facility, which will handle the transition of supply for customers.
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Graphic Packaging to Acquire Letica Foodservice Assets for $95 Million

Graphic Packaging International in August reached an agreement to acquire substantially all the assets of the foodservice business of Letica Corporation, a subsidiary of RPC Group PLC, for $95 million, subject to standard closing conditions and regulatory review.

The transaction is expected to close in the third quarter of 2018.

Letica Foodservice is focused on the production of paperboard-based cold and hot cups and cartons for the growing foodservice market in North America. The company operates two world class foodservice converting facilities in Clarksville, Tennessee and Pittston, Pennsylvania.

The business generated $110 million in revenue and converted approximately 40,000 tons of solid bleached sulfate ("SBS") paperboard in the twelve months ended 6/30/2018. Synergies from the acquisition will be driven by the integration of additional SBS paperboard tons, lower logistics costs, and other cost efficiencies. On a post-synergy basis, the EV/EBITDA multiple for this transaction is expected to be approximately 6.0X.

“We are excited to announce the acquisition of the Letica Foodservice assets as it extends our leading position in the growing paperboard-based foodservice market in North America,” said Graphic Packaging’s President and CEO Michael Doss. “The transaction will further diversify our customer base, enhance our geographic footprint, and provide needed capacity to meet the incremental demand for paper cups resulting from the ongoing shift out of polystyrene foam.

“The transaction is consistent with the strategy we outlined after the combination with the SBS mill and foodservice assets that closed on January 1, 2018, specifically, our intent to grow our foodservice business organically and through acquisitions and drive higher integration levels for our SBS mills,” Doss concluded.

Jackson Paper to Invest $14 Million in New Sheet Plant in NC

Jackson Paper Manufacturing Company announced plans to open a new corrugated sheet feeder plant in Morganton, North Carolina. The company plans to invest approximately $14 million in the new plant and begin operations in the second quarter of 2019.

The new facility will have the capacity to produce more than 1 billion square feet per year of corrugated sheets for sale to corrugated box makers.

Jackson Paper manufactures 100 percent recycled corrugated medium at its Sylva location. Corrugated medium is used in the production of corrugated sheets. Headquartered in Sylva, North Carolina, Jackson paper supplies paper to corrugated box makers throughout the United States.

“We are extremely excited about expanding our corrugated sheets business into the Morganton area. We greatly appreciate all the efforts of the Governor [Roy Cooper] as well as the state and local governments in helping to facilitate this project and we look forward to a great future in the area,” said Tim Campbell, CEO of Jackson Paper Manufacturing.

A performance-based grant of $100,000 from the One North Carolina Fund will help facilitate Jackson Paper’s project in Burke County. The One NC Fund provides financial assistance to local governments to help attract economic investment and to create jobs. Companies receive no money upfront and must meet job creation and capital investment targets to qualify for payment. All One NC grants require a matching grant from local governments and any award is contingent upon that condition being met.

Ahlstrom-Munksjö to Expand Coating Capabilities at Jacarei Mill

Ahlstrom-Munksjö will invest EUR 21 million in its Coated Specialties business to improve capabilities and flexibility at its Jacarei mill in Brazil. The project is expected to be completed in the third quarter of 2019 and will expand the site’s capabilities of coating and calendaring on the paper machine. In addition, it will allow Ahlstrom-Munksjö to offer more efficient, high-quality on-line coated products to its customers in the areas of self-adhesive and wet glue labeling, flexible packaging and sublimation printing.

According to Ahlstrom-Munksjö, demand growth for high value-added coated specialty papers has been robust in the region during past years.

(continued on page 12)
ABB offers an online system for quality measurements, monitoring and analysis of fiber properties, to help control and manage the pulp mixture quality. Complete visibility of fibers in real-time helps pulp and paper makers pinpoint and follow trends on furnish quality, reduce variations in stock preparation or pulp production, and reduce energy consumption. To learn more about achieving uniform furnish for your paper, board or tissue machine, contact your local ABB account manager or visit: abb.com/pulpandpaper
**EUROPE**

**Ahlstrom-Munksjö to Expand Coating Capabilities at Jacarei Mill**

(continued from page 10)

“The investment shows our long-term commitment to the South American market and our ambition to maintain a leading position in coated specialty papers,” said Daniele Borlatto, Executive Vice President, Industrial Solutions.

Following the recent acquisition of MD Papéis’ Caieiras specialty paper mill in the vicinity of Jacarei in the Sao Paulo area, Ahlstrom-Munksjö’s presence in Brazil includes three operating plants, all near Sao Paolo, employing over 700 persons and with revenues of approximately of EUR 200 million. 

Ahlstrom-Munksjö’s Coated Specialties business is part of the Industrial Solutions business area, producing a wide range of products and materials often used in manufacturing and production processes, such as abrasive backings, electrotechnical insulation papers, coated label and flexible packaging papers, release liners and specialty pulp.

**WestRock Acquires Schlüter Print Pharma Packaging in Germany**

WestRock on Sept. 4 said that it completed its previously announced acquisition of Schlüter Print Pharma Packaging, a German-based supplier of a full range of leaflets and booklets.

“Schlüter has an excellent reputation as a high-quality supplier to customers in the pharmaceutical and automotive industries, and this acquisition will enable us to build our business in these growing markets,” said Marc Shore, president of WestRock’s Multi Packaging Solutions business. “It will also expand our geographical footprint to better serve customers throughout Europe.”

Schlüter will become part of WestRock’s Multi Packaging Solutions business.

**Mondi Group Acquires Controlling Stake in Suez Bags in Egypt**

Mondi in August announced that it completed the acquisition of a control position in Suez Bags Company S.A.E for an equity value of EGP284 million (EUR13.6 million) on a 100% basis.

Mondi now owns 96% of the company.

Suez Bags is an industrial bags producer operating one plant near Cairo in Egypt serving mostly regional customers and is Mondi’s second industrial bags acquisition in Egypt, following the acquisition of NPP in June this year.

Mondi has more than 40 operating sites, including five in the Middle East.

“The acquisition of Suez Bags complements our network of plants in the growing Middle East region and provides us with a leading position in Egypt to grow our business and better serve our customers,” the company said.

Suez Bags will be integrated into Mondi’s Fibre Packaging business.

**Prowell to Build New Corrugated Sheet Plant in Germany**

Prowell, a business unit of Progroup AG, is building a new corrugated sheet plant in the town of Eisfeld in Thuringia, Germany.

When completed, the new plant will be the company’s eleventh corrugated sheet facility in Europe.

The total investment for the project is about 50 million euros.

“Our plants, which are optimized for Industry 4.0, follow the approach of production lines, which in automatic mode, operate optimally largely on their own and report any deficiencies in production and the plant autonomously,” explained Jürgen Heindl, CEO and Chairman of the Board of Progroup.

Key innovations planned for the new plant include the one-man dry-end concept, a highly efficient high-bay warehouse with 11,000 storage spaces and three storage and retrieval machines, the automatic handling of pallets, edge protection and strapping as well as the optimization of waste disposal and the gluing system.

In addition, the corrugator will be equipped to operate at a speed of up to 400 m/min and have a working width of 2.80 meters in order to work seamlessly with Progroup’s mill system.

Production is scheduled to start in the fourth quarter of 2019.
Optimize Your Paper Mill’s Driveshafts

By Randy Hoag and Frank Mathews, Motion Industries

Driveshafts, jack shafts, floating shafts, universals – they go by different names but are common on paper machines. They are typically used to transmit power from gearboxes to various types of rolls on the paper machine. Operating continuously in difficult environmental conditions, driveshafts present challenges in design and maintenance.

Paper roller applications present their own unique challenges. For example, during one packaging plant’s annual outage, maintenance personnel discovered the top calendar driveshaft was bad on a paper machine, and the spare shaft stocked in the storeroom was incorrect.

This particular universal shaft connects a gearbox to the gloss calendar roll, allowing the mill to drive the roll at a desired speed. A gloss calendar roll (top) is a heated roll that has 400-degree hot oil passing through the shell of the roll. As the paper passes over it, it creates a ‘glossy’ shine on the paper, which reduces the test print value of the paper.

The plant asked if Mi Mill Services could inspect the broken shaft and possibly repair it. Mi’s official inspection report showed that the approximately 122”-long driveshaft was repairable. The key flanges could be refurbished to meet the manufacturer’s requirements, and there was a broken cap bolt on the slip side yoke. There was also a substantial amount of brinnelling on the journal surface as well a heat trace. A 4-point lube with an open center channel was recommended, since the existing lubrication was “central point” and not best for paper mill applications.

The recommendations were summarized as follows:

• All components cleaned
• Cross and bearings replaced featuring 4-point lube open center with zerk protectors
• All cap bolts replaced with new (recommended to insure appropriate service life)
• Flanges refurbished
• Entire assembly balanced @ 1000 RPM
• Epoxy painted for corrosion resistance

Another spare was also recommended due to the obsolescence of the older driveshaft series.

After the proposal was accepted, the Mi team at the shop machined and balanced the driveshaft to spec, and had the drive shaft working like new – same day as promised.

The paper mill also purchased the recommended spare. A spare part is a good idea for any machinery component, to help prevent unexpected downtime and the unplanned costs that go with it.

To determine if a self-lubing driveshaft could be the answer for your paper machinery, or to find out if your driveshafts are operating at their optimum, engaging a qualified third party could help you get on track. Contact your local Motion Industries servicing branch.

For more information, visit MotionIndustries.com or see the Mi Mill Services video (https://tinyurl.com/y7lea8ql).

About the Authors

Randy Hoag has more than 30 years of experience providing mechanical power transmission solutions. He has been a Field Product Specialist with Motion Industries since 2015.

Frank Mathews, a certified mechanical engineer, is the branch manager of Motion Industries’ Mill Services and has seven years of experience with driveshafts and their applications.
Valmet will supply an extensive paper machine grade conversion rebuild and a wide scope of automation for Burgo Group S.p.A. at its Verzuolo Mill in Italy. In the project, originally Valmet-supplied paper machine PM 9 and related stock preparation systems currently producing lightweight coated (LWC) paper grades, will be rebuilt to produce recycled containerboard grades.

The project is following Burgo Group’s plan to continue to focus on containerboard grades and its diversification strategy, ranging from publishing to packaging, from printing paper to paper for corrugators.

PM 9 will be producing recycled liner and fluting grades at a trim width of 9,800 mm and with a basis weight range of 70-160 g/m2. The repurposed machine’s production capacity will be 600,000 tonnes per year.

The start-up of the rebuilt machine is scheduled for the end of 2019.

Burgo Group is one of Europe’s leading producers of graphic and specialty paper. The Group employs 3,663 people and has 11 plants in Italy and one in Belgium, and in total 16 continuous machines. In 2017, the Group produced 2,057,000 tons of paper.
Voith has been awarded a contract to supply Green Bay Packaging with a complete packaging paper production line that includes a 300-inch wide XcelLine paper machine for the production of testliner.

The new paper machine, PM 4, will have a design speed of 3,940 ft/min (1,200 m/min) and be installed at Green Bay Packaging’s location in Green Bay, Wisconsin.

On June 12, Green Bay Packaging officially announced plans to build a $500 million recycled paper mill adjacent to its existing paper mill in Green Bay. The new mill will replace the 71-year old Green Bay Mill on North Quincy Street.

“This is a huge project for us, by far the biggest thing we’ve ever done in the history of our company,” said Will Kress, President and CEO of Green Bay Packaging.

Voith Paper’s scope of supply also includes an effluent treatment plant, BlueLine stock preparation, WEP, and a VariFlex Performance winder.

The package also includes paper machine clothing, a seven-year Total Roll Management contract for several machines, and Papermaking 4.0 products.

Martin Jauch, President Business Line Projects, Voith Paper North America, said, “Voith is proud of this historic project, and we are eager to continue our strong partnership with Green Bay Packaging.”

Kress added, “We appreciate Voith’s ability to get this advanced paper machine fully operational on a condensed timeline to help meet our customer demands.”

Voith noted that the construction of the mill will be handled by Miron Construction Co, Inc., while KSH will supply the engineering.

Groundbreaking took place in September, and start-up of the new production line is planned for early 2021.
BillerudKorsnäs has named Mikael Andersson as Senior Vice President for Board — one of the company’s three divisions — effective October 1. Previously, Andersson held the position of Senior Vice President for Corrugated Solutions.

Columbia Pulp, LLC recently announced the appointment of Mike Schock as Vice President of the company. Most recently, Schock served as Director of Global Product Development and R&D – Rigid Paper and Closures Division for Sonoco. Also, Tony Waldo has been named Production Manager for the company’s Lyons Ferry facility and the Pomeroy Pilot Plant. Both operations are located in the state of Washington. Prior to joining Columbia Pulp, Waldo was Base Mill Manager for 15 years at Boise Cascade in International Falls, Minnesota.

Domtar announced leadership transitions for two fluff pulp producing mills, in Plymouth, North Carolina and Ashdown, Arkansas. Both mills now have exceptionally qualified leaders as 40-year pulp and paper industry veteran, Bob Grygotis, retired as the General Manager at Ashdown on Sept. 1. Allan Bohn, manager of Domtar’s Plymouth Mill, will move to Ashdown, replacing Grygotis. Everick Spence, who worked in the Fort Mill headquarters office as director of Continuous Improvement, was promoted to replace Bohn as Plymouth Mill manager.

Graphic Packaging Holding Company said that Paul McCann will join the company as Senior Vice President, Supply Chain. McCann joins Graphic Packaging from Monsanto Corporation, where he has been responsible for global manufacturing and supply chain. Prior to that, he held positions with Smurfit-Stone Container as Vice President Strategic Sourcing, Vice President and General Manager Asia, and Vice President and General Manager Fiber.

Graphic Packaging International has named Michael (“Mike”) J. Farrell as Executive Vice President, Mills Division, effective Sept. 15. Farrell takes over for Alan (“Al”) R. Nichols, who retired on Sept. 15 after 29 years of dedicated service with the company. Farrell has held leadership positions at Graphic Packaging over the last 13 years, including Vice President, Recycled Board Mills and, most recently, Senior Vice President, Supply Chain.

Monadnock Paper Mills has appointed Robert (Bob) McDonald as Vice President of Manufacturing. McDonald assumed the role upon the retirement of Mark Lombardi who demonstrated tremendous leadership during his 10 years at Monadnock. McDonald’s career began at Fox River Paper, where he held numerous positions of increasing responsibility including Mill Manager and then Vice President of Operations. From Fox River he went on to work for Green Bay Packaging, Finch Paper and most recently, Intertape Polymer Group.

Paper Excellence has appointed Brian Baarda as its new Chief Executive Officer. Over the period of two decades, Baarda has held positions in supply chain, finance and operations, including serving as Chief Operating Officer with TimberWest.

**INDUSTRY SUPPLIERS**

Precision Roll Grinders announced that Larry J. Butkovich has been named vice president of operations for company. Prior to joining PRG, Butkovich worked for Fuji Electric Corporation of America as general manager of its Virginia Assembly Center in Roanoke, Virginia.

**RECOGNITION**

Jim Porter, President, Business Development & Latin America for WestRock, was recently inducted as the 24th member of the International Corrugated Packaging Foundation’s Circle of Distinguished Leaders during the Fibre Box Association’s Annual Meeting held in Palm Beach, Florida. The Circle of Distinguished Leaders honors exceptional visionaries whose energy and talent have moved the industry forward in remarkable ways. These leaders are recognized for demonstrating a strong commitment to the continuing success of the global corrugated packaging industry.

**OBITUARY**

Tim Breen, President and CEO of Motion Industries, has died. According to Mr. Breen’s obituary in the Birmingham News, the 58-year-old was battling cancer and passed on Aug. 18, surrounded by family.
OCTOBER 1-3, 2018
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OCTOBER 2-5, 2018
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Fox Cities Exhibition Center
Appleton, Wisconsin
tissue2018.com

OCTOBER 4, 2018
Hall of Fame Induction Dinner
Paper International Hall of Fame
Radisson Paper Valley Hotel
Appleton, Wisconsin, USA
www.paperdiscoverycenter.org/hall-of-fame

OCTOBER 10-12, 2018
RISI North American Conference
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Parc 55 Hotel
San Francisco, California, USA
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OCTOBER 10-12, 2018
MIAC 2018
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Lucca, Italy
www.miacc.info

OCTOBER 16-17, 2018
Paper & Beyond 2018
(formerly European Paper Week)
CEPI
Solvay Library
Brussels, Belgium
www.cepi.org

OCTOBER 17-19, 2018
Paper & Plastics Recycling Conference
Recycling Today
Marriott Chicago Downtown Magnificent Mile
Chicago, Illinois, USA
paperplasticsna.recyclingtodayevents.com

OCTOBER 24-26, 2018
PPC Fall Meeting and Leadership Conference
Paperboard Packaging Council
The Whitley Atlanta Buckhead
Atlanta, Georgia, USA
www.paperbox.org

NOVEMBER 12-14, 2018
International Containerboard Conference
RISI
InterContinental Chicago Magnificent Mile
Chicago, Illinois, USA
www.risiinfo.com/events

2019
FEBRUARY 4-7, 2019
PaperWeek Canada
PAPTAC
Fairmont Queen Elizabeth Hotel
Montreal, Canada
www.paperweekcanada.ca

MARCH 24-26, 2019
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Four Design Trends from PPC’s 2018 Paperboard Packaging Competition

The Paperboard Packaging Council (PPC) in Springfield, Massachusetts, has shared four design trends the association noticed during its annual North American Paperboard Packaging Competition. Manufacturers submit hundreds of folding cartons and rigid boxes into the competition each year, making it an excellent platform for monitoring upcoming trends and new converting technologies.

DIGITAL UPPING ITS GAME

The number of digitally-converted cartons entered into PPC’s competition has been increasing for the last several years — so much so that the association decided to create a new digital category for the 2018 competition.

Not only did 2018 see a record number of digital entries, the judges also agreed that the quality has skyrocketed. In many cases, it was hard to tell the difference between digital and traditional printing. One judge even commented that high-quality digital printing may be more than a trend. It might become the standard for short-to-medium runs going forward.

Additionally, 2018 was the first year where digital finishing enhancements, like those from Scodix, were popular in the competition. The judges were excited to see digital finishing executed commercially and suspect that it may become the rage over the next few years.

UPSCALING THE EVERYDAY

Paperboard is often the first choice of substrate for luxury markets. Yet this year’s competition saw upscale printing and finishing effects even in everyday market sectors.

For example, for the first time in the competition, the judges saw soft touch coating on a six-pack beer carton.

Graphic Packaging International highlighted this trend with their Kellogg’s Extra Creations cereal box. The black, gable-top carton has overall matte varnish, spot high-gloss coating with embossing, and gold foil stamping. The non-traditional shape, color, and effects all work together to create a unique, upscale feel that grabs consumers’ attention amongst the sea of rectangular cereal boxes in the grocery store.

The judges said it was excellent to see new market sectors taking advantage of what paperboard does best — offer premium branding and graphics that help brands sell their products.
**CREATIVE MULTIUSE DESIGNS**

The competition featured cartons that not only branded and protected products, but also provided consumers additional value after purchase.

WestRock submitted one such carton for Asahi beer. Not only is the design graphically unique for the beer segment, the structural design of the bottom tray enables the pack to display cans and hold ice. This allows consumers to keep their beer cans cold on the beach or wherever their adventure takes them.

Other interesting entries included a spooky, glowing Jägermeister carton designed to illuminate consumers’ Halloween parties; a rigid paperboard Ferris wheel that served as a showpiece for upscale cosmetics; and several packages that utilized augmented reality or allowed consumers to access virtual content with their smart phones.

**CANNABIS CONTINUES**

A unique cannabis carton manufactured by All Packaging Co. took the top award in last year’s competition. The 2018 contest also had several excellent folding cartons and rigid boxes designed for the cannabis industry. Cannabis cartons generally have two major functions: branding and childproofing. This year, some entries were quite strong in the branding aspect, featuring soft touch coating, foil stamping, and spot UV. Others designs took it a step further by adding creative locking mechanisms made entirely from paperboard. These designs put paperboard’s nearly limitless structural possibilities on display. As the cannabis market grows, so too should its demand for paperboard packaging.

The top winners of the 2018 North American Paperboard Packaging Competition will be announced at PPC’s upcoming Fall Meeting, October 24-26, in Atlanta. For more information about the competition, visit: paperbox.org/cc.

Now in its 89th year, PPC is the North American association for converters of paperboard packaging and their suppliers. PPC works to grow, promote and protect the paperboard packaging industry while providing its members with resources and tools to compete successfully in the marketplace. For more information about PPC, please visit www.paperbox.org.
We are one of the largest manufacturing sectors in the nation with a vibrant story to tell. What better time to share it than during National Forest Products Week (NFPW). So mark your calendars for October 21 – 27 and get ready to join us, industry representatives, employees and advocates in Washington and around the country for the 58th anniversary of the celebration.

From the paper towels used to keep your countertops germ-free, to the packaging around the goods you ordered online, to the cups holding your coffee, forest products make everyday life easier. We’re eager to showcase the companies and dedicated employees who make these valuable contributions to society and the economy and underscore how the public policy we advocate for will support their ability to continue that mission.

Videos, blogs, advertising, social media, press releases, a dedicated AF&PA website and more are on deck, ready to go as part of our broad communications strategy. To get you ready, here’s a sneak preview of the admiration we have for our workers and the positive strides and ongoing actions we’re talking to support them and their companies.

Let’s start with a shout out to our employees: Approximately 950,000 men and women in rural and urban communities in 45 states. They form our foundation, and our hats go off to them each and every day. The foresight, innovation and dedication they’ve applied to make important sustainability advancements is but one example. Their contributions are clearly visible in the progress cited in the 2018 Better Practices, Better Planet 2020 sustainability initiative which reported energy efficiency and worker safety improvements ahead of schedule.

And speaking of sustainability, our customers and consumers deserve a shout out as well for their commitment to recycling. Almost 66 percent of paper consumed in the U.S. was recovered for recycling in 2017, and we’ve set our sights higher at a 70 percent paper recovery for recycling goal by 2020. During NFPW and the upcoming holiday season, when consumers are likely to have more paper-based packaging on
their hands, we’ll be reminding everyone that recycling helps the industry create new paper and paper-based packaging products. That means: Keep it dry, keep it clean, put it in the bin.

Common-sense public policy remains central to the forest products industries’ ability to contribute to economic growth and job creation. And, we’ll continue to make the case for reforms and policies that do more good than harm, including those pertaining to trade and regulatory reform.

Free and fair trade policies that recognize our strong global position are essential. Estimates show that at least 135,000 jobs at pulp, paper and wood products mills and related logging operations are directly dependent on U.S. exports of our products. Additional jobs in mill communities and in our supply chain also rely on open markets for U.S. exports. Our industry supported NAFTA because it provided us duty-free access to the Canadian and Mexican markets. And, as policymakers weigh potential changes to NAFTA, we want to ensure these markets remain open to our exports and recognize the benefits of our interconnected supply chain.

We’ll continue to speak up against China’s discriminatory policy on recovered paper imports known as National Sword. Recovered paper for recycling is a commodity that should retain its access to free markets that allow the flow of fiber to meet the needs of users who value it the most. From where we stand, China has violated its obligation under the World Trade Organization and is disrupting international trade and the global market for recovered fiber by import-limiting actions.

On the regulatory reform front, we’re gratified with Congressional support for legislation directing the U.S. Environmental Protection Agency, the Department of Agriculture and the Department of Energy to establish policies that reflect the carbon neutrality of forest-based bioenergy. For more than seven years, our companies have sought clear guidance on biomass carbon neutrality and deserve the ability to operate on a level playing field with global competitors. Implementation of this directive will help achieve this long-overdue goal.

But these points are only part of the forest products story. We all have something to share. Please join us and engage in the conversation, as well as taking a moment to describe how the forest products industry impacts your life. Surely, there are a few more chapters we can add to the NFPW book.

Stay up to date with latest information by tuning in to www.afandpa.org and following @ForestandPaper, @PaperRecycles and using the hashtag #ForestProductsWeek on Facebook and Twitter.
Positioning for the Long-term Evolution of the Paper and Forest Products Industry

Resolute Forest Products is building on its strategy of pursuing initiatives that improve cost position, advance diversification, provide synergies or position the company to expand into future growth markets

By John O’Brien, Managing Editor

Resolute Forest Products is in most respects far removed from its forerunners. Not unusual for any company that can trace its roots back nearly 200 years. Fundamental changes have taken place in the world since Resolute’s predecessor, William Price Company, was established in Quebec in 1820 as an exporter of lumber to Great Britain.

The history of Resolute Forest Products is long and complex, and interesting to say the least, and involves many prominent pulp and paper companies. The focus of this story, however, will look at today’s Resolute and the strategy the company continues to implement to diversify its product mix towards growth markets and a more sustainable future.

Resolute Forest Products Inc. is the result of a 2007 merger between two rival pulp and paper companies — Bowater of South Carolina and Abitibi-Consolidated of Montreal, Canada — to form AbitibiBowater. Following a difficult period that began towards the end of 2008, AbitibiBowater in October of 2011 announced that it would change its name to Resolute Forest Products “to better reflect the fundamental characteristics of the company.” Interestingly, the name change followed an initiative launched six months earlier in which employees were invited to suggest a new name for the company. An internal selection committee and the Executive Team chose ‘Resolute Forest Products’ from among some 1,400 employee submissions.

In November of 2011, the company began using the new name and legally enacted the change after formal shareholder approval at its Annual General Meeting in May of 2012.
STRATEGY TRANSFORMATION

During the course of the years to follow, Resolute steadily transformed its business strategy by realigning its product mix. Although the company remains the largest producer of newsprint in the world and the largest producer of uncoated mechanical papers in North America, Resolute has diligently paced production with the structurally-declining demand for those grades of paper.

On the growth side of the coin, Resolute has bolstered its ability to produce market pulp, wood products and energy. It has also entered the tissue market.

To put things into perspective by way of product sales, from 2011 to 2017, newsprint was reduced from 38% to 24%, and specialty papers from 38% to 25%. On the growth side, sales of market pulp increased from 14% to 26%, wood products jumped from 10% to 22%; and Resolute’s relatively new tissue business comprised 3% of sales.

To make the strategic move towards growth markets, a number of measures took place. On the pulp front, in May of 2012 Resolute acquired Fibrek, which came with 752,000 metric tons of market pulp capacity. The company would also invest in a pulp capacity expansion project at its Calhoun mill, and in May of this year announced a $52.3 million strategic investment plan for its Saint-Félicien pulp mill, located in the Lac-Saint-Jean region of Quebec.

“The significant investments at Saint-Félicien are expected to improve several areas of the operation, increasing the average daily production capacity by 76 metric tons and reducing greenhouse gas emissions from the use of fossil fuels by 20%,” said Yves Laflamme, Resolute’s President and CEO.

In wood products, Resolute started-up a rebuilt sawmill at Ignace, Ontario in December of 2014 with some 115 million board feet of lumber capacity. Six months later, a new sawmill in Atikokan, Ontario was started-up with over 145 million board feet of lumber capacity. In April of this year, Resolute announced a $13 million investment in its La Doré, Quebec wood products facilities.

RESOLUTE ENTERS THE TISSUE BUSINESS

Resolute entered the tissue market with a turn-key purchase in mid-November of 2015 with the acquisition of Atlas Paper Holdings, a manufacturer of at-home and away-from-home tissue products, including recycled and virgin paper grades. The Florida-based business came with three tissue machines with a combined annual production capacity of approximately 65,000 short tons; 14 converting lines in Hialeah (Miami) and Sanford (Orlando); and a paper recycling facility in Tampa.

The acquisition of Atlas also brought with it the benefits of Atlas’ know-how and expertise in tissue manufacturing, its sales and management teams, and access to its customer base.

Currently, Atlas Tissue’s annual production capacity stands at 61,800 short tons on three machines with 11 converting lines — Hialeah operates two machines and eight converting lines, and Sanford operates one machine and three converting lines.

The Atlas deal came on the heels of Resolute’s June 2015 announcement to build state-of-the-art tissue and converting facilities on the site of its Calhoun pulp and paper mill in Tennessee with a production capacity of about 66,000 short tons (60,000 metric tons) per year of at-home, premium bath tissue and towel focused on the private label market. The $270 million project represented the largest investment made by Resolute since 2010.

Then CEO, Richard Garneau, noted, “By integrating our U.S. pulp assets to produce high-quality products, we will compete in that market (tissue) as one of only a few integrated producers, using the latest technology.”

Without a doubt, Resolute was ‘all in’ to the tissue market.
Resolute would continue with its strategy to integrate pulp into high quality tissue with the January 2016 commissioning of a new continuous pulp digester at the Calhoun mill. The new digester would increase the company’s market pulp capacity by another 100,000 metric tons per year.

The Calhoun mill site remained a busy place in 2016, with the first production of bath tissue and towel coming off the first new converting line on August 17. The facility’s other two tissue converting lines would be ramped up before the end of that year.

On March 29, 2017, Resolute announced the successful start-up of the new tissue machine in Calhoun. The first tissue parent roll was produced about a month earlier on February 28.

NEWSPRINT/SPECIALTY PAPER
As mentioned earlier, Resolute is the largest producer of newsprint in the world with eight mills that have a combined production capacity of 1.8 million metric tons representing about 8% of worldwide capacity and 43% of North American capacity. The business segment serves major markets throughout North America and abroad and supplies customers in over 50 countries.

As also mentioned earlier, Resolute is the largest producer of uncoated mechanical papers in North America, with 22% of capacity, and the third largest producer of coated mechanical papers, with 14% of North American capacity. The specialty paper segment has a total annual production capacity of approximately 1.1 million metric tons across six mills. The business sells a wide range of papers, including uncoated freesheet grades, to major commercial printers, direct mailers, publishers, catalogers and retailers, mostly in North America.

Although demand for newsprint and specialty papers continues to be challenged by structural declines in the markets, reduced industry capacity in 2018 has created a more favorable market balance.

PULP
Resolute is the third largest producer of pulp in North America with production at seven facilities and a total capacity of 1.7 million metric tons or 10% of North American capacity. The company produces a variety of grades, including softwood and hardwood pulp, fluff pulp, northern bleached softwood kraft (NBSK) pulp, and recycled bleached kraft (RBK) pulp.
WOOD PRODUCTS

Resolute is the largest Canadian producer of wood products east of the Canadian Rockies. The business manufactures lumber and other wood products for the residential construction and home renovation markets, as well as for specialized structural and industrial applications. Operations include 19 wood products facilities with the following production capacities:

- Lumber: 2.4 billion board feet
- Remanufactured wood: 82 million board feet
- Engineered wood: 145 million linear feet
- Wood pellets: 45,000 metric tons

In regards to lumber, Resolute’s 14 sawmills produce construction-grade stud and dimension spruce-pine-fir lumber and are a major source of wood chips for the company’s pulp and paper mills in Canada. The sawmills also generate wood residue, which is primarily used to fuel the company’s power cogeneration assets and other operations, as well as to produce wood pellets. In 2017, Resolute shipped 1.9 billion board feet of construction-grade lumber within North America.

Resolute’s two remanufactured wood products facilities produce bed frame components, finger joints and furring strips, while its two engineered wood products facilities produce flooring I-joists for the construction industry.

TISSUE

Resolute’s three tissue mills have the combined annual capacity to produce 116,000 metric tons of tissue across four tissue machines and 14 converting lines. Branded products include: Green Heritage® (retail); Green Heritage® Pro; Harmony®, Harmony®, Ultra, Harmony® Pro; Harmony® Pro Ultra; Bunny Soft®; and Eversoft®. Resolute’s tissue products are manufactured from 100% recycled pulp or from virgin fiber from the company’s internal pulp network.

BIOMATERIALS

Resolute is also involved with the development of biomaterials. In June of 2014, Resolute announced the launch of a new research and development joint venture with Mercer International. The JV, Performance BioFilaments Inc., is focused on the development of commercial applications for cellulose filaments, a source of sustainable biomaterial made from wood fiber that can be used to add strength, stability, flexibility and longevity to a variety of materials, including cement, composites and coatings.

Performance BioFilaments can supply cellulose filaments in two forms, depending on customer needs and preferences in the areas of product applications, logistics and storage. Cellulose filaments can be supplied in wet fluff form, with a specific moisture content, typically ranging from 30% to 50% filament material.

Cellulose filaments are also available in rolls of dried film for applications that require the product to be stored for long periods of time or shipped over large distances. Cellulose filament films are readily dispersible in water or other solvents, and once dispersed, have similar properties to the fluff form. Most interestingly, cellulose filament films have the potential to be used directly as a layered component in the production of certain laminated composites.

In January of this year, Resolute and FPInnovations announced an investment in the implementation of a TMP-Bio pilot project in Thunder Bay, Ontario. The focus of the pilot project is on developing new ways to efficiently produce and commercialize bio-chemicals derived from wood, contributing to the development of a bio-economy in Northern Ontario, as well as elsewhere in Canada.

According to Resolute, the $21 million project is part of an initiative to renew and transform the forest products industry, building on investments made in 2012 by Resolute, the Ontario Centre for Research and Innovation in the Bio-Economy (CRIBE), and Natural Resources Canada. This investment covers cost of capital and R&D and has the support of the Northern Ontario Heritage Fund Corporation (NOHFC), CRIBE, FedNor, the City of Thunder Bay CEDC and Natural Resources Canada.

Resolute is contributing $3.5 million and hosting the pilot project at its Thunder Bay pulp and paper mill. TMP-Bio is a patented technology developed by FPInnovations with financial support from Natural Resources Canada’s Transformative Technologies Program.

LOOKING FORWARD

Resolute Forest Products emphasizes that it is committed to transforming itself into a more sustainable organization. The company plans to continue to focus on its wood products, pulp and tissue operations, and keep pace with structurally-declining paper demand, while positioning itself for the long-term evolution of the paper and forest products industry, including bio products.
The Case of the 7:00 A.M. Sheet Break

Mill personnel employ collective, cooperative, systematic problem-solving skills to uncover the cause of a recurring and seemingly mysterious sheet break. Do your employees have the ‘freedom’ to use such skills on problems affecting reliable operations?

By John Yolton

A western pulp mill, several years ago, began, mysteriously, a series of sheet breaks on its pulp dryer. Piecing the available data together, the common thread running through each occurrence was the timing. Every morning, for a few days in a row, at approximately 7:00 a.m. the sheet would suddenly break at the wet end. There were other breaks occurring at various times that might be related, but the 7 a.m. timing was consistent.

For an air-flotation type dryer machine, this is the equivalent of a minor catastrophe since the sheet must be completely rethreaded — an arduous task. The minimum time lost is one hour and sometimes this process can last hours.

THE MANAGEMENT IN THE MILL WAS FRENETIC

As this is an ‘operations-related’ problem, the technical services (process) engineers and the machine operators were assigned to investigate every possibility, without success. Just when it seemed that the problem had disappeared, without a clue as to what it had been, the mystery would continue for a few more days, or occasionally for one day.

TOTALLY BAFFLING AND A DEFINITE RELIABILITY ISSUE

The maintenance staff became involved because of the timing of the problem and the fact that this mill utilized an open, participatory style of management thus communicating troublesome issues throughout the organization.

Every time the series of breaks occurred, additional knowledge was gained about circumstances during or following the break. The early morning pattern was identified, although the period between reoccurrences remained a mystery.

It was discovered after some research that the mechanism for failure (the sheet break) was a basis weight swing, thus the early maintenance involvement in the issue.

Of course, the fact that the failure occurred at or near 7:00 a.m., an hour before the maintenance crew started the day shift, meant that the response to the problem required a call-in for an instrument technician from the combined E&I crew.

Usually, by the time the mechanic arrived on site, the machine would be either in the process of settling down or rethreaded and the basis weight valve and control loop would ‘check-out’ fine, further frustrating the participants — a very perplexing problem that would devolve into ‘finger-pointing’.

Every shutdown following the occurrences, the basis weight valve and loop would receive undivided attention from the maintenance crews, including physical change-out, recalibration, the typical shotgun pattern approach to a very specific problem, as yet not fully identified.

‘Life’ would carry on as normal until, suddenly, with no apparent pattern, the failure would reappear, causing anger and irritation (for lack of understanding leading to frustration more than anything).

Maintenance was constantly criticized for lack of progress in solving the mystery. There had to be something wrong with the valve and actuator or the control loop … it was as simple as that. That was the position taken by everyone else in the mill maintenance.
mill, except for the maintenance group. They knew there was nothing else they could do with the hardware and its control, they had done it all, with no success.

The instrument crew was especially concerned because they knew that everyone else had lost faith in their abilities to solve problems with their focused equipment.

**COLLECTIVE, COOPERATIVE, SYSTEMATIC PROBLEM-SOLVING**

The maintenance department, particularly the instrumentation crew, did not give up. Instead they did something that good maintenance departments are noted for, e.g., evaluation of the facts, open communication of thoughts and ideas, elimination of possibilities, in short, collective, cooperative systematic problem-solving.

Someone noted the consistent pattern of the problem. Another suggested that an instrument mechanic be brought in early to stand by the valve and throughout the control loop to see if anything visible occurred.

The first day...nothing. However, the assigned instrument mechanic was at the valve when it reacted from ‘something’, visibly noticing the valve would move and then settle into its normal operation. This valve action was, of course, enough to unsettle the sheet weight and cause a wet end break.

At the next ‘problem-solving’ session, normally the morning coffee break, the mechanic passed along his observations to the rest of the crew. It was suggested that maybe a couple of the mechanics be at strategic observation posts the next morning, which was arranged with maintenance management.

The next morning, with an instrument mechanic stationed upstairs near the headbox and another in the basement near the BW valve, along comes the lab tech carrying a tray of sample bottles to grab a stock sample from the headbox to perform the daily consistency test to record on the daily log sheet.

Because this lab technician was shorter than others he had to climb up on the side of the headbox to get to the sampling valve. His ‘foothold’ while performing this process happened to be a tubing tray carrying, among other things, the supply air header to the BW valve pneumatic actuator, and of course, the air supply was plastic tubing.

Almost every time, but not every time, this specific lab tech, on his day shift (because the sampling routine was only done once a day at 7:00 a.m.) caused a momentary loss of air to the Basis Weight valve by using the tubing tray as a step ladder/foothold. When he traded shifts with other technicians, as was the normal procedure when outside events interfered with assigned shifts, the timing would change.

**CONCLUSION**

Does this happen in the real world? Of course, this is real world, and it happens all too often.

What is the point of this story? Simply this. The attitude that prevailed in this mill allowed the solution to be found by the mill employees, basically thinking on their own, in a timely manner, using basic problem-solving skills.

Do your employees possess problem-solving skills? It is, after all, an ‘acquired’ skill learned and encouraged in an accommodating environment.

Do your employees have the ‘freedom’ to use those skills, on problems affecting reliable operations?

Oh, and by the way, the fix was installation of step for the lab tech, who had no idea his actions were the cause of so much hand-wringing, finger-pointing frustration.

John Yolton is a long-time pulp & paper industry veteran. Employed by many different paper companies and paper industry suppliers he has written hundreds of articles about the industry and his experiences within the industry. He can be contacted through LinkedIn.
As adhesive technology becomes more and more complex and the demand for recycled fiber in packaging grows, mills are getting stuck with a bigger and bigger problem. Stubborn stickies. They downgrade quality, reduce output, and cost a lot of money. In fact, stickies cost the pulp and paper industry tens of millions of dollars every year.

Buckman stickies control technologies — Optimyze® and Optimyze Plus — enzymatic programs are proven to prevent stickies from agglomerating into bigger ones and interfering with recycling, pulp, and paper machine operations, allowing mills to reduce downtime, produce more packaging with improved quality, and make more profit. Buckman solutions include:

- Unique enzyme flotation aids designed for higher stickies removal
- Green, low VOC solvent products for forming fabrics
- Technology to control deposition on rolls
- Passivation products to treat forming fabrics
- Patented enzyme-based felt conditioners to control stickies in wet felts
- Patented enzyme products to reduce and control stickies
- Patented copolymer products to prevent re-agglomeration

**CASE STUDY**

**Increased paper machine production by as much as 11%**

**The Challenge:** A mill making Kraft liner wanted to decrease the cost of its stickies and pitch program and reduce the number of breaks.

**The Solution:** Buckman applied Optimyze Plus at the tower inlet where short fiber and recycled fiber mixed.

**The Results:** Paper machine production increased by 11% on one machine and 9.8% on another. Costs were significantly reduced.

**Return on Investment:** US$870,000/year or US$1.81/metric ton.

**Unique Enzymes**

Buckman patented Optimyze® and Optimyze Plus enzymes are unique in the industry — able to reduce the size and loading of both micro and macrostickies in a mill’s system. Effective in conjunction with Buckman’s organic detackifier, Optimyze enzyme technologies can reduce the size and quantity of stickies in your furnish, and passivate any stickies that remain and keep them from combining and depositing in your system.

**Profit-boosting Benefits**

Buckman stickies control technologies will provide effective stickies control so a mill can:

- Reduce downtime
- Increase machine runnability
- Reduce furnish costs
- Improve converting efficiency
- Increase brightness
- Decrease ERIC
- Improve sheet quality
- Reduce solvent usage
- Increase clothing life

**Long-lasting**

Patented stabilizers keep the enzymatic technologies fully functional and ready when you need them — even after a year.

**Eco-friendly**

Buckman enzyme-based solutions help reduce your impact on the environment. Optimyze technology is a past winner of the U.S. EPA Presidential Green Chemistry Challenge Award.
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Purdue University researchers say they have developed a large-scale manufacturing process that may change the way some grocery store foods are packaged.

The Perdue team, led by Jeffrey Youngblood, a professor in Purdue’s School of Materials Engineering, created a new manufacturing process using cellulose nanocrystals (CNCs) as advanced barrier coatings for food packaging.

According to Credence Research, food packaging is a growing billion-dollar market, and overall predicted growth is expected to reach 6 percent by 2024. Advanced barrier coatings, which help to protect grocery items such as foods and beverages, are growing by as much as 45 percent each year.

CNCs are an alternative renewable raw material derived from abundant resources such as wood and plants. They have properties including nontoxicity, biodegradability, high specific strength, high thermal conductivity and optical transparency, all of which make them excellent components for advanced food packaging.

“The challenge for the food packaging industry is to create a recyclable and sustainable barrier material that is low-cost,” Youngblood said. “Our innovation using CNC coatings is transparent, nontoxic and sustainable.”

The Purdue manufacturing technique also is scalable since it is a roll-to-roll manufacturing process using waterborne polymer systems. CNCs are highly crystalline and easily dispersed in water, so manufacturers can control the structure to eliminate free volume and end up with only the properties that are needed for the barrier material.

“Our unique process uses the power of natural nanotechnology and allows a much higher density and packing coating that reduces diffusion pathways and drastically improves oxygen, carbon dioxide and water vapor permeability,” Youngblood said. “In essence, we get properties similar to common packaging such as ethylene-vinyl alcohol polymer, but with more sustainable results.”

The Purdue technology also offers food packaging manufacturers excellent optical, thermal and mechanical properties to ensure that food remains as fresh as possible when it is delivered to the grocery store for consumers.

“Technological advances such as this are important as there is a larger societal effort to improve sustainability,” Youngblood said. “CNC offers this, along with transparency, nontoxicity and high barrier performance.”

The Purdue Office of Technology Commercialization helped secure a patent for the technology. It is available for licensing.

This story appears on Perdue University’s website in Materials Engineering news: engineering.purdue.edu/MSE/news

Jeffrey Youngblood can be reached by email at: jpyoungb@purdue.edu
HIGH PERFORMANCE. STANDARD.

NSK rolling bearings are designed to support the operating and productivity challenges of papermaking machines. Equal to the demands for increasingly high speed and high load carrying capacities, NSK also offers specialized solutions like our TL spherical roller bearings to contend with prevailing high heat and contamination - delivering utmost performance, bearing life, and paper machine output.

ROLLING BEARINGS FOR PAPERMAKING

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Kemira TCM (Total Chemistry Management) is a system that enables pulp and paper makers to improve operational efficiency and save costs through the optimized use of chemicals. With this strong partnership you get a full range of chemicals from a single supplier and benefit from the best-in-class application know-how and technical service.

In addition, we provide you with direct access to our smart process management technologies and the latest innovations from Kemira R&D.

Let’s work together to build value into paper.

tcm.kemira.com