Is There a New Pulp Game in Town?

A new pulping process that uses wheat straw has resulted in fibers as strong or stronger than traditional hardwood fibers.

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Straw Pulp

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

In the Nov/Dec. 2018 issue of PaperAge, my Editor’s Note focused on a proposed pulp mill that Tranlin, Inc. planned to build in Virginia. The mill’s production was to be based on a proprietary process to produce pulp from wheat straw. That project, however, never got off the ground due to what appeared to be financial reconsiderations by Tranlin’s parent company in China, Shandong Tranlin Paper Co., Ltd.

According to Shandong Tranlin, the basics of its wheat straw pulping process is: “Applying the independent innovation technology to isolate fulvic acid and cellulose from wheat, corn, rice and other crop stalks. Fulvic acid is used for the production of a series of high-end fertilizers and applies back to farmland, while cellulose is used for the production of high-end natural color paper products or ethanol.”

We may never know how Shandong Tranlin’s pulping technology would have performed in Virginia, but we will have the opportunity to see the outcome of a wheat straw pulping process that has gained traction in North America — The Phoenix Process™.

There is an informative article beginning on page 18 by Stuart Sharp, Senior Researcher at Fisher International, that takes an in depth look at The Phoenix Process and the concept of using non-woody plants as that raw material for the production of pulp and value-add by-products.

Sharp’s article also discusses Columbia Pulp and its new 140,000-square-foot pulp mill in Lyons Ferry, (Columbia County) in the state of Washington, which will be the first commercial operation to utilize the Phoenix Process using wheat straw as the raw material.

Beyond the pulp itself, is the environmental aspect associated with the feedstock. Columbia Pulp’s CEO, John Begley, says, “What we’re doing at Columbia pulp is to take that residual straw from local growers and not only help reduce the environmental impact of burning, but create a different revenue stream for the growers.”

Michele McCarthy, CFO of Columbia Pulp, explains, “Eastern Washington is primarily an agricultural region. This area is one of the highest density wheat farming areas in all of North America. Because the wheat is so dense in this region, the straw that’s left in the field poses quite a challenge to farmers.”

For one, Millhill Farms has operations spread over a large region along the Washington and Idaho border within a 100 miles of Columbia Pulp. The business produces crops such as soft white wheat, hard red wheat, alfalfa hay, oat hay, and of course, wheat straw.

Seth Millhorn, President of Millhill Farms, says Columbia Pulp’s utilization of the region’s residual wheat straw is a boon for the environment. “Traditionally, the methods for residue management have been either burning the field or by cultivation. The two traditional methods are non-sustainable long term. The environment cannot handle the emissions from burning residue and the environmental concerns with erosion from excessive tillage have been a worldwide problem.”

In September of 2018, Columbia Pulp started-up an 18,000-sq-ft. pilot pulp plant in Pomeroy, Washington, which has served as a small scale training facility while offering prospective customers samples of Columbia’s pulp produced from wheat straw.

When fully operational, Columbia Pulp’s Lyons Ferry plant is expected to produce 140,000 tpy of wet lap pulp and 75,000 to 80,000 tpy of a bio-polymer from 240,000 tons of wheat straw.

Start-up is planned for the end of March.
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The Paper2019 Convention Daily will be published in three separate editions (March 24, March 25, March 26) and distributed to all attendees of the convention. The Paper2019 Convention Daily is published by O’Brien Publications, Inc.
Greif, Inc. announced on Dec. 20 that it entered into a definitive agreement to acquire Caraustar Industries, Inc. in a cash transaction valued at $1.8 billion.

Caraustar is a market leader in the production of uncoated recycled paperboard (URB) and coated recycled paperboard (CRB), with a variety of applications that include tubes and cores and a diverse mix of specialty products. Based in Austell, Georgia, Caraustar’s footprint includes over 80 operating facilities throughout the United States.

For the last twelve months ended September 30, 2018 Caraustar generated sales of $1.4 billion and EBITDA of $174 million. Based on trailing twelve month actual volume, adjusted for current market conditions as of September 30, 2018, the run-rate EBITDA is $220 million.

“Caraustar offers an exceptional strategic and cultural fit for Greif,” said Greif’s President and CEO, Pete Watson. “Its complementary paper packaging and recycled fiber operations will drive significant free cash flow growth, improve balance and profitability within the Greif portfolio and increase Greif’s exposure to U.S. industrial and consumer end markets.”

The transaction significantly enhances Greif’s scale and scope in the industrial packaging market, creating significant competitive advantages and long-term operating leverage. The addition of Caraustar is expected to increase Greif’s U.S. sales to roughly two thirds of total consolidated sales from approximately half for fiscal 2018. In addition, the percentage of Greif’s sales from paper packaging will expand to approximately half of total consolidated revenues compared to 23 percent for fiscal 2018.

The transaction is also expected to generate annual run-rate cost synergies of at least $45 million within 36 months of closing through an identified combination of back office savings; transportation optimization; recycled fiber savings; operational improvements; and other procurement-related activities.

Greif noted that Caraustar sells a variety of specialty paper products that will complement Greif’s Paper Packaging & Services specialty portfolio, and operates a business with close operational adjacency to Greif’s current mill operations and possesses an aligned operational philosophy and close cultural overlap.

Greif expects the deal to close during the first quarter of 2019, subject to customary closing conditions, including regulatory clearance.

A group of four investors with the help of a Vermont development organization worked out a deal over a two-month period to buy Neenah’s paper mill in Brattleboro, Vermont. The investors — Ben Rankin and his partners, Phil Farmer, Mike Cammenga and Richard Normandin — go by the name Long Falls Paperboard.

In May of 2018, Neenah announced plans to sell the facility and worked actively to do so, but did not receive an acceptable offer. After reviewing alternatives, the company decided in late October, that the best economic decision was to close the mill — a decision that would affect about 100 workers.

However, on Oct. 30, the Brattleboro Development Credit Corporation (BDCC) facilitated a meeting between state agencies and Rankin and Farmer, and when 2018 came to a close, so did the deal to buy the mill.

According to an SEC filing by Neenah, the sale of the Brattleboro mill to Long Falls Paperboard, LLC was completed on Dec. 31, 2018 for a purchase price of $5 million, subject to post-closing inventory adjustments.

Rankin told a local newspaper, the Brattleboro Reformer, that working with Neenah was a pleasant surprise, considering how cut-throat the competition can be in the marketplace for paper products.

“They could have taken an easier road,” said Rankin. “Neenah was committed to keeping this facility open, which is fairly unusual. Many paper companies will make a point when they are closing a mill that they want to scrap it and sell off the pieces because they don’t want the competition. They would rather take the capacity out of the market. Neenah really did right by the community and they deserve credit.”

Rankin noted that when Neenah bought Fibermark in 2015, the Brattleboro facility was just one of the assets it acquired. “The reality is, Neenah is a paper maker, not a paperboard maker. This mill was a little bit outside of their area of expertise and where they wanted to put their focus. They found the Brattleboro plant was not a good fit for them.”

In a press release from the BDCC, Rankin said, “Since our first visit to the mill in November we have been welcomed and supported by BDCC, the employees, the USW, and a wide variety of state offices. We deeply appreciate this support, without which we would never have been able to purchase the paper mill in the very short time available. We look forward to being part of the Brattleboro community for many years to come.”
NORTH AMERICA

Georgia-Pacific to Shutdown Port Hudson Mill’s Communication Papers and Pulping Operations

Georgia-Pacific announced on Jan. 10 that it is exiting the communication papers business following an assessment of its long-term competitive position in a declining market. As a result, the company will permanently shut down the Port Hudson pulp and paper mill’s two paper machines, eliminating about 630,000 tons per year of uncoated freesheet capacity. The shutdown includes related converting assets, as well as the woodyard, pulp mill and a significant portion of the energy complex at the Port Hudson facility in Zachary, Louisiana.

Approximately 650 jobs at the facility will ultimately be impacted by the communication papers and pulp asset closures. About 40 business and sales jobs also will be affected by this decision.

Georgia-Pacific will continue to operate and invest in the Port Hudson mill to support its growing consumer tissue and towel business. The Port Hudson facility, with its premium product tissue and towel machines and associated converting equipment, is a key contributor to the success of the Consumer Products Group’s retail business. The company will retain approximately 300 employees to manage those operations.

Employees will continue to operate the Port Hudson communication papers and pulp mill assets, with final operations of those assets expected by mid-March. Georgia-Pacific has begun discussions with union leadership and the hourly and salaried workforce on how the process will work for employees affected by the job reductions, including the potential to transfer to other Georgia-Pacific locations.

“The employees in our printing and writing papers business have worked diligently to support the business, and in recent years we have invested significantly in our operations. We have ultimately decided that the required investment to sustain the operation long-term, coupled with the declining market, is not viable,” said Mike Adams, President - GP PRO and Communication Papers. “We will be working closely with our printing and writing customers during this time of transition.”

Resolute Completes Sale of Catawba Paper and Pulp Mill

Resolute Forest Products on December 31, 2018, completed the previously disclosed sale of the Catawba, South Carolina, paper and pulp mill to New-Indy Containerboard, LLC.

The total purchase price of about $300 million consists of $260 million in cash, before customary closing adjustments, and the assumption of approximately $40 million of balance sheet liabilities, largely net pension benefit obligations.

“We are pleased to have completed the sale of the Catawba mill to New-Indy and wish the new team every success with its investment in the diversification of the mill’s operations,” stated Yves Laflamme, President and CEO of Resolute. “We want to thank our employees for their hard work and dedication toward this successful outcome, and are pleased that the community will continue to benefit from the mill’s economic and social impact.”

New-Indy, an independent manufacturer and supplier of recycled containerboard to the corrugated box industry, said, “Going forward, we are excited about the prospects for this mill to produce a diverse array of products from existing offerings like market pulp, lightweight coated papers and specialty grades to new offerings of high-quality, virgin, ultra-lightweight linerboard. The Catawba Mill will position New-Indy to fill a significant void in the domestic and international markets for these products.”

Kentucky Paper Mill Renamed Phoenix Paper Wickliffe

Shanying International has renamed its first pulp and paper mill in the U.S., Phoenix Paper Wickliffe LLC.

Shanying International, the third-largest producer of containerboard in China, purchased the idled Wickliffe, Kentucky mill earlier this year from Verso Corporation for $16 million. The deal was conducted on behalf of Shanying by China-based investment group, Global Win Wickliffe LLC.

The company says it is investing $150 million to upgrade the mill and convert its production from uncoated and coated freesheet grades to the production of kraft linerboard. The mill will also produce bleached hardwood and softwood pulp, and recycled (OCC) pulp.

Verso idled the Wickliffe mill in November 2015 and then announced its permanent closure on April 5, 2016. At that time, Verso said the closure was the result of “a continuing and accelerated decline in demand for the company’s coated paper products.”

Over 310 people were employed at the mill.

At the time of its closure, the Wickliffe mill had one paper machine with the capacity to produce 285,000 tons per year of coated freesheet, specialty and uncoated paper, and the capacity to produce 30,000 tons per year of dried market pulp.

During the acquisition process in August, Global Win said it hoped to restart the mill by the end of 2018. Currently, there have been no announcements from the company as to the status of the restart.
UPM in December announced plans to invest EUR 2 billion in a new pulp mill to be located near the city of Paso de los Toros in central Uruguay. The new mill would have capacity to produce about 2 million tonnes of eucalyptus pulp per year.

“An investment of this scale requires efficient logistics to enable secure wood supply and pulp deliveries from the inland mill to the port of Montevideo,” explained Petri Hakanen, Senior Vice President of the UPM Uruguay Development Project. “This will require the construction of a modern railway to the port and a modern pulp terminal as well as development of the road network.

“We need to ensure that infrastructure development and the permit processes move forward as planned. These are the most significant requirements at this stage,” Hakanen said.

UPM noted that the new mill would have various positive impacts on Uruguay, providing the community with jobs, training and improved infrastructure. The mill’s location is in the least developed area of the country, potentially providing a major spur for rapid regional development similar to UPM’s 1.3 million tpy pulp mill in Fray Bentos, which started up in 2007.

According to UPM, the new pulp mill is estimated to increase GDP by two per cent. It would boost the local economy and fuel the growth of hundreds of small and medium sized companies throughout the entire value chain. It would also generate a significant number of permanent jobs in industry, plantations, harvesting, port operations and related services.
SOUTH AMERICA

**Suzano Completes R$27.8 Billion Merger with Fibria**

On Jan. 14, Suzano Pulp & Paper and Fibria completed their merger and began operating as Suzano, the world’s leading producer of eucalyptus pulp and one of Latin America’s largest paper manufacturers. The deal was concluded when Suzano Pulp & Paper paid R$27.8 billion (approx. US$7.3 billion) to Fibria’s shareholders, who in turn became shareholders in Suzano, the company’s new trade name.

From January to September 2018, the two companies reported operating cash flow of R$10.1 billion and consolidated net revenue of R$24.5 billion.

“We have successfully realized a dream,” said Walter Schalka, CEO of Suzano. “The journey on which we now embark is driven by the aspiration to play a leading role in the advancement of society, to be a reference in the sustainable use of renewable resources and, consequently, to help build a better world, today and tomorrow.”

The newly formed company will have an annual production capacity of 11 million tons of market pulp and 1.4 million tons of paper from 11 manufacturing plants in Brazil with sales to over 80 countries.

The merger, which was announced on March 16, 2018, was approved by the antitrust authorities in the United States, China, Turkey, Europe and Brazil.

EUROPE

**Sequana’s Deal to Sell Arjowiggins’ Graphic and Creative Papers Businesses Terminated**

Sequana on Dec. 27, 2018 announced the termination of the planned sale of its subsidiary, Arjowiggins’ Graphic and Creative Papers businesses, to Fineska BV.

In July of 2018, Sequana announced the proposal to sell its Arjowiggins’ Graphic and Creative Papers businesses to Fineska for EUR 125 million. The businesses reported sales of EUR 528 million in 2017, or 19% of Sequana Group’s consolidated sales, of which 61% comprised recycled graphic and specialty (i.e., laminated and transfer) papers and 39% premium fine papers and specialty papers (i.e., bookbinding and tracing paper).

Arjowiggins’ Graphic and Creative Papers businesses operates a total of eight mills located in France, the UK, Spain and China and employs over 2,000 people.

Sequana had expected to complete the deal by the end of October 2018.

In a press release, Sequana said, “The negotiations initiated in July 2018 with Fineska BV (the Andlinger & Company group) for the sale of Arjowiggins’ Graphic and Creative Papers businesses continued in an extremely deteriorated market conditions context, notably hit by significant and successive price increases in pulp, and to a lesser extent in energy.

“In this context and considering the lack of visibility for FY 2019, Fineska BV has stopped the sale process. Because of this decision, Sequana is reviewing the different strategic options to be implemented.”

**International Paper to Acquire Spanish Corrugated Packaging Company Envases Grau**

International Paper on Dec. 24 announced that the company signed an agreement to acquire Envases Grau, a family-owned packaging business in Spain, for an undisclosed amount.

“Envases Grau is a well-established company known for its excellent service and the quality of its products,” said Eric Chartrain, General Manager of International Paper’s corrugated packaging business in Europe, the Middle East and Africa (EMEA). “This acquisition complements our current network of packaging plants and expands the size and weight of our business in Spain, where it is expected that the demand for boxes will continue to grow.

“With this operation we will increase our capacity and possibilities for high quality printing, which will allow us to offer a better service to customers and strengthen our position in the fresh fruit and vegetable market,” Chartrain added.
EUROPE

Södra Begins Construction of Additional Pulp Storage Tower at Väro Mill

Södra announced that construction of an additional pulp storage tower has begun at its Väro pulp mill in Sweden. The additional pulp storage tower will be situated between the fiber line and the drying machine.

Jonas Eriksson, Värö’s Mill Manager says the new tower will give the fiber line extra availability and the leeway to increase the mill’s production capacity further when needed. “This will give us increased flexibility, we will not have to stop production to perform some of the planned maintenance or if we ever incur a minor problem at the drying machine in the future.”

Södra expects the project to be completed by the fourth quarter of 2019.

Södra Cell Värö produces 700,000 tonnes per year of high quality totally chlorine-free softwood pulp. The mill is also a supplier of both electricity and district heating producing 1.6 TWh of energy annually.

INDUSTRY SUPPLIERS

Voith to Supply Stock Prep Unit for Hamburger Rieger’s New Linerboard Machine

Voith announced that it will supply a complete stock preparation unit for Hamburger Rieger’s new PM 2 in Spremberg, Germany. Voith will deliver three separate stock preparation lines with a total capacity of 2,450 metric tons per day. Meri Environmental Solutions is responsible for the complete reject and water treatment facility.

The key to the stock preparation concept is the OnEfficiency. DIP (deinked pulp: recycled waste paper without color residues) system from Voith, which has already proven effective for the manufacture of graphic papers based on recovered paper. The efficiency concept is now being used for the first time in the production of packaging papers. In the stock preparation unit of the new PM 2, ultra-modern sensors and actuators ensure consistent raw material quality and low running costs.

The system consists of two DIP yield control modules, two DIP bleach control modules and a DIP optimizer. The DIP yield control module uses online sensors to measure the ash content and whiteness of the DIP stock. Using actuators, the flotation technology automatically adjusts it as necessary to obtain the required degree of whiteness.

Following a groundbreaking ceremony on September 26, 2018, work began on Hamburger Rieger’s new paper machine in Spremberg. After start-up of PM 2, which is expected in June 2020, the 7.8 meter-wide machine will produce up to 500,000 metric tons a year of White Top Testliner with various basis weights. The two-loop DIP line produces the white top layer of the WTTL (White Top Test Liner).

Valmet to Supply Century Pulp and Paper with New Tissue Machine

Valmet will supply Century Pulp and Paper with a new tissue production line at CPP’s mill in Lalkua, India.

“We are excited to be the first company in India to install a tissue line equipped with an Advantage ViscoNip press,” said J.P. Narain, CEO of Century Pulp and Paper.

The new Advantage DCT 100HS tissue machine, TM 7, will have a width of 2.85 meters and a design speed of 2,000 m/min, and will add over 36,000 tonnes of high-quality facial tissue, toilet tissue, and paper towel and napkin grades to CPP’s current annual production capacity.

Kadant Acquires Syntron Material Handling for $179 Million

Kadant Inc. on Jan. 2 announced the completion of its acquisition of Syntron Material Handling Group, LLC and certain of its affiliates for approximately $179 million.

Syntron is a leading provider of material handling equipment and systems to various process industries, including mining, aggregates, food processing, packaging, and pulp and paper. The company manufactures conveying and vibratory equipment at its facilities in Tupelo, Mississippi and Changshu, China under the Link-Belt® and Syntron® brands.

“Our acquisition of Syntron provides Kadant with premier products and services that extend our footprint into new process industries,” said Jonathan Painter, President and CEO of Kadant.

Syntron is based in Tupelo, Mississippi.
Barrier Coatings for a Sustainable Future of Paperboard Packaging

The latest research from Smithers Pira has identified the leading coating technologies that will help transform the packaging and food service sectors across the next five years.

Based on an extensive expert survey of the global paperboard industry, the Sustainable Barrier Coatings in Paper and Board to 2023 – a State-of-the-art Report tracks the disruptive potential of the top 20 market innovations.

These will cooperate — and compete — to meet the increasing brand owner, consumer and regulatory demands for more sustainable paperboard formats. This is creating new market opportunities to displace existing plastic formats and coatings, and minimize the carbon footprint for packaging.

SUSTAINABLE AGENDA

In surveying industry experts from all stages of the value chain for paperboard, respondents to the Smithers study provided the following insights:

• All participants (100%) believed that a sustainable product cannot be made from petroleum-derived materials.
• Nearly all (98%) said that sustainability is important to their company and in defining its corporate strategy.
• An overwhelming majority (90%) believed that in order for a product to be considered “sustainable” it must be made from renewable materials and be recyclable. Ideally, the product should also have a low carbon footprint and be biodegradable.

For the packaging industry and coatings suppliers, wider adoption of sustainable barrier technologies displacing incumbent petroleum-based types has the potential to disrupt the entire value chain across the next 5 years.
The biopolymer that has seen the most research is polylactic acid (PLA), and by 2023 Smithers analysis shows this will be the material that makes the greatest contribution to a sustainable future for paperboard packaging.

**LEADING TECHNOLOGIES**

Sustainable coatings that are direct ‘drop-in’ alternatives to traditional petroleum-based barrier coatings, such as producers of polypropylene and polyethylene, will see the most rapid adoption. The most important sustainable barrier platforms technologies identified by Smithers’ study are:

- Advanced aqueous polymeric dispersions and solutions
- Biopolymers – Polylactic acid (PLA) and polyhydroxyalkanoates (PHAs)

**ADVANCED AQUEOUS POLYMERS**

Polyvinyl alcohol (PVOH) and ethyl vinyl alcohol (EVOH) already have an established position in the global paperboard coatings market, with combined production reaching 28,900 tonnes in 2018 and a value of $173 million.

These aqueous polymeric solutions will continue to see strong demand as a barrier coating in many applications, with volume consumption now growing at 5.4% year-on-year. They provide very strong oxygen barrier performance and resistance to oil and grease, meaning demand is especially strong in food and beverage packaging applications. Use in multilayer barrier boards will continue, and as thickeners in formulated coatings containing emulsions.

The main weakness of PVOH/EVOH is their weak resistance to water. Improving this quality via the improvement of cross-linking as well as oil and grease are priorities for a greener the industry moving forward. Another area of focus is the development of blends from bio-based ethanol.

Other aqueous coatings can be formulated from a broad range of resin-based dispersions and polymer emulsions. These aqueous polymeric dispersions are applied to the surface of paper or paperboard to form a solid, non-porous film after drying. Dispersion polymers are used in paper and paperboard products that are used in foodservice applications, including cupstocks.

As water-based coatings, these dispersions are safe and easy to handle. From a sustainability perspective they are recyclable and can undergo industrial composting or repulp- ing without contaminating the fiber stock. These are efficient to use on existing in-line coating machines, and there is potential for improved performance via the use of multi-layer slot and slide coating equipment.

**BIOPOLYMERS**

To meet the increasing need for more sustainable product solutions, the extrusion polymer market is transitioning from polyethylene and PET towards more sustainable biopolymers
and hybrids or blends that degrade more quickly. Biopolymers have the advantage that they are formulated from renewable biological feedstocks rather than petroleum.

The first generation of biopolymers have been derived from crops like sugar cane. Now R&D is increasingly making it plausible to make these from agricultural waste, like corn stalks, or plants grown on marginal land that does not take over prime farming land required for feeding the world’s rising population.

Bio-based plastic barrier technologies have formidable advantages as they can be directly applied, with minor modification, in existing extruder lines to produce sustainable multilayer barrier board structures. Improvements in aqueous coating technologies — especially the introduction of new coating methods, such as curtain and slide coaters — is enabling efficient on-line application of these bio-based blends and dispersions.

**PLA (POLYLACTIC ACID)**

The biopolymer that has seen the most research is polylactic acid (PLA), and by 2023 Smithers analysis shows this will be the material that makes the greatest contribution to a sustainable future for paperboard packaging.

PLA has high tensile strength and is suitable for food contact. It was first produced by Cargill in the US, and Shimadzu in Japan, at the beginning of the 2000s. Today, there are 27 PLA-producing companies with 32 worldwide locations. These include both start-ups, but are also increasingly featuring in the product portfolios of major chemicals and plastics, including:

- Arkema
- BASF
- Mitsubishi Chemical
- Mitsui Chemical
- Total

As commercialization continues, capacity will be added and prices will lower making this a more cost-effective solution for paperboard converters. The main technical challenge for PLA is its heat performance. It undergoes thermal degradation above its melting temperatures and consequently has poor melt flow stability during processing, leading to defects such as neck-in.

Furthermore it is thermally unstable and degrades during processing due to hydrolysis and chain scission. Therefore, to run in existing extruders, temperature settings need to be lowered. This makes it time-consuming to switch over from low-density polyethylene — temperatures can differ by as much as 100°C. In the state of the art, improving the polymer purity has shown new high-heat PLA resins can withstand temperatures of up to 140°C.

**OTHER BIO-BASED PLASTICS**

In the interim, versions of existing polymers that are part or wholly bio-based — such as bio-PET — will gain some market share. These do suffer from the disadvantages of not being biodegradable, but represent a ‘drop-in’ replacement today that can run on existing coating and conversion equipment.

As the market evolves, new biopolymer formulations will become available such as: Polyhydroxyalkanoates (PHAs), polybutylene succinate (PBS), Polyethylene furanoate (PEF), and Chitosan-based films.

**COMPETING TECHNOLOGIES**

The new Smithers report critically analyses the market potential, technical barriers and commercialization for these key technologies and competing solutions. These include: Polymer-pigment composites, Nanofibrillated cellulose, Nanosilicate composites, Thermoplastic starch, and Nanocellulose composites.

Smithers says continued investment in research is expected to lead to advances and the expanded use of most of the other technologies examined, specifically for applications based on polyhydroxyalkanoates (PHA/PHB) and nanocellulose composites. However, commercial considerations and competitive pressures will lead to declines in the use of technologies such as bio-PET, PBAt and thermoplastic starch (TMS) blends.

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Smithers Pira is the worldwide authority on the packaging, paper and print industry supply chains, providing expertise and market intelligence, and a range of testing services supported by comprehensive facilities in the US and UK. To learn more, visit: www.smitherspira.com.
International Forest Products announced that Michael Ostrowski has been hired to assist with the sale of graphic papers. Ostrowski is a 30-year veteran of the forest products industry. Most recently he held the position of Vice President, Supercalendered Sales at West Linn Paper Company.

Metsä Tissue has appointed Jari Tiura as Vice President, Operations and a member of its Management Team, effective February 1. Tiura joins Metsä Tissue from Stora Enso, where he most recently held the position of Plant Manager, Imatra Mill in Finland.

Monadnock Paper Mills announced that Troy Hill and Michelle Jambor have joined the company as Senior Sales Managers. Hill has over 20 years of experience in narrow-and wide-format digital printing platforms. Jambor has over 25 years of experience in technical/specialty papers in direct sales and territory management.

Norske Skog recently appointed Niels Petter Wright as its new CEO, effective December 1. He replaced Lars P. Sperre, who had been acting President and CEO since May 2017. Sperre will continue to work for Norske Skog as part of the Corporate management team, as Senior Vice President of Corporate Strategy.

Resolute Forest Products in November named Remi Lalonde as Senior Vice President and Chief Financial Officer. Lalonde succeeds Jo-Ann Longworth, who will be retiring. Longworth will serve as a special advisor to Lalonde until January 31, 2019. Lalonde previously served as Vice President, Strategy and Corporate Development since May 2018. Prior to that, he was General Manager of Resolute’s pulp and paper mill in Thunder Bay, Ontario.

Sonoco announced that Barry Saunders (59), Senior Vice President and Chief Financial Officer, has announced his plans to retire after nearly 30 years with the company, effective March 1. He has served as CFO since May 2011. Sonoco also announced plans to appoint Julie Albrecht who will be named Vice President and Chief Financial Officer, effective following Saunders’ retirement. Albrecht, 51, joined Sonoco in March 2017 and has served as Corporate Vice President, Treasurer and Assistant CFO.

INDUSTRY SUPPLIERS

AMETEK Surface Vision has appointed Francois Levac as the Director of Sales. Formerly, Levac held the position of Manager of Sales for the Paper Industry in the Americas and Canada. Prior to joining AMETEK, Levac held a variety of roles with Cognex, Honeywell and Honeywell-Measurex.

Buckman recently announced three additions to its leadership team. Anthony Rindone will serve as Chief Operating Officer responsible for all of Buckman’s global manufacturing operations and supply chain; Dr. Naraimha Rao will serve as Chief Digital Officer where his focus will be on constructing and executing a customer-focused digital strategy; and Rahul Goturi joins Buckman as its Chief Information Officer where he will be responsible for leading the company’s internal digital transformation. The COO, CDO and CIO will be based in Memphis, Tennessee where Buckman’s global headquarters is located.

Motion Industries in December promoted Randall (Randy) P. Breaux to President. Most recently, Breaux served as Executive Vice President of Marketing, Distribution, and Purchasing. Breaux joined Motion Industries in May of 2011 following 21 years with ABB/Baldor Electric Company.
FEBRUARY 4-7, 2019
PaperWeek Canada
PAPTAC
Fairmont Queen Elizabeth Hotel
Montreal, Canada
www.paperweekcanada.ca

FEBRUARY 5, 2019
Converters Expo South
BNP Media Events
Charlotte Convention Center
Charlotte, North Carolina, USA
www.packagingstrategies.com/converters-expo-south

FEBRUARY 20-22, 2019
ASPI 2019 Spring Meeting
Assoc. of Suppliers to the Paper Industry
The Ritz-Cartlon
Sarasota, Florida, USA
www.aspinet.org

FEBRUARY 27 - MARCH 2, 2019
AIPPM Annual Meeting
Association of Independent Printing Paper Merchants (AIPPM)
The Phoenician
Scottsdale, Arizona, USA
www.aippm.com

MARCH 18-20, 2019
International Biomass Conference & Expo
BBI International
Savannah International Trade & Convention Center
Savannah, Georgia, USA
www.biomassconference.com

MARCH 24-26, 2019
Paper2019
AF&PA and NPTA
Chicago, Illinois, USA
www.paper2019.com

MARCH 25-27, 2019
Tissue World Milan
UBM
Fieramilanocity Hall 3
Milan, Italy
www.tissueworld.com/milan

APRIL 1-3, 2019
AICC 2019 Spring Meeting
Independent Packaging Association (AICC)
Trump National Doral Resort
Miami, Florida, USA
Contact: Laura Mihalick
Lmihalick@aiccbox.org
www.aiccbox.org

APRIL 3-5, 2019
PPC Spring Outlook and Strategies Conference
Paperboard Packaging Council
Coronado Island Marriott Resort and Spa
Coronado, California, USA
www.paperbox.org/spring

MAY 5-7, 2019
International Pulp Week
Pulp and Products Council
The Hyatt Regency Hotel
Vancouver, British Columbia, Canada
internationalpulpweek.com

MAY 5-8, 2019
PaperCon 2019
TAPPI
Indiana Convention Center
Indianapolis, Indiana, USA
papercon.org

JUNE 25-27, 2019
Zellcheming Expo 2019
Messe Messe Frankfurt GmbH
Messe Frankfurt, Hall 4, level 1
Frankfurt, Germany
zex.mesago.com/events/

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From an impressive paper and paper-based packaging recovery rate to energy efficiencies from sustainable manufacturing practices to steady progress on regulatory process reform, the paper and wood products industry is advancing solutions that serve the environment, the economy and society well. In 2018, AF&PA celebrated its twenty-fifth anniversary. With the beginning of our next quarter century of service to the industry, we have new opportunities to deepen that success story through our 2019 advocacy priorities.

Market-based public policies for paper recycling, enhanced transportation infrastructure, free and fair trade, regulatory reforms and process improvements and a competitive tax system, rank high on our list of actions that will sustain our industry’s ability to innovate, invest, grow the economy and create American manufacturing jobs. We’re ready to partner with decision makers in Washington, state capitols and strategic allies to do just that whenever and wherever necessary.

Let’s start with recycling. Paper, by weight, is the most recycled material from municipal solid waste streams in the United States today with our companies reaching or exceeding a 63 percent paper and paper-based packaging recovery rate for each of the past nine years. That achievement stems from voluntary investment toward building a commercial paper recycling infrastructure and the commitment of millions of citizens to recycle at home, at work or at school every day.

Count us in to find new ways to promote market-based policies for paper recycling and demonstrate
The effective use of recovered materials to create jobs, reduce environmental impact and improve quality of life. Case in point: The November 15, 2018 America Recycles Day Recycling Summit at Environmental Protection Agency headquarters where we joined in signing a pledge to help identify solutions to issues facing the U.S. recycling system.

Another central priority: transportation infrastructure where improvements are critical in order to move raw materials to mills and products to customers without interruption. By safely increasing truck weight limits on federal interstate highways and achieving freight rail system rate and service improvements, we can provide our companies with the relief and fairness they deserve.

When it comes to trade, government policy must recognize our strong global position and our manufacturers’ ability to compete at home and around the globe. The recent signing of the U.S.-Mexico-Canada Agreement represents a positive step toward strengthening our industry’s products in the North American market. Our work will focus on ensuring the agreement preserves and improves market access and investor protections that have long benefitted our industry and its workers.

You can also expect us to call for regulatory and process reforms that bring about more good than harm, stimulate innovation and sustainable development, encourage economic growth and job creation and build public confidence in government. Forward-thinking public policy that streamlines the permit process and reduces the cost and uncertainty of regulations, including implementation of federal biomass policy that appropriately reflects our industry’s use of carbon-neutral forest biomass for energy production, is long overdue.

Certainty is also a critical component of a globally-competitive tax code which enables paper and wood products manufacturers to make investments to support a robust future. We will defend the policy changes achieved in 2017 to ensure that our priorities are reflected in implementing regulations.

An aggressive list of priorities? Some may say that, but we see no value in holding back. At 950,000 employees in rural and urban communities in 45 states, we are one of the largest manufacturing sectors in America responsible for four percent of U.S. manufacturing GDP, $300 billion in products annually and a $55 billion payroll.

Those are bold numbers, and we’re eager to get to work and expand them in the year ahead as we embark on our next twenty-five years. We’ll be sure to keep you up to date on our progress.

ABOUT AF&PA
The American Forest & Paper Association (AF&PA) serves to advance a sustainable U.S. pulp, paper, packaging, tissue and wood products manufacturing industry through fact-based public policy and marketplace advocacy. AF&PA member companies make products essential for everyday life from renewable and recyclable resources and are committed to continuous improvement through the industry’s sustainability initiative — Better Practices, Better Planet 2020.

The forest products industry accounts for approximately four percent of the total U.S. manufacturing GDP, manufactures approximately $300 billion in products annually, and employs nearly 950,000 men and women. The industry meets a payroll of approximately $55 billion annually and is among the top 10 manufacturing sector employers in 45 states. Visit AF&PA online at: www.afandpa.org.
Is There a New Pulp Game in Town?

By Stuart Sharp, Senior Researcher, Fisher International

Pilot plant trials of a relatively new pulping process that uses wheat straw and other non-woody fibers have resulted in fibers as strong or stronger than traditional hardwood fibers and have an unequaled environmental story to tell prospective customers and consumers.

Are we on the verge of witnessing a technology disruptor in the field of pulping and pulp fibers? The talk of a disruptor in pulp is understandably a strong statement, but then again, most disruptors are not thought to be so at the time. Who knew Starbucks would change the way most of the world drinks coffee? Or that Netflix would change the way the United States watches TV? Or that e-commerce would change the way we all shop?

Using a definition from Software Advice, a technology disruptor is “any industry trend or new technology that is already changing or will fundamentally change how business success is achieved.” From that statement, there is a case to be made that potential disruption is being led by Sustainable Fiber Technologies (SFT).

Under the guidance of Mark Lewis, SFT has developed a new pulping process named The Phoenix Process™. This pulping process, specific for non-woody fibers, is highly confidential and shrouded in secrecy but amongst its benefits, the process is known to be non-pressurized and to use no sulfur.

SUSTAINABLE FIBER TECHNOLOGIES

Why consider this new pulping process from SFT a disruptor? From information publicly distributed by SFT, the resultant pulp from wheat straw and other non-woody fibers will be as strong or stronger than virgin bleached hardwood
pulp, competitively priced, and have an unequaled environmental story to tell prospective customers and consumers.

For the most part today in North America, wheat straw and other cereal straws are either plowed under by the farmer where possible, or literally burned in the fields. Both methods of disposal have issues associated with them. The burning of the wheat straw in the western United States causes air quality concerns and releases significant amounts of CO2. Obviously producing pulp from the wheat straw would remove that straw from the burning process.

In past attempts, pulping wheat straw produced a pulp that had low fiber length, poor strength characteristics, and extremely poor wire drainage, which yielded no product benefits. Up until now, in the United States at least, wheat straw, cereal grain straws, and other non-woody materials have not been considered as a viable hardwood fiber substitute in the papermaking process.

Wheat straw pulp and other non-woody pulps have been around for a long time. Pulping non-woody plants and generating this type of pulp is actually a common practice in some parts of the world today where wood is less plentiful than in North America. Looking to capitalize on non-woody pulp technology, just a couple of years ago Shandong-Tranlin was to invest $2 billion to build a facility in Chesterfield County, Virginia. This company, renamed Vastly later on, was to use corn stalks and wheat straw to manufacture pulp and produce paper as well as convert it into a finished product. This mill was also going to generate a secondary product that would be sold in the local area as a soil supplement and fertilizer. The project, however, never really got off the ground and has been canceled, but the model for this facility was the process now being used by Shandong-Tranlin in China today.

**PHOENIX PROCESS**

The Phoenix Process has been well studied and developed through basic research and by running a pilot facility generating pulp for machine trials using a wide range of non-woody feedstock, and the pulp has been used in paper machine trials making a wide variety of paper products. The new pulping process, per SFT, has been tested with wheat straw, alfalfa, other cereal grain straws, and various grass species. The test results of the specific pulp are documented and have been presented at different paper conferences.

One of the first questions papermakers and product technologists ask is about the fiber length of the pulp. **Figure 1** shows the weighted average fiber length of non-woody pulps from the Phoenix Process compared to an industry accepted average fiber length for selected pulps and, as reported by SFT, fiber lengths from the Phoenix Process are acceptable. Following fiber lengths, papermaker and product technologists want to understand the potential strength development of the fibers. **Figures 2 and 3** show the strength development for tensile and tear at different Canadian
Standard Freeness values as tested by SFT. The strength figures show that there is significant room for the product development personnel to optimize product strength with bulk trade-offs.

After testing the individual pulps and understanding the specific fiber characteristics, there is a need to understand the interaction of the fiber under study with other fibers in “real scenario” situations. This ensures that there are no surprises with respect to inter-fiber bonding. Figure 4 shows the paper test results of wheat straw pulp with a typical softwood and OCC fiber blends as would be found on most paper machines in a daily production mode. As expected, 100% softwood has the highest tear index, but the wheat straw blend has an acceptable tensile value.

In the field of board packaging, product development personnel need to understand the compression strength and the bending strength. Figures 5 and 6 show this for selected pulps. The SFT test results demonstrate that the wheat straw pulp produced via the Phoenix Process is superior to OCC and to hardwood pulps for these tests. This gives the product technologist room to develop superior performing cost-effective products for their customers. It also provides the opportunity to experiment with non-traditional fibers.

Some of the pilot plant testing results, as shared by SFT, show that the Phoenix Process will have a:

- Yield of 65%
- Co-product yield of 40% (the co-product is a concentrated mix of lignin and other carbohydrates)
- Chemical consumption of 25% compared to unbleached virgin hardwood
- Energy consumption of 15% compared to unbleached virgin hardwood

If the pilot plant test results scale up to commercial operations from the listed benefits of the pulping process, it is easy to understand the potential disruption capability. The low raw material costs, the low capital cost due to non-pressurized cooking, no recovery process, the lack of air quality concerns to the point where the state of Washington determined that this is a non-significant source of emissions, coupled with the relatively high yield, low chemical cost, and low energy costs, is projected to generate a market-ready pulp that could be environmentally preferred to typical wood based market pulp and attractively priced.

A paper company and a converter are concerned with more than just pulp costs. How does it run on the paper machine? What is the paper strength and performance level of the product? Again, using information shared by SFT, successful paper machine trials of this wheat straw pulp have been documented for producing:

- AFH bleached tissue and towel products at a 25% level of the furnish with no change in performance or appearance in the bleached finished product
• Linerboard replacing hardwood and OCC with improved performance test results
• 25 pt. coated board with no change in performance
• In the 1st and 2nd layers of board from a cylinder machine for folding boxboard
• Specialty papers with improved opacity and smoothness plus higher strength

Some general findings of the Phoenix Process pulp conclude:
• It has been tested and is qualified as FDA direct food contact compliant, and is on the BioPreferred products list
• It has replaced UBSWK, BEK, NBHK, and NBSK in successful machine trials
• When 25% wheat straw replaces 25% of softwood, there is a 10% tensile loss so there is some strength loss when the wheat straw replaces softwood
• It is stronger than bleached hardwood pulp
• It is stronger than OCC
• It can be bleached to the low 80s in brightness if needed

The Phoenix Process has been licensed by SFT to five different companies. One of the licensed companies, located in Florida, started up in 2017 using the Phoenix Process to cook sugarcane as the raw material feedstock.

Companies that have licensed the Phoenix Process will compete with traditional wood pulps. However, the basis of competition will not be based strictly on price; the main basis of competition will be that this fiber is a non-traditional alternative and is environmentally preferred.

According to SFT, the non-woody fiber produced via the Phoenix Process:
• Is just as strong or stronger than traditional hardwood fibers
• In product performance testing, the Phoenix Process pulp meets performance expectations
• Is tree-free
• Uses only 10-15% of the amount of water as traditional wood pulp mills (water is expected to become a valuable resource in the future as some locations are already water-short)
• Non-woody mills will have zero water discharge eliminating any water pollution issues
• Odor free pulping due to zero sulfur and non-pressurized process
• No air quality pollution issues, as there is no recovery boiler and there will be no chance of any TRS releases or particulate emissions
• The raw material feedstock is agricultural waste that is sometimes burned in the fields producing pollution issues
• Turns a waste product with no value into a value-added product
• Uses only 10-15% of the energy as a traditional wood pulp mill
• Uses about 25% of the chemical usage as a traditional wood pulp mill

SFT makes several claims as to the performance and acceptability of the wheat straw pulp, but it remains to be seen whether the commercial operations will produce a pulp as acceptable and as cost-effective as the pilot plant pulps. It also remains to be seen whether the paper machine trials will yield successful commercial paper machine runs on a consistent basis. Finally, the paper will need to be converted into acceptable finished products that customers will purchase from a cost and product performance standpoint.

COLUMBIA PULP COMPANY

The Columbia Pulp Company will be the first commercial operation to utilize the Phoenix Process using wheat straw as the raw material. The trial runs to date mentioned earlier were done in conjunction with Columbia Pulp using, for the most part, Columbia’s expected feedstock of 95% wheat straw and 5% alfalfa.

Columbia Pulp is well along in their construction and start-up schedule. There will be no recovery boiler associated with this facility, and the co-product is concentrated cooking liquor that will be removed from the pulp after cooking. The plan for Columbia Pulp is to sell the co-product at 40% solids. It can be used for dust abatement, soil supplements, and fertilizer to farmers in the local area. If Columbia Pulp decides in the future to add more value to the co-product, more processing, purification, and refining will be required but it may very well be worth it in the generation of specialized chemicals.

The lignin in the co-product will be a non-condensed form since there is no sulfur and that would make the lignin suitable for selling in a dry powder form that would be water soluble. The co-product will also be rich in C5 and C6 sugars. Many other high value products can be produced from the spent liquor. Shipping the wet-lap pulp should not be a deterrent for Columbia Pulp’s finished product as there are many paper mills within a 300-mile radius.
As Columbia Pulp is in a region where high amounts of wheat are grown, they expect to be able to obtain all their raw material feedstock within a 75-mile radius of the facility. According to the USDA, there is approximately 4.8 million tons of wheat straw available in the nine counties surrounding the Columbia Pulp mill.

The pulp will be unbleached, but it will have a high L value, meaning it will be more yellowish and have the appearance of a manila folder as opposed to a virgin unbleached hardwood that has the appearance of a typical brown grocery bag. As Columbia Pulp will be using wheat straw as their primary raw material, the wheat is only harvested once per year — a potential issue is the long-term storage of the bales of straw. Large warehouses have been built as part of the manufacturing process to store the straw to prevent its deterioration. The expectation is that the straw, which is basically dry when baled in the field, will be kept dry with no spoilage of the bales between the harvest cycles.

Columbia Pulp’s product is going to cater to the regional Pacific Northwest paper mills which, to Columbia Pulp, justifies the finished product being wet-lap pulp as opposed to fully dried bales of pulp. Figure 7 shows a 300-mile radius around Columbia Pulp’s location in Starbuck, WA. Columbia Pulp is expecting to ship their pulp within a 500-mile radius. However, for the purposes of this review, with a wet-lap pulp product, it seemed reasonable to consider a shipping limit of 300 miles.

With that in mind, this radius covers parts of Montana, most of Idaho, all of Washington, and the more populated areas of Oregon. It just so happens that this covers all the pulp and paper producing mills in the Pacific Northwest, but it does miss out on paper mills in British Columbia, Nevada, and California.

Figure 8 shows products and types of pulp consumed by paper mills within the 300-mile radius as listed in the FisherSolve Next™ database, and covers a range of products from SBS, kraft papers, newsprint, directory paper, copying paper, tissue and towel, containerboard, and boxboard. The various companies producing these paper grades consume approximately 7.3 MM AD tons of pulp. These figures and types of pulp consumed tend to confirm that the Pacific Northwest is somewhat void of an acceptable hardwood that other parts of the country enjoy.

Columbia Pulp’s initial focus will be on paper companies producing:

- Tissue, towel, and napkins
- Consumer packaging companies for blister packs or containers
- Food service companies for plates, cups, and other carry-out items
- P&W grades for products like copy papers
- Molded pulp product companies

The rationale is that there is high demand for a non-traditional fiber that is environmentally friendly and highly sustainable. A good overview of Columbia Pulp’s layout, process, and expectations was covered in a presentation to the Washington Economic Development Financial Authority.
in November of 2016. The information presented was a basic outline of the mill with a projected business plan.

Since then, however, there have been new learnings due to the pilot plant trials and the paper machines trials. The additional research and trials since 2016 have generated new information and data and these new finds have refined the process and the projections.

**POTENTIAL DISRUPTOR**

As proposed, mills such as Columbia Pulp pose a potential disruption to the marketplace. Compared to kraft virgin unbleached hardwood pulp:

- Capital costs to build a facility could be substantially lower per annual ton
- Chemical consumption is projected to be only 25% as much
- Energy consumption for the wet-lap pulp is projected to be 15% as much
- Columbia Pulp mill is targeted to be a zero effluent discharge mill
- The pulp can be substituted for hardwood
- The environmental and sustainable attributes previously mentioned are a powerful selling tool as it is utilizing a waste product to generate a valuable pulp
- Companies will be able to market their products as containing wheat straw pulp to consumers
- The feedstock is sustainable on an annual basis
- Air quality impact is minimal, and the facility is not considered a HAP discharger
- The second revenue stream of the co-product can be very valuable
- There is inherent simplicity to the operations as there is no pressurized vessels and no recovery process

While the potential benefits of Columbia Pulp have been demonstrated via research and pilot plant trials, the technology remains to be proven on a commercial scale. Storage of the once-per-year harvested wheat straw and the prevention of raw material deterioration is critical. Cost control of the process and the finished product is paramount. The finished product, namely the wet-lap pulp also must be proven to be consistent in quality and strength and perform to expectations on commercial paper machine trials over time. The converted product containing the wheat straw pulp must also be proven to meet customer performance expectations in a cost-effective manner.

Even though there is much to be demonstrated about Columbia Pulp, it will be important for paper companies and consumer packaging companies to keep this new pulping process and Columbia Pulp on their radar. Other questions to consider are: Is this technology disruptive or complementary? How does this fit with our industry’s current supply chain? What will be needed? What implications does this have to the global marketplace?
Coming to America

With a strong foothold in China, Nine Dragons Paper is looking to capture opportunities arising around the world.

By John O’Brien, Managing Editor

China’s largest producer of containerboard, Nine Dragons Paper (Holdings) Ltd. (“Nine Dragons”), established a firm presence in the U.S. during 2018 by acquiring three mills and creating a wholly owned subsidiary in North America, ND Paper LLC.

ND Paper LLC is headed up by Ken Liu, who on June 15, 2018 was appointed its Chief Executive Officer and also an executive director and Deputy Chairman of Nine Dragons. Since March of 2016, Liu served as vice chairman of America Chung Nam, one of the largest recovered paper suppliers to Nine Dragons. Liu, who will be 27 in 2019, graduated cum laude in Government from Harvard University.

U.S. MANUFACTURING OPERATIONS

Rumford and Biron Mills

On May 25, 2018, Nine Dragons announced that ND Paper entered into an agreement with Catalyst Paper to acquire Catalyst’s two U.S. pulp and paper mills located in Rumford, Maine and Biron, Wisconsin. The purchase price was $175 million.

The deal, which closed about a month later, included associated staff at Catalyst’s operations center in Dayton, Ohio.

According to Nine Dragons, the acquisition is “an upstream integration of the company’s current business and is an important step in executing its global fiber sourcing and customer strategy.”

Yan Cheung, Chairlady of Nine Dragons, said “We are very pleased to welcome the Rumford and Biron mills to the Nine Dragons family. We are committed to making these mills more competitive on a global scale, while staying true to our core values as an environmentally friendly and socially responsible enterprise with utmost respect for our employees. We look forward to working with the teams and communities in Maine and Wisconsin as we embark on this next phase of expansion together.”

The Rumford mill is a fully-integrated pulp and paper mill with three paper machines that have a combined annual capacity of approximately 550,000 tonnes. The production lines are capable of producing coated one-side, coated freesheet and coated groundwood grades. The mill also operates two kraft pulping lines that produce both hardwood...
and softwood grades and have a combined production capacity of approx. 520,000 tonnes per year. Some 400,000 tonnes are used by the mill for papermaking and the remaining 120,000 tonnes are sold to the market.

The Biron pulp and paper mill has two paper machines with a combined annual production capacity of 340,000 tonnes of coated groundwood grades.

Old Town Mill

On Oct. 10, ND Paper announced an agreement with OTM Holdings to acquire an idled bleached kraft pulp mill, plus approximately 100 acres of real property, located in Old Town, Maine for an undisclosed sum, payable in cash. The deal was finalized a few weeks later.

The Old Town Mill was idled at the end of December 2015 by then-owner Expera Specialty Solutions. In 2016, Expera sold the mill to MFG, a joint venture comprised of Gordon Brothers, Capital Recovery Group (CRG), Rabin Worldwide and PPL Group. MFG then sold the mill to OTM Holdings in February 2018.

Prior to its idling, the Old Town Mill produced approximately 155,000 air dried metric tonnes (admt) per year of bleached hardwood kraft pulp.

ND Paper says the mill will be reconfigured to operate at substantially lower manufacturing costs than when it was last operational. To achieve this, the following measures will be implemented:

- First, with abundant local availability of softwood, ND Paper intends to move the production mix from hardwood kraft to softwood kraft pulp.

- Second, by eliminating bleaching operations and focusing on unbleached softwood pulp, the Mill will increase its production rates and lower variable input costs.

- Finally, the mill will share several management and administrative functions with ND Paper’s Rumford Division, lowering overall overhead costs.

“We are absolutely thrilled to restart the Old Town Mill and return well over 100 high-paying jobs to Penobscot County,” said Ken Liu. “By leveraging our existing manufacturing platform in Maine, combined with the financial capacity to wisely invest in the mill’s production capabilities, we expect to create a very strong future for this facility.”

After a series of phased capital investments, ND Paper expects the Old Town Mill will restart in the first quarter of 2019 and ultimately produce 275,000 admt annually of unbleached kraft pulp.

Fairmont Recycled Pulp Mill

On Nov. 1, ND paper completed its acquisition of the Fairmont, West Virginia recycled pulp mill from Resolute Forest Products. The deal was first announced earlier that year in August.

Under the terms of the deal, ND Paper paid $62 million in cash.

“We are pleased to complete this acquisition and welcome the Fairmont employees to the ND Paper team,” Liu said.

“The portfolio of Fairmont pulp grades aligns exceptionally well with our long-term strategy of environmentally-sustainable papermaking.”

Located in the northern part of West Virginia, the Fairmont mill has an annual production capacity of approximately 218,000 metric tonnes, and is one of only three mills in the world that produces air-dried recycled pulp.
INVESTMENTS FOLLOW ACQUISITIONS

After completing the purchase of the pulp and paper mills in Rumford and Biron, ND Paper began a strategic review of investment options to “further enhance the long term sustainability of these facilities.” The review resulted in “a multi-faceted investment strategy that diversifies the U.S. mills’ product mix, increases their overall production capacity, and fundamentally improves their viability for generations to come,” ND Paper said.

In total, ND Paper is investing $300 million within two years to complete these projects and is working in collaboration with both the Maine Department of Economic Development and the Wisconsin Economic Development Corporation.

The Rumford Division will receive an injection of $111 million to finance two significant projects, which include:

- Construction of a greenfield recycled pulp facility. This pulp line will add approximately 1,200 air dried metric tonnes per day of manufacturing capacity to the site.
- Installation of a shoe press on the R15 paper machine, which increases the machine’s production capacity by approximately 20 percent.

At the Biron Division, ND Paper will invest $189 million towards several major projects, which include converting the B25 paper machine to containerboard products and construction of a two-line greenfield recycled pulp facility.

According to ND Paper, the investment in Rumford will sustain the jobs of the 650 employees who currently work at the mill, while the mill enhancements will add an additional 50 employees to the workforce over the next two years.

At the Biron Division, ND Paper will invest $189 million towards several major projects, which is welcome news for the 350 employees who currently work at the mill. The mill upgrades will also add 27 additional jobs.

Planned projects at Biron include:

- Conversion of the B25 paper machine to container board products.
- Construction of a two-line greenfield recycled pulp facility. These pulp lines will add approximately 1,900 air dried metric tonnes per day of manufacturing capacity to the site.
- Construction of a water treatment and fiber recovery plant, a package boiler to provide energy, storage facilities for raw materials and a finished goods warehouse.

Nine Dragons’ Chairlady, Yan Cheung, says her company “will adopt a more responsive and effective operating strategy to explore more upstream and downstream business opportunities globally in order to secure the necessary resources more effectively and increase synergies.”
“While strongly supporting our global fiber strategy, this suite of projects also dramatically improves the sustainability of these historic mills,” Liu said. “Not only are we developing a U.S.-based containerboard business, we’re also reinforcing our commitment to existing printing and writing and specialty customers with world-class, cost-competitive assets.”

NINE DRAGONS PAPER (HOLDINGS) LTD

Nine Dragons Paper Group was founded in 1995, and on March 3, 2006, Nine Dragons Paper (Holdings) Limited was listed on the Main Board of the Hong Kong stock Exchange. According to the company, it is “the world’s largest in environmentally friendly recovered paper based paper manufacturing in terms of production capacity.”

The company primarily produces a wide range of packaging paperboard products, including linerboard, high performance corrugating medium, and coated duplex board, as well as recycled printing and writing papers and specialty papers. Currently, Nine Dragons operates 9 mills and 39 machines with a total annual production capacity of over 14 million tonnes.

NEAR-TERM CAPACITY EXPANSION IN CHINA

Nine Dragons has six new containerboard machines due to start-up between the end of 2018 and the end of the third quarter of 2019. The new production lines will produce high-quality testliner and fluting grades out of 100 percent recycled raw materials. As designed, the new machines will have a combined production capacity of approximately 2.6 million tonnes per year. The containerboard machine projects are taking place at Nine Dragons’ production bases in China:

- Chongqing - 550,000 tpy with start-up in fourth quarter 2018.
- Shenyang, Hebei, and Quanzhou - combined 1.45 million tpy with successive start-ups in the second quarter of 2019.
- Dongguan - 600,000 tpy with start-up in the third quarter of 2019.

MORE ACQUISITIONS?

In September 2018, Yan Cheung delivered her Chairlady’s Annual Report. In closing she indicated Nine Dragons is keeping its eyes open for further acquisitions outside of China.

“In the future, with a strong foothold in China, we are empowered to capture opportunities arising in the world. On one hand, the Group will reinforce its established competitive advantages in production and sales capabilities and customer network in China. On the other hand, it will adopt a more responsive and effective operating strategy to explore more upstream and downstream business opportunities globally in order to secure the necessary resources more effectively and increase synergies, and thus differentiating itself in the industry for the best shareholders’ value in the long term.”

Currently, Nine Dragons operates nine mills — 8 in China and 1 in Vietnam — and 39 machines with a total annual production capacity of over 14 million tonnes. By the close of 2019, the company expects the start-up of six additional machines with a combined capacity of about 2.6 million tonnes of containerboard.
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Editor’s Note: This story was published online by Domtar.

Most New Year’s resolutions are meant to improve some aspect of life. Here at Domtar, we’re making resolutions to improve our manufacturing operations. Two of our pulp and paper mills are actively working to reduce wood fiber loss and increase efficiency in 2019.

During the last half of 2018, our Nekoosa and Ashdown mills began to identify the causes of, and take action to reduce, the amount of good wood fiber lost to the sewer each day instead of being used for making paper — which is almost literally the equivalent of money going down the drain.

“One of our biggest sources of waste is good wood fiber,” says Dave Ulrich, Nekoosa environmental manager. “In total, it costs us about $500 for every ton of fiber we lose.”

Beyond the immediate costs of lost production, wood fiber loss causes additional issues at a mill’s effluent treatment plant, where the mill has to spend even more time and money to process the additional fiber and produce wastewater treatment residual that is provided to local farmers as a soil amendment.

“Because the residual is now high in wood fiber, it’s not good for agricultural use, so we have to add additional nutrients to keep our farm customers happy,” Ulrich says.

To address these concerns, the mill has initiated a continuous improvement project to reduce the losses. The team’s first step is to find out exactly where along the paper-making process the fiber is being lost.

“We’re installing equipment at several locations in our sewer system to monitor the amount of wood fiber in the system and diagnose exactly where it’s coming from,” Ulrich says. “From there, we’ll be able to respond to the losses better, and develop corrective measures to prevent them from continuing to happen.”

COLLABORATION REDUCES WOOD FIBER LOSS

If there’s a silver lining in this situation for the Nekoosa team, it’s that they aren’t the first to face it. In fact, their colleagues at the Ashdown Mill are handling similar challenges with wood fiber loss, which present opportunities for collaboration and better practice sharing.

Steve Smith, Ashdown’s operations and customer service manager, says their team is making progress on alleviating wood fiber loss on the A1 fluff pulp machine. The amount of pitch, a tacky substance made of wood resins and chemical carryover, increases during the winter months due to higher sap levels in the wood. That means more sand gets into the A1 machine cleaner system, which can cause leaks and wood fiber loss.

Ashdown Mill reduced pitch buildup by installing an instrument that measures the volume of entrained air and helps control the amount of chemical cleaning required.

As a result, the mill has already seen a reduction in wood fiber loss. Smith says they expect the reductions will continue when they start up the thick-stock screens recently installed on the front of the A1 machine. These screens will filter out even more sand and help extend the life of fiber-cleaning components.

“We expect to see more improvements with the thick-stock screens, which is something we learned about from our colleagues at the Plymouth Mill, who installed these screens on their NC5 fluff pulp machine,” Smith says.

Charlie Floyd, Domtar’s vice president of manufacturing optimization, says these projects exemplify the spirit and intent of continuous improvement.

“It’s not feasible to eliminate wood fiber losses completely across our system, but we’ll always be able to do better,” he says. “The Ashdown and Nekoosa teams are doing a great job of identifying their gaps, benchmarking with their peers at other mills, sharing better practices and developing plans to address them.”

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