TACKY CHALLENGE
Enzyme detackifier blend provides new level of Stickies Control for papermakers

NEWSPRINT
Exports and capacity management have sustained North American producers, but domestic demand woefully slow.
THE RESULTS ARE IN
HP LASERJET PRINTERS PREFER COLORLOK® PAPER

STUDY REVEALS NEW LASER PRINTING BENEFITS.

According to a recent study by Buyers Laboratory, Inc. (BLI), ColorLok paper can help extend the life of LaserJet printers while delivering less reprints, more cost-efficient printing, and consistent professional print quality, compared to abrasive, large-particle filler papers tested which don’t meet the ColorLok® quality standard. * Any way you look at it, ColorLok paper helps your ideas stand out, making it HP’s recommended solution for LaserJet printers.

HP recommends the ColorLok paper quality standard for LaserJet printers.

* Based on testing by Buyers Lab Inc., Aug 2010. For details 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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For nearly a generation our industry has been under relentless attack from the eco-lobbies. Much of the criticism has been biased and plain wrong. The industry responded positively but just couldn't get the message across. Things are now changing in our favor.

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34 Two Sides to Establish Presence in the U.S.
Paper has been the fall guy for far too many "go green" campaigns promoted by well-meaning companies who simply don't have their facts straight. But a force from the UK is making a case for paper and its environmentally-friendly presence, and is convincing the heavy hitters to change their tune.

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I have to admit that there are times when the messages from companies and green groups, who insist the world would be a better place if we would all stop using paper, can get me down, especially considering my line of work.

My problem — and it’s probably the same for a lot of people — is that I have a tendency to think about paper in the more traditional sense, such as newspapers, magazines, books, copy paper, that sort of stuff. But if you look around enough (on the Internet of course), there’s a lot of eye-opening innovations being created using paper as a base product.

The bad news is, however, the paper producers aren’t the ones working on the eye-opening innovations.

The good news is; there are research companies with creative minds at work and individual scientists who can think outside the traditional paperboard box and some of these new paper-based applications might actually catch the eye of the producers.

Dr. Frank Miletzky, President of the German research and testing company, PTS, in its annual report prefaces with, “Paper is and will remain a fascinating material. We are determined to further exploit its potential and open up new applications.” He also notes that although traditional applications for some grades of paper will decrease, “... in the medium and long term, demand for new, innovative applications of paper can be expected to grow strongly.”

For example, Dr. Miletzky points to opportunities in areas outside the traditional paper markets. “Combinations of natural fibers with other components lead to fiber composites offering entirely new properties. Examples of these innovative PTS products are highly filled papers with ceramic and metallic characteristics for light-weight construction elements, or novel safety papers providing protection against product piracy.

Currently, PTS is developing ecologically and toxicologically harmless flame-retardant papers, which could be produced on conventional paper machines.

Another new application is a multifunctional paper-sheet metal composite. According to PTS, it can be used as thin-walled, high-strength body sheet for vehicle construction. The material is expected to improve the car’s vibration characteristics and reduce noise, along with offering enormous potential for significant material savings and weight reductions, leading to a more fuel-efficient vehicle.

PTS adds that, “Cellulose fibers used as substitute for petro-chemically based synthetic fibers are more environment-friendly and expected to save significant amounts of production energy.”

Another innovator, Innventia, has developed, among other things, “interactive” paper and packaging materials that change color and shape in response to various stimuli, which can, for example, be used to create smart packaging solutions.

Other scientists have turned paper coated with ink made of silver and carbon nanomaterials into a paper battery that holds promise for new types of lightweight, high-performance energy storage. Researchers say that the paper battery has the potential to be a low-cost, flexible electrode for any electrical device, but its biggest impact may be in large-scale storage of electricity on the distribution grid or could also be used in powering electric or hybrid vehicles.

The industry needs to continue its efforts to improve and produce paper for traditional uses — currently its bread and butter. But it’s imperative for producers to look beyond their comfort zone because paper’s possibilities are endless.
How deinkers save three ways with one additive

Now you can save *three ways with one additive* on chemical costs in your deinking process! The new DEKA can replace one-half of your costly surfactants, improve your pulp brightness, and lower ink residual numbers as well.

Sound too good to be true? In documented mill tests, DEKA has replaced fully 50 percent of expensive surfactant dosage without adversely affecting deinking performance. And laboratory studies prove DEKA usage increases pulp brightness up to 5 GE brightness points. Plus, additional lab deinking tests have demonstrated ERIC values lowered by 74 percent.

DEKA is also versatile — flotation or wash deinking processes both benefit from this revolutionary new deinking aid.

Contact Thiele today for details on how your deinking process might benefit from using DEKA. We’ll be glad to show you the test results and set up a trial in your mill.
**NORTH AMERICA**

**IP Initiates Tender Offer to Acquire All Outstanding Shares of Temple-Inland**

International Paper on July 12 began a fully financed tender offer for all outstanding common shares of Temple-Inland Inc. for $30.60 per share in cash.

The all-cash offer represents a 46% premium to Temple-Inland’s closing price on June 6, 2011, the last trading day prior to public disclosure of IP’s proposal to acquire Temple-Inland. The offer expires at 5:00 p.m. New York City time on August 9, 2011, unless extended.

Initially, IP communicated its proposal verbally to Temple-Inland’s chairman Doyle Simons on May 17th, 2011, which, according to IP, was followed by a call, a face-to-face meeting between the two sides and two letters of correspondence from Faraci to Simons.

On June 4, Temple-Inland’s Board rejected the proposal basically stating that it was “opportunistic” and that it under-valued Temple-Inland.

In Simons’ Board-authorized rejection letter to Faraci, he stated, “Since we launched the ‘new’ Temple-Inland in January 2008, we have delivered superior results to our stockholders compared with our corrugated packaging peers (including IP), building products peers, and the S&P 500. Since that time, our total return to stockholders of 22% greatly exceeds the 5% total return that IP has achieved.”

Simons’ letter also warned that the deal “...overlooks the serious regulatory issues of [IP’s] proposal, an attempt to forcibly combine the #1 and #3 participants in the corrugated packaging industry with the result that your company would have an approximate 40% share of industry capacity, nearly double the next largest competitor.”

At the time of the launch of the tender offer, Faraci said, “We believe Temple-Inland’s price expectations are unrealistic and their unwillingness to engage in any meaningful discussions with respect to value has left us with no alternative but to make our offer directly to Temple-Inland shareholders.”

“While we prefer to reach a negotiated, friendly deal, we are committed to remaining disciplined and completing this transaction at a fair price for both companies’ shareholders. We are confident in our ability to secure the necessary regulatory approvals to complete this transaction in a timely manner.”

At the time of this publication going to press, Temple-Inland’s Board reinforced its feelings about the deal and again rejected IP’s offer, stating, “International Paper’s unsolicited offer grossly undervalues Temple-Inland and its future prospects.”

**Mohawk Fine Papers Signs Letter of Intent to Buy Bravo Solutions**

Mohawk Fine Papers announced that it has signed a non-binding letter of intent to buy the business of Bravo Solutions, Inc. of Elmira, New York.

Bravo is a leading supplier of specialty synthetic and paper substrates for digital printing. The acquisition will include all brands and certain assets, including manufacturing capacity for converted products, which will remain in Elmira.

Bravo substrates are designed and engineered for both toner and wet-ink printing systems. Mohawk plans to fully integrate the Bravo portfolio, including pressure sensitive, synthetic substrates, integrated products, embedded card sheets and magnetic materials, into the existing Mohawk digital product offering creating the most extensive portfolio of digital substrates in the world.

According to Thomas D. O’Connor, Jr., Mohawk’s chairman and CEO, “An acquisition of Bravo will be a strategic opportunity for Mohawk and its customers. We are committed to expanding our offerings to the growing digital print market. These premium substrates represent high value, high volume opportunities for printers, merchants and their customers.”

Following the acquisition, Ray Mahar, founder of Bravo, will join Mohawk as Director of Sales, Digital Specialty Substrates. The companies are working together to agree on definitive purchase documentation as quickly as possible so as to smoothly transition sales of all products to Mohawk by early third quarter.

**MeadWestvaco to Invest $285 Million to Construct Biomass Boiler at Covington Mill**

MeadWestvaco (MWV) said that it will invest $285 million to construct a new, state-of-the-art biomass boiler and upgrade associated power infrastructure at its Covington, Virginia facility.

The project will allow the mill to become self-sufficient in electrical power and steam generation and significantly reduces ongoing operating and maintenance costs.

According to MWV, the new boiler and related 75 megawatt steam turbine generator system will replace two older and less efficient units. It will primarily burn renewable biomass such as tree bark, wood residues often left behind from logging operations, and residuals from the waste water from the paper making process.

The company said that it has worked closely with Governor of Virginia Bob McDonnell and officials from Alleghany County and the City of Covington, and expects to secure the necessary permits to begin construction in the fourth quarter of 2011.

The project will take advantage of Federal, state and local incentives, MWV added.

The new boiler and infrastructure upgrades are expected to be operational in the fourth quarter of 2013.
The best defense in the harshest conditions

Higher machine speeds increase the demand for belt performance. Metso’s BlackBelt, a unique shoe press belt made of high performance elastomer material reinforced with dimensionally stable synthetic yarns, withstands the harshest shoe press conditions. Available in different reinforcing structures and surface options, this reliable shoe press belt is wear, chemical and heat resistant, which ensures long and trouble free running.

Visit www.metso.com/blackbelt to see how the BlackBelt has performed.

www.metso.com/blackbelt
The Newark Group to Close Two Plants

The Newark Group said that it will close its Franklin Boxboard mill, located in Franklin, Ohio and its Newark Graphicboard-BCI plant, located in Newark, New Jersey.

A specific timeline for the closures was not disclosed.

Following these closures, selected products from the two facilities will be made available through alternate Newark Paperboard Mills and Newark Graphicboard-BCI sites, the company said.

Both locations will operate in accordance with the W.A.R.N. requirements.

The Newark Group said the closures reflect the corporation’s strategic focus on rightsizing its assets in order to best serve its customers.

“It’s no secret that market conditions have changed and we, like every organization, need to evolve to not only serve but lead the industry,” said Philip B. Jones, president and CEO of The Newark Group. “This move allows us to do just that, as we focus on the specific products and services that our customers need today and into the future.”

Boise, OfficeMax, Extend Paper Purchase Agreement

Boise Inc. and OfficeMax recently announced they have extended their long-term relationship by entering into a new paper purchase agreement.

The new deal, which extends through 2017, is in recognition of the mutually beneficial commercial partnership, which has spanned more than five decades, Boise said.

“I am very pleased to announce a new long-term purchase agreement with our largest customer, OfficeMax,” said Alexander Toeldte, Boise Inc.’s president and chief executive officer. “The arrangement has been rewarding for both companies, and we’re proud to have the opportunity to continue to serve OfficeMax.”

Grays Harbor Paper Permanently Shuts Mill in Hoquiam, Washington


Patrick Quigg, president of Grays Harbor Paper (GHP), explained that the continued high price of raw materials, lower than expected sales of high-value products, and accompanying cash flow considerations are the major factors contributing to the decision to shutdown.

In addition, a recent major refinancing effort undertaken by GHP did not materialize.

“I want to acknowledge the continued support of the stakeholders in our community and the industry, especially our loyal employees, without whom we would not have made it this far,” Quigg said.

Grays Harbor Paper manufactured uncoated copy and printing papers with 240 employees.

All employees were affected by the shutdown with the exception of a small support crew to maintain the facilities and sell all remaining inventory, the company said.

As for the company’s physical assets and equipment, Quigg indicated all options would be considered, including the potential sale of the entire plant to a business that would be capable of restarting operations.

Cascades to Build Containerboard Mill in Niagara Falls, New York

Cascades Inc. said that its Norampac division will invest in Greenpac Mill LLC (Greenpac), a corporation created with the Caisse de depot et placement du Quebec (the Caisse), Jamestown Container and one other industry partner, for the purpose of constructing and operating a state-of-the-art containerboard mill to be located in New York State.

The Greenpac mill will be constructed for a total cost of US$430 million on property located adjacent to an existing Norampac facility in Niagara Falls, NY.

Greenpac will manufacture a light weight linerboard made with 100% recycled fibers on a single machine having a width of 328 inches (8.33 meters) with an annual production capacity of 540,000 short tons. The machine will be one of the largest of its kind in North America, Cascades said.

“The investment...is the result of the combined efforts of Cascades and its partners, and is consistent with our development strategy which aims to position [Cascades] amongst the leaders in terms of productivity and profitability in the packaging and tissue sectors,” said Alain Lemaire, president and CEO of Cascades.

“As we have stated in the past, we strongly believe that Cascades’ future success will be dependent on our ability to offer high performance innovative products which will better meet the needs of our customers, at a cost that will be amongst the lowest in the industry,” he added.

The paper machine will be manufactured by Metso; Voith will provide the stock preparation equipment and anaerobic effluent treatment plant; and Siemens will provide the power and control technology, Cascades said.

An operational date for the new mill was not disclosed.
Eliminate the guess work.
Experience what over 100 customers around the world already know.

Patented SMART Technology continues to deliver documented ValueResults on paper machines throughout the world. Contact your Stowe Woodward representative for more information or visit xerium.com.
EUROPE
EU Commission Approves UPM’s Acquisition of Myllykoski

The European Commission approved UPM’s acquisition of Myllykoski Corporation and Rhein Papier GmbH, clearing the way for the completion of the deal. UPM expects the final closing to take place between late-July and early August.

The deal includes Myllykoski’s seven publication paper mills in Germany, Finland and the United States, which have a total annual paper production capacity of 2.8 million tonnes.

The deal also includes Myllykoski Corporation’s 0.8% ownership of the Finnish energy company Pohjolan Voima Oy.

The approximate enterprise value of all businesses UPM acquired is EUR 900 million.

CHINA
Zhejiang Jingxing Paper to Install Two New Tissue Machines

China’s Zhejiang Jingxing Paper plans to build two tissue paper machines at its mill in Jiaxing city, in the eastern province of Zhejiang, China.

According to a contact for the company, construction work will start late this year. The machines are scheduled to start up by the end of 2012. Each of the two identical units, which have a trim width of 3.65 meters and a design speed of 2000 m/min, will have a capacity of 34,000 tons per year.

A 90 ton/day deinked pulp (DIP) line will be built and integrated with the units. The recovered paper (RCP) to feed the line will mainly be imported. The company is also sourcing bleached hardwood and softwood Kraft (BHK and BSK) pulp grades from overseas to feed the machines.

Jumbo rolls produced on the new machines will be converted on-site into paper towels, toilet tissue and facial tissue.

According to the company, the paper towels will be made with 100% virgin fiber (20% BSK and 80% BHK). RCP will be used to make the tissue for the other products, with DIP accounting for 90% of the furnish and BSK making up the rest.

According to Zhejiang Jingxing, the total cost for the project will be around $149 million (RMB 967 million).

M-real to Sell Hallein Pulp Mill in Austria to Schweighofer Group

M-real has signed an agreement to divest M-real Hallein GmbH (Austria) to the Schweighofer Group. The debt-free value of the deal is approximately EUR 34 million.

M-real Hallein assets include the Hallein pulp mill, bioenergy plant, paper mill (closed in 2009), and the surrounding estate.

The pulp mill employs some 200 people and has the capacity to produce about 160,000 tonnes per year of sulphite pulp.

M-real said the divestment is expected to reduce its annual sales by approximately EUR 75 million and improve the operating result by approximately EUR 5 million based on Hallein mill’s actual performance in 2010.

“M-real is focusing on cartonboard business and this transaction is a good example of our work to divest the non-core assets,” said Mikko Helander, CEO of M-real. “M-real does not use pulp from Hallein in its own board or paper operations and the profitability of the mill as a market pulp supplier has not met our targets.”

The deal is subject to the approval of Austrian competition authorities and it is expected to close during the third quarter of 2011.

M-real said that it will continue to sell Hallein pulp to the market during the 12-15 months following the closing until the new owner has established their own sales organization and systems.

The Schweighofer Group is a family owned, Austrian-based holding company.

M-real Suspends Deal to Sell Premium Papers Business

M-real said that its negotiations to divest its Germany-based Reflex mill’s Premium Papers business to a sister company of German Papierwerke Lenk AG have been suspended.

M-real first announced the deal on April 12, 2011 and expected a final closing to take place during the second quarter of 2011.

M-real said parties will evaluate possibilities to continue negotiations later and M-real will also consider other options to divest the Premium Papers business.
More Flexibility • More Choice

Finally, you can have it all – more flexibility, more choice and greater savings. As today’s paper mills evolve, it’s even more important to find new technologies that have a positive effect on your bottom line.

Welcome to fulfill™ High-Filler Technologies, the breakthrough solution that is redefining high-filler. fulfill™ is not simply a product, but a series of solutions designed to provide you with the ability to increase the amount of filler content in your paper by 1-10%, and beyond. More filler means less dependency on fiber, and that means substantial operational savings.

For flexible solutions and greater operational savings, fulfill™ High-Filler Technologies is the choice. Why not talk to us about a fulfill™ solution that’s right for you?

For more information please contact your salesperson or email: fulfill@mineralstech.com

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RUSSIA

Metsa Tissue Makes Deal to Prove and Sell G-P’s Lotus Products in Russia

Metsa Tissue and Georgia-Pacific ZAO (part of Georgia-Pacific LLC) have announced an exclusive agreement under which Metsa Tissue would obtain the license to manufacture, sell and market Georgia-Pacific’s Lotus® consumer tissue brand in Russia.

According to Metsa Tissue, on top of the signed license contract, the company will purchase a selected portion of the finished goods stock of Lotus products in Russia. Metsa Tissue will then start the production and sale of Lotus-brand products in Russia alongside its own consumer brands, Lambi and Mola.

In 2010, Lotus consumer sales in Russia were around 20 million euros, Metsa Tissue said.

G-P will continue to manufacture, sell and market its Lotus consumer brand throughout the rest of the EMEA region, Metsa Tissue added.

Metsa Tissue said the agreement will strengthen its position in the Russian consumer tissue market, making it the second-biggest supplier in the branded category.

“The deal is a natural progression of Metsa Tissue’s commitment to developing our business in Russia,” said Hannu Kottonen, CEO of Metsa Tissue.

The parties expect to close the deal at the end of the third quarter 2011.

Ilim Group's Power Generation Project at Bratsk on Schedule

Ilim Group said that it is completing the second stage of the Rebuild of Facilities for Preparation, Storage, and Feeding Wood and Bark Waste for Incineration project at its Bratsk Branch in Russia.

The total cost of the work under the project exceeds RUR 310 million (approx. $11 million).

The key purpose of the project is to increase the Bratsk pulp and containerboard mill’s power generation capacity through incineration of bark waste in bark boilers, which will yield additional steam and electric power at the mill and reduce its dependence on third-party energy.

Ilim plans to complete this phase of the project in late-2011 and expects annual power savings of up to RUR 50 million (approx. $1.7 million).

INDUSTRY SUPPLIERS


Korber PaperLink Group is seeking a new owner for E.C.H. Will, Pemco, and Kugler-Womako, which are part of the Group and form together the Paper Systems business unit.

“We have taken a strategic decision that has nothing to do with the performance of the companies,” said Hildemar Bohm, chairman of the Korber PaperLink Management Board.

Korber said there is no specific time horizon for the sale, and while the company is keen to complete the sale quickly, what is more important is finding the best possible investor.

Voith to Supply Stora Enso Ostroleka Mill with New Paper Machine

Voith Paper said that it will supply a new paper machine for the production of testliner to Stora Enso’s Ostroleka Mill in Poland.

The value of the order was not disclosed.

The new machine, PM 5, has a wire width of 8,600 mm, a design speed of 1,800 m/min, and a production capacity of 455,000 metric tonnes of testliner per year.

The new paper machine is especially designed for the production of lightweight testliner in a basis weight range of 65-140 g/m², Voith said.

Start-up is scheduled for the first quarter of 2013.

FPInnovations Leases New Recausticizing Control Technology to TEXO

FPInnovations and TEXO Consulting and Controls have signed a new license agreement for the sale of FPInnovations’ Recausticizing Control Technology (RCT).

According to FPInnovations, RCT is an advanced software that efficiently manages the recausticizing process in kraft pulp mills resulting in reduced energy costs.

“Kraft pulp mills continue to search for additional ways to reduce their chemical cost and energy consumption, and produce more electrical power. The RCT is a simple solution to reduce both energy consumption and operating costs,” said Mario Leclerc, TEXO Consulting and Controls’ Vice-President of Deployment.

Chris J. Kanters, FPInnovations’ National Director of Intellectual Property, Contracts & Licensing, said, “RCT came out of FPInnovations’ Chemical Pulping research program. We’re very proud of our research team’s work which is the result of years of R&D on the Kraft recovery process. This technology has already been successfully implemented in five Canadian Member mills.”
Since 1924, Fulton Systems has provided the paper industry with steam systems, engineering, and equipment that efficiently controls drying zones on paper machines. With over 800 major dryer steam system installations, we continue to lead the industry with engineering & designs that optimize paper machine efficiency and energy utilization.

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- Steam & Condensate System Engineering & Design
- Machine Audits & Benchmark Analysis
- Dryer Section Energy Optimization
- Troubleshooting Services
- Thermocompressors
- Separator Tanks & Modules
- Condensers & Desuperheaters
- Rotary & Stationary Syphons & Joints

**Fulton Systems’ History**
- 1924 Fulton Engineering
- 1927 Midwest Fulton
- 1954 Ross Midwest Fulton
- 1957 Ross Pulp & Paper
- 1984 Hercules Steam Systems
- 1991 Fulton Systems
- 2002 Fulton Systems Acquires TSG Steam Group

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Phone 770.447.1400  Fax 770.447.4277
customerservice@fultonsystems.com
### FOEX: PIX Benchmark Indexes (per metric ton)

<table>
<thead>
<tr>
<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 paper 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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**ABB Agrees to Buy Lorentzen & Wettre for $119 Million**

ABB said that it has agreed to acquire Lorentzen & Wettre from Assa Abloy AB for approx. $119 million.

ABB said the deal will strengthen its business in the pulp and paper area.

“This acquisition will nicely complement our existing portfolio of pulp and paper industry offerings,” said Veli-Matti Reinikkala, head of ABB’s Process Automation division. “This is an excellent strategic fit as Lorentzen & Wettre’s products and services will enable us to address the broad spectrum of pulp and paper production challenges.”

Based in the Kista district of Stockholm, Sweden, Lorentzen & Wettre manufactures equipment for quality control, process optimization and test instrumentation for the pulp and paper industry. It has production facilities in Kista and Kajaani, Finland, and sales and service offices across Europe and in Canada, China, Japan, Singapore and the US.

ABB expects the acquisition to be completed during the second half of the year.

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**Guangdong Huatai Paper Starts Up Relocated Newsprint Machine**

Metso said that a newsprint machine it relocated for Guangdong Huatai Paper Co., Ltd. in Jiangmen City, Guangdong Province in China, successfully started up on May 25, 2011.

Metso’s delivery package included engineering and supervision services for dismantling, packing, installation and start-up of PM 1. The delivery also included a new two-loop deinking line with reject handling which will provide the stock for the paper machine.

The 5.56-meter-wide (trim) PM 1 has an annual dimensional production capacity of close to 200,000 tonnes of newsprint within the basis weight range of 42 to 48 g/m². The machine’s design speed is 1,800 m/min.

Huatai Group produces newsprint, uncoated fine paper, coated art paper and tissue with an annual capacity exceeding 3.0 million tonnes.

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

- **Billerud** has appointed **Susanne Lithander** as the new CFO and member of its Senior Management Team, effective September 1. Currently, Lithander holds the position of Vice President Finance at SCA, where she leads a major global change project.

- **Catalyst Paper** has appointed **Brian Johnston** to the role of Vice President, Technical Services. Johnston joined the company in 1994 and most recently served as Vice President Operations.

- **NewPage Corp.** announced that **Jay A. Epstein** recently joined the company’s senior leadership team as Senior Vice President and CFO, replacing **Curtis Short** who was serving in the role on an interim basis. Prior to joining NewPage, Epstein had been Vice President Finance, Treasurer and Secretary of Brant Industries, White Birch Paper Company and SP Newsprint Company and was CFO for SP Recycling Company.

- **RockTenn** announced the following changes to its operational organization after the completion of its recent acquisition of Smurfit-Stone Container: **Mike Kiepura** has been named President, Consumer Packaging; and **Jim Porter** has been named President, Corrugated Packaging and Recycling.

**Resignations**

- **Jeff Lane**, Senior Vice President of Boise Inc.’s packaging operations, resigned his position on June 22. **Robert A. Warren**, Chief Operating Officer for Boise, assumes responsibility for Boise’s Packaging business. According to the company, Lane is leaving the company to pursue an employment opportunity outside the packaging industry.

- **Bob Mullen**, President, CEO, and Chairman of The Newark Group, resigned in mid-May. Mullen originally joined The Newark Group in 1984 as assistant superintendent of a paper machine at the company’s Haverhill Paperboard Mill (closed in 2008). On an interim basis, **Philip B. Jones**, senior vice president of converting, has been appointed to the position of President and CEO. Jones will remain in this role until the Board selects a permanent president and chief executive, which the company expects to take place by mid-August. **Jim Keller** has been elected Chairman of the Board.

**Industry Suppliers**

- **Buckman** has promoted **Michael S. Wang** to Market Manager Pulping with Buckman USA. In his new role, Wang will expand his responsibilities in the U.S. pulping market as well as continue to support growth initiatives in Asia. Wang has been with Buckman since 2005.

- **Fisher International** has appointed **Amy ‘Yuanyuan’ Chu** and **Neo ‘Ziniu’ Wu** to the Asian region. Chu will work in the product management group and Wu will provide client support and share responsibility for data research and quality.

- **Metso** has appointed **Jari Koikkalainen** as President of Metso Paper and Fiber Technology, China region. Previously, Koikkalainen served as Senior Vice President, Sales, Metso’s Paper business line and head of the company’s Paper and Fiber Technology sales function. Koikkalainen succeeds **Ari Harmaala**, who’s career with Metso spanned 25 years, 18 of which were in Asia. Koikkalainen will be located in Beijing.

- **Panther Systems** has appointed **Phil Farmer** as its new Chief Executive Officer. Farmer joins Panther with 25 years of experience in the paper industry. Since 1999 he has held key leadership roles both as a general manager and division vice president at Caraustar, and general manager at RockTenn, and most recently Graphic Packaging International.

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Please submit “People” news to John O’Brien by email: jobrien@paperage.com
Newspaper Business Remains a Big Challenge

Strong export tonnage and crafty supply management continues to sustain North American shipments and operating rates. But U.S. newspapers are struggling as print ad revenues continue to shrink despite an economic recovery that led to growth in other forms of advertising. If domestic demand remains weak the question becomes how well producers can stay ahead on the supply side and the strength of exports.

By Harold M. Cody

Newsprint producers must wonder sometimes what can possibly go wrong next. First producers worldwide took a well deserved deep breath last year as they for the most part survived the worst downturn in history. The three year plunge in global newsprint demand, which was particularly acute in North America, finally ended as the market regained a semblance of normalcy in mid-2009 and finally turned the corner last year.

They may have survived but it hasn’t been easy or pretty, and to top it off the outlook isn’t all rosy. Mills around the world survived in part by closing additional and significant capacity to closely match supply with demand. I’m sure producers hoped that with the worst of the downturn behind them that things would at least begin to show some sense of a return to normal. The problem is that in North America, at least, that hasn’t really happened.

You Call This a Recovery?

Half way through 2011 the overall situation isn’t all bad, but several serious problems continue to plague the newsprint sector. Producers still don’t have a clear path forward despite the fact that the economy has been improving for some time. Normally, as the economy improves demand recovers and the market enters into a new business or market cycle. Unfortunately some problems won’t seem to go away and thus a “normal cycle” has yet to materialize. The most challenging problem is a nagging downturn in U.S. demand that never seems to end. In addition, rising costs are pinching margins and, finally, the outlook for exports remains a question.

In order to assess where things stand let’s recap the last year. First, without doubt newsprint markets staged a solid recovery in 2010 when compared with the prior three years which were characterized by unprecedented problems. The market finally and at last stabilized during 2009 and this was followed by a modest recovery last year. Operating rates improved and overall North American production posted a modest increase. North American operating rates were 91% for the year, vs. 76% in 2009, one of the worst levels ever recorded.

However, the bad news is that domestic demand stabilized at a very low volume level. In fact, if one were to look at some key newsprint market data in isolation it could easily be concluded that last year was actually a recession. As an example, while the tone of the market was markedly improved compared to the depths of the recession, total North American demand last year fell 6% compared to 2009 to a level of 5.4 million metric tonnes, according to PPC. Shipments to N.A. were 5.3 million metric tonnes, a 5.8% drop, mainly driven by a 6.9% drop in shipments to the U.S., which fell to 4.5 million metric tons. The decrease was the result of an 8% drop in US daily newspaper consumption which ended the year at 3.7 million metric tonnes.

What literally saved the day was a huge gain in overseas newsprint exports, which rose 44% to 2.5 million metric tonnes. Exports accounted for about one-third of shipments last year, vs. just under one quarter in 2009. For the full year, exports to Latin America were up 27% and exports to Asia (excluding Japan) more than doubled, with shipments to both regions falling just shy of a million tonnes. Exports have weakened a bit in early 2011 but remain solid. A good portion of Japan’s newsprint industry was shut down by the tsunami and this is one factor currently influencing global trade.
The world newsprint market also posted a recovery in 2010, however, growth remains modest and it varies widely by region. In the developed economies of North America and Europe, newsprint markets remain mired in a downturn where capacity withdrawals and capacity management are facts of life. Growth in other areas of the world such as Asia and South America continue although at reduced rates, and these remain key markets for producers worldwide. Capacity growth around the world remains modest but is something to closely monitor because growth in domestic capacity can have a far ranging, and negative, impact in imports from mills such as those in the U.S., Canada and Europe.

During the three-year downturn, global demand dropped 15% or about 7 million tonnes according to estimates. Demand in the developed regions such as North America is falling at a rate of about 3% annually on average.

Nevertheless, as a result of these developments and despite some bad news and underwhelming market indicators, the current market is in much better shape than it was. With the improvement in operating rates producers have been able keep prices stable at about $640/metric ton, where they’ve remained since late summer 2010. Prices rose about $100/metric ton in 2010.

Dilemma of Advertising Weakness

The question now is where we go from here. It’s a big unknown because of a huge problem facing newsprint producers: their biggest customer is suffering. Nearly two years after the overall economy began to pull out of the worst downturn since the 1930s, U.S. newspaper print advertising revenues not only haven’t recovered, they don’t appear to have stopped falling. Almost all other media, including magazines which posted a small improvement, posted some gain in 2010 over extremely weak 2009 levels. The gains may be small by historical measures and advertising remains well below pre-recession levels, but they were gains nonetheless.

After falling about 6% last year, and dropping on a quarterly basis since early 2006, it was hoped that newspaper ad sales might rebound this year. Unfortunately, the news so far in 2011 hasn’t been much better. According to the Newspaper Association of America print ad sales fell by a steep 9.5% in the first quarter of 2011. This will inevitably lead to further shrinking in daily newspaper consumption.

The cause of this lingering problem is essentially what we reported in last year’s newsprint column. Classified ad revenues are shrinking due to an unfortunate confluence of factors including stubborn high unemployment, a housing market on life support that has yet to recover and continued shifts/losses to electronic media.

One important newspaper advertising market, automotive, has rebounded. However, while vehicle sales bounced by 11% in 2010 after three years of successive decreases, newspaper automotive advertising did not rebound. In fact, auto advertising revenues fell almost 20% last year. Classified ads from autos are now only about 20% of what they were in the mid-2000s. In first quarter 2011, real estate classified fell 19%, auto was down 4.7% and retail fell 9.5%. Employment ads did post a modest 4% increase. As noted, this fundamental weakness resulted in an 8.0% decline in consumption by US daily newspapers last year, according to the Newspaper Assn. of America.

An ongoing concern was that even if advertising recovers, the gains would only be modest. In fact, unfortunately it now appears that revenues from print simply may not recover. Newspapers are working frantically to leverage the strengths of their businesses — a wide range of information gathering resources and a solid sales network — into a new business model based on electronic/online formats. Online advertising and readership continue to grow, but they remain minor and they certainly aren’t growing fast enough to offset losses in traditional advertising.

So where does this leave us? Operating rates in May were 92% indicating that for now markets remain fairly stable. But signs of weakness continue to crop up and are a cause for concern. The continued weakness in domestic demand is in fact one key reason that prices have remained flat. Producers attempted to raise prices $35/metric tonne for July shipments to offset rising costs and to improve margins, but this attempt failed as market fundamentals (shipments, inventories, etc.) weakened during early 2011.

Mills would like to attempt another increase later in the year despite the continued decline in North American demand for newsprint. With the Canadian dollar rising and with costs for fiber, energy and chemicals going up, Canadian mills will be under particularly extreme pressure. Industry observers note that the chances of any price increase this year, or next, likely depend on additional capacity curtailments, so further painful adjustments will be forthcoming unless domestic consumption posts a remarkable recovery — or unless exports remain an area of growth, which appears unlikely.

One thing does seem clear. Producers must continue to play the same hand they’ve been playing. They have to stay ahead of demand by cutting capacity as required and continue to ship a lot of tonnage to offshore markets. If they play the hand well, another price increase later this year may be possible. Keep watching.

Harold Cody is a contributing writer for PaperAge. He can be reached by email at: HCody@paperage.com.
Things have changed because a UK-based association, Two Sides (www.twosides.info), has brought its message to the U.S. and joined the NPTA Alliance to promote the sustainability of paper and printing in the U.S. The increased clout from the U.S. link will drive the message more powerfully. Two Sides was given life four years ago by the UK National Association of Paper Merchants (NAPM).

Years ago I wrote a comment in this magazine called “Don’t be a no-show.” It was an appeal to everyone in the industry to unite and put across the good story our industry has to tell. The story is impressive. It includes conservation, sustainability, afforestation, new tree species, energy and chemicals recovery, combined heat and power (CHP), closed loop technology, oxygen bleaching, water treatment and, above all, recovery, recycling and biofuel.

But trying to get this across was a dispiriting task. The industry was unable to forge a united front, some trade press journalists ran with the hare and hounds, the eco-lobbies were ferocious in their attacks, and governments shopped for new votes in the eco-lobby constituencies. I was accused of being the “...running dog of the capitalist and exploitative forest owners.” I framed that and it’s hanging around somewhere. We pushed the good news, but all it took to put us on the back foot was the cliché that printing newspapers kills trees!

**The Beginning**

Two Sides began small and slowly as an idea in 2007 by Martyn Eustace under the umbrella of the NAPM. It gathered speed and became a formal organization a year later. Europe was the obvious region for launch as it was the cockpit of conflict between the industry (of which many players were global companies with European operations) and the eco-lobbies who had a highly visible and effective media presence.

By 2010, Eustace was able to report that “…Two Sides had launched a campaign to target companies who claim that switching to online communication is better for the environment without verifiable supporting evidence. As a result, Two Sides has so far convinced 27 out of 33 major corporations to change their environmental claims or to use wording that doesn’t include misleading or incorrect statements related to e-billing.” Onside are big hitters like Vodafone, Barclaycard and EON Energy.

By the start of this year, Two Sides had won over banks, building societies, utilities and telecoms companies in its national campaign to educate major UK corporations in correcting misleading green claims in their marketing.

**Growth in Europe**

Every European pulp and papermaker has signed up, including International Paper (IP) and Mohawk Fine Papers Europe, as well as scores of printers, merchants, publishers; and trade associations like CEPI, UK Dept of Transport, PEFC (the European certification body), IFPP (International Federation of the Periodical Press) and five European government purchasing authorities. In all, nearly 300 companies with a presence in the industry have signed up. IP and Printing Industries of America (PIA) have been very supportive, and IP has produced “The Little Book of Commonsense,” a primer on why paper is still the premier media for business and social communication. And PIA has issued a report stating that printed products are both environmentally and socially responsible.

**Fighting Back**

For nearly a generation our industry has been under relentless attack from the eco-lobbies. Much of the criticism has been biased and plain wrong. The industry responded positively but just couldn’t get the message across. Things are now changing in our favor.

By David Price
What Will It Mean?

What all this means, in practice, is that Two Sides and its members tackle head-on contentious claims by the eco-groups and, equally important, put across the positive side of the industry. A good example is the recent global coverage achieved by Two Sides for a reassuring study on woodland density. The University of Helsinki and New York’s Rockefeller University have published a report, “The Great Reversal,” which records that forest density is increasing across much of the world after decades of decline. The research shows that forests are thickening in 45 of 68 countries, which together account for 72% of all global forests.

“In 2010, Two Sides launched a campaign to target companies who claim that switching to online communication is better for the environment without verifiable supporting evidence. As a result, Two Sides has so far convinced 27 out of 33 major corporations to change their environmental claims or use wording that doesn’t include misleading or incorrect statements related to e-billing.”

– Martyn Eustace, Chair and Director of Two Sides

Jesse Ausubel, a director at the Rockefeller University and a co-author said, “The enlarging forests in almost 50 nations studied may signal the start of a welcome and necessary restoration.” This growth is taking place globally, but with marked intensity in China, Latin America and parts of Africa — nearly all are plantations.

The UN’s Global Forest Resources Assessment report (2010) commented on the study and confirmed that in some countries “…the growing stock per hectare is increasing — and so is the carbon sequestered.” Two Sides got this report into several European dailies.

The creation of Two Sides and its extensive and influential membership marks a watershed in the industry’s history. It will energize our determination to fight back and deliver the good news.

David Price is a contributing writer for PaperAge. He can be reached by email at: DPrice1439@aol.com.
New One-Two Punch Gives Mills the Upper Hand Against Stickies

A new technology combines patented enzyme chemistry for stickies treatment with the leading detackifier to generate a breakthrough in stickies control, reducing the size and quantity of stickies while stabilizing any remaining stickies to reduce agglomeration downstream.

By Dexter B. Monroe

Optimyze Plus technology combines patented enzyme chemistry for stickies treatment with the leading detackifier to generate a breakthrough in stickies control. This patented enzyme technology reduces the size and quantity of stickies while the detackifier stabilizes any remaining stickies to reduce agglomeration downstream. Several studies demonstrate that this new technology provides a new standard in stickies control. Field applications confirm that the synergistic combination of the enzyme chemistry with the detackifier provides greater stickies reduction than enzyme chemistry and better stickies stabilization than detackifiers.

INTRODUCTION

Over the last 40 years the paper industry has experienced several market forces that have influenced the direction of recycled fiber utilization. Buckman conducted a survey of industry experts which indicated that stickies-related sheet quality and machine runnability problems have increased mainly due to marketplace demands for higher sheet quality performance. In order to be competitive in today’s market, papermakers must continue to respond to these ever increasing sheet quality expectations. The papermakers rely on procedural, mechanical, and chemical methods to control stickies-related problems within their operation. The scope of this article is limited to chemical treatments. Additionally, environmental improvement efforts have limited the use of prevailing chemical technologies for stickies treatment. [1] These main drivers that have influenced recycled fiber utilization can be categorized as technology advancements, the competitive marketplace, and environmental requirements.

Technology Advancements.

Papermaking technology improvements as well as the consumer technology evolution have taken sheet quality expectations to higher levels. The main dilemma is centered on the notion that the paper industry’s quest to meet the market demands for higher sheet quality standards is one of the main contributing factors to the problems associated with stickies. The cycle starts with a consumer need to enhance the look and feel of a paper product. A marketing company may request that their paper have improved brightness, softness, strength, or printability in order to create a more distinctive and vibrant advertisement. In order to meet this demand, the competitive marketplace drives chemical innovation. It is this very innovation that leads to the creation of improved ink binders with longer water penetration hold out. As these improved ink binders become a part of the recycled fiber market, the same innovation that led to their development results in a sheet with a more tenacious stickies deposit. Several paper industry and consumer technology advancements are highlighted in Diagram 1.

Competitive Marketplace.

The paper industry has experienced company consolidations, paper demand reductions, and global capacity realignments that have affected the distribution and usage of recycled fiber. Diagram 1 depicts the emerging technologies and marketplace drivers that continue to reshape the recycled fiber market. Many of these factors represent challenges for papermakers. Global recycled fiber demands have influenced the price and quality of recycled fiber. Papermakers no longer demand clean, consistent recycled fiber from their
suppliers. Instead, papermakers accept lower quality contaminated recycled fiber because it is affordable and available. At the same time, chemical innovation has increased the tackiness of stickies, and the global recycled fiber demand has increased the potential for increased contamination in recycled furnish. Many of these issues are shown in Diagram 1.

Environmental Requirements. Throughout the 1970’s, 1980’s, and 1990’s, the Environmental Protection Agency’s enforcement efforts have caused papermakers to scrutinize the chemical additives used in the papermaking process. Some of the strong cleaning agents used in the 1970’s and 1980’s have been phased out due to water quality discharge regulations established by the Clean Water Act. [1] Even some of the less aggressive detergents used in the 1990’s have been banned due to Clean Water and Clean Air regulations. [2] Currently, several paper companies have implemented a lower risk approach to chemical additives by eliminating the use of products that contain even the slightest level of hazardous pollutants. As much as the improved quality demands and the competitive global marketplace have adjusted the stickies control arena, the environmental regulations have changed the pool of potential chemical actives available for use as stickies control agents. Today, the demand for “green” products have led to the creative use of natural alternatives such as enzymes and agriculturally derived products. Figure 1, Environmental Drivers, highlights some of these areas of concern. [3]

**COMPETITIVE MARKETPLACE DRIVES SHEET QUALITY IMPROVEMENTS**

Market forces have shifted the perspective of consumers into a new competitive marketplace full of increased sheet quality possibilities. Buckman’s survey of papermaking experts identified the main drivers for stickies-related issues within the paper industry over the past 40 years. Figure 2 provides a graphic representation of these factors. The top challenge within the industry centered on the increased level of sheet quality expectations. Careful consideration into the key motivations that contributed to the sheet quality improvements are in line with the theory of economic alchemy described by Paul Pilzer in his book entitled *Unlimited Wealth*. [4] Pilzer suggests that economic success comes from creating consumer demand by offering superior products. This type of improvement did not occur in one step within the paper industry. In fact, the changes occurred through a series of small steps as a result of the papermaking technology improvements, consumer technology developments and competitive marketplace factors listed in Diagram 1. Although the list in Diagram 1 may not be all inclusive, many of those factors were key drivers of the paper quality improvements over the past 40 years. The paper industry experienced economic alchemy as one innovation drove another within the competitive nature of the marketplace. Improved sheet properties led to the formation

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**Diagram 1**

**Competitive Marketplace**

- **Papermaking Technology Improvements**
  - Acid → Alkaline Papermaking
  - Larger → Faster → More efficient paper machines
  - Improved sheet defect identification equipment

- **Consumer Technology Improvements**
  - PC Evolution → Image for Tissue
  - Increased Quality → Reduced Cost
  - Global Raw Material Supply

- **Environmental Requirements**
  - Government Contracts → Post Consumer Waste Content
  - Copy → Ink → Jet Multi-purpose paper
  - Mill Closure → Downsizing
  - Global Labor Costs

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**Figure 1. Environmental Drivers**

- **Hazardous Waste**
  - Amendment of RCRA 1984
  - Established “cradle to grave” regulations
  - Solid Waste Disposal Act 1965
  - Contamination of land and water
  - Passage of RCRA 1976

- **Water Regulations**
  - Increasing Volume of Waste
  - TSDF Permitting
  - Superfund / CERCLA
  - Illegal dumping
  - River catching fire (Cuyahoga River)
  - Wide-spread contamination, fish kills
  - Federal Water Pollution Control Act 1948
  - Land disposal restrictions
  - Regulations on discharges to water

- **Air Emissions**
  - Establish water quality standards
  - Unregulated discharge of pollutants to water
  - VOCs & HAPs
  - NPE/APE
  - NSPS & NESHAP
  - NPDES Permits
  - Pre-Treatment Standards
  - Federal Water Pollution Control Act 1948
  - Regulations on discharges to water

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**Sustainability**

- “Silent Spring” Rachel Carson 1962
- Product reformulation
- Customer requirements
- Environmental activist
- “Green” movement

**Community Right-to-Know**

- ISO 14001
- Global Warming
- Emergency Planning
- Bhopal, India
- Risk Management Plans

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of new paper grades with improved brightness for fine paper, increased softness for tissue, and better printability for packaging grades. These new grades also generated new challenges within the recycled fiber market.

The additives used to help improve the sheet properties also generated new challenges in the repulping process. As our survey revealed, the new challenges were really influenced by the demand for improved sheet quality. The traditional recycling procedural, mechanical, and chemical methods were being utilized comfortably by the papermakers. As sheet quality improvements gained momentum within the industry, these traditional methods started to fall behind the expectations of the papermakers. There had always been a small gap between the desired level of chemical performance and the actual level of stickies control. However, that gap increased due to the need for improved sheet quality performance outpacing the performance improvements delivered by the available chemical technology.

CHEMICAL CONTROL STRATEGIES

Although chemical control strategies have improved over the years, the demand for increased sheet quality has outrun the capacity of chemical treatments to control stickies-related problems. Once a mechanical contaminant removal process has been optimized, papermakers rely on chemical treatments to control the remaining stickies-related issues. It seems that chemical stickies control technologies were simply falling further behind the rapid increase in stickies-related machine runnability and sheet quality complications caused by these increased sheet quality demands. Papermakers were frustrated with chemical treatments that seemed to transfer the stickies from one area of the machine to another surface or end up in the sheet as a large agglomerated stickie, causing converting issues.

One reason for this gap between sheet quality and chemical technology performance is that the majority of the chemical treatment strategies do not address the root cause of stickies-related problems. In order to effectively manage stickies, they must be purged from the process. Table I summarizes the major classification of stickies in order to provide a more comprehensive appreciation for the complexity surrounding the chemical nature of stickies. [5]

In order to help close this gap between increased sheet quality demands and chemical technology performance, a new product was formulated using a blend of enzymes and a detackifier. The new product formed by blending these enzymes with the leading detackifier formed a product with the capability to address a broader range of stickie contaminants. Most stickie deposits are agglomerates formed by various mixtures of the stickie classifications listed in Table I. The enzyme detackifier blend chemically alters the nature of the stickie agglomerates by reducing the size and tackiness of acetates and acrylates while detackifying any remaining components. This product reduces the gap between the sheet quality improvement demands and the available chemical stickies control technologies. Although this product does not completely remove stickies from the process, the enzyme detackifier blend combines the two leading stickies control modes of action in one formulation.

Enzymes. Enzymes are naturally occurring proteins that are used by living organisms to enhance the efficiency of specific chemical reactions. Enzymes are not consumed in a single reaction. In fact, enzymes can participate in millions of reactions per minute. However, system conditions such as pH, temperature, or interfering chemical residuals will break down enzymes over time. The enzymes in this product act together as a catalyst to facilitate the hydrolysis of the ester linkage of stickie materials containing acetate and acrylate components. [6] This

<table>
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<tr>
<th>CLASSIFICATION</th>
<th>CHEMICAL NAME</th>
<th>ALIAS NAME</th>
<th>SOURCES</th>
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<tr>
<td>Acetate</td>
<td>Polyvinyl acetate Ethylene-vinyl acetate</td>
<td>PVAc, EVA</td>
<td>OCC, MOW, OMG</td>
</tr>
<tr>
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<td>Vinyl Acrylates</td>
<td>Ink</td>
<td>MOW, OMG</td>
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<td>Styrene Butadiene Rubber</td>
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<td>Polyisoprene</td>
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Table 1
hydrolysis reaction alters the chemical structure of the stickie resulting in a less stable, less tacky material. The chemically altered stickie complex breaks apart into smaller particles. [7]

**Detackifiers.** Detackifiers have been used to control stickies in the paper industry for over 20 years. Detackifiers work at the surface of stickie contaminants. The hydrophobic portion of the detackifier attaches to the hydrophobic stickie surface. Once attached, the detackifier’s hydrophilic end remains in the water phase encapsulating the stickie with a water loving coating. Detackifiers vary in chemical structure, available bonding sites, and molecular weight. Each of these factors contributes to the detackification ability of the product. The leading detackifier products offer an improved capacity to stabilize stickies and prevent agglomeration. The detackifier in this enzyme detackifier blended product is a natural polymer exhibiting a strong stickie stabilization capacity. This detackifier, like the enzyme, is a naturally occurring compound. Therefore, the enzyme detackifier blend can be categorized as an environmentally friendly or “green” product.

**RESULTS**

Enzyme based products have successfully reduced the size and quantity of stickies in many mills by breaking the chemical bonds associated with the tacky nature of Poly Vinyl Acetate (PVAc) type stickies. While PVAc stickies make up a large percentage of problematic stickies, most agglomerated stickies contain components of several classifications of stickies.

The opportunity to combine the leading detackifier with the most effective stickies control enzyme appeared to offer the potential for improved performance. The combination of these different modes of action could provide a much needed synergy. The enzymes could help reduce the particle size of the stickie contaminants to allow the detackifier access to smaller stickies. At the same time, the detackifier could boost the performance of the enzymes by helping to stabilize contaminants once they were treated with the enzyme. Lab studies were conducted to evaluate the compatibility of the enzymes and the detackifier. Both actives have proven effective individually, but testing was needed to confirm that the actives could work together with synergistic performance.

The 1st generation of enzyme products utilized a family of esterase based actives that attack the ester linkages in sticky materials like PVAc. Further research and development efforts led to the 2nd generation of enzyme products. The 2nd generation of enzymes provided an increased tendency to react with the functional groups associated with the tackiest chemical bonds within the structure of the stickie molecule. The following test compared the stickie particle size distribution reduction potential of various enzyme products with and without a detackifier component in an Old Corrugated Container furnish. The combination product, which contains the detackifier in addition to the enzymes, gave better performance than the 2nd generation enzyme product. These results proved to be extremely important because they confirmed that the enzymes could work effectively in the presence of the detackifier.

The next study investigated stickie detackification improvement. The following test compared the detackification capacity of the detackifier, enzymes alone, and the enzyme detackifier blend.
Note that the enzyme detackifier blend provided improved performance over the 2nd generation enzyme product as well as the detackifier product. This is also important because it confirmed that the detackifier could work effectively in the presence of the enzymes. In fact, the enzyme detackifier blend offered a slight improvement over the detackifier.

The next study compared the potential of the detackifier, enzymes alone, and the enzyme detackifier blend to prevent agglomeration.

This study proved to be the most significant because it confirmed the synergy between the two modes of action. The enzymes clearly act on the acetate and acrylate portion of the stickie deposit while the detackifier passivates the surface of the remaining hydrophobic particles to prevent further agglomeration in the process. In fact, the enzyme detackifier blend offered an increased level of performance. Therefore, the bench testing was sufficient to warrant field confirmation of the results. Our field confirmation trials were designed to confirm that the enzyme detackifier blend performed better than the detackifier component alone and better than the most effective enzyme product. Several trial sites were selected and the following two field evaluations clearly confirmed the bench testing.

**Field Evaluation Site #1** - A paper machine running a bleached grade using 50% mixed office waste.
Situation: The machine was using the industry leading detackifier at 1#/ton to control stickies loading in the sheet.
*Evaluation Result:* The machine replaced the industry leading detackifier with the enzyme detackifier blend at 1#/ton with outstanding results. The machine experienced a 57% reduction in sheet stickies.

**Field Evaluation Site #2** - A paper machine running a bleached grade using 75% sorted office waste.
Situation: The machine was using an enzyme product to reduce the solvent batch wash frequency in order to lower their chemical cost and increase their production.
*Evaluation Result:* The machine replaced the enzyme with the enzyme detackifier blend at equal treatment costs. The machine experienced a 54% reduction in solvent chemical usage. They also took advantage of a 40% reduction in batch wash frequency.

**CONCLUSION**
The introduction of enzyme stickies control marked the first chemical technology that actually addressed the root cause of stickies-related deposition: the tacky nature of the stickie. Buckman’s patented enzyme treatment products include actives that work together to reduce the size of stickies by breaking the key bonds that are present in the chemical structure of most acetate and acrylate containing stickies deposits.[8]

Due to the variability of recycled furnish, papermakers rarely have stickies-related deposits from only one type of contaminant. Most stickies deposits found on paper machines or in sheet spots contain a blend of two or more combinations of the classifications listed in Table I. Lab testing and field evaluations clearly confirmed that the enzymes and detackifier modes of action were compatible. The enzymes performed well in the presence of the detackifier as measured by the stickies count reduction test. The detackifier worked well in the presence of the enzymes as measured by the stickies detackification test. Most importantly, synergistic performance of the enzyme detackifier blended product was highlighted in the stickies agglomeration test. Therefore, the use of the patented enzyme chemistry to break the chemical bonds that hold most agglomerated stickies together, combined with the leading detackifier to stabilize any remaining stickies and reduce agglomeration downstream, is clearly a breakthrough in stickies control technology. This technology represents Buckman’s 3rd Generation of enzyme products and offers a significant advancement towards closing the gap between customer demands for sheet quality improvements and stickies chemical control technology performance.

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Refining is one of the most important operations in tailoring the fibers to obtain the desired paper properties. Recent advances in refining technology at Metso have concentrated on improving fiber development; reducing energy consumption and minimizing plate wear to reduce maintenance costs. Here we look at several new developments to illustrate how these new trends and technologies are improving the final product quality, raising efficiency and reducing operating costs.

### Hardwood Pulp Refining

With the right fiber treatment, papers made from eucalyptus pulps feature good stiffness and bulk with high opacity. Eucalyptus has large vessel segments that, without sufficient refining, cause “picking”, where vessel segments separate from the paper surface on the printing press taking coating and ink with them.

To get the best from the pulp, the short eucalyptus fiber requires a fine bar pattern, which, when used with conventional refiner fillings, has narrow grooves that reduce the hydraulic capacity and efficiency of the refiner. Metso’s solution is the MicroBar filling design that enables higher loadability compared to standard fillings. The unique combination of a densely designed refining zone and capacity grooves results in an extended cutting edge length and very high hydraulic capacity. With MicroBar, refining energy consumption is reduced by as much as 40% for the same SR (Schopper Riegler) or tensile levels. As refining accounts for one-fifth of the total electricity consumption of a typical fine paper production line, the energy savings are considerable.

### Longer Filling Lifetimes

Fiber quality, energy efficiency and production runnability all depend on the mechanical condition of the refiner. As fillings wear, a drop in energy efficiency will be noticed, followed by worsening fiber quality until replacement is needed. Bar wear is measured as a loss in bar height, caused by abrasion and corrosion. Bar-edge rounding has the most significant effect on quality and efficiency as the leading edge of the bars is where most fiber treatment occurs as they pass each other.

Metallurgy is the key to extending filling life, but increasing abrasion resistance with conventional alloys makes them more brittle and thus less resistant to mechanical damage. Metso is pioneering the use of the NV steel alloy family with improved wear resistance and no loss of impact strength. Using special alloying provides the NV alloy microstructure with a remarkable amount of hard and wear-resistant carbides. Metso has applied for a patent for this application.

### The New Generation Refiner

Metso has developed a revolutionary low-consistency refining concept with the new OptiFiner Pro refiner. In conventional refining, the fibers have to travel the full length of the refining zone and suffer excessive impacts, leading to increased fines, weakening of the refined fibers and inefficient delivery of energy to the fiber. Some fibers, as much as 70% in a disc refiner for instance, may not be treated at all. The new OptiFiner Pro feeds the stock evenly across the bars directly in the refining zone, increasing the number of fibers that receive proper refining treatment.
The improved performance of OptiFiner Pro enables refining with fewer and more compact refiners, thus significantly reducing investment and maintenance costs. The high energy efficiency provides operational cost savings and supports sustainable development with lower entire life cycle costs and less environmental stress.

**Turbine Housing Boosts Refiner Production**

Metso has developed a new type of housing for its low-consistency refiners that can increase the production of the refiner by 30 percent and provide longer fillings life.

The Turbine Housing replaces the existing radial outlet design with a tangential outlet that allows easier stock flow through the refiner and thus increases outlet pressure. This enables more production through the refiner and can improve pulp properties as finer refiner patterns can be used. The energy savings potential is considerable with a reduction in stock pump speed or by reducing the number of refiners needed.

**PUTTING NEW TECHNOLOGY INTO PRACTICE**

Metso’s recent advances in refining technology are providing new opportunities for papermakers to improve fiber treatment and save valuable resources. Recognizing this led M-Real’s Kyro board mill in Finland to recently conduct an audit of its refiners together with Metso. The audit covered all refining lines in the mill, sub-systems and spare part requirements. The target of finding potential energy savings quickly resulted in recommendations from Metso for a dramatic efficiency improvement in short fiber refining while retaining the desired stock properties.

**Easier To Run and Control**

The BM 1 board machine at Kyro was rebuilt in 1994 and today produces 150,000 tpy of folding boxboard for beauty care and other demanding packaging products. During the rebuild, two parallel JC03 refiners were installed for birch pulp treatment before the machine chest, where the stock is blended with pine pulp. The two refiners were necessary to provide the gentle low-intensity refining...
for short fiber treatment. With short fiber coarse-type (SC) fillings, high specific edge loads and low throughput, refining efficiency was poor, but one refiner would have given an unacceptably high refining intensity and was not an option at that time.

In Metso’s refining audit it became clear that utilizing Metso’s new refining technology would enable the mill to do the job with one refiner. For the mill’s Technical Manager, Raimo Salmi, this was really good news. “Today we are using eucalyptus in addition to birch in our short fiber supply and refining has to be exactly right. One refiner is easier to run and control,” Salmi said.

Eucalyptus refining presents an extra challenge as the fibers are smaller than birch and harder to refine, with an increased possibility of plate clashes.

**Impressive Savings**

One refiner was fitted with the new Turbine Housing and Metso’s MicroBar fillings in the summer of 2010 and the second refiner was shut down. The Turbine Housing provided the increase in capacity from the refiner and MicroBar gave the correct refining intensity. Metso took many stock samples before and after the modification to ensure stock quality did not suffer, and, according to Salmi, it did not.

“Quality is at the same level and the no-load power on one refiner saves us 100 kW,” Salmi noted.

A reduction in the specific energy control target enabled by MicroBar saves another 15 to 20 kWh/ton. The specific energy control of the refiner is done in the mill’s metsoDNA process control system, and the operators report that, “It is working very well, no problems.”

The key parameter for refining is the Schopper Riegler freeness level measured by the Metso automatic pulp laboratory, a kajaaniPulpExpert. “If the refining was too tight, the board on the machine could start ‘blowing’ as bubbles form in the middle layer because the steam cannot escape. PulpExpert keeps a check on the situation at all times,” Salmi explained.

One less refiner in the mill also means savings for mill maintenance. Wear on the MicroBar fillings has been checked every two months and so far has been acceptable.

Salmi said that he is very satisfied with the results. “The audit was very worthwhile. The project went according to schedule.”

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Nigel Farrand, after 30 years of export sales and marketing with Valmet/Metso Automation in Finland and the USA, is now a freelance writer. He is a member of TAPPI and has been recognized by TAPPI and CPPA (now PAPTAC) as an instructor in Bleach Plant Sensor Technology.

This article originally appeared in Results, Metso’s customer magazine (No. 1/2011).
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JUHANI PARTANEN AND MARJAA N LEHTINEN

Water removal at the forming or press section is significantly cheaper than at the dryer section. Since removing one liter of water from the sheet at the dryer section costs five times more than at the press section, it pays to optimize dewatering at an early stage.

A one percentage point increase in dry solids content after the press section decreases the need for steam at the dryer section by up to five percent. Therefore, it offers a reasonable savings potential or extra capacity in drying-limited machines.

Traditionally, water removal from the web in the press section has been carried out with felts, which mainly remove water with the help of suction boxes (so-called Uhle box dewatering). More than one-fifth of the total energy consumption of the press section is used to produce vacuum; the remaining four-fifths are used by sectional drives. More effective dewatering methods increase the need for vacuum and energy exponentially, as well as shortening the lifetime of the felts, which get worn by friction due to rubbing against the suction box covers.

ROLL-BASED WATER REMOVAL REQUIRES SUITABLE PRESS FELTS

In a modern press section, water is removed from the sheet with a nip load through felts onto roll surfaces, from where it is transferred to save-alls with the help of a foil doctor. Vacuum is mainly needed for suction rolls and suction press rolls. Some suction boxes can even be shut down, which significantly saves energy. Additional savings can be gained through extended felt lifetimes and reduced demand for electric drive power.

One prerequisite for optimal press roll dewatering is that the press felts are suitable for the position in question. Metso’s Aquamaster felt, made of non-woven base material, and Metso’s hybrid felt, made of a combination of non-woven and woven base material, generate higher hydraulic pressures and allow the water to flow easily through the felt onto the roll surface. Correspondingly, there must be sufficient void volume for the water on the roll surface.

The structure of the new Metso felt types promotes efficient nip dewatering, where water flows directly through the felt without any machine-direction movement. The surface of the felt is smooth against the sheet, which ensures good end product quality and the absence of marking, even with delicate grades. The light, yet tight, structure of the base material shortens the breaking-in time of the felts and thus maximizes the line’s production capacity.

CORRECTLY-SIZED GROOVING ADDS TO VOID VOLUME

Water removal in the nip calls for effective void volume on the roll surfaces. Traditional and blind drilling, which is still used, does not provide much void volume, regardless of its seemingly large volume. Correctly-sized cover grooving is a much more effective way to increase void volume.

The following table shows some void volumes created by different groove sizes. Blind drilling increases void volume only slightly.

Adequate groove density and width are important in making sure that the roll surface is able to receive all of the water removed at a nip, even when worn down. Too narrow grooves (e.g. 0.5 mm) easily close up under the nip load and can also get clogged by dirt. Metso recommends closely spaced wide grooves without the risk of shadow marking.

Correctly selected Metso press felts will keep even the most delicate paper grade free of marking under heavy nip loads. Metso’s Transmaster Open and Seammaster Open felts feature a special polymer treatment that evens out the nip load and water removal at a micro level, thus preventing marking.

PREREQUISITES FOR PROCESS OPTIMIZATION AND MAXIMAL DRY SOLIDS CONTENT

• The press felts need to be suitable for the process in question. For example, Metso’s press felts allow water to pass through rapidly, and also prevent marking and rewetting.
• The press roll surfaces must be equipped with correctly-sized grooving to ensure enough effective void volume. For example, Metso’s PressFox polyurethane cover can handle closely-spaced grooving without breaking.
• Water is removed from the roll surface with effective foil doctors, such as Metso’s ValDual doctors.
• All savealls have been designed and placed correctly to prevent rewetting.
• The roll covers must be flexible enough to create a uniform nip load.
• The suction power of the suction boxes has been adjusted so that the felts are not overdried.

The easiest way to gain savings in energy consumption and wear parts costs through press optimization is to assign comprehensive responsibility for the press section to one supplier. Metso can deliver extensive know-how and a broad product range for efficient press section water removal.
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Two Sides to Establish Presence in the U.S.

Paper has been the fall guy for far too many “go green” campaigns promoted by well-meaning companies who simply don’t have their facts straight. The slanted information has hurt the paper industry and printers, alike. But a force from the UK is making a case for paper and its environmentally-friendly presence, and is convincing the heavy hitters to change their tune.

Two Sides recently announced that it will be starting up in the U.S. with support from the NPTA Alliance and its member companies.

“We are very pleased that the paper merchant community has taken a pro-active stance to support Two Sides,” said Kevin Gammonley, CEO of the NPTA Alliance.

“In our first phase of fundraising, we have received commitments from over 30 paper distributors who have decided to become early adopters of Two Sides in the U.S. The initiative can now establish a U.S. office and governance structure while defining its priorities to promote the sustainability of paper and print in the U.S. market.”

One of the successes of Two Sides in Europe has been its campaign to challenge misleading messaging related to the environmental benefits of electronic billing. Research carried out prior to the UK campaign launch revealed that 43% of the major banks, 70% of telecoms and 30% of utilities were using misleading environmental statements to support their marketing messages, thereby conflicting with current advertising regulations which are in place in most countries.

Martyn Eustace, Founder of Two Sides and UK Director explains, “In 2010, Two Sides launched a campaign to target companies who claim that switching to online communication is better for the environment without verifiable supporting evidence. As a result, Two Sides has so far convinced 27 out of 33 major corporations to change their environmental claims or use wording that doesn’t include misleading or incorrect statements related to e-billing.

“Every day we see misinformation but there is now a growing confidence that our industry has a good case to argue and a great record on sustainability,” Eustace added.

The second phase of fundraising of Two Sides U.S. will target paper producers and other U.S. companies in the print media value chain. All early adopters of Two Sides U.S. will be announced later this summer.

Phil Riebel of Two Sides U.S., said, “This is an exciting time and support has been fantastic. We are building on the success of Two Sides in Europe and we will be tailoring the campaign to the U.S. paper and print media market to ensure people understand that the responsible use of print and paper is a sustainable and effective way of communicating.

“A number of major pulp and paper producers and a large U.S. brand name retailer have already joined as early adopters. We are now sending out the message that we need strong support from the entire print and paper media supply chain to make Two Sides U.S. an effective organization that can produce results.”

Two Sides (www.twosides.info) is a non-profit organization which began in Europe in 2008, instigated by the UK National Association of Paper Merchants, NAPM, to promote the responsible production and use of print and paper. Two Sides is now present in 12 countries with links to similar projects in Australia and Japan.
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