The independent news provider for the global tissue business

TISSUE WORLD

SEPTEMBER / OCTOBER 2013

RETAIL
Shaping the global tissue industry. A TW special report

PLUS
The UK tissue market: breaking through the glass ceiling

UBM

Cover: A consumer stocks up on toilet roll products from her local retailer

TISSUE WORLD

September/October 2013

In this issue

By HELEN MORRIS
Tissue World, Editor

THE FAST PACE OF CHANGING MARKET STRATEGIES IS SHAPING SHORT AND LONG TERM PLANNING FOR TISSUE MANUFACTURERS... AND RETAILERS

Welcome to Tissue World magazines' retail special edition! In anticipation of our brand-new retail and distribution segment at Tissue World Miami in 2014, TW magazine is bringing you the latest retail trends from across the globe.

We spoke to tissue giant Cascades about how unprecedented private label growth, corporate social responsibility and sustainability are influencing the retail market; Poyry discusses how retail trends are helping shape the global tissue industry, and journalist Simon Creasey from the UK's The Grocer magazine discusses what brand owners are doing to get sales back on track and drive volume and value growth.

Our retail special is in anticipation of Tissue World 2014 in Miami Beach, which will be the first trade show of its kind to host an event for the tissue industry and retailers. 'Retail and distribution' will become an integral part of the show and TW is calling this addition the Tissue Retailers and Distributors Insight Forum (TRIF). Read all about it in this issue's Marketissues article.

Country Report: glimmers of hope give confidence to a UK market starting to emerge from austerity

This issue's regional focus is on the UK, a tissue market that over the past five years has dropped from the second largest producer in the EU to the fourth. While this is drastic, it's not surprising, even for a market that is largely as recession-proof as tissue. The UK has been particularly hard hit by the global downturn; austerity measures have been put in place, and consumption, which makes up two thirds of spending, has been subdued. Such market conditions have led to tissue line rationalisations and a fall in operating capacity.

But despite harsh conditions across the country there are some signs of light at the end of the tunnel. Consumption of parent/mother reels of tissue in the four months to April 2013 was 375,400 tonnes, a modest 1.5% increase year on year, and even though total retail volume declined 1% in each year since 2010, consumption has grown 1.5% annually since the start of the crisis in 2008.

Interestingly, some 80% of the UK's T&T business comprises international players and the presence of these multinational tissue brand owners has shaped the market to resemble that of the US, with a strong brand focus. Mill production in the UK is on the high side when compared to other EU countries at nearly 80,000 mt/yr, while production rates are split between 30,000mt/yr, and those producing 40,000 – 60,000mt/yr.

There has also been a string of high profile merger and acquisition activity in the region over the years. As one tissue manufacturer commented on the back of TW's recent visit: "The way the tissue market has gone in terms of consolidation, it's a very energetic environment to work in. There are always new ideas to improve on." As for the rest of the economy... could it be third time lucky? Compared to the US and its core European peers, the UK has taken much of its medicine early. While the former avoided immediately addressing its huge debt mountain and continued to spend, and some European allies talked about how they would administer financial austerity, the UK got on with the painful business of cutting its debt. There are some small signs that the UK's economic prospects are finally starting to look up; the housing market is on an upwards trend once again while the embattled consumer is starting to spend more, at least if car sales are anything to go by. Significantly, manufacturing is also showing signs of a far broader-based recovery than previously thought. As the mill manager said: "With all of our acquisition activity, it feels like we're bringing some manufacturing ownership back into the UK."

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By *HUGH O'BRIAN*
Contributing Editor

Tissue is an $80bn market category with no event covering the entire value chain... until now

"Retail is Detail" is perhaps the most famous slogan in the retailing business. Although I have been working closely with the tissue and paper business for more than 35 years, I must admit that I have missed a lot of details concerning retail. Please forgive me; I'm just a papermaker.

While I have been aware that worldwide turnover for tissue products is estimated at USD 80bn each year and rising, I only very recently realised some other very important facts regarding the tissue category which includes bath tissue, paper towels, facial tissue, handkerchiefs and table napkins, as well as commercial and industrial tissue.

For example, for most retailers the tissue/paper products category is by far their largest non-food category, according to Nielsen data in the USA. And the same data shows the tissue/paper category is the third largest overall category in dollar terms. That's big. Really big.

Similarly, while I knew that the tissue/paper category is a big driver of store traffic, as most retailers are also well aware, I just learned that for many retailers tissue has a big influence on basket size or total spend per trip, which is shown to be twice as much when tissue is included in the basket.

Also, as many of you may have heard, Costco (the world's number six retailer and growing) last year announced that its Kirkland brand bathroom tissue is its single top-selling item, with yearly sales of USD 400m.

Shame on me for missing all of these facts for so long. But with every mistake you make, there is often a learning opportunity hiding in the background.

PROGRESSIVE TISSUE CATEGORY MANAGERS ARE SEARCHING

A few years ago three very senior category directors from one of the world's largest retailers attended the Tissue World conference in Nice, France. Last year in Miami several more key tissue/paper category people were in attendance at Tissue World Americas. In Barcelona this year, a few more retailers came. When I spoke with these people and asked them what they wanted to get out of their participation at Tissue World, the general answer was "we want to learn more about the entire value chain, as well as innovative new products and the technology behind them".

"CUSTOMER'S CUSTOMER" AND "SUPPLIER'S SUPPLIER"

A lot of people have heard the expression that you want to know your "customer's customer" as well as your "supplier's supplier". It seems that many of the best companies in the world have made an analytical science of knowing their customer's customer and supplier's supplier, as it gives them unique insight both into market drivers as well as technological drivers. Clearly these retailers I spoke with were thinking along those lines.

As we dove further into this interesting world of missed details, and talked to more retailers in a more systematic manner, it became clearly and blatantly obvious that Tissue World is only half a world. The event was only covering slightly more than half of the total tissue value chain (perhaps we should have called it "Tissue Hemisphere".)

Tissue World, which as you may know was started in 1993, clearly dominates the production side of the tissue business. In fact the event was originally launched based on requests from the tissue industry for "a home of our own", instead of being part of general paper or printing shows. Since then it has developed to become the world's largest event series for the production of tissue paper products drawing thousands of visitors from 80-90 countries. But the retail and distribution side of the tissue business has largely been ignored by Tissue World. In fact it's largely been ignored, period.

RETAILERS WANT A COMPLETE VIEW

Here's what a tissue category manager at a progressive retailer recently told me: "The interaction between the tissue products manufacturers and the retail/distribution side is poor. As a comparison, in the food and beverage business, there's much better exchange between the manufacturing community and retail/distribution. The top F&B trade shows are showcasing both the manufacturers and the technology suppliers, so you can get a complete view and interact with all sides of the business very fluently. To me, there is a big opportunity for Tissue World to give all players in the chain that complete view."

In simplistic terms there are essentially four segments in the tissue value adding chain:

1. Raw Material Inputs – fibres, energy, water, chemicals
2. Papermaking and Converting Technologies – the equipment, machinery and automation options for transforming those raw materials into tissue
3. Tissue Products Manufacturing – the manufacturers that make that transformation into finished products ready for sale
4. Retail and Distribution Channels – the market route these products take to the final user and consumer.

Tissue World is today very dominant in segment two, and quite strong, in segments one and three as well. However it is abundantly apparent that there is a missing link in the interaction with segment four. Thus it is a no-brainer that the retail distribution channels should be more involved and when talking to some key people we realised that they very much want to be involved.

MIAMI WILL CHANGE THINGS FOR THE BETTER

So, despite the enormity of this category, until now there has been no event which brings everything together under one roof. This is about to change at Tissue World 2014 in Miami Beach.

With the encouragement of numerous retail category managers, as well as current participants at Tissue World, the 2014 edition of Tissue World in Miami Beach will add focus on a brand-new segment: Retail and Distribution. We are calling this new aspect TRIF, for Tissue Retailers and Distributors Insight Forum.

TRIF will run in parallel with the traditional technical sessions covering tissue making and converting technologies. It will include four new half-day workshops designed to bring interested retailers up to date on timely issues and potential opportunities facing this critical category:

A. A Plenary Forum – Exploring key topics such as New Sources of Supply, Sustainability and Environment, Consumer Trends, Technology, New Product Innovation, and Distribution and Logistics

B. Sustainability and the Environment: Are you Leading or Following? – Featuring speakers from NGO's such as Greenpeace and WWF, as well as retailers, manufacturers and leading experts

C. Brands and Private Label: What Strategies are Best – Leading experts and opinion leaders will discuss where they see the market going and what advantages each strategy offers

D. On-Line Retailing, the Next Generation and Impact on Tissue Sales Channels – With Amazon, Staples and many other big online players getting more involved in tissue paper products sales, how will traditional retail channels change in the coming decade?

'It seems that many of the best companies in the world have made an analytical science of knowing their customer's customer and supplier's supplier, as it gives them unique insight both into market drivers as well as technological drivers.'

FIBRES WILL ALSO GET MORE ATTENTION

There is also an opportunity to do more with segment one especially in the area of fibres. Pulp suppliers have not had very high visibility at Tissue World in the past. But with fibres making up about 60-70% of the production cost for tissue products, and fibre sourcing and certification becoming enormously-discussed (not to mention confusing) topics, fibres will now play a more important role in Tissue World.

TISSUE WORLD WILL BE MADE WHOLE NEXT MARCH

Tissue/paper category managers and other sourcing professionals are therefore warmly invited to participate at TRIF. Tissue World 2014 in Miami will give all players in the tissue value-adding chain an incredibly efficient opportunity to learn about, and conveniently scan the entire chain for, new products, sources, technologies, capabilities and potential.

While some skeptics were worried last year that the world was going to end in December based on the Mayan calendar ending (maybe they just ran out of paper), we can assure you we are doing our best to make the Tissue World whole at Tissue World Americas in Miami in March. Come to learn more details about retail. And tissue.

Russia

METSÄ GROUP'S TISSUE AND COOKING PAPER BUSINESS OPENS SITE

Metsä Tissue has boosted its presence in Russia after it opened up a converting and warehousing site in Vorsino.

The company said the developing Russian market is "strategically important to Finnish Metsä Tissue which seeks strong growth".

In Vorsino, the company has introduced a Futura converting line that doubles its tissue production capacity and enables a larger product variety.

Chief executive Mika Joukio said: "In the Moscow and St. Petersburg area there are some 30 million people with rapidly rising standard of living.

"It is estimated that the tissue market in Russia will grow significantly, even more than in Western Europe.

"It is estimated that the tissue market in Russia will grow significantly, even more than in Western Europe."

Mika Joukio,
Metsä Tissue CEO

Metsä Tissue's new Vorsino site that houses the Futura converting line

This makes us believe strongly in a successful future in Russia."

Metsä Tissue launched its products on the Russian market in 2005.

Metsä Tissue OOO, the company for Russian operations, was established in 2006 and production started in 2008.

Vice President Yuriy Hudziy, Tissue, Russia, said: "From Vorsino and with the site's efficient logistics we can serve our customers quickly and with a wide range of high quality tissue products.

"We can produce our top brands Lambi, Mola and Katrin near our customers." In addition to locally produced goods, Metsä Tissue imports and sells Katrin products and solutions, and SAGA baking and cooking papers in Russia.

Italy

700 VISITORS ATTEND IT'S TISSUE

It's Tissue has said some 317 companies attended the event in Lucca, Italy, at the end of June.

The Italian Technology Experience was held for the first time between 22-30 June and received 700 visitors from 70 countries.

Over 50% were European with a strong presence from Italy, Turkey, England and Germany, followed by visitors from Brazil and Mexico and North America.

Numerous visitors also attended from Uganda, Ghana, Nigeria, Angola and South Africa, the UAE, Japan, China and Polynesia.

It's Tissue was created by the Tissue Italy Network, a collection of 12 Italian tissue equipment suppliers.

Matteo Gentili, president of the Tissue Italy Network, said: "It's Tissue was a great success thanks to an innovative formula that succeeded in combining the interests of the companies of the Tissue Italy Network and of the local community hosting us.

"It was a great opportunity to communicate the excellences that made-in-Italy can offer: knowing, doing and knowing how to do."

Lucca will host the next It's Tissue event in 2016.

Lithuania

GRIGISKES STARTS CONSTRUCTION OF NEW TOSCOTEC TISSUE LINE

Lithuanian tissue producer Grigiskes has boosted its tissue capacity by 110tpd after it invested in a new Toscotec line.

The machine design speed is 1,900 mpm with a net web width of 2,750 mm.

It includes an AHEAD-1.5S crescent former tissue machine with single-layer headbox, single press configuration and a Steel Yankee Dryer (TT SYD-15FT), machine auxiliaries including vacuum pumps, stock preparation plant for virgin pulp and electrification and control system.

Milltech will provide a natural gas heated hood with a three stages heat recovery system, machine dust and mist removal system, hall ventilation system.

A two unwind stands tissue slitter rewinder TT WIND-M and an automatic roll handling system complete the supply.

Grigiskes was established in 1823 when the first paper factory was founded in Kuckuriskes that has since been incorporated into Grigiskes Group, which now has 900 staff.

"For us, the environment is a main issue. We have been trying to reduce CO2 production for some years now."

Gintautas Pangonis,
president of Grigiskes

Grigiskes president Gintautas Pangonis (left) and Toscoetc chief executive Alessandro Mennucci

Grigiskes paper mill is a private company that belongs to the Grigiskes Group which operates three PMs with an annual tissue paper production of 28,000 tonnes.

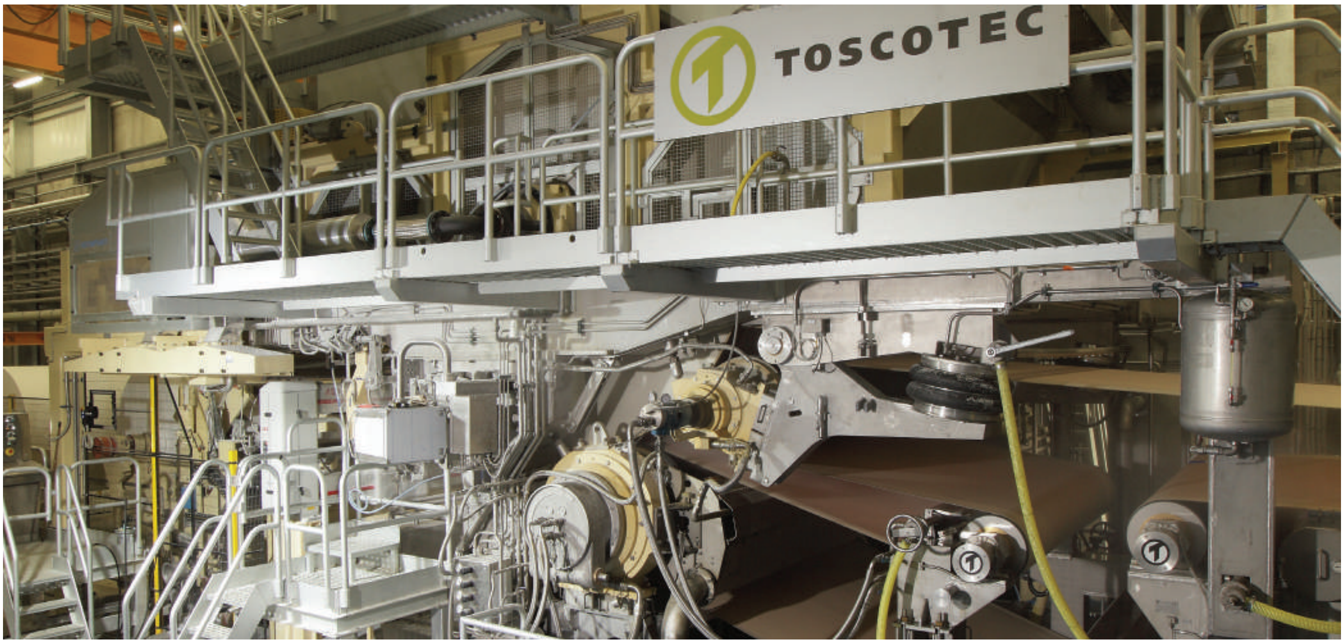
Gintautas Pangonis, president of Grigiskes, said: "The turnkey project will be focused on energy savings and low emission concepts with a great attention to the environmental issues.

"For us, the environment is a main issue. We have been trying to reduce CO2 production for some years now."

With a market share of 41% for toilet paper and 33% for kitchen towels in Lithuania, Grigiskes exports more than 60% of its production to 22 countries worldwide.

In early 2011, the company modernised the dry section of its existing TM5 with the installation of a Toscotec Steel Yankee Dryer TT SYD-4200MM.

The project was successful and it enabled energy savings of 25% as well as a 40% increase in capacity.



An example of the company's AHEAD 1.5 S tissue machine

Global

K-C'S CONSUMER TISSUE SEGMENT POSTS INCREASE

Kimberly-Clark (K-C) has said it "continues to be optimistic" about its prospects to drive profitable growth and generate attractive returns as it reports its 2Q results.

For the three months ended 30 June 2013, its consumer tissue segment reported sales of $1.6bn, an increase of 2% compared to a year ago.

Organic sales volumes improved 3% and net selling prices were up 1%.

The business said that lost sales in conjunction with European strategic changes and pulp and tissue restructuring actions reduced sales volumes by 1% and currency rates were unfavorable by one point.

The division's second quarter operating profit of $220 million was even with the previous year, a comparison the company said has benefited from organic sales growth and higher production volumes in 2013.

Sales in the company's North America consumer tissue division increased 3% while sales volumes were up 2% driven by growth on Cottonelle bathroom tissue.

Sales increased 8% in K-C International while sales in Europe decreased 8% in conjunction with European strategic changes and pulp and tissue restructuring actions.

As a group, the company reported net sales of $5.3bn, a figure that was even with the same time a year ago.

Operating profit was $796m in the second quarter of 2013, up 6% from $754m in 2012.

Chairman and chief executive Thomas J. Falk said: "We delivered another solid quarter of results while we continued to execute our Global Business Plan strategies.

"We achieved 3% organic sales growth, as excellent results in K-C International more than offset mixed volume performance in the developed markets.

"We also launched a number of product innovations and continued to allocate capital in shareholder-friendly ways. At the half way point of the year, I am encouraged by our progress overall."

K-C will continue to target organic sales growth of 3-5% led by K-C International.

Chairman and chief executive Thomas J. Falk

Falk added: "If recent spot currency rates generally hold going forward, it is less likely that adjusted earnings per share will be in the upper half of our guidance range. Although the macro environment has become more volatile recently, we continue to be optimistic about our prospects to drive profitable growth and to generate attractive returns to shareholders."

OMET LAUNCHES VACUUM-FOLD FV LINE

OMET has launched its latest vacuum-fold FV line, a new tissue converting line for the production of folded napkins.

Its launch targets the market for medium and large runs of white embossed napkins 'with napkin dispenser fold'.

The machine is based on vacuum-fold technology as well as traditional mechanical folding machines.

It produces napkins in sizes 20x20cm to 30x30cm and can be coupled with packaging machines of various types.

It reaches a maximum speed of 300 metres per minute for a production of 4/6000 napkins a minute.

Roberto Perego, technical manager at the tissue converting machines division of OMET, said: "Compared to 50 minutes spent on the standard exchange format with other machines, the FV Line runs the job change in two minutes."

The line offers "superior performance with regard to the electronic on-board equipment and management of the production process", according to the business.

It is 4.70 metres high and is protected by a cabin that increases safety and prevents the operator from touching any hazardous part.

This is fully controllable from the operator panel on which it is possible to set the size of the towel.

The FV Line is a modular machine with different groups in combination (embossing, folding, printing).

It offers customers extensive customisation options and can be configured to process inline a mother paper roll with width of 1,200mm or two rolls of 600mm placed side by side.

Global

FABIO PERINI LAUNCHES MILE 7.2

Fabio Perini has launched its MILE 7.2 converting and packaging line.

It has been designed for customers that want to differentiate their products and preserve the characteristics of tissue paper during the production process and produce "glue-free" rolls.

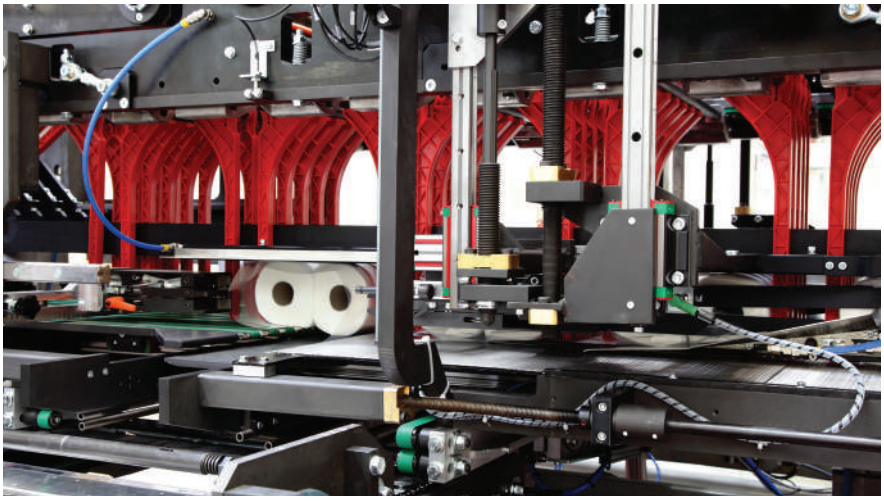
The line is composed of a fully automated unwinder and a unique rewinder equipped with Sincro-evo.

It has an integrated system with Casmatic packaging and the new wrapper mod. A6T in line with the bundler mod. CMB202 & LA02 from a cooperation between FP Packaging and Langhammer.

According to Fabio Perini, sustainability, operatational safety and total automation in converting, packaging and palletising are the lines distinguishing features.

It added that the line helps tissue producers be more efficient and cost effective, as well as produce a wide variety of products including new embossing patterns to improve tissue quality.

The line also offers important features such as energy consumption indicators and according to Fabio Perini "produces a tissue roll like no other".



The packaging line produces a variety of products including new embossing patterns to improve tissue quality

In a statement, the company said: "We have eliminated the unnecessary, what's not value-adding for a final consumer having to choose a tissue roll on a supermarket shelf, what generates hassle for technicians who daily work with tissue equipment and what can make the big difference when talking about eco-sensitive consumers.

"It's glue free, so there's no more glue in the rewinding unit, no more glue for tail sealing, there's not even adhesive tape for parent reel changeover."

It added that the roll's engraving technique is also unique, and that it aims to preserve paper fibres and significantly improve paper resistance.

It added: "Compared to traditional embossing this new method can either improve a tissue roll in terms of resistance or allow the customer to use a lower quality paper while maintaining same paper characteristics."

The new line also enhances optimisations and tools to "improve efficiency, offer important savings and give clear and simple indications on how to run daily activities with step by step guides available in the operations panel".

The line is composed of a fully automated unwinder and a unique rewinder equipped with Sincro-evo

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Global

SOFIDEL REDUCES CO_2 EMISSIONS BY 11%

Sofidel has reduced its CO_2 emissions by 186,000 tonnes, a target that was set when the tissue giant became part of the WWF's international Climate Savers programme.

The company has invested over 25 million euros in renewable sources (photovoltaic and hydro-electric), cogeneration (combined production of electricity and steam) and improvement works to increase energy efficiency (e.g., LED lighting), since the goal was set in 2008.

Sofidel is the only Italian company and the first worldwide in the tissue sector (paper for hygienic and domestic use) to sign up to the WWF's programme, which encourages companies to play a leading role in fighting climate change by pledging to reduce their greenhouse gases on a voluntary basis.

Luigi Lazzareschi, chief executive of the Sofidel Group, said: "Meeting WWF's Climate Savers objective whilst at the same time significantly strengthening the company's position is proof that economic and environmental sustainability can go hand in hand.

"Reducing its CO_2 emissions is just one of Sofidel's efforts to curb its environmental impact and to underpin a more general commitment: do more with less.

"Results obtained so far make us more determined to consider sustainability as a central lever for innovation and competitive consolidation."

In collaboration with WWF, Sofidel aims to consolidate its commitment to reducing emissions by 2020 and to extend these objectives to its newly-acquired plants in Europe and the US.

Its reduction in CO_2 emissions is part of a wider commitment to sustainability that also sees the group environmentally active in terms of responsible sourcing of raw materials (cellulose) and in limiting the use of water in the production cycle.

The Italian Group Sofidel is a privately held company owned by the Stefani and Lazzareschi families and is one of the leading European manufacturers of paper for hygiene and domestic use.

It was established in 1966 and now has 27 subsidiary companies in 13 countries (Italy, Spain, Sweden, the United Kingdom, Belgium, France, Croatia, Germany, Poland, Romania, Greece, Turkey and USA).

With an aggregate turnover of 1,511 million Euros (2012), Sofidel is the second largest manufacturer of tissue paper in Europe and the sixth in the world.

Solar panels at Sofidel's Soffass converting facility in Porcari, Italy

Global

BASF INCREASES PRICES

Chemical company BASF has announced it will increase prices for its resins and additives by 3-10%.

The increase took effect from 1 July in Europe, Africa and western Asia.

The company said the price increase "is necessary to offset continued high feedstock costs, transportation and energy costs".

BASF had sales of €72.1 billion in 2012 and more than 110,000 employees as of the end of the year.

short issues

ABB has appointed the head of its discrete automation and motion (DM) division Ulrich Spiesshofer as chief executive. He will succeed Joe Hogan in this role on 15 September. Hogan will continue with ABB for some months as senior advisor to the board. Spiesshofer joined ABB's Executive Committee in 2005 and was named responsible for DM in 2009.

Kruger Products has announced that Rob Latter has been appointed as corporate vice president, Away From Home (AFH) Division and Strategic Planning. In his new role he will be responsible for maintaining the company's dominance in the Canadian marketplace as well as strategically growing its presence in the U.S. The company said its AfH Division represents a significant growth opportunity and that it is well poised for future expansion.

Global

PMP GROUP CELEBRATES SALE OF 101ST PMP INTELLI-JET V® HYDRAULIC HEADBOX

PMP Group has announced the sale of the 101st PMP Intelli-Jet V® hydraulic headbox since 2000.

The headbox can now be found in 15 countries and across three continents, North America, Asia and Europe.

If all headboxes designed and sold by PMP's predecessors since 1854 are taken into account, that number increases to a total of 758 headboxes.

The machines can reach up to maximum design speeds of 1,500mpm, while the machines used in the tissue sector have a trim of up to 5.6m with speeds of 2,100mpm.

PMP Group's hydraulic headbox references are almost equally divided between paper (51 units) and tissue (50 units).

PMP Intelli-Jet V® hydraulic headbox is one of the PMP Group's most advanced products and is the key element in the Intelli-Technology® and Intelli-Tissue® platform.

The PMP Intelli-Jet V® hydraulic headbox can be found in 15 countries and across three continents

CLARIANT LAUNCHES LEUCOPHOR ACK

Specialty chemicals producer Clariant has launched Leucophor® ACK, which it said is "the world's most highly-concentrated, urea-free liquid optical brightening agent (OBA)".

The product can be used on unsized tissue, printing and writing papers, and it cuts usage and transport.

It is free of solubilising additives such as urea and glycols which can reduce paper machine performance.

Leucophor® ACK contains "no environmentally-harmful additives, decreases OBA requirements for papermakers, and lowers transport costs and carbon footprint".

It is an ultra-concentrated aqueous solution specially designed to give state-of-the-art effectiveness while satisfying the most demanding environmental requirements.

The unique, patented, new generation urea-free optical brightener is primarily intended for stock application in sized and unsized papers.

Compared to current disulpho chemistries, the company said it shows improved performance on stock addition to both virgin and recycled fibre, and in pigmented coating applications, particularly those containing PVOH as a secondary binder.

It also allows greater flexibility and higher solids contents in CMC and starch/CMC pigmented coatings.

Andrew Jackson, product manager, Clariant, Business Unit Paper Specialties, said: "Sustainability is a clear trend, but at the same time papermakers do not want to sacrifice the technical and economic advantages of their operations.

"Leucophor ACK liquid satisfies an important need in the market, building sustainability on to the cost performance and ease-of-handling which customers have come to expect from Leucophor products."

The product fulfills the requirements of Nordic Swan, EU Eco Flower and BfR.

GEORGIA-PACIFIC INTRODUCES NEW ANGEL SOFT FACIAL TISSUE

Georgia-Pacific has extended its Angel Soft family range with the launch of Angel Soft® Facial Tissue, which the company said "delivers softness and strength at an appealing price".

The new product offers two varieties, lotion and non-lotion, that are available in a variety of packaging options.

Both lotion and non-lotion varieties are available in single boxes and multi-packs.

Five special-edition packages featuring designs for Back to School are also offered, as the quality and value of Angel Soft Facial Tissue make it a great fit for the classroom.

Patrick Davis, vice president of new category development at Georgia-Pacific, said: "More than 39 million households rely on Angel Soft to provide them with a bath tissue that offers both softness and strength at a great value, and we are pleased to now offer them those same benefits in a facial tissue.

"This latest Georgia-Pacific innovation provides them with a quality product from a brand they know and trust at a price that appeals to them."

Headquartered in Atlanta, Georgia-Pacific is one of the world's leading manufacturers of tissue, packaging, paper, cellulose and related chemicals.

Germany

VOITH REBUILDS TISSUE MACHINE AT WEPA

WEPA's TM1 has been successfully rebuilt and modernised by Voith to "substantially increase the availability and efficiency" of the tissue machine.

Located in Mainz, Germany, TM1 produces toilet paper from 100% recovered paper in a basis weight range of 15.5 to 18.5g/m2 at a machine speed of 1,750 m/min.

Voith's delivery to WEPA included all the wear and spare parts and it has also aligned all the rolls in the wet-end section and serviced the steam joint and the gearbox of the Yankee cylinder in the TM 1.

The overhaul and start-up of the felt and fabric stretchers and of both fabric guides were included.

The machine frame of the tissue machine was completely refurbished. This refurbishing also included a replacement of various tension rods for the cantilever frame.

The WEPA Group has 10 locations in five European countries with 17 paper machines and a production capacity of approx. 600,000 metric tonnes.

Germany

K-C SELLS REISHOLZ MILL AND GERMAN BRANDS

Kimberly-Clark (K-C) has concluded the final handover of its Reisholz tissue manufacturing mill and its German rolled tissue brands to Palero capital.

The move includes Hakle(r) Dry Toilet Tissue, Dick&Durstig and Servus, to Palero Invest, a private equity fund advised by Palero Capital.

K-C will continue to use the Hakle(r) brand name for its moist toilet tissue brand in Germany for a period of time, after which the product will switch to another brand name.

It will also continue to use the Hakle(r) brand across both rolled and moist toilet tissue in Austria and Switzerland.

Oliver Vogel, country manager, K-C consumer Germany, said: "Germany continues to be a key market for Kimberly-Clark.

"We enjoy market-leading positions with our Kleenex(r), DryNites(r), Little Swimmers(r), Camelia(r) and Hakle(r) Moist brands.

"The sale of the mill was a strategic divestment. I believe selling Reisholz and the associated rolled tissue brands in Germany was the right decision for the future of the mill and people who work there, who continued to demonstrate their commitment and dedication throughout the handover."

The sale was initially announced in November 2012.

North America

BUCKMAN LAUNCHES BUCKMAN NORTH AMERICA

Buckman has launched Buckman North America, a new organisation that "focuses on maximum efficiency" across Canada and the USA.

The current Buckman Canada and Buckman United States organisations will be brought together into a single operation.

It has begun operating immediately and will be based out of the Buckman global headquarters in Memphis.

The company will also maintain operations at the current Buckman Canada location in Vaudreuil-Dorion, a suburb of Montreal.

Jim Doan will serve as president of Buckman North America, and Pete Tchouros will serve as general manager operations for the new company.

Doan said: "When fully operational, this new Buckman North America structure will give Buckman associates in Canada and the United States increased access to technical knowledge, encourage sharing of best practices and enhance abilities to serve our customers."

Buckman is a privately held, global specialty chemical company with head-quarters in Memphis, Tennessee, USA.

North America

LPT SIGNS NATURAL GAS PIPELINE AGREEMENT

Lincoln Paper and Tissue (LPT) has boosted its energy and environmental performance after it signed a contract with Bangor Gas that will provide pipe-line gas to its mill in Lincoln, Maine.

Pipeline service to the mill will start in late 2014 and will provide clean natural gas for tissue drying and the lime kiln process.

Keith Van Scotter, chief executive of LPT, said: "We worked very hard with Bangor Gas to achieve a mutually beneficial agreement.

"The pipeline will also form the foun-dation for natural gas supply to the Lincoln area."

In addition to the move, the company has undertaken a project in conjunc-tion with Massachusetts-based Xpress Natural Gas (XNG) that converted tissue drying hoods from No. 2 fuel oil to liq-uefied natural gas in February 2012.

In August, LPT will also take the next step by converting the tissue hoods and lime kiln to compressed natural gas (CNG), also with XNG.

The company said that this step will eliminate nearly all oil usage for pro-cess purposes.

It added that natural gas in America is the most economical fuel for industrial uses and heating, and supply to LPT will improve the competitive situation of the mill.

Africa

BEL PAPYRUS EXPANDS TO MEET LOCAL DEMAND

Nigerian tissue producer Bel Papyrus has boosted its tissue capacity after it started up new production line PM3 at its site in Lagos.

The machine will produce on average 23,000 tonnes per year and has a design speed of 1,800mpm, with a net web width of 2,850mm.

It is supplied by Toscotec and includes an AHEAD 1.5S Crescent Former tissue machine with single-layer headbox, single press configuration and a Steel Yankee Dryer (TT SYD 12FT), machine auxiliaries and a stock preparation plant for virgin pulp and recycled paper including deinking cells.

The new line will enable the Nigerian producer to consolidate its leading position in the West African tissue market (ECOWAS countries) raising its total production capacity above 45,000 tonnes per year.

The supplier is also working on site in Nigeria to develop the layout of PM 4, which is expected to have a capacity of 28,000tpy and start production in September 2015.


The machine will produce on average 23,000 tonnes per year

This will further consolidate the position of the group to supply the whole of the West African tissue market, with a foreseen capacity of 75,000mt per year.

The supply contract also includes: Steam generator, air compressors, a three unwind stands tissue slitter rewinder TT WIND-P with a calendering station and a jumbo reel wrapping machine.


The new line will enable the Nigerian producer to consolidate its leading position in the West African tissue market

The UK: recovering from the global recession downturn

By Bill Burns, senior consultant,
Fisher International

The United Kingdom (UK) produces approximately 860 thousand mt/yr of Towel and Tissue (T&T) paper. That makes the UK the fourth largest T&T producing country in the European Union (EU) with about 10% of the EU capacity. The UK was particularly hard hit by the 2008/09 economic downturn. Austerity measures were put in place to lower deficits. In 2012, weak consumer spending and subdued business investment weighed on the economy. GDP fell and the budget deficit remained stubbornly high. The T&T business went through a similarly tough period. Market conditions led to line rationalisations and the UK experienced a dramatic drop in operating capacity (Figure 1). The decline in business, starting in 2008, resulted in the UK dropping from the second largest producer in the EU to fourth largest.

The UK T&T mills are geographically dispersed throughout England and Wales. The UK ranks fourth among T&T producers in the EU (Figure 2) and third in the number of operating machines (Figure 3). T&T machines in the EU vary from narrow two-metre machines to six metres. Machines in the UK are typical in terms of the trim range for the region, with the average being 3.9 metres (Figure 4). Mill production in the UK is, on average, on the high side compared to other producing countries in the EU at nearly 80,000 mt/yr while the technical

> *'Market conditions led to line rationalisations and the UK experienced a dramatic drop in operating capacity.'*

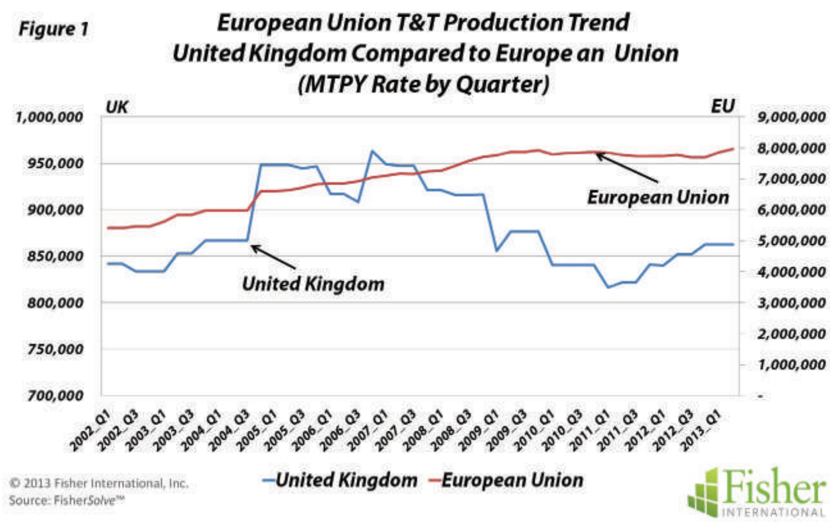

Figure 1 Trend plot for T&T production in Europe and UK.

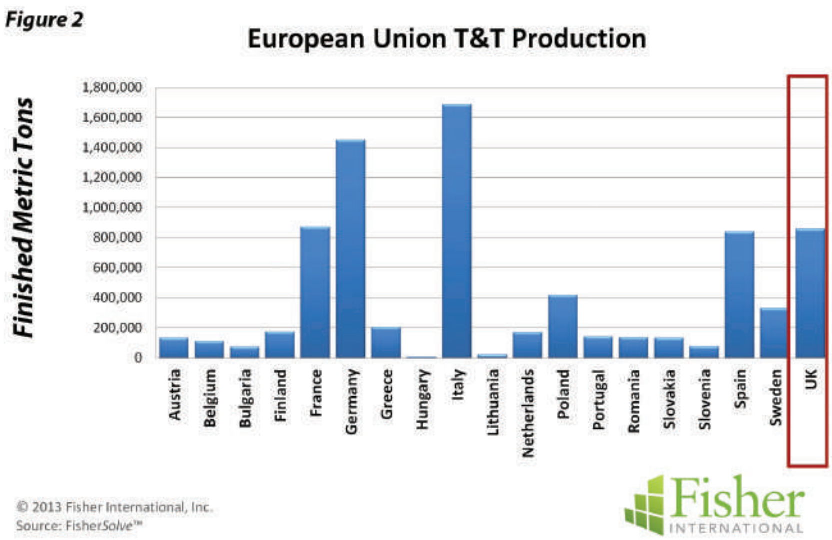

Figure 2 Distribution of T&T production in the European Union.

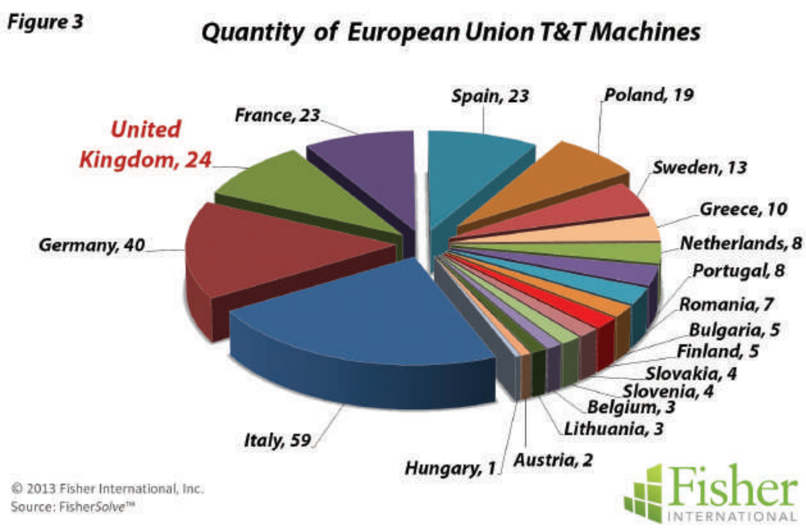

Figure 3 Distribution of T&T paper machines in the European Union.

age of UK machines is a little above average (Figure 5).

The UK cost position in the EU is slightly advantaged by the integration of recycled fibre in its furnish mix and by competitiveness against some of the larger producing countries with energy and labour costs (Figure 6). Fibre mix in UK mills is 35% recycled fibre with the remaining being market kraft pulp and some CTMP (Figure 7). While recycled fibre is present in most countries, it is not in heavy use by major producers. Integrated recycled fibre does provide some smaller producing countries an advantage over the purchased fibre consumed by larger producing countries.

UK T&T machine production rates are split between machines ranging among the smallest, producing less than 30,000 mt/yr, and those at more moderate levels, producing in the 40,000 – 60,000 mt/yr range (Figure 8). Machine trims are narrow with more than half of the machines being less than 3.5 metres (Figure 9). About a third of the machines are wider falling in the 5.0 - 5.5 metre class. Machine speeds are in a respectable spectrum with nearly 70% of the machines in the 1,000 -1,500 mpm range (Figure 10). Some 25% of the remaining machines operate at higher speeds in the 1,500 - 2,500 mpm range. On the international scale, UK machines tend to cluster around the average capacity-wise, with a good number above average. Age of machines has a wide

'Fibre mix in UK mills is 35% recycled fibre.'

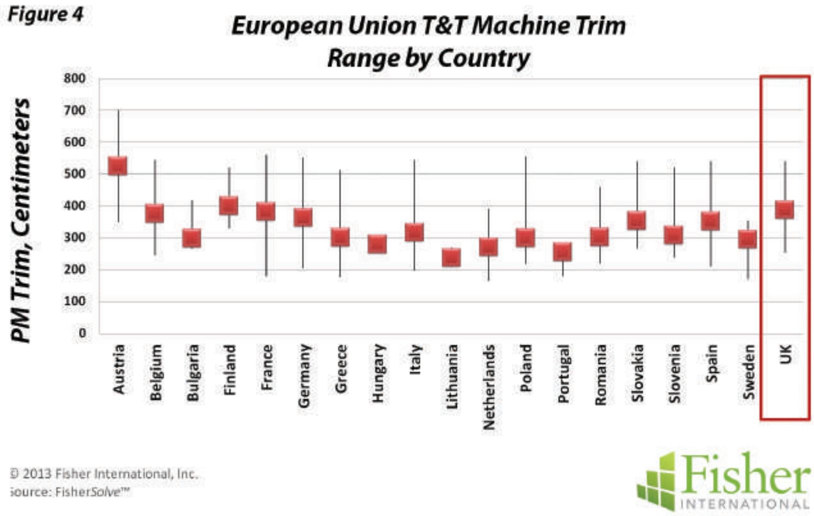

Figure 4 Distribution of T&T paper machine trims in the European Union.

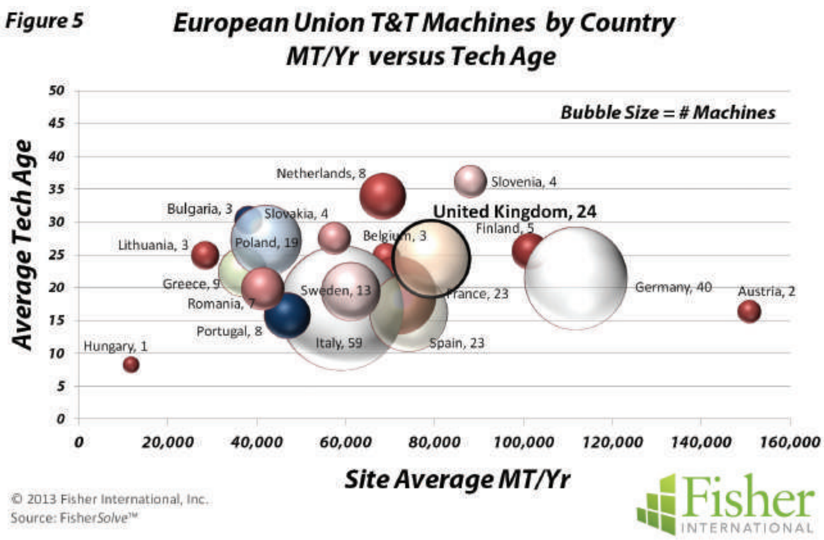

Figure 5 Technical age and production volume comparisons for the European Union T&T paper mills.

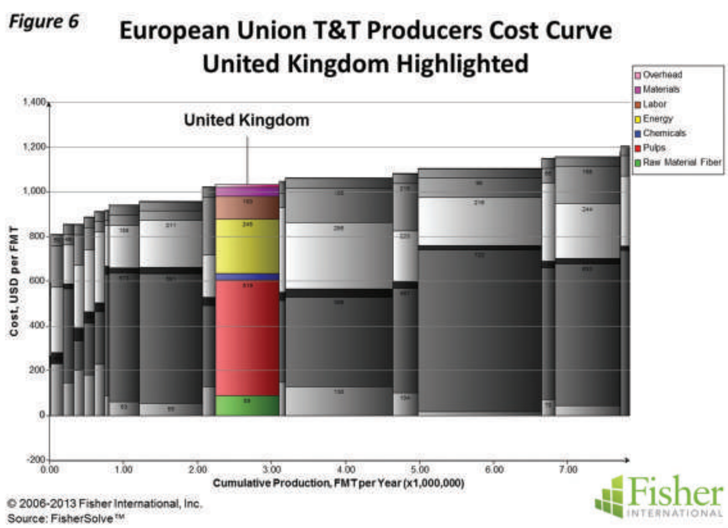

Figure 6 European Union country level cost curve for T&T production with the UK highlighted.

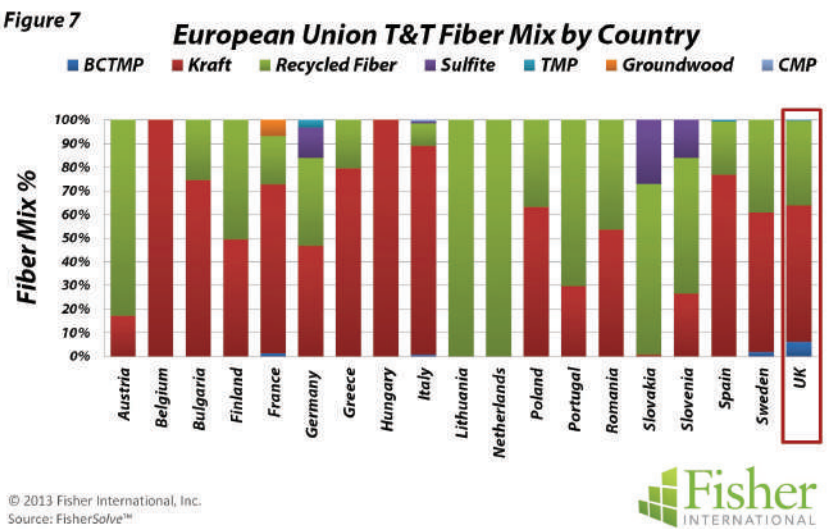

Figure 7 Fibre mix comparison for European Union T&T producing countries.

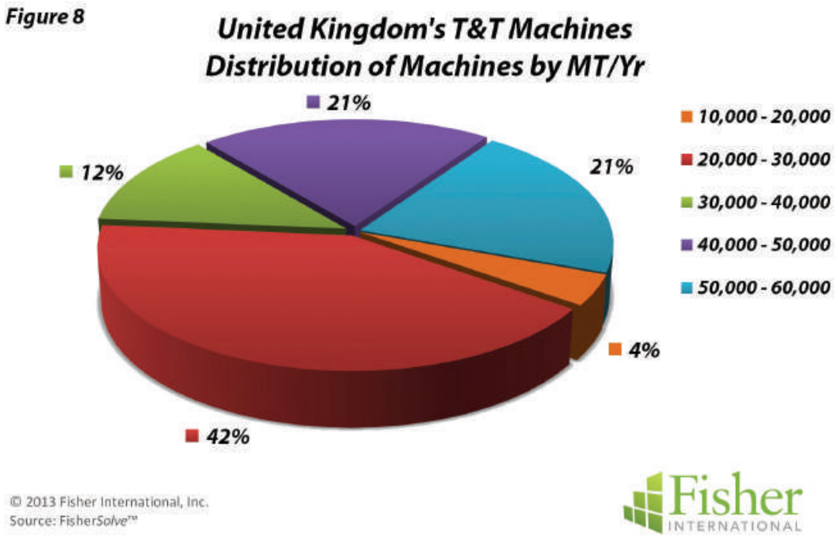

Figure 8 Distribution of UK T&T paper machines by production rate.

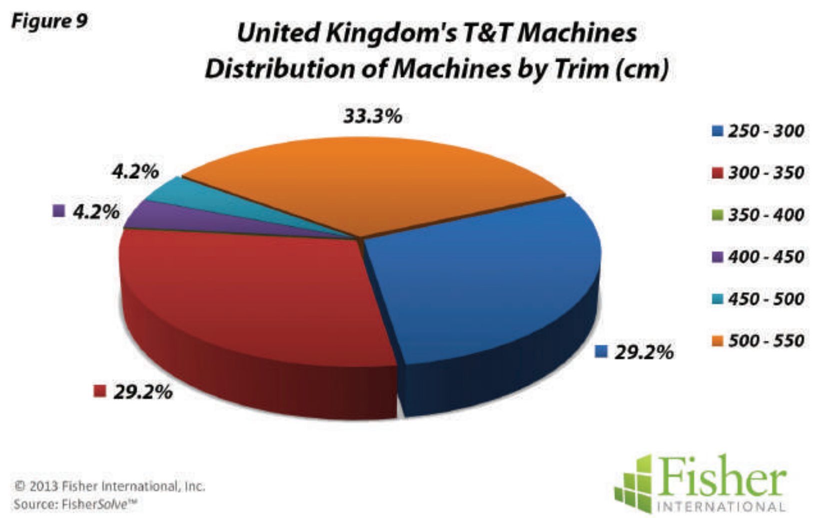

Figure 9 Distribution of UK T&T paper machines by trim class.

dispersion above and below average (Figure 11). A noteworthy observation is that the UK's T&T business is international in ownership with 80% of the mills being headquartered outside of the UK (Figure 12).

The United Kingdom in numbers

4th

Position in the EU's largest T&T producing countries

10%

Of EU T&T capacity

3.9m

Average machine trim range

70%

Machine speeds in the 1,000 -1,500mpm range

80%

International ownership of the UK's T&T business

Correction

"Poland: international presence in a locally focused T&T market" (Tissue World, July/August 2013, pp. 22 - 23) Fisher International report Figure 4 showed "Minimum Age" but should have shown "Average Tech Age" of equipment.

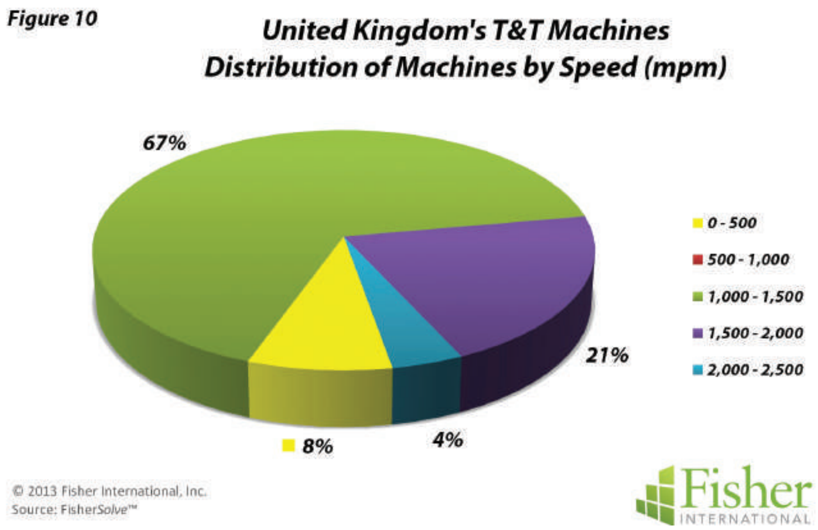

Figure 10 Distribution of UK T&T paper machines by speed class.

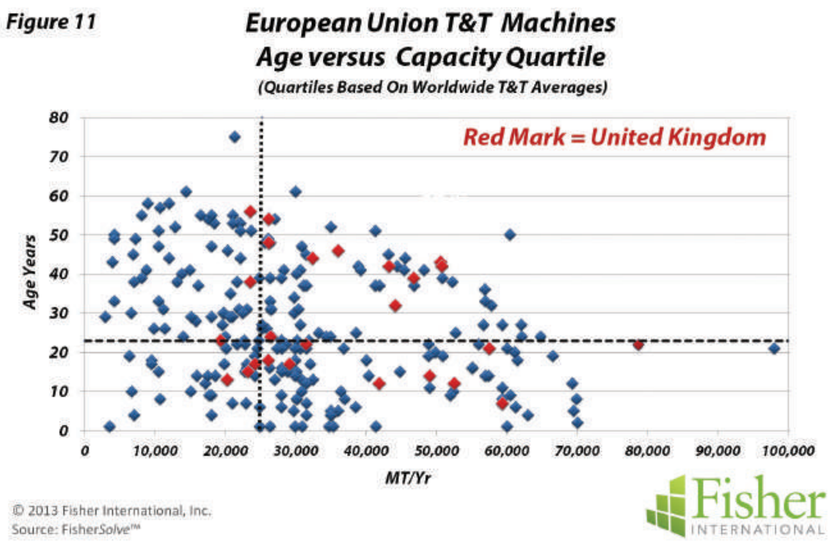

Figure 11 Dispersion of UK T&T paper machines against worldwide average production and age.

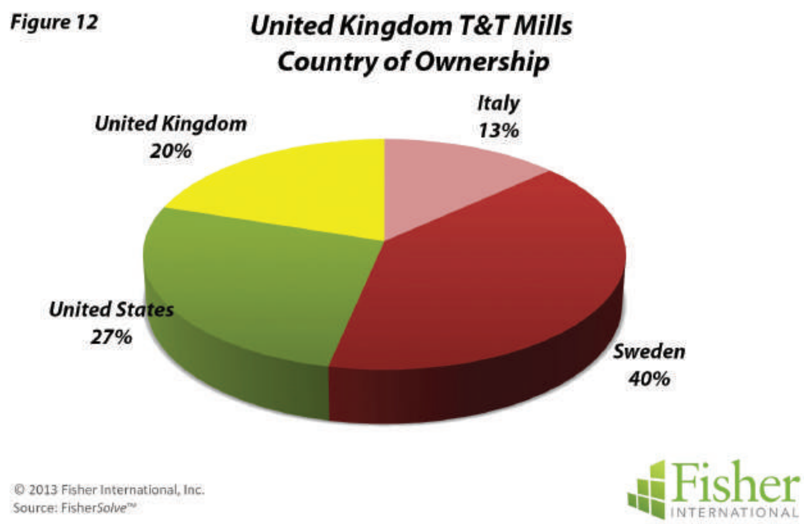

Figure 12 Distribution of UK mills by country of corporation ownership.

The source for market data and analysis in this article is FisherSolve™. Data tables behind Figures 1 - 12 can be obtained from Fisher International. Email requests to info@fisheri.com.

About Fisher International, Inc.

Fisher International has supported the pulp and paper industry for over 25 years with business intelligence and management consulting. Fisher International's powerful proprietary databases, analysis tools, and expert consultants are indispensable resources to the industry's producers, suppliers, investors, and buyers worldwide.

FisherSolve™ is the pulp and paper industry's premier database and analysis tool. Complete and accurate, FisherSolve is unique in describing the assets and operations of every mill in the world (making 50 TPD or more), modeling the mass-energy balance of each, analyzing their production costs, predicting their economic viability, and providing a wealth of information necessary for strategic planning and implementation. FisherSolve is a product of Fisher International, Inc.

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By TAMARA BARTELS
Euromonitor International analyst – homecare, tissue & hygiene

Toilet paper in the UK: private label sales have reached the ceiling

As fears of further economic downturn are fading branded toilet paper is enjoying a strong market position.

Toilet paper sales show once again that the UK consumption culture rather resembles the US than its neighbours on the continent. Whilst the region's private label share is showing an overall positive growth trend reaching around 53% in 2012 with Germany in the vanguard at an impressive 82%, private label toilet paper in the UK has seen a decline in share for the third consecutive year, now standing just above 40% in a category worth US$1.8 billion. Similar to US consumers where the private label share remains below 20%, UK consumers still purchase branded products and with fears of a triple dip fading, leading brands are able to strengthen their position.

But it is not just recurring brand loyalty that is taking its toll on the private label share, the branded competition is also benefitted from a decreasing substitution, promotional activities, and the competitive retail environment.

BASIC TOILET PAPER ECONOMICS

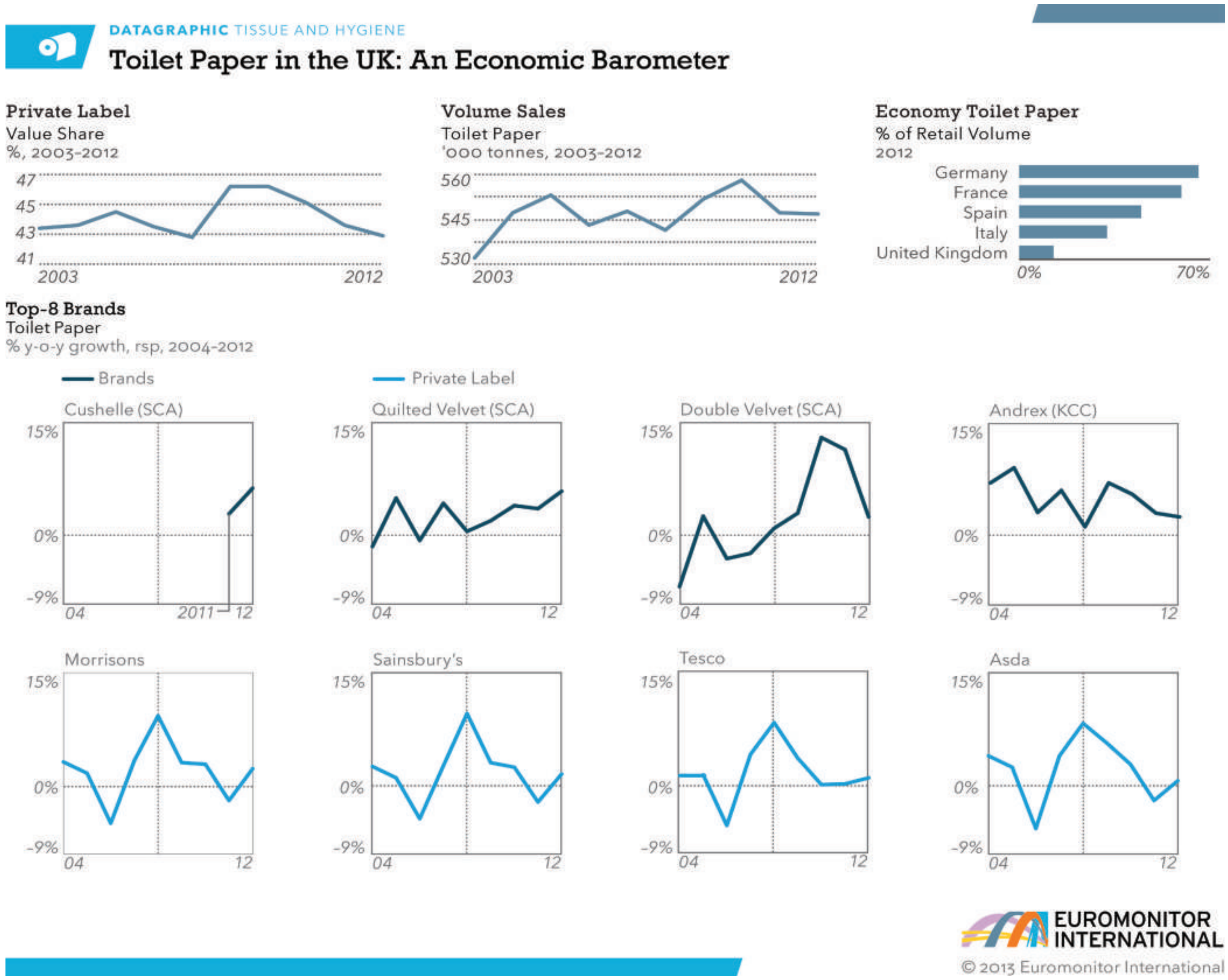
One might assume that essential consumer goods such as toilet paper generally see a fairly inelastic demand under the economic state of a developed and saturated market. In times of economic prosperity, consumers would not use more toilet paper, whilst a recession would likewise not provoke a cut back on consumption. However, the latest financial crisis revealed that in the UK, toilet paper shows in fact a countercyclical sales pattern: in the wake of the Lehman collapse, consumption grew by 1.5% annually over 2008-2010, while total retail volume saw an annual 1% decline since 2010 when the UK economy started to recover.

One reason for this negative correlation is that in times of financial uncertainty, people tend to stay at home to save money, which consequently increases consumption but consumers also start to substitute other disposable paper and non-woven products with toilet paper. It is not that consumers are buying toilet paper specifically for other tasks but they decrease spending on products such as facial tissues or wipes and turn to toilet paper for make-up removal or basic cleaning tasks. Since those consumers with a tighter financial budget are also those who generally opt for toilet paper in the budget segment, it explains why not only the consumption but also market share for private label toilet paper saw an increase over 2008-2010. But with the recovery of the UK economy, substitution decreased along with private label share.

'UK consumers still purchase branded products and with fears of a triple dip fading, leading brands are able to strengthen their position.'

THE BIG FOUR CONTROL THE MARKET

Brand loyalty in toilet paper is driven by various factors in the UK. On the one hand, softness is an important feature for consumers. In 2012, only 12% of volume sales accounted for economy toilet paper, those with no added texture features, compared to 66% in Germany or 59% in France. To accommodate the consumer's taste, the four leading grocery retailers in the UK, Tesco, Sainsbury's, Asda,



and Morrisons have put great effort into developing a three-tier product segmentation to offer 'good, better and best' product quality. But due to heavy promotional activities for branded products, price differences to private label are marginal. At Sainsbury's, Kimberly-Clark's Andrex, the market leader with a 34% value share in 2012, sells at £4 for 9x241 sheets when on sale, the same price as for Sainsbury's Super Soft White Toilet Tissue 9x240 sheets.

However, the difference within private label is substantial with £0.08 per 100 sheets for Sainsbury's budget toilet paper compared to £0.18 for the super soft option. Consequently, it appears the leading retailers are not trying to poach consumers off the branded competition, but to make consumers trade up within their store brand offerings which explains why private label volume sales are stagnated but value sales increased slightly over 2011-2012.

NO CHANGE ON THE HORIZON

It is unlikely that in the UK private label shares in toilet paper will draw level with Germany any time soon. In Germany, the retail environment is dominated by discounters which mainly sell their store brand options. In the UK, the retail environment is dominated by the four large retailers who on the one hand rely on sales of branded products but still try to take a piece of the pie by selling their own labels. Additionally, UK consumers are not just value driven but prefer a product with extra features such as increased softness. It will take another recession in the UK for private label shares to increase.

'UK consumers are not just value driven but prefer a product with extra features such as increased softness.'

FOEX

FOEX Indexes Ltd produces audited and trademarked registered PIX price indices for certain pulp, paper, tissue, packaging board, recovered paper and wood based bioenergy/biomass grades. The PIX price indices function as independent market reference prices and show the price trend of the products in question. FOEX sells the right to use the PIX indices for commercial purposes as well as weekly or monthly newsletters, a monthly market review and the PIX index histories.

Providing PIX pulp price indices to the tissue industry gives the paper producer and buyer insight in the price trends with a weekly frequency. This way companies have better tools to budget their cost or income structure and profitability, and may concentrate on their core businesses with less time spent on price negotiations.

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Note

PIX values, $ or € / metric ton

Product	PIX latest values	
Pulp NBSK USD	860.24	$
Pulp NBSK EUR	648.75	€
Pulp BHKP EUR	607.03	€
Pulp BHKP USD	804.92	$
Paper LWC	662.07	€
Paper Ctd WF	674.73	€
Paper A4 B-copy	843.69	€
Paper Newsprint	466.65	€
Kraftliner	595.69	€
White-top Kraftliner	767.64	€
Testliner 2	444.25	€
Testliner 3	418.76	€
RB-Fluting	405.77	€
PIX OCC 1.04 dd	109.64	€
PIX ONP/OMG 1.11 dd	124.75	€

PIX pulp indices: FOEX examines NBSK and BHK pulp prices in Europe as of 30 July 2013

By ***LARS HALÉN,***
senior manager, FOEX Indexes

By ***TIMO TERÄS,***
managing director, FOEX Indexes

Change from previous week		%	Change from beg .of year		%
0.18	$	0.02	50.87	$	6.29
-6.63	€	-1.01	34.80	€	5.67
-7.56	€	-1.23	18.92	€	3.22
-1.61	$	-0.20	29.61	$	3.82
-0.97	€	-0.15	-26.49	€	-3.85
-3.43	€	-0.51	-21.79	€	-3.13
-4.37	€	-0.52	-19.20	€	-2.23
0.00	€	0.00	-28.92	€	-5.84
-0.05	€	-0.01	11.68	€	2.00
-0.16	€	-0.02	-9.91	€	-1.27
-0.03	€	-0.01	18.16	€	4.26
-0.16	€	-0.04	17.27	€	4.30
-0.11	€	-0.03	19.68	€	5.10
-0.08	€	-0.07	0.96	€	0.88
-0.25	€	-0.20	-3.48	€	-2.71

NBSK pulp Europe
Data over the producers' pulp stocks was released by PPPC at the end of July with inventories up by one day during a month when they typically go marginally down. Market pulp deliveries were actually quite good, up by almost 6% against June 2012. In market BSKP, the increase was more modest, a shade over 3.5%. Shipments were satisfactory but production was up and clearly at a higher capacity than a year ago, hence the small increase in inventories. Shipments to Europe in July slowed down by 3.2% from a year ago, although they were still up by 1.6% over the first half of 2012. The increase in producer stocks mounted the downside pressures on prices but improving total shipments and the weakening of the dollar supports producers in their efforts to hold the present price levels. The jury is out on the final impact of the different drivers. Euro strengthened again against the USD from the previous week, this time by 1.0%. Our PIX NBSK index moved up by 18 cents, or by 0.02%, and closed at 860.24 USD/tonne. When converting into Euro, the weakening of the dollar led the index in EUR to a retreat by 6.63 EUR, or by 1.01%. The PIX in EUR closed at 648.75 EUR/tonne.

BHK pulp Europe
Most of the 200,000 tonne gain in total market pulp shipments in June came from hardwood grade, which showed a nearly 9% increase in June year on year, and now over 3% growth during the 1st half against January-June 2012. Shipments were strong, finally, to China as well as other Asian countries. BHKP producer stocks remain slightly above average however, even taking into account the structural changes seen over the recent years in market BHKP supply. At the end of June, BHKP producer stocks stood at 40 days without seasonal adjustment and at 42 days with the seasonal adjustment factor included. Both were unchanged from one year ago but the May number was revised up by one day. The price pressures downwards are on but strongly resisted by the producers. Euro strengthened by 1.0% against the USD from the previous week. With the pressure from the stronger Euro, the PIX BHKP index value in Euro decreased by 7.56 EUR, or by 1.23%, and closed at 607.03 EUR/tonne. The PIX BHKP index value in USD retreated by 1.61 USD, or by 0.20%, and settled at 804.92 USD/tonne.

> *"I usually go for what brand is on special, but of course stick to high quality."*

A pack of tissues is one of life's essentials for James

James Adams is originally from South Africa and is now studying in Manchester in the UK. Here he describes why portable tissues remain one of his key purchases and why he prefers environmentally-friendly products.

Ever since I was a young boy, I have found tissues to be absolutely essential. My earliest memories are of my mother packing my school bag and slipping a tiny pack of tissues into the side pocket, just in case. I have always suffered from terrible hay fever, so when spring rolls around I find myself sneezing like a mad man. I learned, early on, that when one has to deal with a bout of sneezing and the inevitable mucus a pack of tissues is very handy indeed.

Over the years, my use of tissues has widened and increased, but that tiny little pack of portable tissues remains at the heart of my tissue usage. I'm an expert tissue user now; experience has led me to have knowledge of the weight, absorptivity and caress of the tissue.

Besides the pocket sized pack of tissues, I also use a number of other products:

Loo wipes: Enough said. I think just about everyone uses these. It's one of the bare necessities of life so I cannot afford to overlook it. I usually go for what brand is on special, but of course stick to high quality. I usually save money by buying in bulk, as needing loo wipes is one of the few certainties in life.

Paper napkins: These paper napkins are essential for dinner parties. I think a small touch such as a dinner napkin can really transform the look of your entire table. I usually make sure to buy colourful, eye-catching napkins and fold them into different shapes, my favourite being the classic Sailor Hat.

Kitchen napkins: Oh, where would I be without kitchen roll?! These super absorbent and handy accessories have saved my life on several occasions. I'm an avid cook, but unfortunately not the most coordinated one. This can lead to a lot of mess and bother about the kitchen, and one just can't find a reliable rag nowadays. I prefer using kitchen napkins to clean up because they are absorbent, versatile and disposable. I feel that this is cleaner because a moist rag would just harbour bacteria and other harmful things that I definitely do not want going near my food.

Wet wipes: I am not only a cooking enthusiast but also a travelling one. I have spent countless hours at the airport, on a bus or travelling cross country in a rental car. One thing I cannot abide having is an unwashed face and hands, it drives me crazy. That's why I find wet wipes so handy.

I enjoy using tissues of all types, and tend to purchase them in bulk from supermarkets. I prefer being able to see all the available ranges and brands displayed before me so I can get a good idea of the tissue texture and quality, as well as the price. I do think they can be environmentally harmful so I use them sparingly, but I am also heartened by the fact that many tissue companies try to be environmentally responsible. I make a point of going for companies that have a good environmental record to ensure I have as little impact as possible.

Over the years I have definitely increased my tissue usage and certainly enjoy them in a wide range of settings! I think they are much cleanlier and allow us to get about our business while remaining sterile and as clean as possible!

Bringing manufacturing ownership back to a region which once led the world

Northwood's recent acquisitions in the UK's AfH tissue market has propelled it to the number three spot in the sector. Now with its latest joint venture Northwood & Wepa acquiring the former Georgia-Pacific GB & I private label consumer tissue business from SCA in May, it has a significant footprint across all tissue sectors.

Originally a supplier of flat paper grades to the UK converting industry as Northwood Paper Sales, over the past 15 years the group has significantly increased its focus on the tissue market. Headed up by principal shareholder and chairman of Northwood & Associated Companies, Paul Fecher, its associated companies now consist of Connect Hygiene Products and Peter Grant Papers which focus on sales of converted products into the Away from Home market, and Disley Tissue and Lancaster Tissue which produce parent reels for own conversion and sales to third parties through Northwood Paper Sales and Northwood Recycling and Northwood Logistics. Fecher says: "Our aim is to be the preferred supply chain partner for any organisation involved in the disposables, paper, and tissue industries. We are now one of only a small handful of companies in the UK market that sells as well as converts parent reels into final product and also has mill facilities to guarantee supply."

TW visited its T&T site Disley Tissue/Connect Hygiene Products, located in the picturesque English village of Disley, south of Manchester, on the western fringes of the Peak District National Park. Director Chris Wickham, who heads up the site, told TW: "By name we are a relatively new manufacturing company, but we have a long history in the sector and our ambition is to build on that experience and continue our growth. We have targeted investment strategically in the tissue sector and grown organically as well as through acquisitions. To us it feels like we are bringing back some paper manufacturing ownership and initiative into the UK."

The Disley site dates as far back as 1820 when, as a cotton mill, it was part of Manchester's domination of the world cotton trade. In 1890 it started producing paper and now makes the majority of the AfH group's 40,000tpy of high

An aerial view of Disley Tissue, south Manchester

quality DIP & tissue parent reels for Northwood's in-house conversion and as part of the mother reels tissue supply network. Capacity at Disley was recently increased by 10% with the startup of a Metso-supplied Yankee Advantage AirCap hood and Advantage WetDust dust control system. The Advantage WetDust system applies the patented concept of a fully wet system to capture dust at the source by encapsulating it in water. Wickham says: "Investment in our assets is an important part of our strategy and since acquiring the manufacturing sites we have made significant changes to improve the cost base and reduce our environmental impact. We support environmental initiatives such as FSC and Ecolabel, and our investment is in people, processes and our brands in addition to assets, so we can continue to build on our market position."

The Northwood AfH business is predominantly UK-focused, and Wickham adds that its footprint has enabled it to develop brands such as the Leonardo range of towel and tissue systems which he says "offers end users tangible (cost in use) savings, hygiene and environmental benefits". "Leonardo dispensers can be found in washrooms throughout the UK, in hospitals, hotels, golf courses and in almost every motorway service station," he says. "We believe in constant product range development and improvement to meet ever changing user and market requirements. We recognise that in order to achieve our aim of being the key supply chain partner for any organisation involved in the disposable paper industry we also need to be flexible and resourceful in responding to customer enquiries and market demands. This is a very exciting, open and energetic environment to work in."

On 1 May 2013, Northwood & Wepa, the joint venture formed by the shareholders of Northwood Companies (the Fecher family) and the shareholders of the Wepa Group (the

Parent reels of tissue being transported inside the mill

Side view of the Metso rebuilt PM1

Krengel family), acquired the former GB&I Georgia-Pacific private label tissue business from SCA. The move brought an extra 80,000tpy of finished products converting, placing it in third position in the UK private label consumer tissue market.

Fecher says the opportunity to acquire the Bridgend e-Tad Tissue production facility with its integrated modern converting operations "gives the business a solid platform for further growth. The key management team from G-P has been retained and with our guidance is operating the business independently. With continuity assured and with experience and knowledge of the sector, Northwood & Wepa brings significant opportunities for the UK and Ireland private label clients. This is a tremendous opportunity to make a unique synergy with the energy and ambition of the shareholders' other companies."

For both sets of shareholders the acquisition expands the overall business to now include consumer products; Northwood can now offer the full range of finished products in e-Tad and conventional tissue for every sector of the consumer and AfH markets. For the Krengel family, already a major supplier of private label products as well as operating in the AfH markets in mainland Europe, the acquisition means the extended business now has a major independent UK market presence.

FACTFILE - Northwood Associated Companies

Companies – Northwood Paper Sales, Connect Hygiene Products, Disley Tissue, Peter Grant Papers, Lancaster Tissue, Northwood & Wepa, Northwood Recycling and Northwood Logistics

Sectors – AfH, private label, hygiene, consumer

Markets - parent reels, AfH & Consumer converted products, waste paper procurement, Logistics

Staff - 550

Annual UK sales - £230 million

Chairman: Paul Fecher

Top of the league SCA is on the ball to meet consumers' changing needs

With its focus on innovation and sustainability, SCA has taken the top spot in the UK tissue market. TW visits its renowned Manchester mill on the city's Trafford Park.

Trafford Park is a huge, sprawling industrial complex to the west of what was once the pre-eminent mercantile city in the world. A short distance from here the Manchester Ship Canal, an astonishing engineering achievement of its day steering ocean-going ships through a built-up urban landscape, sent out products from the post-Industrial Revolution – cotton garments, Rolls Royces, Leyland trucks and buses, trains, tweed jackets, tea, marmalade - via Liverpool to the landing stages of the Empire and its trading partners... which was essentially everybody.

Of course the Empire has gone and the trade winds have shifted, but a busy, thriving complex remains and plans for a heavily Chinese-funded Freeport at the Liverpool end of the canal will be a massive boost in the near future.

Just down the road is the home of probably Manchester's most famous product today ... the US Glazer family-owned Manchester United Football Club, English Premier League champions and a brand followed avidly from Beijing to Johannesburg to Los Angeles with a claimed 800 million supporters worldwide.

SCA too is a league champion, the top player in the UK tissue market even with recent European Commission monopoly rulings going against it. Fortunately, SCA Hygiene Products' Manchester mill is conveniently located on the edge of the park, so as the local authority seems less than keen on sign-posting to help first-time visitors, it's easy to find.

Site manager Colin Popplewell, a Scot, nods to the glorious Mancunian traditions when he explains the company's key market strategies of sustainability and innovation as a way of maintaining growth in a difficult market: "It goes to show that manufacturing isn't dead in Britain," he says.

A former Procter & Gamble site, it is now completely self-sufficient producing tissue and towel on one paper machine and three converting lines. The UK tissue market is mostly made up of international tissue giants; SCA's presence there is substantial and the UK and Republic of Ireland are the company's second largest market in terms of sales, with SEK 9,084m recorded in 2012. In the UK hygiene sector, it has

"Consumers are requesting one big roll for convenience so we are increasing the flexibility of our mills to accommodate this and respond to consumer demand"

Colin Popplewell, site manager

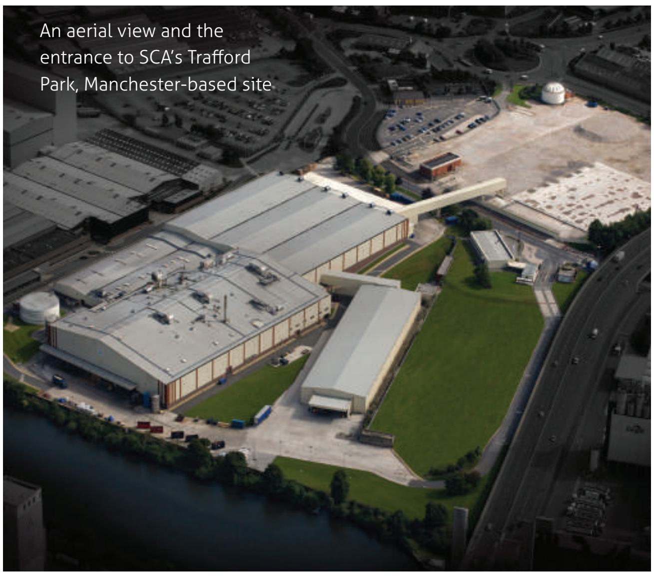
The site is now completely self-sufficient producing T&T on one paper machine and three converting lines

a strong footprint in the branded sector and the retailer's brands' sector and it is also the second largest consumer tissue company in the UK, with brands Plenty, Cushelle and Velvet. In the UK & ROI AfH market, SCA products include Tork tissue and Libero Up&Go baby nappies.

The company credits its success in the retail market to listening closely to what consumers need. The Velvet brand, for example, provides consumers with 'ethical luxury' by offering a tissue product that has sustainable credentials, but according to Popplewell hasn't lost quality. He adds: "Strong branding initiatives ensure that there is a local market for our products. We don't need to export any of the products we make at the Manchester site, we are sold out here in the UK."

Following the purchase of G-P's European tissue business in July 2012, SCA's fleet of mills at Manchester, Chesterfield, Skelmersdale, Prudhoe in Northumberland and Oakenholt in North Wales have been joined by Oughtibridge near Sheffield and Stubbins near Bury. "It was a fantastic acquisition for the European tissue business," Popplewell says. "But the European Commission said that in the UK & ROI we needed to divest the former GP manufacturer and retailer branded businesses following the purchase. As such, we didn't make any additions to our consumer tissue portfolio, but have strengthened our presence in the AfH market."

He adds the purchase means SCA can "benchmark against any TAD machine. This site is very product-specific, but we



An aerial view and the entrance to SCA's Trafford Park, Manchester-based site

Strong footprint in the UK hygiene section: on-site converting of the Cushelle brand

are seeing changes in demand from the UK consumers which we are responding to. We're also seeing a move towards bigger rolls in the private label sector and consumers are requesting one big roll for convenience so we are increasing the flexibility of our mills to accommodate this and respond to consumer demand. There's been a lot of innovations with household products; there is definitely growth there and we are adapting what we offer."

However, Popplewell adds that the Manchester site isn't planning any further major tissue investment at this time. "At the moment, we're looking into further energy saving projects, this is key to reaching our sustainability goals. In converting, recent projects have meant that we've reduced our energy savings by 20%. For our TAD machine, we use a pre-dryer system more efficiently which means we have made energy reductions. As a mill, we're also a heavy user of water, but we have targets in place to reduce our consumption by 50% over 5 years and our overall energy usage by 3-5% year on year."

Down the road the new football season is underway at the Theatre of Dreams, the popular name for the Manchester United ground. There too the talk is familiar – energy efficiency, innovative tactics, staying ahead of the game, keeping on the ball, investing in new talent ... giving the customers what they want.

TIMELINE

1990 - acquired British company Reedpack and increased sales in the packaging business by 42%

1996 - acquired the Prudhoe tissue mill from K-C

1998 - acquired Rexam PLC's corrugated board business

1999 - acquired British tissue producer AM Paper

2003 - acquired building materials distributor BCL

2008 - sold its conventional corrugated packaging business to Spanish SAICA

2012 - divested packaging operations (Containerboard Paper Division and Paper Recycling Division) to DS Smith. Acquired the G-P EMEA away-from-home tissue businesses and Lotus Professional brand

Setting the standard on environmental performance

The tissue industry faces increasing pressure to make sure its water and energy consumption is environmentally sustainable as well as energy efficient. Here, Sofidel Group tells TW how its adoption of an Environmental Group Policy across its UK plants has led to increased efficiencies.

The Sofidel Group has put itself forward to set an industry standard with its adoption of an Environmental Group Policy across its three UK-based sites. The initiative is based on the sustainable development and continuous improvement of process efficiency and is being carried out at the tissue giant's south Wales, Leicester and Bolton plants. The sites house three paper machines, a Metso DCT 200 in South Wales and two machines supplied by Andritz and Beloit in Leicester. There are also several converting lines.

There have been a number of key factors required in adopting the policy, according to Sofidel's UK country operations manager, Giuseppe Munari. A close partnership between the production team and the design team has been necessary to enable standard equipment to be tailor-made. He says that great attention has been paid to establish production efficiencies and an in-depth process analysis has been established that simplifies the water circuit and favours water recycling. This has also been applied to energy performance, and surveys of the systems in operation have also been undertaken.

A continuous improvement plan has meant that staff and operators are communicating on a daily basis and taking into account the most up-to-date consumption figures. Individual areas of the plant have been fine-tuned to highlight the inefficiencies and start a remediation programme. The application of specific procedures has been used to reduce water and energy consumption. As an example of a project to reduce the power consumption, the business has increased the consistency of the head boxes of the paper machine which has lead to "a significant reduction of power consumed by the fan pumps".

In 2008, Sofidel also joined the WWF Climate Savers Scheme - it was the first Italian company and the first tissue paper producer in the world to join. The scheme is a means by which companies voluntarily adopt plans to reduce greenhouse gases emissions using innovative strategies and technologies. By participating in it, Sofidel Group committed to reducing its CO_2 emission by 11% by 2012 compared to 2007 levels; a total reduction of 26 % in CO_2 emissions by 2020, compared to 2007.

INTERTISSUE

Sofidel's south Wales Intertissue site was developed in 2005 on a brownfield site and it started its converting operations in 2006 while paper production started a few months later. The paper machine, a Metso DCT 200, has a capacity of 60,000tpy while six converting lines are dedicated to rolls and two lines for facial.

Located on Baglan Energy Park, the site gets power directly from a gas-fired power station owned by Macquarie, formerly GE. This means the business receives power generated from a neighbouring site and so it avoids the

extra transport charge of receiving electricity from the grid.

Munari says: "Notwithstanding this potential advantage over some of our competitors, it has been clear since the beginning that Intertissue would have been a show case for energy efficiency throughout Sofidel Group." He adds that the site has a production efficiency that "is close to 97%". "This is measured as a percentage of the time when the machine produces conforming paper over the available production time at the expected speed , taking into account fabric and felt changes." The plant currently operates below 5 m3 per net tonne of paper produced, while the BREF (BAT Reference Document) guidance document for tissue production puts targets between 10-25m3/tonne for the production of tissue paper. "Intertissue has also managed to reduce its power consumption by 30% and its gas consumption by 20 % since start up in 2006," he adds.

SOFIDEL UK

In June 2010, Sofidel purchased Sofidel UK formerly known as LPC Group , which had two paper machines supplied by Andritz and Beloit with a capacity of 75,000 tonnes per year. There are converting plants at Hamilton, Rothley and XXL. XXL is one of the three largest converting lines currently in operation in Europe having a deckle that matches one of the Andritz paper machines at approximately 5.2 metres. When Sofidel first took over the sites, Munari says they were run at different standards to the other Sofidel sites. The company starting implementing water and energy efficiencies to improve the efficiency of the machines in terms of energy and water consumption, making some technical investments and operational changes .

"The performance of the Sofidel mills in the UK demonstrates the commitment that Sofidel has to run its mills in an efficient and sustainable way."

Munari says: "Sofidel UK is aware of the increasing pressure on the tissue industry in terms of all issues related to water consumption and the scarce availability of water in the UK. The water currently used in the process is mains water which is a large financial expense to the company. We have since created a company objective for water consumption and the aim here is to achieve a 50% reduction in water specific consumption (i.e. total water consumption per net tonne of paper produced) in 2012 in respect to the base year 2008."

Since Sofidel took on the sites, Munari says the target has been over achieved by 10%. The reductions can be seen in the table.

Sofidel UK continues to improve its water-use reduction rate and during 2013 its water consumption fell below 5m3/net tonne of paper produced. Munari says: "The performance of the Sofidel mills in the UK demonstrates the commitment that Sofidel has to run its mills in an efficient and sustainable way." Water consumption is closely monitored using a number of water metres and these metres are also linked to the central control system for the paper machines.

"The amount of water used on each machine for the production of paper is constantly displayed to keep the operators informed of the usage and make them aware of when the targets are not achieved," Munari says. "It also has the added benefit of making the employees understand the impact that the company has on the environment and the way they can participate in helping the company run in an environmentally friendly way. As water consumption is measured within the industry, it also allows employees to understand how well the company is running compared to other companies."

This system is also applied to energy consumption with all figures being closely monitored. In terms of energy, through the implementation of a number of projects there has been a reduction in gas consumption of 40% and a 20% reduction in power since 2010.

External Influences

As well as the commitment to the WWF Climate Savers scheme there are also a number of other external influences that Sofidel must take into account when trying to run as efficiently as possible. These include the Emissions Trading Scheme, Climate Change Agreements, the Environment Agency and maintaining nationally recognised certifications.

Both mills are part of the European Union Emissions Trading Scheme (EUETS). The EUETS is the largest multi-country, multi-sector greenhouse gas emissions trading system in the world and it includes more than 11,000 power stations and industrial plants across the EU with around 1,000 of these in the UK.

Both Intertissue and Sofidel UK have completed external verifications in regards to the CO_2 emissions emitted from the plants in Phase II (2008-2012). The plants entered into Phase III on 1 January 2013, which lasts for seven years (2013-2020). The current phase of the EU ETS builds upon the previous two phases and is significantly revised to make a greater contribution to tackling climate change including: an EU-wide cap on the number of available allowances and an increase in auctioning of those allowances. The EU cap will reduce the number of available allowances by 1.74% each year, delivering an overall reduction of 21% below 2005 verified emissions by 2020. This puts a financial burden on the company as the more CO_2 emissions emitted the more allowances will have to be purchased. "This increases Sofidel's drive for running more energy efficient processes and reducing the amount of CO_2 produced in the process through energy consumption," Munari adds.

Climate change agreements (CCAs) are voluntary agreements containing targets for eligible industry sectors to increase energy efficiency or reduce carbon dioxide (CO_2) emissions. Munari says that operators that hold a CCA are eligible to claim a discount to the Climate Change Levy (CCL) charged on their energy bills. The new scheme started on 1 April 2013 where participants can start claiming their CCL discount at the revised rate of 90% for electricity and 65% for other fuels. "In order for Sofidel UK and Intertissue to claim this discount, we must be able to demonstrate our energy efficiency and how we are actively reducing our emissions by reporting our figures on a monthly basis to the Confederation of Paper Industries (CPI) which has an umbrella agreement with the Environment Agency for the paper sector."

The Environment Agency also requires the Sofidel sites that hold Environmental Permits report annual consumption figures and undertake annual performance reviews comparing performance with the previous years. A key part of the reporting is being able to demonstrate to the agency the continuous improvement by the site in regards to energy and water consumption figures. In 2012, as part of the agency review on water efficiency within the paper sector, Intertissue was audited in order to verify the water efficiency of the site as "it is classed as one of the best performers within the tissue paper sector", says Kerry Mackinnon, environmental manager UK.

Sofidel believes that within the Group, companies should operate according to current internationally recognised sustainability features such as ISO 14001 certification. The annual objectives and targets set by head office emphasise annual energy and water reductions.

Munari adds: "With all businesses, it is imperative that we convey the correct message to our customers in regards to our environmental performance and our sustainability credentials. One of the key impacts of our actions for water and energy reduction is expected to be a consolidation of our reputation. A benefit for the employees and stakeholders from the improvement programmes being run is an improvement in corporate image due to the company's environmental commitments, which can result in an increase in business."

Retail: shaping the global tissue industry

Following their retailer customers, tissue producers expand to new regions, provide the segments and qualities requested, and step up to meet environmental demands. **A TW report.**

RETAILERS IMPACT THE GEOGRAPHIC SPREAD OF PRODUCERS

Often the geographic spread of tissue producers originates from the retailer requirements. Many, especially private label producers, have followed retailers to new markets. Producers have had to match the retailers in size, be large enough and also be present in several countries in order to serve their retailer clients. Relationship with retailers, large scale and capability to supply large volumes in several locations, creates an advantage compared to small local competitors. The expansion of Italian companies in the 1990s and 2000s to several European countries has followed this pattern. This has shaped the whole European tissue supply.

RETAIL STRUCTURE AND PENETRATION OF THE LARGE RETAILER GROUPS OFTEN DETERMINES PRIVATE LABEL AND BRANDED SHARES

The retail structure is often a good indicator of the tissue market's developments. Retailer structure, concentration, the number of retailers and what types are present in a market determine the market extensively. If major retailer chains that typically drive their own brands (Lidl, Aldi) have a significant share, this enhances the high private label share in a region. If hypermarket chains and discount stores are dominant (and also if there is an economic downturn) this means the focus is on prices and consequently often to private label, or at least away from the most exclusive brands.

In countries where the retailer structure is fragmented, there is often more room for manufacturer brands. The Italian tissue market is primarily branded. In Italy distributors also quite commonly serve the smaller shops and manufacturer brands are therefore dominant. The leading Italian producers are also quite strong and capable of keeping the business in their own hands. If the dominant retail chains are purely local like for instance in Nordic countries, especially Finland, the importance of private labels has not reached the same level as when the multinational chains rule.

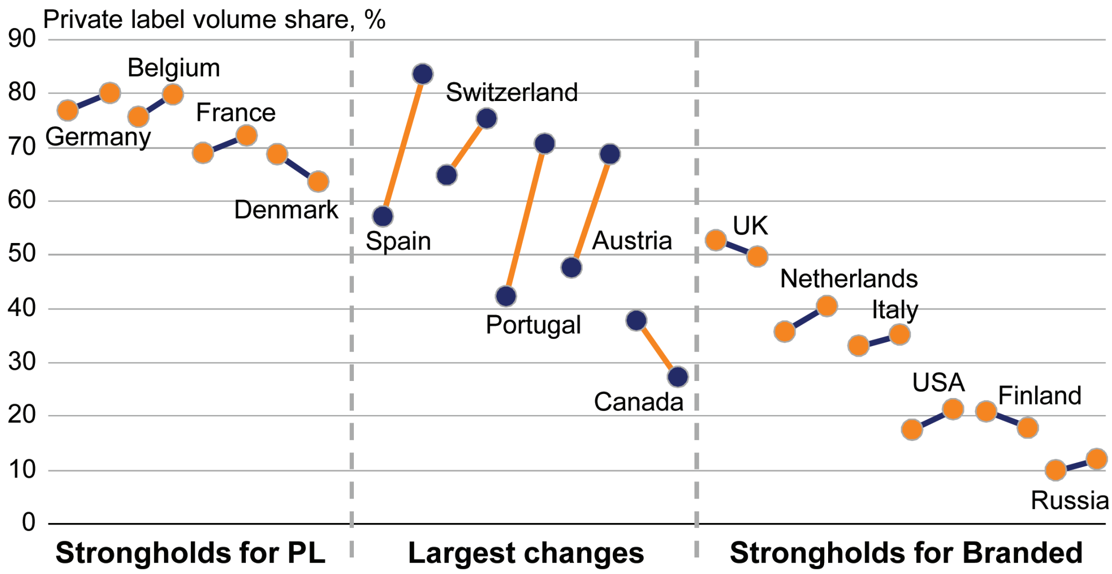
However, retail structure is not the only factor impacting the market segmentation. With similar retailer structure private label share can be different as some other issues overcome the retailer concentration impact. In markets like the UK the presence and efforts of strong multinational tissue brand owners (e.g. Kimberly – Clark and Procter & Gamble) has shaped the market to resemble somewhat the market in the US with the strong brand focus. Even the popularity of products/categories follows these producers and also in this respect the UK tissue market is close to the US market; boxed facial tissue is more popular than hankies. In most other Western European countries facial tissue in boxes has not been able to maintain great volumes.

Typically in smaller markets, a similar traditional presence and market dominance not of the multinational giants but

By PIRKKO PETÄJÄ
principal at Pöyry Management Consulting

PRIVATE LABEL GROWS IN SELECTED GEOGRAPHIES

Increased retailer concentration results in increased PL share. Economic downturn normally has a similar impact



the national players/brands creates a brand focus. Such examples are Slovenia with Paloma and Finland with former G-P and Metsä-Tissue. Russia is a branded tissue market. The success of brands is, however, restricted by the average low quality of products that the majority of the population can afford. The future development following the rapid progress of domestic and international retailer chains and the increase of disposable income, is, however, not expected to essentially change the segment structure; Russian buyers typically like brands and growth concentrates on major cities where the buyers can better afford both the international and national brands.

RETAIL DETERMINES EVEN THE MARKET PLAYERS

The negotiating power of tissue brand owners has not been strong enough in the Western European markets to create the similar brand dominance in supply as seen in the US. Even the strong efforts of the main brand owners to gain market share in the key European markets (e.g. Procter & Gamble) have succeeded only partially. This is the reason for Procter & Gamble's withdrawal from the European tissue business and the same applies to Georgia Pacific and Kimberly Clark's withdrawal from the consumer business in selected markets (Poland and Germany); the retailer labels are too strong and it is not possible to improve the margins to the levels the brand producers are typically used to.

"The negotiating power of tissue brand owners has not been strong enough in Western European markets to create the similar brand dominance as seen in the US."

The European tissue consolidation is also the consequence of retailer impact as actually the retailers have forced the players to organic growth and acquisitions to give them required geographic presence and enabling them to be strong enough to cope with the retailer groups. Consolidation in Europe is going to continue; the large groups clearly show a more stable performance due to the strengthened position and increased negotiating power. We are going to see further consolidation moves, as there is the danger that the smaller players end up as second tier producers squeezed by the oligopolistic market leaders.

ROLE OF CONSUMERS

The end consumers show what they want with their buying decisions. Typically the trend is towards higher quality in all segments throughout the markets. Hardly anywhere is lower quality a long term trend, even if it can be temporarily gaining share. Private label quality is approaching the brand quality; even TAD is entering the private label segment.

Economics, the level of disposable income and the state in the economic cycle are the strongest indicators of consumer behavior. The impact of the economic downturn can clearly be seen in consumers' turning to cheaper products, often private label, and lower quality. The volumes seldom decrease due to the downturn, as tissue is seen as a necessity and nobody cuts down the usage for economic reasons, although one can of course choose cheaper quality. The strong increase of private label shares due to the economic downturn has been clearly seen for instance in Spain and the Iberian Peninsula in general.

The consumer decision is primarily economic. They can for instance respect the environmental argument but they are not willing to pay for it. Consumers choose the 'environmental' alternative if the price is the same, but no meaningful premium will be paid for any such attributes. Several consumer surveys indicate that although the majority of consumers claim that raw materials influence their buying decision, only 20% are willing to pay for 'eco friendliness'. Some tissue producers believe that consumers might be willing to pay for these attributes in the future; however, nobody believes this is possible in an economic downturn, but maybe in a better economic climate.

The price is always somehow behind the consumers' buying decision. New innovations and features may fascinate temporarily, but not at any price. The same is true with tissue suppliers; their decisions are finally always economic – if the recovered fibre content or environmentally-certified fibre or Bamboo is not paid by the final customer it will not be a sustaining feature.

Only the NGO's and retailers can afford to be idealistic and require something that at the end of the day is paid for by somebody else. Therefore, the environmental attributes and labeling are also primarily requested by those groups. In certain regions, especially in Germany, some environmental requirements are a must as the retailers do not offer anything else; the retailers finally shape the tissue offerings. If the trade was in the hands of small fragmented players, quite different forces would rule and the markets would be a long way from the currently ruling of extensive environmental labeling.

CAN THE MARKETS BE ACTIVELY IMPACTED OR SHAPED?

The impact of the retailer on the tissue industry is most likely to be a consequence of their existence and position. Different types of campaigns to boost a brand for instance have not proven to have a permanent impact because after the campaign the market goes back to normal.

European tissue producers are still trying to shape the market towards more branded products; that is the announced intention of SCA's consolidation moves and this target is possibly reached when combining P&G and G-P's brand power to SCA's.

Consumers make rational choices. High quality is the trend and there will always be a premium segment where price is not decisive. TAD and multiply defend their position and there will be interest in similar properties and functionality, the more affordable the wider the interest. In a normal economic situation the trend is gradually moving to higher qualities and coming down in quality is not possible without repositioning and significantly lower prices. Higher quality increases prices and volumes and is therefore in the interest of producers. Large diameter maxi rolls, paper designed for certain purpose, etc, are all good selling points but the price must always be balanced with the purchasing power.

SUMMARY

Retail shapes the tissue industry as it determines the suppliers' geographic spread, requirements for their minimum size and impacts the brand and private label segmentation. Retail has even impacted market players; the negotiation power of the brand owners has not been enough in the European tissue markets and consequently the large multinational brand players have exited.

"Retail shapes the tissue industry as it determines the suppliers' geographic spread, requirements for their minimum size and impacts the brand and private label segmentation."

The current European tissue consolidation is driven by the search for the market power and it is shaping the European tissue supply towards an oligopolistic market. The consolidation is expected to continue.

The final consumer makes rational, often economically driven buying decisions. They are usually not ready to pay for environmental attributes, labelling or certification, even if they may prefer these qualities if the price is the same. Retailers cannot have much impact on the market by active campaigns, but they can influence the decision to have environmentally certified products from their suppliers.

Pöyry Management Consulting is the leading advisor to players within the global Paper, Pulp, Packaging and Hygiene sector

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'The economic crisis has redefined our marketplace'

Unprecedented private label growth, corporate social responsibility, sustainability, achieving the best price/quality/performance value possible - Cascades Tissue Group chief executive Suzanne Blanchet discusses key retail trends with TW.

Tissue World: What trends are you seeing in the local retail market?

Suzanne Blanchet: "A clear trend is the move towards a greater presence of private label products on the shelves. With the economical crisis over the past few years, consumers have been on the lookout for the best prices for their everyday purchases, something that is often the case with private label products. As a result, the marketplace has seen an unprecedented growth of private labels, especially in the United States where the impact of the crisis has been even more profound.

"Another key trend is a shift towards environmentally sound products. As a company putting sustainability among its core values, it is inspiring to see tangible efforts being made to change the way products are designed and manufactured. As corporate social responsibility has evolved as a concept in the last years, more companies are now willing to invest time and efforts to develop products that are both efficient for their clients and for the environment. It comes as no surprise that tissue paper products are mainly single use items that will go to waste after their useful life. Nowadays, working towards reducing pollution and use of resources is not an option; it is an obligation for future generations."

How are consumers' buying habits changing?

SB: "At the moment, we are measuring a greater need for consumers to find the best quality-price value when shopping for tissue paper products. More than ever before, they are searching for high-end products that combine increased softness and performance.

"We also see more consumers being on the lookout for environmental claims on products' packaging. It is becoming increasingly frequent to see environmental criteria amongst the priorities when choosing a tissue paper product. It is estimated that the "green consumers" represent around 30% of the Canadian population. In this context, the challenge is clear: find the best way to communicate effectively the environmental advantages of a product. For 50 years, Cascades has focused on reducing its use of resources - such as fibre, water, energy, chemicals – and its ecological footprint has been a step ahead of the industry in the field. We are continuously finding ways to communicate this to our consumers."

How is private label changing the retail landscape?

SB: "The result of a growing private label presence on the market is simple: the tissue paper products, in general, now have to offer the best price/quality/performance value possible. As the economical crisis redefined the marketplace, consumers are more preoccupied by their budget and stay on the lookout for the most interesting prices. They ask for the level of performance offered by the main national brands, but at a competitive price, which is when private labels are an interesting solution. In the end, consumers are the winners in this equation; it's now easier than ever to find high quality products at an interesting price."

"Retailers can have a serious impact on encouraging the greenest suppliers," Suzanne Blanchet, Cascades Tissue Group chief executive

"Strategies to work on climate and energy, on employee wellness, on waste, on supply chain, on water use and on community relations will become default business practices. Collective efforts will be at the core of great changes for the next generations."

How is Cascades adapting to this?

SB: "We focus a lot on following these trends to satisfy our clients' and consumers' needs. We invest a lot of efforts to increase our products' performance and efficiency. We have the largest private Canadian Research and Development centre in the pulp and paper sector. The centre provides us with operating units that have the "know-how" of some 40 employees who specialise in various fields of expertise such as product development, machine operation and wet-end chemistry.

"We also constantly work on improving our products' sustainable nature. As a result of our efforts in the field, we can offer our retailers products that were manufactured according to the best practices in the industry for environmental performance. They can be assured that by working with us, they have a tangible impact on reducing their own ecological footprint. They can also fulfill their consumers' needs by offering them a green alternative for tissue products.

"Cascades also offers the cascades® brand to Canadian consumers. It is a clear choice for consumers wishing to buy the most sustainable paper products for their home, without compromising on softness and quality.

"Another good example of our commitment to sustainability is the Cascades® Moka™ 100 percent recycled unbleached products line – offered on the Away-from-Home market – for which we have improved our production processes by eliminating chemical whitening. The products are also made of a pulp mix that is composed of 100% recycled fibre, including 20% from recovered corrugated boxes.

"Having completed our 2010-2012 Sustainable Development Plan, we are ready to work on new objectives for 2013-2015, in order to increase our products' and activities' responsibility."

How can retailers leverage the environmental efforts being made by tissue producers?

SB: "Retailers can have a serious impact on encouraging the greenest suppliers, simply by choosing partners with a true commitment to sustainability and by asking evidence of it.

"Retailers wishing to be the greenest possible should look for specific criteria when shopping for a responsible paper product. They should seek information on the impact of manufacturing activities (type of energy used, plant location, amount of water used, etc.), a product's fibre content (virgin, mix, recycled) and certifications (Green Seal, EcoLogo, FSC, PCF, etc.). Retailers that would like to push their analysis further could even prioritise a company with a good corporate social citizenship (involvement in its community, donations and sponsorships, level of transparency and reporting, etc.).

"Cascades chose to evaluate its own suppliers' corporate responsibility. Last year, we started working with EcoVadis, an independent sustainable supply chain management platform company, to survey and evaluate our suppliers' performance using 21 parameters in categories such as fair business practices, labour practices and environment. The final score to this evaluation is one of the criteria involved in the choice of a supplier. The process successfully raised suppliers' awareness about their ecological footprint, and Cascades has faith that the experience will have a significant positive impact on the environment."

Any forecasts for where environmental trends are heading in terms of the tissue industry?

SB: "Environmentally preferable products will eventually become a standard practice on the market. Innovation will allow more and more efficiency and the impact of paper products' manufacture will be less resource-intensive. The market will see new recipes and alternative raw materials appear, as well as new technologies that will allow greater quality and performance of product. Both the planet and the end-user will benefit from this evolution of practices.

"In the coming years, we also feel that every company will push its corporate social responsibility actions further than a green products offering. Strategies to work on climate and energy, on employee wellness, on waste, on supply chain, on water use and on community relations will become default business practices. Collective efforts will be at the core of great changes for the next generations."

TV presenter Dawn Porter has taken Andrex Washlets around the UK campaigning to get the public to try wet toilet tissue as part of broadcaster Channel 4's 'The Clean Campaign'.

Brands not offering value or a unique selling point are withering

Promotional battleground sees companies seeking ideal combination of quality, performance and price in a tough UK market. Simon Creasey, associate editor (features) at the UK's The Grocer magazine assesses key advice from the major players.

By SIMON CREASEY
Associate Editor (features) at The Grocer

The retail market for tissue products is a pretty tough environment to be in at the moment. Although sales volumes are holding up well, the average pack price of some tissue products has fallen significantly over the last 12-months.

According to BrandView.com statistics the price of toilet paper fell from an average price per pack of £3.48 in March 2012 to £3.21 in March 2013, with the price of branded products falling by 7% over that period and the price of own-label toilet roll falling by 10%. One of the main factors behind this fall in price is the increased level of promotional activity by brand owners and the rise of own-label brands. Over the 12-month period to year end March 2013 there were 925 promotional deals compared with 817 deals the previous year (Source: BrandView.com).

The outlook is similarly tough for the household tissue market with the market in decline both in terms of value and volume sales (IRI 52 week-end 13 July). So what are brand owners doing to get sales back on track and drive volume and value growth? How can they fight back against the growing threat of own-label products? And where are the most significant opportunities for growth going forward?

The biggest issue branded suppliers have had to grapple with during the recent economic downturn is consumer thirst for greater value for money from brands. This is reflected in the experience of the retailers, with a spokesman for Sainsbury's telling TW: "At Sainsbury's our focus is on delivering great value for our customers, and price continues to be the driving force for consumers in the paper category".

To maintain or grow market share brands need to invest in new product development (NPD), marketing and promotional activity. But this isn't just about offering consumers a product at a rock bottom price, argues Frank Millward, business development manager at Accrol Papers. It's about offering a combination of quality, performance and price, which is where some brands have fallen down allowing own-label rivals to steal a march.

"Some of the larger brands in the paper sector have performed poorly and we have seen a resurgence in retailer branded share as a result," says Millward. "We are fortunate that most of our brands fall very well into the 'good value' arena, which in this context means exceptional quality delivered at a keen price point. Those brands that are performing well in the UK market at the moment are doing so from this platform. Those brands that are not offering value or a unique selling point to the consumer are withering."

"Own-label quality has come a long way in recent years and some of the offerings on the market perform exceptionally well. The key to any successful brand is to find and maintain its point of difference and offer value."

That's because consumers have become incredibly fickle, according to Millward: "Own-label quality has come a long way in recent years and some of the offerings on the market perform exceptionally well. The key to any successful brand is to find and maintain its point of difference and offer value."

One way of offering greater value for money is by increasing

"This change in [consumer] behaviour has resulted in shoppers switching from standard to jumbo packs." Laura Burrows, brand manager for SCA Hygiene's Plenty

K-C's Andrex Eco is made from 90% recycled paper and 10% bamboo

"At Sainsbury's our focus is on delivering great value for our customers and price continues to be the driving force for consumers in the paper category".

pack sizes. This has been a key strategy in the household tissue market for operators like SCA, with consumers seeking the greater value offered by jumbo packs.

"This change in [consumer] behaviour has resulted in shoppers switching from standard to jumbo packs, which also offer the benefit of requiring less replenishment," says Laura Burrows, brand manager for household tissue brand Plenty, which is owned by SCA Hygiene. "Further to this, specialist growth within the category has meant consumers also require household tissue that is tailored to their needs."

So rather than purely marketing Plenty as a tissue for mopping up household spills in the kitchen, the brand is being pitched as a product that works well in the bathroom, garage or even in the garden. "To further educate consumers and drive sales in this area, Plenty has invested through the line to drive usage occasions beyond simple spill management," says Burrows. "The launch of Plenty The Big One, with bigger sheets for those bigger tasks, and new Plenty Super Strong, with the cleaning power of a cloth in a paper towel, have also helped to satisfy the need for specialist products in the sector."

Another NPD focus for the category's big brands is the environment. All of the leading manufacturers of tissue products have set incredibly ambitious environmental targets around recyclability and sustainability, with some companies, such as Kimberly-Clark, launching cutting edge eco products to win consumers over. The company launched

FLUSHABLE WIPES

One of the few areas of the toilet tissue market that's enjoying growth of both value and volume sales, and has even seen a price increase over the last 12-months, is the relatively small wet wipes category. The typical pack price has risen 9% year-on-year, from £1.48 to £1.63 (BrandView.com), with sales of these wipes growing at around 15% per year.

According to a spokesman for Sainsbury's, the retailer has noticed a real drive towards packs of moist toilet tissues at the moment, with the company's own-label Supersoft flushable moist wipes performing particularly well.

However, the drive towards these flushable products comes at a cost. Some water companies claim that the wipes don't break down as much as toilet paper so they're causing blockages in the country's ageing sewage system – Thames Water experiences around 80,000 blockages a year and it estimates that three-quarters of these could be caused by wet wipes.

Problems are caused if the wet tensile strength of a tissue product is set too high, making it difficult to break down adequately within the sewage systems, says Accrol's business development manager Frank Millward. "This is not a common occurrence on toilet roll as the wet strength of the tissue is set deliberately low," he explains.

For manufacturers of moist wipes it's an issue that they take incredibly seriously according to SCA's vice president of media relations, Boo Ehlin. "Many things that shouldn't be flushed into the sewerage system can cause blockages, such as fats and oils, razors, nappies, cotton buds, tampons/tampons with strings, dental floss, hair and non-flushable wipes. At SCA we label our hygiene products clearly to help consumers identify what can and cannot be disposed of in the sewerage systems."

It's an approach shared by Kimberly-Clark, according to Andrea Hopkins, senior EMEA communications manager. In addition to putting the company's Andrex Washlets through a series of tests to ensure that they conform to industry body guidelines, the company also clearly states on its packaging that consumers should only flush one or two wipes at a time.

"When used responsibly Andrex Washlets will not block sewage systems," says Hopkins. "Over and above the research and development we put into Andrex Washlets we have thoroughly tested the product to industry standards to ensure that as they pass through the sewage system and are subjected to the action of moving water, they continue to lose their strength and break down."

Andrex Eco, made from 90% recycled paper and 10% bamboo, into UK retail channels last year, and according to Andrea Hopkins, senior EMEA communications manager for Kimberly-Clark, the product has found favour with consumers, largely due to its green credential. "Bamboo grows a lot faster than trees so it can produce up to five times more fibre than the types of trees usually made to make tissue paper," says Hopkins. "This means we need less land to grow them and research shows they also need less water. We are the first tissue manufacturer to make a product with our unique mix of recycled fibre and bamboo and as with all Kimberly-Clark's tree fibre, we make sure it's sustainable and only use Forest Stewardship Council-certified bamboo – we don't use bamboo from any areas where endangered species live."

Such a radical approach is a great way of creating differentiation between brands and own-label products, argues Hopkins – not that the manufacturer is overly worried about retailer own-label offerings anyhow. "The important thing is to see private label not as a threat but the means to growing a co-operative relationship with key customers," says Hopkins. "Of course our fundamental approach is to nurture and build our leading brands and we remain confident in the strength of our brands across each of our health and hygiene categories."

Part of the problem is of course that in addition to selling their products through the retailers many of the leading manufacturers also produce own-label products for their retail partners. As a result, manufacturers of tissue products have to tread carefully when plotting their forward strategies, cautions Boo Ehlin, vice president of media relations at SCA. This is reflected in the company's approach to dealing with retailers.

"SCA has a dual strategy for consumer tissue and [we] are producing and marketing consumer tissue product under SCA's own brands and retailer brands," says Ehlin. "About 50% of products are marketed under SCA's brands, while the remaining 50% is sold under retailers' brands."

Regardless of whether or not manufacturers are producing branded tissue products or products for retail customers' own-label ranges, the key to future success is delivering NPD that delivers on specific consumer needs – whether that be environmental, functional or value driven, argues SCA Hygiene's Plenty brand manager Laura Burrows. "With changes in consumer behaviour resulting in consumers recognising the benefits of household tissues as a core part of a household's cleaning armoury, there is a growing desire for products that meet specific cleaning needs. This is challenging brands to develop innovative household tissue products tailored specifically to the needs of the consumer," says Burrows.

Until the industry gets to grips with these demands it will be some time before the tissue market gets on a roll again.

TRENDY TOILET PAPER

Beyond a love of music what do bootilicious pop diva Beyonce and music impresario Simon Cowell have in common? The surprising answer is that they both like to use the same trendy toilet tissue on their dainty derrieres.

According to tabloid reports, Beyonce demands that rolls of red toilet roll produced by toilet tissue manufacturer Renova are placed in her dressing room as part of her rider before gigs, whereas Cowell is a big fan of the company's black toilet roll, according to his biographer Tom Bower.

The quirky toilet tissue range, which launched in Paris in 2005, is available in a wide range of different colours, including black, brown, red and green, with a retail price of €7.15 for six rolls.

Currently available in more than 50 different countries, the product was dreamed up by Renova chief executive Pereira da Silva during a performance of Cirque du Soleil in Las Vegas. José Pinheiro, director of brand and business development at Renova says the typical user of the company's products is "more affluent, but not necessarily so. They're trend seekers, open to novelties, young and middle-aged, aspirational, emotional and non-conformal".

As for whether or not the rumours are true about Beyonce and Cowell being big fans of the brand, Pinheiro refuses to be drawn. "We have a lot more celebrities using the product, especially in Hollywood, but we cannot disclose their identities," he says.

Renova's black toilet paper includes music impresario Simon Cowell as a fan

Yankee Dryer System: critical asset protection, monitoring and control using 3D TRASAR™ Technology by Nalco

A TW report by Steve Hoefs, senior industry development manager, Nalco, an Ecolab company.

Reliable Yankee dryer performance is a key contributor to the smooth operation and finished product quality of every tissue machine. Continuous delivery of a high quality steam supply and an efficient condensate removal system is necessary to maintain consistent dryer performance. When Yankee dryer performance declines, the tissue machine may experience reduced drying capacity, increased pressure drop, wet streaks and random coating patchiness. When these symptoms become apparent, it is too late. Quality and production have already been adversely affected.

To maintain Yankee dryer system performance, the tissue manufacturer must have a comprehensive steam/condensate control strategy in place that takes into consideration the following elements: condensate chemistry, corrosion/deposit control and system monitoring. This article reviews how 3D TRASAR technology for Yankee dryer systems from Nalco meets these needs, ensuring that the appropriate system protection is in place at all times in response to the dynamic nature of the Yankee dryer steam/condensate system.

'Systems operating with varied boiler feed water make-up rates and alkalinity levels will generate inconsistent carbonic acid levels.'

STEAM/CONDENSATE CHEMISTRY: SOURCES AND EFFECT OF ALKALINITY AND OXYGEN

The boiler pretreatment system has a direct effect on the amount of carbonic acid and oxygen that can enter the Yankee dryer system and negatively affect its performance. In sodium zeolite softened water systems all of the raw water alkalinity present in the make-up water source is allowed to enter into the boiler feedwater system. Under boiler water temperature and pressure conditions the alkalinity breaks down and carbon dioxide gas is generated. The reaction is shown in Figure 1.

The carbon dioxide gas travels out with the steam and possesses no cause for operational concern until

Breakdown of feedwater alkalinity

$$\underset{\text{Biocarbonate}}{2\,HCO_3^-} \xrightarrow{Heat} \underset{\text{Carbonate}}{CO_3^=} + \underset{\text{Water}}{H_2O} + \underset{\text{Carbon Dioxide Gas}}{CO_2}$$

$$\underset{\text{Carbonate}}{CO_3^=} + \underset{\text{Water}}{H_2O} \xrightarrow{Heat} \underset{\text{Hydroxide}}{2OH^-} + \underset{\text{Carbon Dioxide Gas}}{CO_2}$$

Figure 1

$$\underset{\text{Carbon Dioxide}}{CO_2} + H_2O \longleftrightarrow \underset{\text{Carbonic Acid}}{H_2CO_3}$$

$$\underset{\text{Carbonic Acid}}{H_2CO_3} \longleftrightarrow \underset{\text{Hydrogen}}{H^+} + \underset{\text{Biocarbonate}}{HCO_3^-}$$

Figure 2

the steam is condensed to its liquid form. At that point, the condensing water reacts with the CO2 gas forming carbonic acid, which equilibrates in solution as shown by the reaction in Figure 2.

Systems operating with varied boiler feed water make-up rates and alkalinity levels will generate inconsistent carbonic acid levels in the return condensate system and, if not continuously monitored and adjusted for, will produce periods of depressed condensate pH and a more corrosive environment within the return condensate system including the Yankee dryer.

Alkalinity levels in the boiler feedwater can be reduced through enhancements to the boiler pretreatment equipment. In most tissue mills, which operate with low-pressure package boiler systems, the boiler feedwater make-up system is typically based around sodium zeolite softeners alone. As mills have been expanding their boiler pretreatment systems through the addition of reverse osmosis trains to the pre-treatment strategy, they have been able to reduce their make-up water alkalinity levels by up to 95%.

Another element that must be considered within the pretreatment and return condensate system is dissolved oxygen. Oxygen can enter the Yankee dryer through ineffective operation of the feedwater deareator or air in-leakage from vacuum seals. When both carbon dioxide and oxygen are present, the resulting corrosion rate is 10 to 40 times greater than the sum of the corrosion rates of the two gases acting separately.

CORROSION/DEPOSIT CONTROL:

Yankee dryer performance is directly related to the effective removal of condensed steam from within the dryer. A common Yankee dryer condensate removal design utilises "soda straws" to evacuate the condensed steam. If flow through these straws is restricted, condensate can build up within the dryer causing inefficient operation. The most common cause of soda straw flow restriction is plugging of the straw orifice with accumulated iron. The sources of the iron creating these deposits can be from the formation of active corrosion by-products within the dryer system or by the rapid release of the passive magnetite layer which forms on the drum wall and

Instrument or Test	Limitation
pH	Indirect measurement of only one of the components of corrosion. Does not measure effect of oxygen in the return stream.
Dissolved Oxygen	Oxygen will preferentially flash off with the steam through the condensate flash tank and will not remain with the condensate.
Conductivity	Single component measurement to identify boiler water carryover, amine overfeed, and/or raw water contamination.
Particle Monitor	Slow sample time that cannot be used to control amine.
Millipore Testing	Grab sample only. Requires 5 fps sample flow for measurement to be representative. No continuous monitoring of system conditions.

Table 1: Common methods of return condensate monitoring and their limitations

CASE STUDY 1

A US mid-western tissue mill had experienced Yankee dryer soda straw plugging concerns. As a result of these concerns, the mill established a satellite condensate treatment application ahead of the Yankee dryer system. Prior to the 3D TRASAR automation of the satellite condensate treatment, the programme was adjusted by operations staff based upon the pH of a grab sample taken off the Yankee flash tank. The pH control range that the operators were targeting was 8.8 to 9.2 based on the metallurgies in the Yankee dryer and soluble iron wet tests that showed 0 ppb iron levels when operating within this control range.

Figure 3 demonstrates the performance improvement results from using 3D TRASAR technology for Yankee dryer systems. The first portion of the graph shows when the 3D TRASAR system was in monitoring mode only. This initial evaluation established the operating benchmark for manual control in maintaining the desired pH control range. In operator control, the Yankee dryer system was experiencing regular pH swings from 7.5 to 9.5.

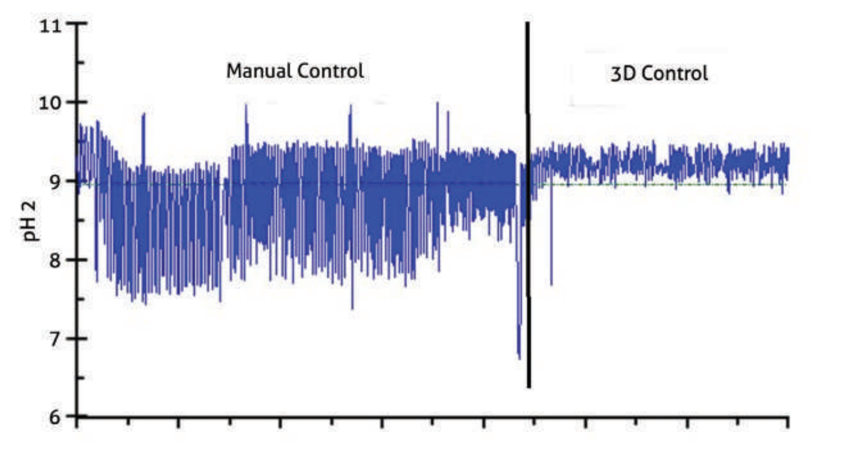

Figure 3: Condensate pH control obtained through 3D TRASAR for Yankee dryer systems

The second half of the graph shows when the 3D TRASAR for Yankee dryer systems was placed in control mode. The 3D TRASAR controller was able to maintain Yankee dryer pH between the desired control limits, 8.8 to 9.2 on a consistent basis. Based upon these results, the mill is proceeding with additional enhancements to the satellite chemical feed system to provide additional tightening of this control band.

internals. Both of these events can occur when a corrosive atmosphere is present within the Yankee dryer system.

To minimise soda straw plugging, it is critical to maintain a proper balance between the chemical treatment programme and the level of carbonic acid and oxygen present within the condensate stream and the chemical treatment programme used to neutralise/scavenge these elements. Because of the dynamic nature of the tissue machine operation (grade changes, breaks, etc), this balance is continuously shifting, thereby making it difficult to maintain a non-corrosive atmosphere.

MONITORING:

Because of the variability in boiler pre-treatment system and tissue machine operation, it is imperative that a monitoring and chemical control programme be established that maintains a non-corrosive atmosphere within the Yankee dryer and return condensate system at all times.

Tissue manufacturers have used a variety of techniques, as seen in Table 1, to monitor the performance of their Yankee dryer steam /condensate systems.

'To minimise soda straw plugging, it is critical to maintain the proper balance between the level of carbonic acid and oxygen.'

None of the tests listed in Table 1 provide a direct indication of the atmosphere present within the return condensate in the Yankee dryer. All of these techniques use indirect measurements in an attempt to quantify the corrosive nature of the Yankee condensate and to provide assurance that the appropriate chemical treatment programme is being applied in response to the changing operational conditions.

Through the use of 3D TRASAR technology, we have seen that these practices alone are insufficient in maintaining consistent system protection of the Yankee dryer system.

3D TRASAR TECHNOLOGY FOR YANKEE DRYER SYSTEMS:

Understanding the dynamic operation of the Yankee dryer system, 3D TRASAR technology for Yankee dryer systems from Nalco was developed to continuously monitor and control those critical parameters associated with maintaining optimal dryer steam/condensate performance. The level of responsiveness achieved through this technology minimises system upsets and limits the production of corrosion by-products and soda straw deposit formation within the Yankee dryer.

This technology provides:

- Minimised corrosion in the Yankee dryer. A critical component of the 3D TRASAR Yankee dryer technology is Nalco's innovative way of directly monitoring the corrosive nature of the return condensate stream through the patented Nalco Corrosion Stress Monitor™ (NCSM). The NCSM was developed to measure the oxidation reduction potential of hot water systems at system temperatures and pressures. Combining the NCSM data with system pH monitors the corrosion potential of the condensate in the Yankee dryer system as opposed to the bulk condensate. The 3D TRASAR technology collects these system measurements along with other Yankee dryer data (steam flow, dryer pressure, etc.) and utilises this information to proportionally control a supplemental chemical treatment programme necessary to minimise the corrosion potential within the Yankee dryer condensate. When combining the NCSM readings with Fe+2, soluble iron, wet lab testing, an optimal control range is able to be determined for the Yankee dryer. Once this range is determined, the 3D TRASAR technology will continuously monitor and re-adjust the chemical treatment programme to maintain system control within the specified range.

- 24/7 monitoring and alarming of the Yankee dryer operational conditions and condensate system to quickly respond to system upsets and provide diagnostic support.

- Real-time analysis of the effect of Mechanical, Operational and Chemical (MOC) changes in the steam production and Yankee dryer condensate systems, reducing the production of corrosion by-products.

The case studies highlight the results obtained using 3D TRASAR technology for Yankee dryer systems as part of Nalco's comprehensive plan to improve overall machine performance.

SUMMARY

Reliable Yankee dryer performance is a key contributor to the smooth operation of every tissue machine. Through application of 3D TRASAR technology for Yankee dryer systems from Nalco, tissue manufacturers are able to protect the internal surfaces of this vital mill asset by monitoring/controlling critical parameters within the Yankee dryer condensate system assuring the dryer's performance.

CASE STUDY 2

A US tissue mill had experienced a prolonged period of inconsistent Yankee dryer operation resulting in several unscheduled outages to clear plugged soda straws. The mill monitored and controlled their condensate treatment programme based upon grab samples taken from the main condensate receiver in the powerhouse. Utilising 3D TRASAR technology for Yankee dryer systems, Nalco was able to monitor the inconsistency in Yankee dryer protection that this control strategy was providing. Figure 4 highlights the required treatment programme adjustments that were required by the 3D TRASAR system to maintain proper system control in response to the dynamic nature of the steam/condensate system supplying the Yankee dryer.

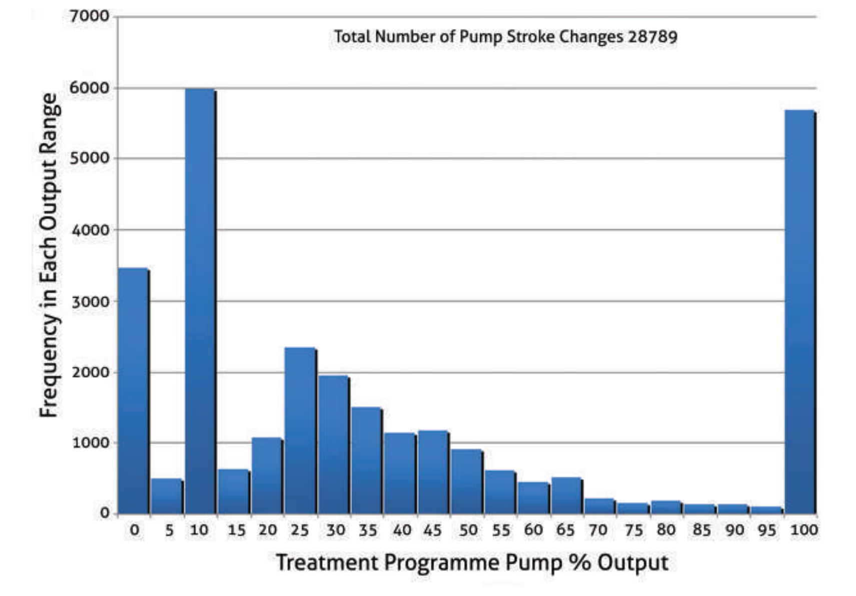

Figure 4: Treatment programmeme adjustment necessary to meet changing system demands

Strength technologies improve profitability

Kemira's Vladimir Grigoriev, Mikko Mäkinen and Roberto Zulian review the new developments in strength technologies and discuss the economic benefits found from industrial case studies

The tissue market is one of the fastest growing segments of the paper industry. Globally, the average annual growth from 2000-2007 has been 3.6% for tissue compared to 1.8% for printing and writing grades [1]. Tissue production growth closely follows the increase in GDP and higher standards of living. The recent economic recession slowed down this growth, but the industry outlook is still positive largely due to continued growth in the emerging markets [2]. However, the industry must find ways of maintaining acceptable profits in the current environment of consistently increasing fibre and energy costs, more stringent environmental regulations and consumer demand for higher quality at a lower price.

One performance target that can differentiate a tissue product is the sheet strength, which often involves a significant cost in order to achieve it. A careful balance between wet and dry strength is critical for achieving the targeted wet and dry tensile without a negative impact on softness and absorbency.

Of the number of means available for papermakers to control sheet strength, the choice of fibres and their mechanical treatment (refining) are the most common. Virgin fibres, especially Kraft softwood, produce the strongest sheet, but this pulp is costly. Driven by the high cost of virgin fibres and also by environmental pressure, the tissue industry has moved towards greater use of less expensive recycled fibres, which inherently produce a weaker sheet. Furthermore, the quality and availability of recycled fibres have been deteriorating dramatically in the latest decade or so, creating significant challenges for the industry [3].

Operational means such as headbox consistency or wet pressing can be effective in improving strength but can interfere with other objectives such as production rate or sheet bulk. In case of raw material or operation limitations, chemical means are often used as flexible and economical tools for strength control. A variety of strength chemicals are available in the market. In this paper, the chemistry of these strength aids is briefly reviewed with a particular focus on the acrylamide-based polymers. Their economic benefits for tissue production are demonstrated using mill trial results.

STRENGTH CHEMISTRIES

Various natural polymers and synthetic resins are employed for controlling sheet strength in tissue grades. The choice of a strength aid depends on a number of factors including their effectiveness, the programme cost, the effect on machine runnability and productivity, ease of use, product availability and shelf life. The most common strength aids and their characteristics are summarised in Table 1.

The acrylamide-based polymers are especially versatile and have steadily been gaining market share in the past few years. The acrylamide-based strength aids include two main chemical classes: solution polyacrylamide (SPAM) and glyoxalated polyacrylamide (GPAM), the characteristics and practical use of which are described below.

SPAM: VERSATILE AND EASY TO USE

Polyacrylamide is a common chemistry typically utilised in the wet end. Acrylamide-based products found use in water treatment, retention, dry and wet strength applications. The dry strength improvement is primarily due to amide groups, forming hydrogen bonds with fibres and thus increasing inter-fibre bonding as shown in Fig. 1. Acrylamide-based polymers are very versatile and can be manufactured within a wide range of molecular weight and charge.

For dry strength purposes, the molecular weight needs to be high enough to ensure efficient adsorption and hydrogen bonding, but not too high so the polymer would not cause overflocculation and poor formation, which can weaken the sheet [4]. These polymers are supplied as solutions in water and are referred to as solution polyacrylamide (SPAM).

Cationic and amphoteric SPAMs are self-retaining on cellulose fibres, but can be sensitive to detrimental colloidal and dissolved substances ("anionic trash"). A high cationic charge (> 10 mole %) can overcome these problems although high cationic charge PAMs tend to be expensive due the high cost of cationic monomers. Food contact regulations (FDA, BfR), which are important for production of towel and napkin grades, also restrict the amount of a cationic monomer in SPAM.

Anionic SPAM requires a cationic counterpart for retention on fibres. Most commonly, anionic SPAM is used in combination with a cationic wet strength resin, resulting in synergistic effects on both wet and dry tensile. High cationic charge polymeric fixatives (polyamine, etc) can also be used for retention of anionic PAM. Kemira's FennoBond 85E is an example of an anionic SPAM. It is a copolymer of acrylamide and acrylic acid. FennoBond 85E is especially effective when used in conjunction with a PAE wet strength resin.

Chemistry	Form of of delivery	Charge	Dry strength	Wet strength	Dewatering effect	Fines Retention effect
Cationic starch	Dry or liquid	+	Yes	No	Negative	Positive
Carboxymethyl cellulose (CMC)	Dry	-	Yes	No	Negative	No
Glyoxalated polyacrylamide (GPAM)	Liquid	+	Yes	Yes*	Positive	Positive
Polyamide -epichlorohydrin (PAE)	Liquid	+	Yes	Yes	Positive	Positive
Cationic polyacrylamide (CPAM)	Liquid	+	Yes	No	Positive	Positive
Anionic polyacrylamide (APAM)	Liquid	-	Yes	No	No	No
Amphoteric PAM	Liquid	+/-	Yes	No	Positive	Positive

Table 1: Common tissue strength agents

*Temporary wet strength

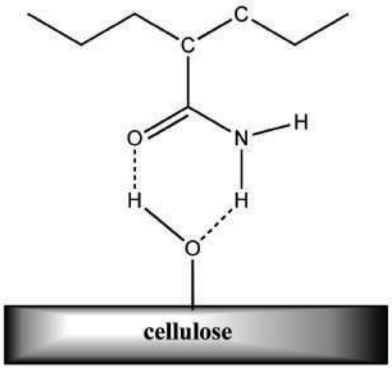

Figure1 (Above): Hydrogen bonding between a polyacrylamide molecule and a cellulose fiber

Figure 2 (Right): Effect of FennoStrength PA 21 (PAE) and FennoBond 85E (A-SPAM) on zeta potential and wet tensile

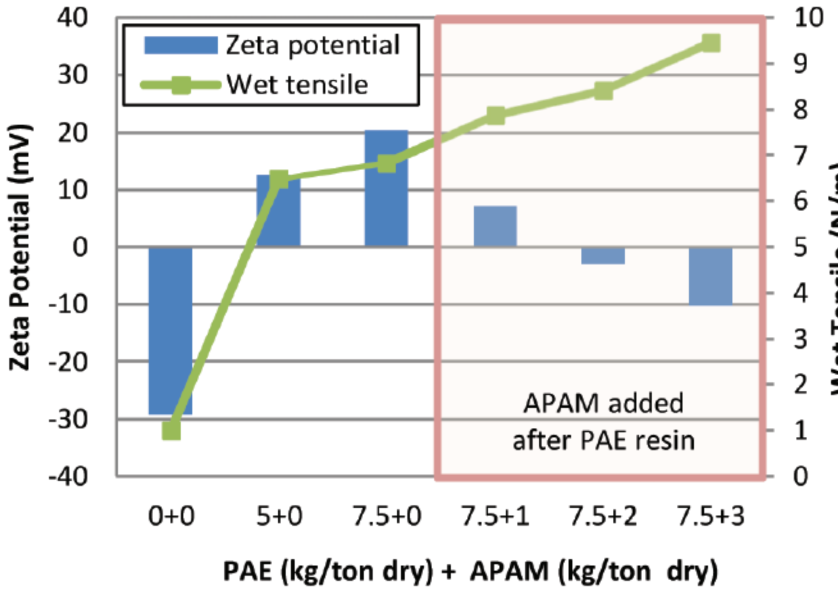

Fig. 2 demonstrates that addition of high levels of the wet strength resin FennoStrength PA 21 causes overcationisation of fibres and limits further absorption of the resin, which is reflected in the plateauing effect on wet tensile already at 5 kg/tonne. Ineffective retention of a PAE resin can lead to resin deposits, felt plugging and excessive foaming. Addition of anionic SPAM (FennoBond 85E) reverses the fibre charge to anionic, providing extra sites for retention of cationic PAE. This results in a wet tensile increase by additional 40%.

GPAM: DRY AND WET STRENGTH IN PAPER

Cationic glyoxalated polyacrylamide is a well-known strength resin [5-6] that is often regarded as a benchmark for generating dry strength. GPAM is a reactive polymer that can covalently bind with cellulose upon dehydration as shown in Fig. 3. The result is a generation of both dry and wet strength in paper.

The reaction with cellulose is reversible in water, making the wet strength temporary and has no impact on broke repulping. The design of the GPAM molecule can be altered to control the product efficiency and decay rate [7-9]. A slower decay rate is tolerable in towel grades, whereas a faster decay is required for manufacturing toilet paper that must be readily dispersed in water at room temperature.

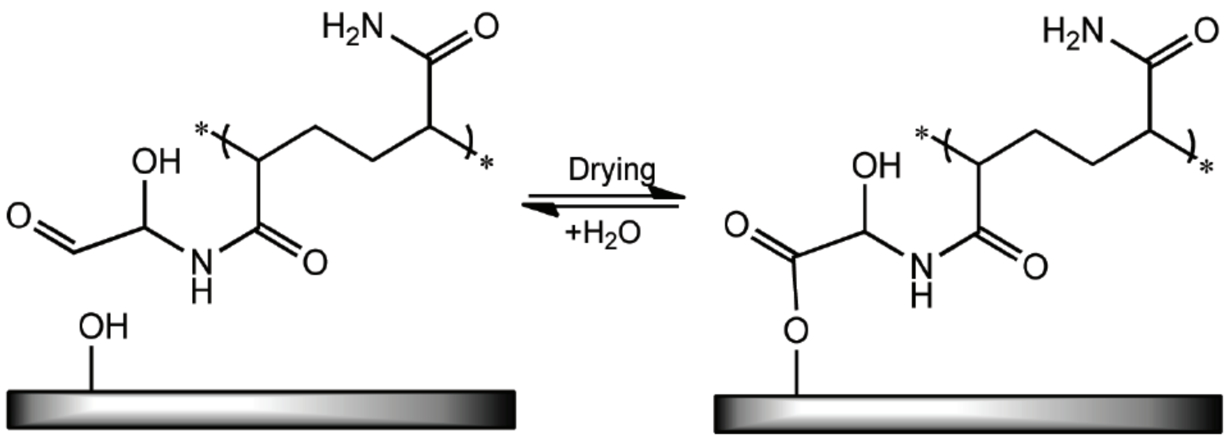

Figure 3: Reversible reaction between GPAM and cellulose

MACHINE CASE STUDIES

Case study 1: Anionic SPAM in towel for chemical savings and increased productivity

A major tissue producer manufactures an unbleached folding towel using 100% recycled fibres. Wet and dry tensile are critical targets. A PAE wet strength resin (WSR) at 14-16 kg/ton (dry) is used to control wet tensile. No dry strength aid was used at the time. At such a high level of WSR, some of the resin was not retained, causing excessive foaming, felt deposits and other runnability issues. Most importantly, the foam was preventing the machine from running at a full speed, limiting the production output.

Kemira offered anionic FennoBond 85E to help improve retention of WSR. Figure 4 summarises the trial results. As soon as FennoBond 85E was added to fibres, both wet and dry tensile increased above the target strength. This allowed for a decrease of the WSR dosage by up to 30% below historical average. More efficient use of the WSR resulted in less foaming, a 40% reduction in defoamer usage and a speed increase of 14% as demonstrated in Figure 5. With an additional 3% decrease in the crepe ratio, the production rate increased by 17%. The impact of FennoBond 85E resulted in combined savings of around 26 €/t.

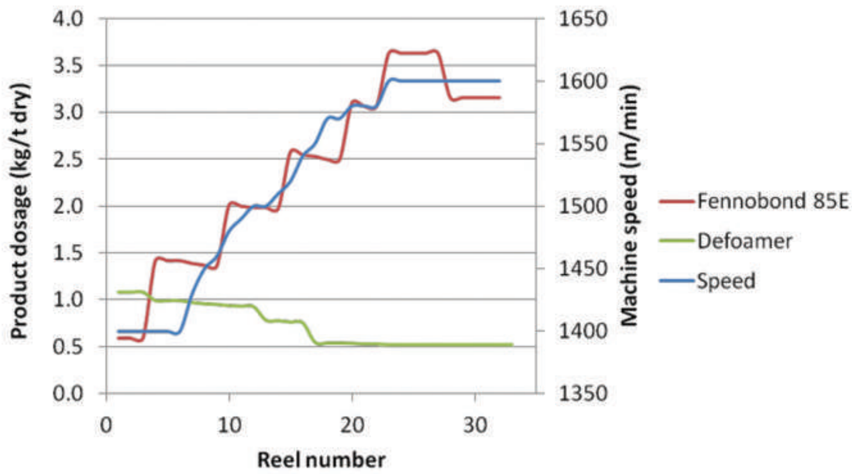

Figure 5: The effect of FennoBond 85E on defoamer usage and machine speed.

MACHINE OVERVIEW

Grade:
- Unbleached AFH towel

Basis weight:
- 21g/m2

Machine type:
- 1 layer Crescent
- 150 TPD
- 1400-1530 m/min

Furnish:
- 100% recycled

Chemicals:
- WSR (14-16kg/ton dry)

NEEDS

- Poor retention of WSR causes excessive foaming, felt deposits, limitations on speed

- Need to improve efficiency of WSR and increase machine runnability/productivity

SOLUTIONS AND BENEFITS

- FennoBond 85E (3kg/T dry) after WSR

- Increase in dry (+25%) and wet (+35%) tensile

- WSR dosage reduction

- Defoamer dosage reduction (-40%)

- Yankee speed increase (+14%)

- Production rate increase (+17%)

Figure 4: Summary of the towel trial with FennoBond 85E

CASE STUDY 2: GPAM STRENGTH AID FOR FIBRE AND CHEMICAL SAVINGS

A tissue mill producing unbleached white towel from 100% recycled white fibres was having difficulties with meeting the dry tensile specifications. Due to low dry tensile, the converting efficiency has especially suffered from frequent breaks. The use of CMC to control dry strength had limited success.

Furthermore, the tissue producer had received complaints from their customers about the odour that seemed to be associated with the use of CMC.

Kemira offered FennoBond 3000 (GPAM resin) in combination with FennoStrength (PAE resin) to resolve this issue. Figure 6 summarises the customer situation and the trial results. Replacing 1,5 kg/t CMC with 1,4 kg/t FennoBond 3000 (dry basis) resulted in an increase in both dry tensile and wet tensile by 22 and 45%, respectively. Improved dry and wet strength allowed for a 15% reduction in the sheet grammage and a 14% decrease in the wet strength resin consumption. The overall equipment efficiency (OEE) increased from 21 to 60%. The realised savings are estimated at around 19 €/t. In addition, there have been no customer complaints about the towel odour since switching from CMC to FennoBond 3000.

MACHINE OVERVIEW	NEEDS	SOLUTIONS AND BENEFITS
Grade: • Unbleached AFH towel Basis weight: • 24g/m2 Machine type: • Crescent • 100 TPD • 800 m/min Furnish: • 100% recycled Chemicals: • FennoStrength WSR (5kg/ton dry) • CMC (1,5kg/ton dry)	• Difficulties with meeting dry tensile targets using CMC • Lots of breaks in converting • Need to improve dry tensile • Odour complaints	• FennoBond 3000 1,4kg/T dry • Dry and wet tensile increased (+22% and +45%, respectively) • Basis weight reduced (-15%) at target tensile • WSR dosage reduced (-14%) • OEE increased from 21% to 60% • No odour complaints

Figure 6: Summary of the recycled towel trial with FennoBond 3000

CASE STUDY 3: GPAM STRENGTH AID FOR DUST CONTROL AND ENERGY SAVINGS

A tissue mill produces a kitchen towel from 100% bleached virgin fibres. The mill has stringent requirements for a low level of dust in the base sheet due to a negative impact on converting efficiency. The mill uses refining and enzyme for dry tensile control. A PAE wet strength resin combined with an anionic SPAM are used to provide wet tensile.

Kemira offered FennoBond 3000 for dust control. Figure 7 summarises the trial results. The addition points of the wet end additives and their dosages had to be optimized to ensure effective retention of all chemicals.

After optimisation, the sheet quality was at or above target. The dry tensile was significantly increased, allowing for a reduction in refining energy by 37%, which more than offset the cost of FennoBond 3000. Improved dry strength and reduced refining resulted in less dust during production. The subsequent evaluation of dust generation in converting has shown no significant dust.

MACHINE OVERVIEW	NEEDS	SOLUTIONS AND BENEFITS
Grade: • Kitchen towel Basis weight: • 22g/m2 Machine type: • Crescent • 200 TPD Furnish: • 20% SW/80% Euc Chemicals: • Enzyme • WSR • A-PAM	• Reduce dust to improve efficiency	• FennoBond 3000 at 0.8-1.1kg/t (dry) pre-WSR • Visible dust reduction on the machine • No negative impact on creping • Energy savings due to reduced refining (340 to 215 KWh/t) at target characteristics

Figure 7: FennoBond 3000 reduces dust and saves energy.

CONCLUSIONS

Strength additives are critical components for tissue manufacturing. They can provide not only the required strength quality to tissue products but can also improve process efficiency and machine productivity, resulting in significant profit gains. A variety of strength chemistries are available in the market, including natural polymers (starch, CMC) and synthetic resins (SPAM, GPAM, PAE). The acrylamide-based resins have been gaining the market share due to their unique benefits, ease of use and versatility. The documented benefits of using these strength aids include improved sheet characteristics (strength, bulk), reduced basis weight, a larger use of lower quality fibres, energy savings, increased machine speed, productivity gains and reduced consumption of other chemicals (e.g., wet strength resin, defoamer).

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A Day in the Life of Joan Vila, the director general of Spanish-based independent tissue manufacturer LC Paper

Electricity plays a big part in Joan Vila's life – from his electric Ampera car to energy saving factory production trials... and the 18th consecutive electric storm in Besalú, Spain.

"My day starts at 6:30. At that time I surf the Internet, look at the weather and outdoor temperature data and write my first tweet of the day about the temperature in the valley where I live. Today it was 12ºC outside my house, at 1,000m altitude. I read some general and economy newspapers and might write another tweet on energy or economy.

After unplugging my Ampera from the network I begin my trip to the factory which is located 52 km away, at 130m altitude. The consumption will be 2.5 kWh of electricity.

Upon arrival at the factory I do an inspection. First, the work of the construction of a 1,000m2 warehouse, then the control room of the paper machines. There I look at the previous day's production and current production parameters. I focus on the energy consumption and the state of the felt. Today consumption is at its highest nominal value because of the hardness of the press. "We will change the press in August", I think.

Now I turn to my computer, reading and responding to mail, opening the cost spreadsheet, Autocad to the general plane of the factory, and Google Chrome with 20 tabs open. I like working with all information open.

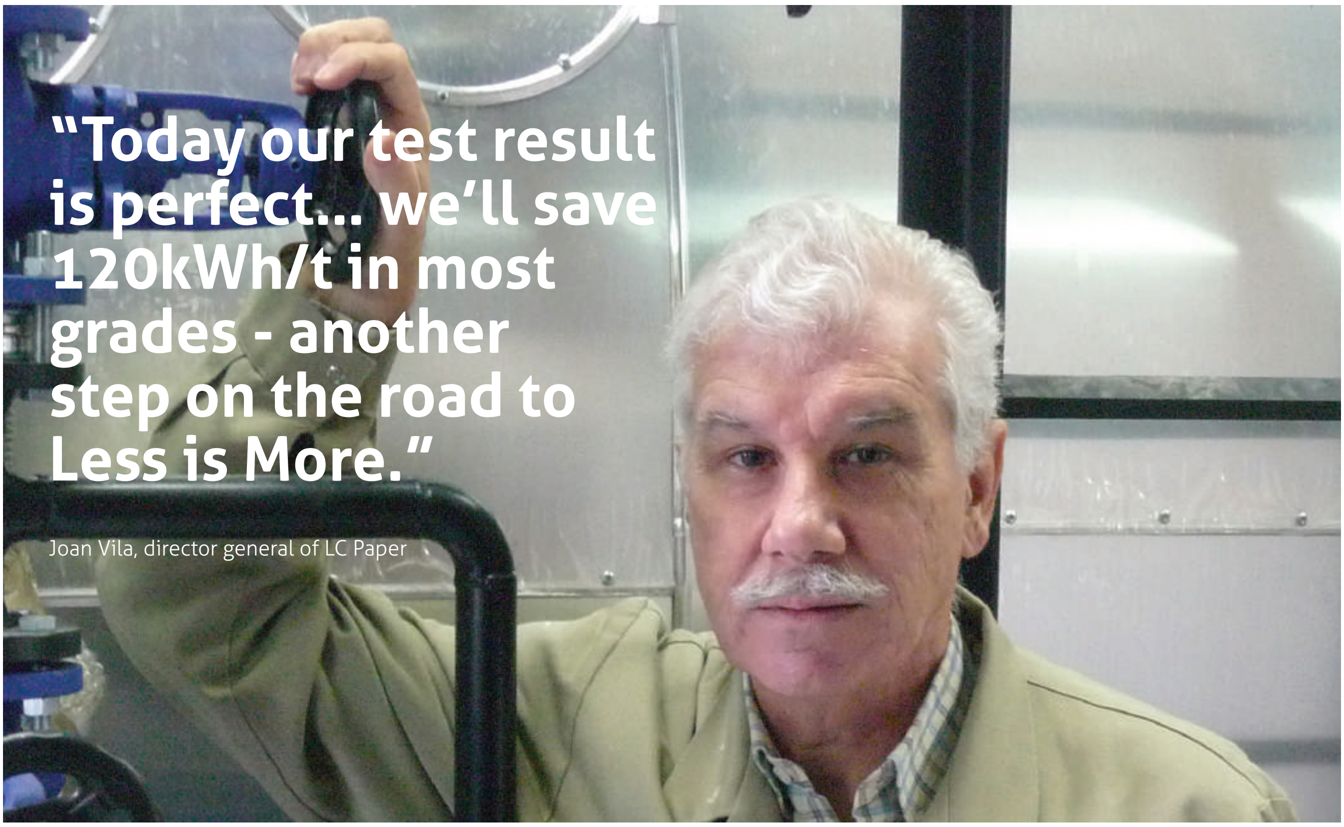
Today we have a production trial with the top refining line stopped. Quite often there are trials scheduled in one of the two machines. In order to get more resistance from the tissue paper there has been some months of work with refining enzyme, carried out in the pulper, a technology that we know well enough. Today we will monetise part of this development by eliminating one of the two refiners. The result is perfect; we will save 120kWh/t in most grades manufactured. Another step on the road to Less is More.

I receive a production report daily: the availability of the day is 0.94 and 0.98 for each paper machine. Estimated production at the end of the month is 4,072 tonnes. Today is Tuesday and it is 11h. At this time I receive FOEX's price index: the euro continues to be revalued, the price is stable for long fibre and short fibre it begins to descend, as in most of the summer months.

At 13.00pm it's time for lunch. All the technical team eat at a nearby restaurant. Here we discuss a common problem at the factory, or more general topics like economics, politics or football. There are also discussions on the use of energy for cars or houses. We are often joined by a supplier or a customer. Today a new female trainee joins: her job is to measure the absorption and tissue flexibility manufactured during three weeks.

In the afternoon there is a threat of a strong electrical storm. We're located next to the snow-capped Pyrenees mountain range and we have recently had 18 consecutive days with thunderstorms in the afternoons. We will set our cogeneration plant on an island separate to the grid to prevent the factory from being stopped by lightning as this would result in a loss of time and possible damage.

At 19.00pm I go out with my Ampera, which has been electrically charged again, to my village. As the journey is uphill, now I will consume 10,4kWh."



"Today our test result is perfect... we'll save 120kWh/t in most grades - another step on the road to Less is More."

Joan Vila, director general of LC Paper

Taking advantage of NBSK pulp for soft and strong tissue grades

With the fibre cost of the finished tissue product still a dominant factor in the tissue industry, Canfor Pulp explains its latest developments to TW.

Pulp giant Canfor Pulp Limited Partnership (CPLP) has positioned itself as a leader in terms of environmental sustainability and the most important aspect of this is the very start of its fibre supply. The company has three mills in Prince George, British Columbia, 800km north of Vancouver where its head office and Canfor Pulp Innovation (CPI) are located. Its fibre process originates from chips that are a by-product of the solid wood operations of Canfor Corporation (60%) and other sawmills in the region. While Canfor Corp owns 50.2% of CPLP, it also operates 20 large saw mills across North America that produce wood primarily for the construction of houses.

Paul Watson, CPI director, says its fibre supply is its advantage. "Employing wood in the construction of long lasting structures, as well as in many paper products, stores carbon, while newly planted and younger trees remove carbon dioxide from the atmosphere," he says. "We are recovering dead trees from regions devastated by the Mountain Pine Beetle epidemic of the mid 2000's, trees which would otherwise decompose and contribute to the emission of greenhouse gasses. The area's growing conditions consist of short summers and long winters resulting in fibres that are slender and have a thin fibre wall that is consistent with spring wood."

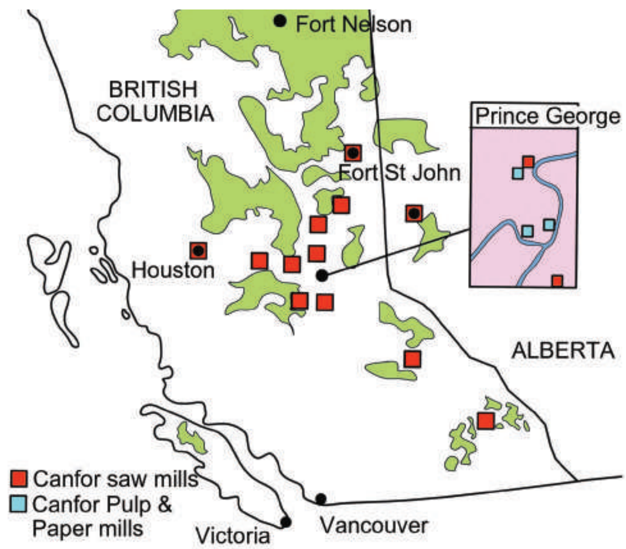


Figure 1c: 60% of CPLP's fibre is supplied by Canfor Corp sawmills, the balance is provided by nearby sawmills

Figure 2: CPLP's three pulp mills are located within 5km of one another

By WLAD JANSSEN
Specialist on tissue for Canfor Pulp

By PAUL WATSON
Director of Canfor Pulp Innovation

He adds that by using the latest technologies to ensure the fibre is processed optimally to achieve superior pulp quality, the business can achieve characteristics and quality that "compare favourably with other softwood pulps", and so a technical fit is exploited by the company's customers, including many tissue producers."

PRICING AND AVAILABILITY

As the fibre cost of the finished tissue product is still such a dominant factor in the tissue industry, it is increasingly important to source fibre that contributes to obtaining the desired tissue quality of softness, strength, bulk, appearance and absorption, at the lowest total cost. Watson says: "This lowest total cost not only comprises the direct cost of the fibre, but also includes the cost effects of improved efficiency (fibre losses, paper machine related processes and in converting) and energy costs (principally drying). Carefully selected pulp, used optimally, is an integral and very important part of making tissue. It is not a commodity, not all pulps are created equal."

Current pricing is driven by supply constraints in softwood due to spring maintenance shutdowns. "Pulp pricing is a function of supply and demand," Watson says. "In the near term we see a flatness to moderate increases into early Q4. In the medium to longer term NBSK pricing will be determined by constrained supply (i.e. no new NBSK capacity increases and due to cost competitiveness declines in supply are inevitable)." He adds that newly available eucalyptus capacity and the anticipated effect on the price gap with NBSK will drive tissue manufacturers to seek ways to use less softwood which is consistent with the requirement for fine fibred high tensile pulp.

PROVIDING A POSITIVE EFFECT ON A FINISHED TISSUE

A good knowledge of tissue quality and processes used are important in assisting customers and providing practical support. Janssen says: "We have shown in practise that CPLP's NBSK pulp used in combination with other furnish components and employing proper pulp preparation principles and methods, can have a positive effect on a finished tissue product quality and on the efficiencies

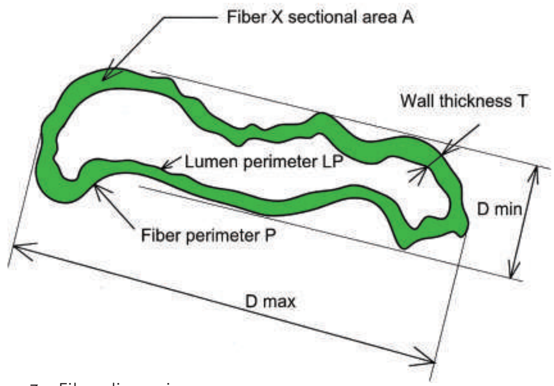


Figure 3a: Fibre dimensions

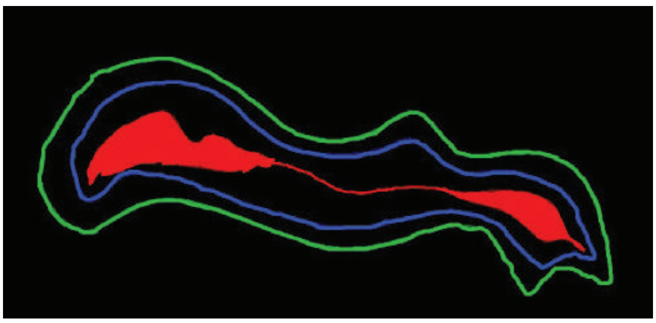


Figure 3b: Fibre properties such as length, wall thickness and diameter are critical quality factors for pulps

Figure 4: Canfor Pulp Innovation tests all pulps using a 12" Sprout Bauer refiner to ensure data relevance to customers which cannot be obtained by PFI beating alone

experienced on the paper machine as well as in subsequent converting processes."

The use of short fibre in tissue is growing due in part to increasing availability of Eucalyptus pulps and their cost. Quality differences in hardwood pulps do exist and their fibre properties are also dependent on the fibre quality of the wood source. He says: "Tissue products, in particular in categories where strength is not an important requirement such as with facial or toilet tissue, can be made without having any long fibre. However, the highest quality tissue products that provide a combination of softness, strength bulk and absorption, normally contain a portion of long fibre.

Watson adds that the long fibre in the furnish mix will help strength and if the fibre is flexible they will easily conform to the sheet in wet shaping processes as well as in embossing processes with the dry base sheet. "A high quality NBSK can help to maximise the amount of hardwood pulp in the furnish, while optimising the tissue properties and increasing production efficiencies," he says. "We estimate that roughly 60% of the tissue finished product quality is due to the fibre input and 40% due to the processes used, and that both are necessary to obtain superior quality."

Given the cost of the fibre input, Janssen adds that it is important to give attention to the processing and control of this input. "By correctly processing the fibre input, costly additives, such as dry strength agents, enzymes, etc, and energy (in refining) can be minimised while increasing the end product quality and effectively reducing the overall cost."

Canfor Pulp has participated in tissue mill trials in Asia, North and South America where Watson says the fibre input and pulp preparation were changed with a positive impact on product quality and costs. "CPLP is continuing the approach and maintains a high technical level to support its customers. An important part is communication, so CPLP introduced concepts and calculations in the form of an "app" in several languages, which is available from the temap.com website maintained by CPLP.

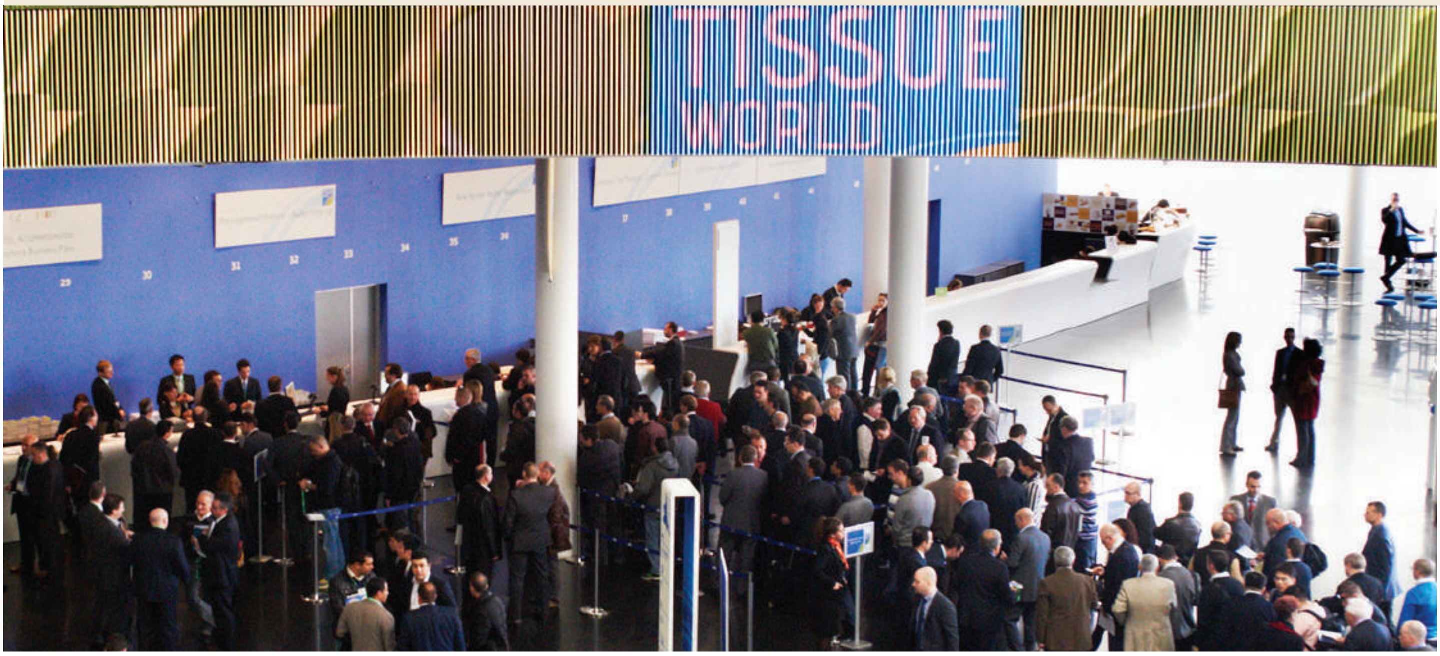
He says that variability in pulp characteristics are important and can change production efficiency and the quality of the tissue end product, such as strength, bulk and softness. "The properties of the finished pulp at the shipping point is normally not known because of the time it takes to complete the testing."

The business is actively working to further optimise pulp quality variations by implementing a range of state of the art measurements and controls covering the pulp making process from the wood chip input to the finished pulp output. Based on the concept of Total Quality Management, the project has been named "Mihari", the Japanese term for "Watch Guard", and it integrates fifteen individual measurement installations and includes the implementation of a novel fibre measurement technology. As a result, complete and up to date quality information will soon be available to the customer on a per shipment basis.

Canfor Pulp Limited Partnership (CPLP) is a global supplier of northern bleached and unbleached softwood kraft pulp and paper products with operations in the central interior of British Columbia, Canada.

Fig 5: Online pulp testing module

Event	Date	Location	Website
2013 China International Paper Technology Exhibition and Conference	23-25 September 2013	Beijing, China	www.chinapaperexhibition.com
Paper Arabia 2013	24 - 26 September 2013	Dubai, UAE	www.paperarabia.com
Asia International Disposable Paper Expo 2013	25-27 September 2013	Shanghai, China	www.ahpe-china.com/en/index.asp
ABTCP 2013	8 - 10 October 2013	Sao Paulo, Brazil	www.abtcp2013.org.br
MIAC 2013	16 - 18 October 2013	Lucca, Italy	www.miac.info
2013 China (Hangzhou) Household Paper and Disposable Hygiene Products Exhibition	17 -19 October 2013	Hangzhou, China	www.paperexpo.net/en/
SINCE 2013	23 - 25 October 2013	Shanghai, China	www.since13.com
PAPEREX 2013	24 - 27 October 2013	New Delhi, India	www.paperex.in
ISSA INTERCLEAN 2013	19 - 21 November 2013	Las Vegas, USA	www.issainterclean.com
PAPER ME 2013	28 - 30 November 2013	Cairo, Egypt	www.papermideast.com
MARCA 2014	15 - 16 January 2014	Bologna, Italy	www.marca.bolognafiere.it
UPAKOVKA/UPAK Italia	28 - 31 January 2014	Moscow, Russia	www.upakitalia.it
Tissue World Americas	18 - 21 March 2014	Miami, USA	www.tissueworld.com
2014 Shandong (International) Technique and Equipment Exhibition on Pulp & Paper Industry	18 - 20 March 2014	Shandong, China	paper.expoline.cn/index.asp
MIAC Tissue Business Point	26 - 27 March 2014	Lucca, Italy	www.miactissue.com
ISSA INTERCLEAN 2014	6 - 9 May 2014	Amsterdam, Netherlands	www.issainterclean.com
CIDPEX 2014	14 - 16 May 2014	Sichuan, China	www.cnhpia.org
PLMA 2014	20 - 21 May 2014	Amsterdam, Netherlands	www.plmainternational.com
China Paper 2014	15 - 17 September 2014	Beijing, China	www.chinapaperexpo.cn
PAP-FOR Russia 2014	28 - 31 October 2014	St. Petersburg, Russia	www.papfor.com
Tissue World Asia	11 - 13 November 2014	Shanghai, China	www.tissueworld.com
ISSA INTERCLEAN 2015	25 - 27 Feb 2015	Mexico City, Mexico	www.issainterclean.com
ISSA INTERCLEAN 2015	22 - 24 April 2015	Warsaw, Poland	www.issainterclean.com
Tissue World	16 -19 March 2015	Barcelona, Spain	www.tissueworld.com



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