PROCESS AUTOMATION

Wet end measurement and predictive controls improve machine recovery time, ease sheet threading after web breaks.

CONTAINERBOARD

Demand is healthy, but producers’ control of inventories is essential moving forward.
YOUR CUSTOMER JUST TRIPLED HIS ORDER.
THE SHIPMENT HAS TO GO OUT TWO DAYS EARLIER.
YOU’RE DOWN AN OPERATOR.

BRING IT.

On a Hyster lift truck, your operators are empowered and their abilities are enhanced. So when the job ups the ante, no one blinks. That’s because whatever challenges the day brings, we have the trucks tough enough to handle them. They’re engineered for the impossible and tackle the unthinkable. So go ahead cruel, cruel world, bring it.
FEATURES

18  Wet End Controls Ease Sheet Threading, Reduce Break Recovery Times
By installing new wet end measurements and controls for its K1 paper machine, Domtar’s Kingsport mill achieved greater stability at the machine’s wet end during web breaks which resulted in faster sheet threading, reduced recovery time, and increased machine efficiency.

22  Getting It Right When Rolls Meet Fabric
West Coast mill combines roll and paper machine clothing technology to improve sheet dryness, machine efficiency and production output.

24  Performance Appraisal: Useful Tool or Waste of Time?
An employee performance appraisal system can reap benefits for both the company and its employees. But many times the system is viewed as too cumbersome and time-consuming, and never gets off the ground.

COLUMNS

14  Market Grade: Containerboard
Despite continued weakness in key sectors of the economy, containerboard markets staged a remarkable recovery during 2010. With markets stabilizing during the second half of 2010, the challenge will be to sustain these gains in 2011 — supply and exports remain the key.

16  Heads-Up: Energy Subsidies Hurting Papermakers
A little publicized strike in small British wood products mills may be the start of a major effort by the forest industry, especially in the northern hemisphere, to repair some of the damage caused by subsidies given to power generators.

OF INTEREST

30  Study Predicts Emerging Markets to Lead Specialty Papers Growth to 2015
Specialty papers will experience the strongest growth in the emerging markets of India, China, Brazil, Turkey and Poland over the next five years, and India is predicted to lead the field with a CAGR of 5.5% from 2010-2015.

DEPARTMENTS

4  Editor’s Note
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SERVICES

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As we were getting ready to put this issue of PaperAge to ink, news of RockTenn buying Smurfit-Stone Container came across the business wire, and while I don’t normally use this space to present industry news, a deal of this magnitude — $3.5 billion — couldn’t be left to report in our next issue.

In a cash/stock deal, for each share of Smurfit-Stone common stock, Smurfit-Stone stockholders will be entitled to receive 0.30605 shares of RockTenn common stock and $17.50 in cash, representing 50% cash and 50% stock. The aggregate consideration is $35 per Smurfit-Stone common share. The consideration represents a 27% premium to Smurfit-Stone’s closing stock price on January 21, 2011.

When finalized, Smurfit-Stone will become a wholly owned subsidiary of RockTenn. Ownership of the new company will see RockTenn shareholders at 56% and Smurfit-Stone shareholders at 44%.

The new company will have 45 paper machines producing containerboard and paperboard in 25 mills.

So why did Jim Rubright and his team make the play for Smurfit-Stone? For one thing, “North American containerboard has become a very, very good business,” Rubright said in his conference call on Jan 24. “...we’re not fixers. We really want to buy good assets ...” He noted that Smurfit-Stone has invested $550 million in capital in its corrugated box plant system since 2007.

On the mill side, Rubright noted that although Smurfit-Stone has done a good job maintaining its mills over the past three years, it hasn’t been in the position to optimize mill systems through capital investment and there remains a lot of opportunity to remove cost from Smurfit’s mill system.

However, Rubright emphasized that RockTenn doesn’t intend to go out and spend massive amounts of capital but instead, over time, look at opportunities to make incremental capital expenditures and ultimately lower the cost curve of those mills.

Another attractive aspect of the acquisition involved reducing RockTenn’s exposure to the recycled market.

“The fact is, United States virgin containerboard is a highly strategic global asset,” Rubright said. “The world has created enormous amounts of recycled capacity over the last ten years, particularly in China, and that recycled fiber stream into their mills has to be supplemented with virgin containerboard.”

Importantly, the acquisition of Smurfit-Stone will reduce RockTenn’s fiber sourcing from 82% recycled in 2010 to 45% recycled after the transaction.

Ultimately, Rubright contends that implementing RockTenn’s customer-focused approach will prove the key to future operational gains.

“We’re very focused on customer satisfaction and we’ve got data that suggests we’ve got extremely high customer satisfaction,” Rubright said. “Our mantra is ‘We want to be the one the customer chooses at any given pricing point on the pricing scale.’ We don’t want to be the one to lower the price to get the business.”

On the mill side of the deal the pluses appear to outweigh the minuses for both RockTenn and Smurfit-Stone, and the U.S. containerboard industry as a whole.

However, box plant capacity in the U.S., or I should say overcapacity, has been a thorn in the industry’s side and an area to be addressed. Smurfit-Stone comes with at least 80 or so box plants (my estimate from counting them on a map) even after shutting down 53 plants over the past few years in a cost cutting program.

There’s a ways to go before this deal shakes itself out, but I like the odds with Jim Rubright and his team calling the shots.
Why visionary papermakers choose Thiele Kaolin

How would you describe a privately held company with global reach and exceptional clay reserves? The model of reliability, right? Right. And that’s why visionary papermakers know they can depend on Thiele Kaolin for generations to come.

Tailoring kaolin to your needs.
Contact us today for specifics.
Rayonier announced that its board of directors recently authorized management to proceed with the final analysis on the potential conversion of the existing fluff pulp fiber line at its Jesup, Georgia mill to produce high purity cellulose specialties pulps. The analysis will include market assessment, detailed design and engineering and cost estimates.

The company expects the analysis to be completed by mid-year 2011, when the board is expected to make a final decision on the project. If approved, the converted line would be scheduled to begin production in 2013.

Rayonier anticipates that markets will continue to grow, resulting in ongoing strong, world-wide demand. The company’s current cellulose specialties capacity of 485,000 metric tons is sold out and the addition of the new line would raise the total cellulose specialties capacity to 675,000 metric tons.

“We are meeting with our current and potential customers, and expect to receive commitments for most of this additional volume,” said Lee Thomas, Rayonier’s chairman and chief executive officer.

PaperWorks Industries said that Manchester Industries has been acquired by Sun Capital Partners, and will ultimately be merged into PaperWorks, who itself is an affiliate of Sun Capital Partners.

With five facilities in Michigan, Indiana, Pennsylvania, Virginia and Texas, Manchester Industries provides large-scale sheeting, rewinding and cutting operations to commercial printers and packaging companies across the continent. The company will become part of the PaperWorks Paperboard Group.

“Manchester Industries has carved out its place as a world-class converter,” said Thomas J. Garland, CEO of PaperWorks. “These five plants will be a significant asset for PaperWorks as we move forward, and we intend to spare no effort to ensure that Manchester’s reputation for service and reliability is honored as they become part of the PaperWorks family.

“This converting capacity will be a great asset to our existing core service of paperboard manufacturing,” Garland said. “With Manchester offering over a dozen paperboard grades and a range of services that start at custom sheeting and cutting and extend to almost every dimension of conversion, this adds an entire range of expertise to our Paperboard Group.”

Tembec will invest $25.7 million towards environmental and energy upgrades at its high-yield pulp mill located in Matane, Quebec.

According to Tembec, funding will come mainly from the Federal Government and the Province of Quebec, with $18.9 million related to black liquor credits earned by the company under the Canadian government’s Pulp and Paper Green Transformation Program and $6.3 million from the Agence de l’efficacité energetique’s Heavy Oil Consumption Reduction Program.

The pulp mill project has two main components. The first, with an estimated cost of $23.9 million, is a new anaerobic treatment facility to treat effluent and collect the methane gas produced in the treatment process, allowing it to be used as a biofuel for drying the pulp produced at the site.

The second component, at an estimated cost of $1.8 million, involves the installation of an electric boiler that will replace the current heavy oil fuelled boiler.

The combined effect of the two components will result in the elimination of all heavy oils and the vast majority of the light oils currently used as a fuel source for the generation of the mill’s various process steam and drying requirements, Tembec said.

They will also result in a significant improvement in the mill’s cost structure, with EBITDA projected to increase by $6 million on an annual basis, beginning when the project is completed in mid-2012, the company said.
Where do you see your energy prices in five years?

For price stability, the answer is Chesapeake.

Chesapeake Energy Corporation stands ready today to deliver affordable, dependable, clean, American natural gas. It is simply the right fuel for the right time—provided by the nation’s second-largest natural gas producer and the most active driller of new natural gas wells.

In addition, we hold the largest position in America’s Big 6 shale plays—the Barnett, Bossier, Eagle Ford, Fayetteville, Haynesville and Marcellus shales. These plays have revolutionized the U.S. market for natural gas. By utilizing new, cutting-edge technologies in deep shale formations never before developed, Chesapeake has led the way to a new century of natural gas abundance.

Chesapeake’s marketing affiliate, Chesapeake Energy Marketing, Inc. (CEMI), stands ready to meet your needs on either a short-term or long-term basis, or anything in between. We can offer fixed prices, floating prices, range-bound prices—we can be as flexible as you can be imaginative.

Call or email today to discuss the New Age of Natural Gas—it will be great for your business and great for America!

For more information, visit chk.com/cemi or contact:

**RICHARD EASTERY**
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NORTH AMERICA

Creditors Decline to Support Fraser Papers’ Restructuring Plan

Following a meeting held in Toronto in early January, Fraser Papers Inc. said that despite the support of PricewaterhouseCoopers, the court-appointed Monitor, it did not receive sufficient support from creditors for its restructuring plan.

As a result, Fraser will not be implementing the consolidated plan of compromise or arrangement filed with the Ontario Court overseeing its restructuring proceedings under the Companies’ Creditors Arrangement Act (CCAA).

Under criteria set out in the CCAA, the plan required approval of the majority of creditors in number and 66 2/3% by dollar value of claims filed by creditors. The company reported that 98.4% of creditors voted in favor of the plan. However only 41.7% of claims based on dollar value supported the plan, which is below the required level for plan approval.

During the meeting, the Monitor indicated that implementation of the plan was expected to result in estimated recoveries of approximately 19%-20%, on an undiscounted basis.

“We worked with our stakeholders in an effort to solicit support for the plan, which provides better value to creditors than any of the alternatives available to the company,” said Glen McMillan, Chief Restructuring Officer of Fraser Papers. “Unfortunately, there are a small number of large creditors who have decided to vote against the plan to the detriment of the majority of creditors who would have preferred to see this plan move forward.”

EUROPE

UPM to Acquire Myllykoski and Rhein Papier

UPM-Kymmene in late-December entered into an agreement to acquire Myllykoski Corp. and Rhein Papier GmbH. The approximate enterprise value of the businesses acquired is EUR 900 million.

Myllykoski and Rhein Papier consist of seven publication paper mills in Germany, Finland and the United States. The total annual paper production capacity is 2.8 million tons. In addition, Myllykoski owns 0.8% of the Finnish energy company Pohjolan Voima Oy, with an estimated value of EUR 70 million.

UPM said the acquisition will be financed through a directed share issue of 5 million UPM shares, with current market value of approximately EUR 60 million, and long-term debt arrangements amounting to EUR 800 million.

The deal is subject to customary closing conditions, including, among others, the approval of the regulatory authorities.

UPM said that Myllykoski will continue to operate independently until the transaction closes, which is expected to happen during the second quarter of 2011.

According to UPM, the acquisition is estimated to create annual synergy benefits exceeding EUR 100 million mainly from 2012 onwards.

“Combining forces and rationalizing production is necessary for the future of the whole industry in Europe,” said UPM’s president and CEO Jussi Pesonen. “This means both closing unprofitable production capacity and investments in order to increase cost efficiency.

“Myllykoski is without doubt one of the leading publication paper suppliers. The company has broad-mindedly taken advantage of new business concepts and technologies. This attitude and know-how fit very well with UPM.”

POLAND

Stora Enso to Install New Containerboard Machine in Poland

Stora Enso said that it will invest EUR 285 million to install a new containerboard machine at its Ostroleka Mill in Poland.

The new machine will have a production capacity of 455,000 tons per year of lightweight containerboard and use recycled fiber as a raw material.

Stora Enso expects the project to be completed in the first quarter of 2013.

In conjunction with the start-up of the new machine, Stora Enso plans to shut down PM 2, an 85,000 tpy containerboard machine at Ostroleka Mill.

“Stora Enso continues to focus on our Industrial Packaging business. The growth in our customer segments in Central Europe is stimulating our investments in new production capacity in the region,” said Mats Nordlander, executive vice president, Packaging Business Area. “This investment will provide a strong base for productivity and profitability improvements in containerboard and kraft paper.”

“This investment is a natural part of our strategy to focus on profitable containerboard and kraft paper business,” said Mats Helander, president, Packaging Business Area. “We also want to support the local market by utilizing available resources.”

Currently, the annual production capacity of Ostroleka Mill is 270,000 tons of containerboard and kraft paper.

“The markets for transport packaging in Central and Eastern Europe have grown and will continue to grow by over 5% per year,” said Mats Nordlander, executive vice president, Packaging Business Area. “This investment will support our growth and increase Stora Enso’s self-sufficiency in containerboards from 35% to 60% and it will also clearly improve the cost competitiveness of Stora Enso’s Industrial Packaging segment.”
advanced base fabric technology

+ enhanced seam reinforcement concept

= uncompromising performance

Our customers have spoken.
And we listened.

ProSeam
Premium Technology for Premium Papermaking

Xerium.com

Customer Focused. Technology Driven.
SOUTH AMERICA

Stora Enso, Arauco to Build $1.9 Billion Pulp Mill in Uruguay

Stora Enso and Arauco officially announced that its joint-venture company Montes del Plata will build a new 1.3 million tons per year pulp mill at Punta Pereira, in the department of Colonia, Uruguay.

The total investment is estimated to be approximately USD 1.9 billion (EUR 1.4 billion), Stora Enso said.

According to Stora Enso, each of the joint-venture shareholders has a 50% stake in the mill’s equity and will be entitled to half of its output. The project will be financed about 40% through equity and about 60% through loans raised by Montes del Plata.

Stora Enso is consolidating its 50% share with the equity method.

The project includes the pulp mill, a deepwater port, and a power-generating unit based on renewable resources.

The new mill is expected to be operational by the end of the first quarter of 2013.

The eucalyptus pulpwood will be sourced essentially from Montes del Plata’s own plantations. The company currently owns 254,000 hectares of forestland in Uruguay, of which 138,000 hectares are planted, about 100,000 hectares are protected and 16,000 hectares are suitable for planting.

“Low cost plantation-based pulp is one of the cornerstones of our strategy,” said Jouko Karvinen, Stora Enso’s CEO.

“The Uruguayan government authorities both nationally and locally have been a welcoming supporter to Montes del Plata. We look forward to implementing the project in close co-operation with them,” Karvinen said.

Erwin Kaufmann, CEO of Montes del Plata, added, “We are extremely happy to see this investment becoming a reality.”

BIOFUEL RESEARCH

IPST Researchers to Develop Process for Integration of Southern Softwoods into Pulp, Paper, Bioenergy and Biofuels

IPST (Institute of Paper Science and Technology) said that Professor Art Ragauskas and a team, with funding and support from the U.S. Department of Energy, will develop the necessary laboratory data to identify how new biofuel operations could be integrated into a modern kraft biorefinery operation, generating both 2nd- and 3rd-generation biofuels and value-added green materials.

In Georgia and the U.S. Southeast, the forest products industry is poised to take a lead role in the conversion of pine to value-added green materials, fuels and energy. The challenge for the near future is to accelerate technological developments to facilitate the conversion of southern softwoods into pulp, paper, bioenergy and biofuels. These technologies would take advantage of the existing capital investments the forest products industry has made in the Southeast for wood collection, fractionation, pulping and processing.

A key challenge for the implementation of these technologies is to demonstrate that these benefits can be achieved with ongoing forest products unit operations and will generate current and future product streams, IPST said.

According to IPST, Dr. Ragauskas’ project seeks to develop an integrated southern pine wood to biofuels/biomaterials processing facility to test advanced integrated wood processing technologies at the laboratory scale, including generation of the bioethanol from pine residues and hemicelluloses extracted from pine woodchips; conversion of modified woodchips to enhanced linerboard and bleach grade pulps; and efficient conversion of pine residues, bark and kraft cooking liquor into a useful pyrolysis oil.

For further information, please visit IPST’s web site: www.ipst.gatech.edu.

HUNGARY

Delfortegroup to Increase Release Liner Capacity in Hungary

Austrian based specialty paper manufacturer, Delfortgroup, is planning to expand production capacity at its Dunafin release liner mill in Hungary in order to respond to growing consumer demand.

According to the company, the investment will result in 30,000 tons of additional capacity in 2011.

The former Mondi mill Dunafin runs one paper machine and employs some 150 people.
**ECO-FRIENDLY**

**US Demand for Green Packaging to Reach $41.7 Billion in 2014**

Demand for green packaging — comprised of recycled content, reusable and degradable packaging — is projected to increase 3.9 percent yearly to $41.7 billion in 2014, consuming 58 billion pounds of material, says The Freedonia Group, a market research firm.

According to Freedonia’s new study, *Green Packaging*, growth will outpace overall packaging demand but will remain relatively moderate due to the maturity of many products and the large existing presence of recycled content packaging in paperboard and metal packaging. The fastest gains are anticipated for degradable packaging and plastic recycled content packaging.

Degradable packaging is forecast to expand 13.6 percent annually to $685 million in 2014, driven by price competitiveness with conventional resins, capacity expansions and rising demand for environmentally friendly manufactured goods. Advances will also be based on enhanced performance properties resulting from blending and other modifications, initiatives by brand owners to improve the environmental footprint of their packaging, and legislative bans on polystyrene foam foodservice disposables in some parts of the country. Preventing faster advances will be the maturity of some product types (e.g., ring carriers, loose-fill), the lack of consumer composting networks in most areas of the US, and competition from emerging green packaging materials such as non-biodegradable bioplastics.

Recycled content packaging constitutes the vast majority of green packaging and demand is forecast to increase 3.6 percent annually to $37.3 billion in 2014. Gains will be supported by increased collection activity and processing capacity, coupled with greater use of recycled content packaging by firms seeking to demonstrate environmental responsibility and differentiate their products. Robust growth is anticipated for plastic recycled content packaging based on more concerted collection efforts and expanded processing capacity, especially for food-contact approved resin grades.

Reusable packaging demand is expected to post above-average growth through 2014, improving from the 2004-2009 pace based on a rebound in manufacturing activity from a weak base in 2009. Demand for reusable plastic containers and intermediate bulk containers will benefit from an upswing in manufacturing activity and inroads into lower capacity packaging types such as drums, pails and shipping sacks.

**INDIA**

**Tamil Nadu Newsprint Ready to Commission New Paper Machine**

India’s Tamil Nadu Newsprint and Papers’ production capacity is ready to increase by about 60 percent in February with the commissioning of its third paper machine.

The new machine, PM 3, will add 155,000 tons per year of printing and writing paper capacity to the mill’s present capacity of 245,000 tpy.

It was reported that production trials started the last week in December.

PM 3 was supplied by Voith.

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**FOEX: PIX BENCHMARK INDEXES**

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<th>DATE</th>
<th>NBSK in the U.S. (U.S. dollars)</th>
<th>Std. Newsprint 30 lb. in the U.S. (U.S. dollars)</th>
<th>LWC 60 gr. offset reels EUR</th>
<th>Coated WF 100 gr. reels EUR</th>
<th>A4 B-Copy 80 gr. sheets EUR</th>
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NBSK: long-fiber northern bleached softwood kraft pulp.

LWC: Light-weight coated magazine paper (60-gram offset reels).

Coated WF: Coated woodfree paper (100-gram reels).

A4 B-copy paper: A4-sized sheeted standard-grade copy paper (80 grams per sheet).

ABOUT PIX PRICES: FOEX (www.foex.fi) PIX indexes are benchmark price indexes for various qualities of pulp and paper. They measure weekly the market price of the pulp or paper in question. FOEX receives real trade information from parties in the pulp and paper industry, from buyers, sellers as well as from agents. The highest 10% and the lowest 10% of the prices are eliminated, and the PIX value is calculated as an average price from the remaining prices.

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News stories and photos should be submitted to John O’Brien by email: jobrien@paperage.com
people

PAPER

- Boise Inc. named Samuel K. Cotterell as senior vice president and chief financial officer, effective January 1. Cotterell replaced Robert M. McNutt, who resigned his position on December 31, 2010 to pursue another employment opportunity. Cotterell has served as Boise’s vice president and controller since February 2008. In a related move, Boise has elected Bernadette Madarieta as vice president and controller of Boise Inc., effective February 1. Madarieta became Boise Cascade, LLC’s vice president and controller in February 2008.

- Finch Paper has appointed Dr. Peter J. Veverka to its product development division as Senior Product Development Engineer. Dr. Veverka comes to Finch after a 15-year tenure with International Paper, where he most recently served as Pulp Mill Technical Leader.

- Greif, Inc. has announced the appointment of Robert M. McNutt, 50, as senior vice president and chief financial officer. McNutt replaces Donald S. Huml, who will fully retire after assisting through a brief transition period. McNutt comes to Greif from Boise Inc.

- Ilim Group (Russia) has appointed Sergey Pondar to the First Level Team position of Managing Director Technology and Manufacturing Services. Since 2009, Pondar has served as Executive Director of ZAO (joint stock corporation) International Paper, where he worked for IP in the US on projects designed to develop manufacturing excellence tools and implement best manufacturing practices.

- Packaging Corp. of America announced that Charles J. (Jack) Carter has been named vice president, Containerboard with responsibility for the company’s four containerboard mills and support operations. Carter joined PCA in March 2010 as Director, Papermaking Technology.

- SCA has appointed Christoph Michalski as president of SCA Global Hygiene Category. Michalski currently serves as president of SCA Asia Pacific. In related moves, Ulf Soderstrom, currently senior vice president, Business Development and Strategy, has been named president of SCA Asia Pacific, and Robert Sjostrom, who holds the position of president of SCA Global Hygiene Category, has been appointed senior vice president, Business Development and Strategy. All appointments are effective March 31.

- Sonoco recently announced that M. Jack Sanders has been named president and chief operating officer. A 1976 graduate of Louisiana State University with a B.S. in finance, Sanders joined Sonoco in 1987 as national sales and marketing manager, Wire and Cable Reels. Sanders served as executive vice president, Global Consumer, since January 2010.

SUPPLIERS

- Metso announced that Pasi Laine has been named president, Paper and Fiber Technology, and Metso’s executive vice president and deputy to the CEO, effective March 1. Laine is currently president, Energy and Environmental Technology. He will replace Bertel Langenskiold, who will step down from Metso’s executive team as of March 1.

RECOGNITION

- Dianne Vanover, marketing coordinator of Thoro Packaging in Corona, California, recently was honored by the Paperboard Packaging Council (PPC) for her idea and her effort in instituting National Paperboard Packaging Week. In 2007, Vanover conceived of the idea to create a nationally recognized week for paperboard packaging. This year, National Paperboard Packaging Week will take place from April 18-22 (see PPC’s web site for more information: www.ppcnet.org).
FEBRUARY 1-3, 2011
PaperWeek Canada
PAPTAC
Fairmont Queen Elizabeth Hotel
Montreal, Quebec, Canada
Contact: Carmie Lato
Phone: (514) 392-6969
email: clato@paptac.ca
Web Site: www.paptac.ca

FEBRUARY 17-18, 2011
ASPI Annual Spring Meeting
Association of Suppliers to the Paper Industry
Ritz Carlton Palm Beach
Palm Beach, Florida, United States
Contact: Colleen Walker
Phone: (770) 209-7349
email: cwalker@aspinet.org
Web Site: www.aspinet.org

MARCH 27-29, 2011
Paper2011
AF&PA and NPTA
Chicago, Illinois, United States
Contact: Chuck Fuqua (AF&PA)
Phone: (202) 463-2466
email: chuck_fuqua@afandpa.org
Web Site: www.paper2011.com
Contact: Kevin Gammonley (NPTA)
Phone: (800) 355-NPTA
email: kgammonley@goNPTA.com

APRIL 4-6, 2011
BLRBAC Spring Meeting
Black Liquor Recovery Boiler Advisory Committee
Crowne Plaza Hotel – Atlanta Airport
Atlanta, Georgia, United States
Contact: Barbara Holich
Phone: (630) 512-0144
email: fhholich@adelphia.com
Web Site: www.blrbac.org

MAY 8-11, 2011
International Pulp Week
Market Pulp Association
Vancouver, British Columbia, Canada
Phone: (514) 861-8828
Web site: www.internationalpulpweek.com

MAY 11, 2011
Global Forest & Paper Industry Conference
PriceWaterhouseCoopers
Westin Bayshore Resort & Marina
Vancouver, British Columbia, Canada
Web Site: www.pwc.com

MAY 17-19, 2011
SPCI (exhibition show)
Swedish Association of Pulp and Paper Engineers (SPCI)
Stockholm International Fairs
Stockholm, Sweden
Web Site: www.spcievent.com

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WHERE THE INDUSTRY MEETS
MARCH 27-29 CHICAGO

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PaperAge JANUARY/FEBRUARY 2011 13
A major contributor to improved box demand was a rebound in consumer spending, which finished the year on a positive note. Total consumer spending over the 50-day holiday shopping period rose 5.5% compared to the same of 2009, which was the biggest gain since a 4.9% increase in 2007. Real GDP, the broadest measure of economic activity, grew 2.6% in the third quarter.

Improved Shipments, Production

These factors combined to produce the first rise in US corrugated box shipments since 2006. Shipments for the year appear likely to be up around 3.4% vs. 2009 which would be the biggest rise since the early 1990s. While this would only make up part of the 13% cumulative decline in shipments over the 2007-2009 period it’s nevertheless a notable improvement. The slump in box demand began with a gradual trend down in shipments in the second half of 2007, followed by a plummet in demand in mid-2008 as shipments fell by by10-15% vs. the prior year level from third quarter 2008 to mid-2009.

Corrugated box shipments held up well into late-2010 although the rise in demand began to taper off late in the year. Shipments were 28.6 billion ft² (bsf) in November, up 5.4% from a year ago on an actual basis, but when compared on an average week basis, they only registered just a 0.1% increase according to the Fibre Box Association.

Through 11 months box shipments are 3.4% higher than the prior year at 327.7 bsf on actual and 3.0% on an average-
market grade

week basis, adjusted for an extra shipping day this year.

On an annualized basis, shipments for the year are estimated at 357 bsf. To put this volume in perspective, 2006 shipments were 395 bsf and then as the downturn intensified they fell steadily to 374 bsf in 2007, before bottoming out at 344 bsf in 2009.

Total containerboard production has also recovered and is up 7.8% at 30.98 million short tons through November, according to AF&PA. Linerboard production over the same period is up 8.6%. Operating rates recovered as well, running at 95.8% year to date. Production for export, at 2.96 million tons, is up 5.4% through November compared to the same period in 2009. Production levels have eased however, as containerboard production in November was 2.76 million tons, up 1.2% over the prior year level.

Pricing Power
Driven by these favorable conditions, mills finally regained pricing power following a steady fall in prices that started in late 2008 when prices fell to the mid-$500 level where they remained into mid-2009. Prices bottomed out in late 2009; however, as conditions improved mills for the first time in four quarters were able to implement a $50/ton price increase in January 2010 and quickly followed with a $60/ton rise in April that moved prices up to about $640/ton. Producers attempted an additional increase, but as the market tightness eased an increase announced in the fall for $60/ton failed.

The recovery in prices, at least to the degree it occurred, was somewhat surprising. Demand was expected to improve in 2010 in large part because it simply couldn’t get any worse, but the initial gains were stronger than expected given the mixed economic news. Also, it wasn’t certain that exports, which had been a key in sustaining the market during 2010, would be sufficient to propel the level of improvement that occurred. However, exports continued to divert volume from the domestic market as they continued to grow. Export liner production for the year is up 5.4% through November. And even more importantly, producers acted aggressively to closely match supply to demand.

Looking Ahead
So now the question is: Will 2011 be more of the same or will conditions weaken such that producers give back their hard won gains? Certainly inventories will bear watching if mills are to avoid a major relapse on pricing. At 2.27 million tons, or 3.8 weeks of supply, US containerboard inventories in November were in the range that normally indicates market stability. However, following very tight levels last spring, inventories have risen for the last 6 months. It is important that either domestic or export demand growth, or possibly downtime, occur in order for inventories to remain in balance near-term.

Export demand remains a key factor. Latin America accounts for the largest portion of US kraftliner exports and based on the outlook in this region it appears shipments to the area will remain steady. The biggest questions are Europe, Asia and the Middle East, which are far more volatile. Given the recent weakness in export pricing, it appears that Europe and Asia are pulling back some on tonnage. If demand by these regions slips significantly, whether driven by increased local supplies or buyers holding back in anticipation of better pricing ahead, it will be tough for the domestic market to make up the difference even if box demand continues to grow.

The overall outlook is cautiously optimistic if the prevailing winds continue to blow in the same direction as they did for much of 2010, i.e. if export demand remains solid and producers continue to closely monitor supply. Many market observers are predicting that containerboard markets will see additional improvements this year. The major downside risk is that it will be hard to once again duplicate all the good things — rising exports, expanding demand, big increases in fiber costs — that combined to produce such a strong recovery in 2010.

Harold Cody is a contributing writer for PaperAge. He can be reached by email at: HCody@paperage.com.
On 29 October 2010, a Europe-wide day of action was held. It was led by manufacturers of wood products (from virgin feedstock) who were protesting against subsidies given to energy companies who are burning virgin wood as biofuel. In the UK, strikes took place at three wood-panel mills.

Readers of this magazine will be familiar with the general issues in play here. In short, the price of virgin wood is now affected by its use as a fuel. Similarly, recovered fiber is another fuel source for biomass boilers. Everyone in this industry knows that burning high quality fiber for energy production doesn’t make sense.

The climate change debate has now become political, legal and environmental spaghetti. Somewhere in that mess is a great idea that went wrong. European regulators, at first, believed that low-grade fibers would make an ideal fuel. But as regulations were put together in various committees over five years, the classification of suitable fiber, somehow, shifted to high-grade virgin wood. Then, subsidies followed.

The entire industry knows that once fiber has been through a paper machine it becomes low-grade, but it can still be burned for heat and power. The challenge is to convince regulators of this and persuade them to introduce a feedstock classification so that only low-grade fiber should be subsidized. It’s common sense to me, but the regulators, climate change disciples, energy companies and forest owners see it differently. Wood-for-energy is politically correct, environmentally sound (granted, wood is sustainable), and the energy industry has deep pockets and other resources it can deploy. But one of the world’s most sustainable industries — ours — is being ignored and penalized despite its admirable record in sustainable forestry, recycling, water treatment and CHP (combined heat and power).

**Criticism**

The UK producers of panel products and the federation had a lot to say. “We are not anti-biomass. However, the current subsidy regime means wood panel manufacturers are seeing wood prices being driven up and shortages in supply of its primary raw material,” said Karl Morris, Managing Director of Norbord Europe. Gavin Adkins, Director of Kronospan, noted, “Paying subsidies to burn virgin timber rather than manufacture with it, damages wealth creation, the economy and the environment. It’s pushing up prices, creating shortages in raw material and, inevitably, threatens millions of jobs.”

Daven Chamberlain, Editor of Paper Technology (journal of the Paper Industry Technical Association, PITA) wrote, “The subsidies given to power producers are starting to skew the price of raw materials in a way none of these industries has experienced before.”

**Low and High Grade**

Energy Subsidies Hurting Papermakers

A little publicized strike in small British wood products mills may be the start of a major effort by the forest industry, especially in the northern hemisphere, to repair some of the damage caused by subsidies given to power generators.

By David Price

“Avoid excessive subsidies, tax breaks and supply guarantees that incentivize the use of biomass solely for incineration, and focus instead on energy efficiency criteria and value creation with adequate sustainability.” – CEPI

**What’s To Be Done?**

The UK’s Confederation of Paper Industries (CPI) lobbies vigorously with the British government, the European Commission and its Parliament. In its presentation to all three last summer, CPI expressed concern about, “...the possible diversion of biomass to energy provision and the possible effects on security of supply to the paper industry.”

But CPI is also worried by “...the ravenous appetite for recovered paper, particularly in China.” The point here is that wastepaper, which could be used as a valuable biomass energy source for UK mills, is being exported in massive amounts to China.
At a regional level, the industry is represented by CEPI (Confederation of European Paper Industries). In June 2009, CEPI produced *A Manifesto for Competitiveness and Employment*. It prefaced its appeal to the European Commission as follows: “The negative impacts of the economic crisis are being felt across the European pulp and paper industry. Demand is in sharp decline, investment shrinking and unemployment rocketing. Year on year production of most paper grades is down by anything between 16% and 25%. The industry is struggling to hold employment steady at 260,000 and its EUR 5 billion a year investment budget is under great pressure.”

The Manifesto added that, “…The new business climate demands that future development of our industry reflects society’s insistence on responsible energy and resource management with a clear demonstration of sustainability.”

**Who’s Listening?**

The EU has a long list of critical materials which are bundled into the EU Raw Material Initiative. But this list does not include our industry’s strategic and sustainable raw materials — wood and recovered paper. The EU sees recovered paper as wastepaper, which can be co-mixed with other stuff and not separated. This is the view that one truck fits all!

CEPI states, “Fair competition and equal access to wood, for both pulp and paper and bio-energy producers, are a require-
ment so that our industry maintains its contribution to the EU’s renewable energy targets.”

What European papermakers are pushing for is EU understanding and support for very sensible initiatives which include:

- More sustainable production of biomass through better mobilization of existing forest resources, and a more rapid use of policies to encourage the forestation of idle land.
- Avoid excessive subsidies, tax breaks and supply guarantees that incentivize the use of biomass solely for incineration, and focus instead on energy efficiency criteria and value creation with adequate sustainability.

Our industry knows all about renewable and sustainable energy sources and in many ways is a pioneer in self-sufficiency in heat and power while for years promoting R&D in a bio-refinery.

“Key projects inside the pulp and paper industry need major support to deliver and supply solutions not yet available through carbon capture and storage,” CEPI said.

It couldn’t be plainer. Time and again our industry has come up with imaginative solutions to problems in renewable energy technology. But two things still need to happen: (1) the EU regulators need to listen, and then, (2) act upon the industry’s proposals. ■

David Price is a contributing writer for PaperAge. He can be reached by email at: DPrice1439@aol.com.
**Wet End Controls Ease Sheet Threading, Reduce Break Recovery Times**

By installing new wet end measurements and controls for its K1 paper machine, Domtar’s Kingsport mill achieved greater stability at the machine’s wet end during web breaks which resulted in faster sheet threading, reduced recovery time, and increased machine efficiency.

By Mark Williamson

Web breaks are a fact of life on any paper machine and they are caused by numerous reasons. Nevertheless, it’s another fact of life that papermakers have to rethread the sheet and pick up where they left off, hopefully with minimum lost production.

But returning to stable operation quickly can be a problem since the sheet quality is often well off-spec when the dry end QCS system makes its first few scans after the break. During longer breaks, ash-containing broke may be recycled into the furnish system, the retention levels can change, furnish consistency and ash levels can vary uncontrollably. Even before the web reaches the reel, papermakers have to deal with a wet sheet which has out-of-range ash levels and strength properties, dries differently and, in general, is hard to thread. Many times, the web breaks again.

By reducing the time to rethread and return to prime quality, papermakers can realize a major boost in paper machine efficiency and a very attractive return on investment. But this web quality stability during break recovery periods must be achieved first at the wet end, before the sheet even reaches the reel.

GOOD PAYBACK IN MIND

With a good payback in mind, Domtar’s mill in Kingsport, Tennessee invested in Metso’s Kajaani wet end furnish, retention and charge measurements and IQWetendMD model predictive controller. The measurements and controls were implemented on the 345-inch trim K1 paper machine which produces copy paper. Mill staff reasoned that, by having stable control of furnish consistency, retention and ash levels during the normally unsteady web break recovery periods, the sheet would thread more easily and production time losses could be lessened. That benefit formed the primary part of the justification.

That goal has been realized decisively. Break recovery times have been reduced significantly as the sheet threads more consistently after a break. As proof that a stable machine is often a faster machine, the speed and production rate of K1 was higher during the evaluation period after the control was implemented.
The initial stability established by the wet end control has been refined even further. A new Metso kajaaniM-CAi microwave consistency transmitter — added part way during the project evaluation — improved sheet weight and moisture steadiness. After that, a two-stage steam pressure recovery strategy, based on operator experiences and input, was implemented by Metso, resulting in even better moisture stability when the sheet reaches the reel.

**ASH LEVELS ROSE AFTER A BREAK**

Before the implementation of the wet end measurements and controls, the web quality control was accomplished in a traditional way, with feedback control from the dry end scanners — a moisture measurement before the size press and basis weight, moisture and ash measurements at the reel. Feed-forward basis weight control was based on a thick stock shear force consistency transmitter. Glenn Caseman, K1 machine technical assistant, says the measured sheet quality at the reel was often considerably off-target after a break. During a long break there was a tendency for the ash levels to rise as broke was introduced to the furnish system. The rise in ash levels was not seen until the web reached the reel and the QCS scanning resumed.

**RIGHT AT THE SOURCE**

In contrast, the new measurements and controls addressed the issue of sheet stability and threading performance right at the source — the wet end. The Metso scope of supply includes a kajaaniWEM which measures total consistency and ash consistency of the white water. The silo water is used for cross-direction headbox flow dilution as well as thick stock dilution. The stability of white water consistency is therefore especially important for steady basis weight profile control. The kajaani-WEM also includes a charge measuring module for assessing the electrochemical effects of furnish makeup and furnish additives. This can be used to determine the impact on filler and fines retention. A kajaaniRM3 transmitter measures the total consistency and ash level in the headbox flow. According to mill staff, all transmitters are reliable, well calibrated and consistent with offline tests.

The IQWetendMD model predictive controller (MPC) ensures stable white water consistency, headbox consistency and headbox ash levels during a break and during speed changes or grade changes. This control averts furnish instabilities brought on by breaks. For instance, when broke is added to the furnish system the headbox ash consistency and white water consistency are kept on target by adjusting the flow of fresh filler and retention aid in a coordinated way that models and predicts the interactions between these and other manipulated variables. On K1 machine, the fresh filler is precipitated calcium carbonate (PCC) and the retention aid is a two-component anionic polymer and anionic micro-particle blend.

Once the sheet reaches the dry end and QCS scanning resumes, the dry end measurement portion of the MPC is automatically activated and, together with the wet end portion of the multi-variable controller, ensures sheet stability in the steady state and during upsets and transitions. The IQWetendMD MPC controller incorporates quality measurement inputs from the existing QCS system. There was no need to change the QCS. The control system layout schematic is shown in Figure 1.

**STABLE WET END, HIGHER SPEEDS**

Several months after the system commissioning in September 2007, the stability of the wet end of K1 paper machine was compared to the baseline data dating back to the beginning of the year. Data documenting headbox consistency, white water consistency and first pass retention indicated that the stability of
process automation

The wet end process was considerably improved (see Figure 2 and Table 1). With automatic control, the variability of white water consistency and first pass retention was reduced by over sixty percent. The data were collected by the chemical supplier.

Following the wet end control implementation, the K1 machine speed was consistently higher than before. The average machine speed was raised by about 3% for the ten-month period after the control implementation.

Matt Heiss, process engineer, believes the higher machine speed was related to the improved wet end stability. “Stability sums it up,” he says. Roger Smith, K1 production manager, adds, “In 2008, we pushed the machine speed up steadily.”

FURTHER IMPROVEMENTS

The wet end was stabilized by MPC control, as indicated in Figure 2, the sheet was now threading more easily and a reduction in break recovery times was documented. But this was not the end of the improvements to the machine control and operation. When attention is focused on a specific papermaking issue other problems become apparent and the solutions are found in many cases. This is exactly what happened during the K1 machine control project.

First, the calibration of the thick stock consistency transmitter was questioned when the furnish composition changed after a long break. This is an essential measurement required for feed-forward weight control and is a cornerstone element of the MPC control. When broke containing filler was added to the furnish after a long web break the existing rotary shear force transmitter produced incorrect readings which destabilized the feed-forward control. The transmitter measures the thick stock consistency after the blend chest. If more filler is introduced to the furnish, the shear force transmitter does not measure the total consistency correctly, hence the control actions are incorrect.

To solve this problem, the mill installed a Metso kajaaniMCAi microwave consistency transmitter which measures total mass consistency, including fiber and ash together. Unlike shear force devices, the microwave transmitter requires a single calibration for filler and different fiber types. The furnish for K1 machine comprises purchased kraft fiber, kraft fiber made in the Kingsport pulp mill, some deinked pulp, baled broke and, of course, machine broke.

With the new microwave transmitter, the calibration and control instability issues disappeared. As shown in Figure 3, the basis weight deviation from target after a break of over thirty minutes was reduced significantly. The data in the figure show scan average values, following a delay of three scans after the sheet reaches the reel. The spread of the data indicates how well the MPC control keeps sheet quality close to the target during a break. The

<table>
<thead>
<tr>
<th>Variable</th>
<th>2-sigma before MPC control</th>
<th>2-sigma after MPC control</th>
<th>% improvement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Headbox consistency</td>
<td>0.106</td>
<td>0.089</td>
<td>16.0</td>
</tr>
<tr>
<td>First pass retention</td>
<td>10.35</td>
<td>3.39</td>
<td>67.2</td>
</tr>
<tr>
<td>White water consistency</td>
<td>0.085</td>
<td>0.032</td>
<td>62.3</td>
</tr>
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Table 1. Wet end variation 2-sigma values from Figure 2.
process automation

![Graph](image)

**Basis Weight Difference from Target after Break**

<table>
<thead>
<tr>
<th>Breaks Longer Than 30 Minutes</th>
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<tbody>
<tr>
<td></td>
<td>Before</td>
<td>WEM</td>
</tr>
<tr>
<td></td>
<td>Baseline</td>
<td>On control with shear force consistency transmitter</td>
</tr>
</tbody>
</table>

![Graph](image)

**Histogram of Moisture Difference**

![Graph](image)

**Average Break Duration (min)**

<table>
<thead>
<tr>
<th>Wet End</th>
<th>Dryer</th>
<th>Dry End</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline</td>
<td>Oct 07-Jul 08</td>
<td>Oct 12-Dec 8</td>
</tr>
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- **MPC control**, with the improved consistency measurement, achieved a total reduction of 73% from the baseline data. The improved control of sheet moisture and ash was also documented.

- To further improve the control of sheet moisture after a break, a two-stage dryer steam pressure letdown/resume strategy was implemented. The customized control was based on operator inputs concerning their best-practice operating strategies. Now, when the sheet breaks at the wet end, the dryer pressure is lowered a maximum amount. When the sheet breaks at the size press and no sizing is being applied the dryer pressure is lowered by a lesser amount so the sheet is slightly wetter and threads more easily through the dryers. Once the sizing is applied, the dryer steam pressure returns to its normal pre-break level. The two-stage pressure letdown and resume strategy was implemented in the latter part of 2008.

- As shown in Figure 4, MPC has improved moisture recovery significantly. The change to the microwave consistency measurement had a beneficial effect on moisture control recovery in 2008. That recovery after a web break was improved again in 2009 when the new pressure resume strategy was in effect. MPC had reduced variability by 68% from the baseline. The new pressure resume strategy increased that improvement to 75%.

- All told, the wet end MPC controls, the new microwave consistency transmitter and the revised pressure letdown and resume strategy have together achieved the mill's main goal of reducing break recovery time. See figure 5. Break duration times have been reduced by 56% at the wet end, 36% in the dryers, and 63% at the dry end. The green bars in Figure 5, representing the period from October 12 to December 8, indicate the beneficial effects of this revised steam pressure control strategy.

Mark Williamson is a Journalist Engineer in Thornhill, Ontario, Canada. He can be reached by email at: mark_williamson@sympatico.ca.
In today's competitive market, it is absolutely essential for paper machines to operate as efficiently as possible. The owners of a trivent/fourdrinier machine on the US West Coast making a 34 lb/3000 ft² bag grade at 2900 fpm wanted to improve machine performance. There were no major issues with the runnability, but by optimizing the synergy of the press rolls and machine clothing the expected goal was an improvement in sheet dryness.

In the press section, water can be removed in two ways: in the nip or at the uhle box. It is essential that the felts and rolls are both designed to remove the water from the sheet in the same way. The felts and rolls must complement each other to maximize machine performance. If not, the machine efficiency will be negatively impacted.

ROLLS

Stowe Weavexx partnered with the mill to evaluate the current running conditions of the machine. The first step was to analyze the rolls currently in use in the press section. A Stowe Weavexx SMART® Roll was installed in the 3rd Press since there was a minor issue with the sheet corrugating out of that press. The SMART Roll provides real time loading profile feedback during the machine operation. The SMART Roll indicated that the CC roll was under-crowned and was contributing to the problem.

PRESS FELTS

The next step was to optimize the press felt designs. With the trivent press configuration, the pickup felt removes the majority of the water from the sheet. The water is removed both at the uhle box and in the nips. This requires a felt design that has enough void volume to carry water to the uhle box, but not so much that it cannot dewater in the nip. Other issues on this position were the width stability of the felt and fiber loss throughout life. This instability would cause excess stock to be thrown on the felt from the edges of the forming fabric which was damaging the felt causing early removal.

Stowe Weavexx recommended a ProSeam Axxial for this position. The ProSeam Axxial consists of a woven double layer base fabric with a nonwoven matrix as a top cloth. The woven double layer provides high void volume and compaction resistance under load to facilitate uhle box dewatering. The Axxial layer provides increased resiliency and a more uniform pressing surface in order to facilitate nip dewatering. The Axxial layer also improves batt anchorage to prevent shedding.

The ProSeam family of products is made with a high modulus yarn which provides significantly enhanced width stability. The ProSeam also features a re-engineered woven...
reinforcement with special bonding material in the seam area to significantly improve the level of seam flap anchorage. The seam area also incorporates a uniquely formed polymeric material distributed among the layers of batt fibers. These changes improve the inherent adhesion of the batt in the seam area resulting in enhanced flap retention, mark resistance, and life potential.

The grooved roll in the 1st press bottom position of this press section must expel water in the nip to maximize sheet dewatering. However, with the top suction roll in this press very little water was being removed by this felt. By improving the water removal in this nip, the water load in the pickup felt can be reduced making the 2nd nip more effective. This also reduces the hydraulic load in the 2nd nip, which aids in the prevention of fiber loss by the pickup felt.

Stowe Weavexx recommended a ProSeam TX for the 1st bottom position. The ProSeam TX is an exclusive Stowe Weavexx seam felt that is specifically designed to be compressible in the nip unlike conventional seam felts. The base fabric consists of a special patented duplex TX-weave incorporating both plied and single monofilaments. The design is very stable with a zero gap setting in the seam resulting in a mark-free and abrasion resistant seam.

Among the differences in the ProSeam TX and conventional seam felts are the plied monofilaments in the cross-machine direction and the patented low caliper TX-weave. This combination provides a compressible structure ideal for high nip dewatering to maximize sheet dryness by reducing sheet rewetting. It also provides better batt anchorage because of the higher surface area of the yarns. The ProSeam TX combines all of the benefits of a seam felt (easy and quick installation, minimized risk of accidents) with the performance of an endless felt (improved batt anchorage, high nip dewatering, fast start up).

The 3rd press is another position that typically requires water removal at the nip. The higher loading of the press and the grooved venting on the roll both work to facilitate nip dewatering. This type of position requires a felt that is highly compressible and that can withstand the high loads.

Stowe Weavexx recommended a ProSeam TXA on the 3rd press position. The ProSeam TXA combines the patented TX base fabric technology with the Axxial non-woven layer. This combination results in a highly compressible seam felt that also has the ability to transport and expel water at the uhle box.

**FORMING FABRIC**

The final optimization step involved a review of the forming fabric design with an eye toward improving formation. Improved formation of the sheet provides a more uniform pressing and printing surface.

Stowe Weavexx recommended a Graphixx SS forming fabric. The Graphixx family of triple-layer forming fabrics is specially engineered for demanding paper machine applications that require sheet smoothness, uniformity, and durability. The patented weave technology provides uncompromised dimensional stability without interlayer wear. The SS version of Graphixx provides a super smooth printing surface with the finest mesh packaging fabric available.

**RESULTS**

After installing a CC roll with the updated crown, the clothing trials were installed. The ProSeam Axxial on the pickup position ran with excellent dimensional stability and improved water removal with no fiber shedding. The ProSeam TX on the 1st bottom position significantly improved the amount of water removed at the nip compared to the competition’s felts. The ProSeam TXA on the 3rd press also showed enhanced nip dewatering. It was also noticed on all of the felts that the seam passing over the uhle box did not exhibit the popping noise that was typical of the previous felts. The Graphixx SS forming fabric provided increased fiber support without sacrificing drainage which resulted in better formation of the sheet.

The combined effect of these changes along with the careful attention to the operational details by the machine personnel and management provided an increase in machine speed that resulted in a 4 ton per day increase of production (see Chart 1).

**CONCLUSION**

In today’s demanding market, papermakers can no longer be satisfied with maintaining the status quo. All avenues for improving machine productivity and cost savings must be explored continuously. Understanding the synergy between rolls and clothing is a key component of this effort. Stowe Weavexx is committed to providing innovative technology that will assist papermakers in this endeavor.

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**Chart 1: Average Daily Production**

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<thead>
<tr>
<th></th>
<th>Pre-Trial Avg</th>
<th>Trial Avg</th>
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<tbody>
<tr>
<td>Values</td>
<td>450</td>
<td>448</td>
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The pulp and paper industry has done an outstanding job of providing the paper for the hundreds of books and countless printed copies of articles on the subject of “Performance Management.” But besides mastering the papermaking process itself, do paper producers use performance appraisal tools within their individual operations? (I’ll bring this up again at the end of the story)

“Performance Appraisal” has been defined as, “The process of creating a work environment in which people can perform to the best of their abilities,” (G. W. Bohlander, Managing Human Resources), and also described as, “A process that considers goal setting, performance appraisal, and development into a single, common system, the aim of which is to ensure that the employee’s performance is supporting the company’s strategic aims,” (G. Dessler, Human Resource Management).

Broken down further, Performance Appraisal is “a process, typically performed annually by a supervisor for a subordinate, designed to help employees understand their roles, objectives, expectations, and performance success,” according to Bohlander, “...relative to his or her performance standards,” adds Dessler.

In my over twenty-five years of HR management experience for leading global, national, and regional companies, I never heard anyone express excitement regarding performance appraisals or reviews. In fact, typical reactions by senior management to reminders about performance reviews draws face contortions and the occasional expletive. Even with senior executive support of the process, it is often regarded as one of the most uncomfortable exercises that an employee must complete.

Considering that the aforementioned performance management definitions seem relatively clear, why all the negative reactions?

**PERFORMANCE REVIEW PROCESS**

Let’s quickly review the process. The most common performance appraisal process starts with the development of annual individual employee goals in support of the overall company vision. Depending on the “corporate vision,” individual goals will vary based on their respective jobs. Ideally, goals should adhere to the acronym SMART — S=specific, M= measurable, A= achievable, R=realistic, and T= time bound or timely.
Employee goals that are clear, quantifiable, require some effort, are useful, and must be reached within a set time frame, can be monitored by a supervisor. After the goals are established (often mutually between the supervisor and the subordinate), the supervisor is responsible for tracking the performance of his/her direct reports.

Next, the supervisor and subordinate formally discuss whether the goals are being met. These discussions should occur on an annual, biannual, or quarterly basis. Challenges to the goal setting process include the external forces that can impact individual employee goals to the point where they must be modified or changed throughout the year.

Finally, at year-end, the supervisor and subordinate meet to determine the overall performance rating of the employee and document the conversation, usually with a form detailing the employee’s progress throughout the year.

REASONS TO IMPLEMENT PERFORMANCE APPRAISALS

Performance appraisals are used for developmental purposes such as to identify employee strengths/weaknesses, recognize performance, determine training needs, improve communication, and evaluate goal achievement. Performance reviews are also used for administrative reasons, i.e. to document personnel decisions, promotions, transfers, layoffs, legal requirements, and reward/compensation decisions.

However, according to an annual survey done Mercer Human Resources Consulting, only one third of 2,600 respondents had received a performance review in the past year and only 26% received regular coaching from their supervisor on improving performance. Of those who had received a performance review in the past year, 62% felt a strong sense of commitment to their employers, while only 49% of those who had not received a formal performance review expressed a strong sense of commitment.

PROBLEMS WITH APPRAISING PERFORMANCE

If performance reviews can be used for so many important reasons, why do so few employees receive formal appraisals? Is it that companies don’t want to implement the process? Or is it that the process is part of their management plan, but gets lost along the way?

Common reasons for failure of many performance appraisal systems include: (1) inadequate preparation on the part of the supervisor, (2) clear objectives not established, (3) supervisor cannot observe performance or lacks all information, (4) inconsistency in rating by supervisors (bias, strictness/lenity, halo/single trait, central tendency/same ratings), (5) overemphasis on uncharacteristic performance (good, bad, recent), (6) supervisors inflate ratings to avoid giving “bad news,” (7) subjective or vague language in written appraisals, (8) interference or organizational politics or personal relationships, (9) supervisor not trained to provide proper evaluation, (10) no coaching or follow up by supervisor after the review, (11) based on all the time and effort expended, supervisors feel that there is little or no benefit to the process.

WHO ARE THE RATERS?

So, what sort of appraisals are there and who should be doing the rating of performance?

- Manager/Supervisor Appraisal is very common — an employee’s direct supervisor and often the next level manager do the evaluation.
- Self-Appraisal requires each employee to complete a form that measures their own performance prior to meeting with their supervisor.
- Subordinate Appraisal is used primarily as a developmental tool (subordinates evaluate their supervisors).
- Peer Appraisal measures performance as described by employees of equal rank who work together.
- Team Appraisal, a Total Quality Management approach, quantifies performance of teams rather than individuals.
- Customer Appraisal seeks evaluation from both internal and external customers.
• 360-Degree Appraisal is a multi-rater evaluation that utilizes feedback from supervisors, peers, subordinates and customers.

PERFORMANCE APPRAISAL METHODS
Methods of performance appraisals include: trait, essay, behavior, and results.

Trait approaches are designed to measure the extent to which an employee possesses particular characteristics that are important to their jobs and the company, such as leadership, creativity, dependability. The Graphic Rating-Scale method quantifies employees based on a set of characteristics. Mixed-Standard Scales method measures traits on a comparison scale — better than, equal, or worse than. The Forced-Choice method requires the rater to choose from specific statements to distinguish performance, for instance: works hard vs. works quickly.

The Essay method requires the rater to describe employee behavior through lengthy statements and/or paragraphs. This method may be used in conjunction with other methods.

Behavioral methods specifically describe actions or behaviors that should (or should not) be exhibited at work. The Critical Incident method documents an unusual event showing superior or inferior performance. Behavioral Checklist method uses a checklist of job related characteristics. Behaviorally Anchored Rating Scale (BARS) consists of a series of vertical scales identified through a critical job analysis. An example of this would be a seven-point scale divided into three parts: high, average, and low. Behavior Observation Scale (BOS) measures the frequency of observed behavior, such as: never, sometimes, or always.

Results methods focus on achievements rather than traits or characteristics. Management by Objectives (MBO) is based on employee achievement of objectives set by mutual agreement with management.

An annual review should provide a snapshot of an employee's performance. If there are things a supervisor is displeased about, he or she shouldn't admonish, threaten, or lose their temper.

WASTE OF TIME OR USEFUL TOOL?
In theory, the system of rating the performance of individual employees, teams, departments, etc. may seem like a no-brainer, but its execution and the compilation of appraisal results are far from simple and beg some questions. (1) Is the performance appraisal process too complicated? (2) Is it worth the effort? (3) Does it impact the bottom line? The answers to all three of these questions are yes, and no.

Question 1 - Is the process too complicated? Yes, it can be. Depending upon which method is selected, the process can be challenging in terms of preparation time and time to administer. However, if all employees are trained properly and follow the process, it does work.

Question 2 - Is it worth the effort? Yes, the ROI on a well run performance appraisal system will positively impact performance and any of the other benefits mentioned earlier. However, the answer is “no” if performance appraisals become a necessary evil or mechanical exercise basically used to distribute pay increases — there are much easier ways to determine pay raises.

Question 3: Does it impact the bottom line? Yes, a properly implemented performance review process can positively impact profitability. Conversely, a poor performance evaluation process can negatively impact the bottom line.

CONCLUSION
A useful performance appraisal system will only be effective if the people behind it believe in the process and see it through to fruition. This requires total commitment from the organization. The benefits are quantifiable and can enhance many aspects within an organization. If an employer wants to maximize productivity, I recommend implementing a comprehensive performance evaluation system.

However, a performance review process that is not supported by senior management or not properly communicated to all involved, will ultimately fail.

The choice is yours.

Author’s note: Bill Brennan is interested in what readers of PaperAge think about Performance Appraisals. Does your company use them? Please feel to contact him.

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of interest

Study Predicts Emerging Markets to Lead Specialty Papers Growth to 2015

Specialty papers will experience the strongest growth in the emerging markets of India, China, Brazil, Turkey and Poland over the next five years, according to a new study from Pira International. India is predicted to lead the field with a CAGR of 5.5% from 2010-2015.

The study, The Future of Global Markets for Specialty Papers to 2015, quantifies and segments the market for specialty papers across 14 major countries and identifies opportunities and threats facing suppliers in the industry.

Specialty paper markets tend to be niche segments that have the potential for higher average margins than commodity markets, and have fairly stable pricing over time. They are also defined as markets for products that are made in smaller quantities, with their rarity or greater difficulty in manufacture allowing a premium price, Pira noted.

The study indicates there are signs of continued saturation and stagnation in Western Europe, Japan and the US. In some developed markets such as Spain and the UK, some serious falls in tonnage have been evident. Over the period to 2015, Pira predicts a 0.7% CAGR for Western Europe and 0.1% for Japan. In contrast, emerging markets in India, China, Russia and Brazil as well as Turkey and Poland, have been largely unaffected by the downturn in the developed economies, save for some short periods where they changed from dependency on exports to the developed economies to development of their own rapidly growing internal markets.

Pira foresees continued expansion of the Chinese, Indian, Russian and Brazilian economies as well as Turkey and Poland. “Per capita consumption of most specialty papers is relatively low in each of these major emerging markets and as their needs develop, there is no reason to doubt that their economies will absorb more of the specialty papers, which facilitate commerce and industry in the developed world,” explains Adam Page, Head of Editorial at Pira.

The downturn in the world economy is the single biggest concern for the specialty paper industry in 2010. It has caused consumer demand to drop and this affected specialty paper segments particularly vulnerable to consumer purchasing patterns. Pira has found that while those mills which offer a wide range of specialty papers have survived, those which specialize too strongly in one segment have found conditions tough.

Globally speaking, folding cartons and flexible wraps dominate specialty papers, followed by inkjet papers, labels and tickets. This ranking applies to all markets, although proportions can vary. Much depends on the reliance of each economy on paper-based solutions. In some segments, specialty papers face strong competition from polymer solutions.

Pira expects the highest growth over the next five years will be seen in folding cartons, protective wraps and labels, due to the expanding consumer economies in emerging markets. This will also encourage the growth of inkjet and thermal papers as commercial activity increases.

As the number of vehicles increases, there is a growing need for engine filtration, and industrial filtration is also expected to play a stronger role. These growing economies will require more ticket papers and currency papers, and the growing infrastructure will need more insulation paper. Consumers are expected to indulge more as their disposable income rises, and the evidence points to growing cigarette, fine art paper, photography, wallpaper and gift-wrap paper markets.
STUDY REVEALS NEW LASER PRINTING BENEFITS.

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* Based on testing by Buyers Lab Inc., Aug 2010. For details see www.buyerslab.com and www.hp.com/go/colorloklaserprinting. Tested papers that did not meet the ColorLok® quality standard were manufactured in Asia, are primarily sold in China and India today, and contained high percentages of abrasive, large particle fillers (ground calcium carbonate, talc). ColorLok® papers are validated for smoothness and low percentages of abrasive, large particle fillers.
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