

TWM

TISSUE WORLD MAGAZINE

The independent news
provider for the global
tissue business

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TISSUE TAKES FLIGHT



Plus ...

MarketIssues

Rapid changes in pulp supply and pricing
present major challenges

ExitIssues

Chinese growth rate set to drop by half

Chemicals: Technical Theme

Solenis, Buckman and Kemira report

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Companies across the world one year on

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TWM meets plant manager and vice president Marek Ściążko to discuss the latest from the Polish tissue giant.

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Cover: Image showing the eagle of Poland's coat of arms soaring across the European continent, representing the country's booming tissue industry and export potential. By Contrast Creative.



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TWM GOES TO POLAND TO SEE WHAT A TISSUE BOOM LOOKS LIKE

Helen Morris

Senior Editor, Tissue World Magazine

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TISSUE WORLD MAGAZINE

is published bi-monthly. The subscription price is US\$400 per year for 6 issues. Subscription is free for qualified subscribers in the tissue industry.

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Subscription online at

www.tissueworldmagazine.com



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Outside of China – and the China of a few years ago, as this edition's *Exitissues* suggests – it is rare to come across growth and consumption figures like these.

Poland is seeing a rise in salaries – the description used by one of our contributors is an unequivocal “fast” – so shoppers have more spending money, they are discovering discounting stores, which in turn are proliferating.

Branded tissue market leader Velvet Care – operating from a site of industrial production started in 1897 – is now 30 years on from the end of the Communist era and hurtling with talent and enthusiasm into a new rich seam of growth which has in recent times touched 20%, and is now at about 8%. Its workforce has doubled in five years, production capacity has tripled, converting capacity more than doubled, and turnover increased from €121m to €150m in a year.

Any potential for over-capacity or an over-heating economy are not of immediate concern. In Klucze, north west of Kraków, TWM was met with a wave of optimism from Marek Ściążko, plant manager and vice president of the board, Rafał Curyło, vice president and finance director, and production manager Wanda Ciesielczuk. They epitomise dedication to the company, and it's a fascinating historical story with a hugely promising future.

In Batorowo, close to the picturesque city of Poznan, Dariusz Makowiak was optimistic too. The sales and marketing director at POL-MAK had struggled to chisel out any time for our interview. Something else had been keeping him occupied. His wedding a few days away.

So it was generous of him to take time away from that important event to talk about his other love ... the family firm, started by his parents in 1986 and now Poland's leading niche producer of decorative paper napkins – 60% of its 1,200 designs exported to 70 countries, and plans to reach 80% in the years ahead, and in Poland itself growth assured as consumer spending and the AfH market advance.

Napkins at that wedding reception would have been special.

China's downturn: a sign of turbulent times or a longer-term reality?

Any downturn for tissue in China is usually a relative one. For years the market has been in a very strong upswing, 10% or more consumption annually just a few years ago. This year the forecast is 5.1%, then 4.8% for 2020. We will not know the real extend of any longer term changes until the uncertainties of recent years have settled: the systemic, internal economic shift from investment to home consumption; the ongoing trade tariff war with President Trump's America; and what seems to be a growing resistance to the alleged 'trade debt' involvement of countries linked to China's huge Belt and Road initiative.

China's own forecasts have traditionally been conservative. The US-based Fastmarket's analysis, carried in detail in TWM's *Exitissues*, projected almost 6.8% growth for 2018.

In his report, Fastmarket's principal Esko Uutela examines the effects of high market pulp prices that negatively affected the profitability of the business, and the suddenly poor consumption mentality in China in the last few months of 2018, which influenced all shopping and reduced retail growth radically from the earlier high growth figures in annual comparison.

The origins, and sudden emergence of a poor consumption mentality in China is a subject TWM will return to.



"For the remainder of 2019, we will be focused on ramping tissue production at our Shelby, North Carolina mill to meet the growing demand for ultra-quality tissue." Linda K. Massman, president and chief executive, Clearwater Paper

GLOBAL

Clearwater Paper reports Q1 results; focuses on boosting ultra-quality tissue production

Clearwater Paper has reported net sales of \$428.8m for the first quarter of 2019, 1.9% lower than \$437.0m recorded in the first quarter of 2018.

The company said the decrease was due to lower paperboard and tissue shipments, including the impact from the sale of the company's mill in Ladysmith, Wisconsin, in August 2018, partially offset by higher tissue and paperboard pricing.

EBITDA was \$38.9m for the quarter, compared to \$35.4m a year earlier.

Linda K. Massman, president and chief executive, said: "The Adjusted EBITDA of \$39.8m achieved in the first quarter of 2019 included approximately \$3m of additional professional fees associated largely with the assessment of material weaknesses and our evaluation of goodwill impairment, both of which were previously reported in the fourth quarter of 2018. "It

also included an approximate \$4m impact from significantly higher utility costs associated with an unusual gas pipeline disruption that occurred during the first quarter of 2019.

"Excluding those items, our Adjusted EBITDA would have compared favourably to Adjusted EBITDA achieved in the first quarter of 2018 and would have been comparable to Adjusted EBITDA for the fourth quarter of 2018.

"For the remainder of 2019, we will be focused on ramping tissue production at our Shelby, North Carolina mill to meet the growing demand for ultra-quality tissue and reducing costs throughout our facilities to generate stronger cash flow and improved returns on invested capital."

Net sales for the company's Consumer Products segment were \$223.3m for the first quarter of 2019, down 6.5% compared to first quarter 2018 net sales of \$238.8m.

The company said this decrease was due to lower volumes sold, including the impact from the divestiture of the Ladysmith mill, and partially offset by higher average prices for both retail and non-retail tissue products and a favourable mix shift to ultra-quality products.

Total tissue volumes sold were 83,622 tonnes in the first quarter of 2019, a decrease of 8,585 tonnes – or 9.3% – compared to 92,207 tonnes in the first quarter of 2018.

Converted product cases shipped were 12.3m in the first quarter of 2019, 7.1% lower than the 13.3m cases shipped in the first quarter of 2018.

Average tissue net selling prices increased 3.9% to \$2,667 per tonne in the first quarter of 2019, compared to \$2,568 per tonne in the first quarter of 2018.

K-C reports Q1 results; makes "excellent progress towards higher selling prices"

Kimberly-Clark (K-C) has reported a year-on-year net sales decrease of 2% to \$4.6bn in its first quarter 2019 results.

However, operating profit for the period

was \$655m in 2019 and \$247m in 2018.

Net selling prices rose approximately 4% and product mix improved 1%, while volumes fell about 2%.

In North America, organic sales increased 1% in consumer products and K-C Professional. Outside North America, organic sales rose 7% in developing and emerging markets and 1% in developed markets.

Chief executive Mike Hsu said he was "encouraged with our first quarter results".

He said: "We made excellent progress driving higher selling prices to help offset commodity and currency headwinds.

"We also continued to launch innovations, pursue our growth priorities and invest in our brands.

"We are confirming our previous full-year outlook while we maintain a strong focus on executing K-C Strategy 2022 for long-term success."

In the consumer tissue segment, first quarter sales decreased 3% to \$1.5bn.

Changes in currency rates reduced sales 3%. Net selling prices increased 6%, while volumes decreased 6% compared to a 7% increase in the base period.

First quarter operating profit of \$241m decreased 3% due to "the impact of lower volumes, input cost inflation, other manufacturing cost increases and unfavourable currencies, while results benefited from increased net selling prices and cost savings".

Sales for the segment in North America decreased 3%, while volumes fell 10% compared to a 9% increase a year earlier due to lower promotion activity and the impact of price increases.

Sales in developing and emerging markets decreased 4%. Currency rates were unfavourable by 8%, primarily in Latin America. Sales in developed markets outside North America decreased 5%.

K-C's previously announced 2018 Global Restructuring Programme is expected to generate annual pre-tax cost savings of \$500 to \$550m by the end of 2021, driven by workforce reductions along with manufacturing supply chain efficiencies.

As part of the programme, K-C expects to exit or divest "some low-margin businesses" that generate approximately 1% of company net sales. It said the sales are concentrated in the consumer tissue business segment. The company continues to target full-year 2019 organic sales growth of 2%.

CLEARWATER PAPER HAS REPORTED NET SALES OF \$428.8M FOR THE FIRST QUARTER OF 2019, 1.9% LOWER THAN \$437.0M RECORDED IN THE FIRST QUARTER OF 2018. THE COMPANY SAID THE DECREASE WAS DUE TO LOWER PAPERBOARD AND TISSUE SHIPMENTS, INCLUDING THE IMPACT FROM THE SALE OF THE COMPANY'S MILL IN LADYSMITH, WISCONSIN, IN AUGUST 2018

Suzano announces Q1 results in “challenging market environment”

Brazil's Suzano has reported first quarter net revenue results of R\$5.7bn, which it said was supported by the “strong performance of prices and margins in both the pulp and paper businesses”.

Following the merger of Suzano Pulp & Paper and Fibria, the company reported operating cash generation of R\$1.8bn, while EBITDA was R\$2.8 bn.

Pulp sales volume – which Suzano said was affected by the company's sales strategy of reducing price volatility – amounted to 1.7m tonnes, down from the first quarter of 2018.

Suzano said the results “demonstrate the company's strong cash generation capacity,

despite the more challenging market environment”.

Walter Schalka, chief executive of Suzano, said: “Our structural competitiveness in the global market and our solid financial position played a crucial role in sustaining the resilient results we delivered in the atypical business environment we experienced in the first quarter that began to emerge in late 2018 in the Asian market.

“Our goal is to create higher value in the long term, for which we have maintained a consistent commercial strategy with the aim to reduce price volatility in the market.”

Suzano posted a net loss of R\$1.2bn in

the quarter, which it said was explained by non-cash accounting impacts associated with the acquisition of Fibria and by the effects from the depreciation in the Brazilian real against the US dollar in the quarter.

The company also announced its guidance for production in the year, of between 9m and 9.4m tonnes of pulp.

In the first quarter of 2019, a period in which five plants underwent scheduled shutdowns, pulp production volume amounted to 2.2m tonnes.

Paper production volume came to 292,000 tonnes.

*“Our goal is to create higher value in the long term,”
Walter Schalka, chief executive, Suzano*





Cascades president and chief executive Mario Plourde: "At the centre of this were higher average selling prices owing to both improved sales mix ... in addition to lower raw material prices and lower production costs."

Cascades reports "important sequential improvement" in Q1 tissue results; outlook for tissue "is positive"

Cascades has reported group sales of \$1,230m – an increase of 3% compared to \$1,196m in Q4 2018, and an increase of 12% from \$1,098m in Q1 2018 – in its first quarter results.

Operating income for the company was \$72m compared to an operating loss of \$37m in Q4 2018, up 295%, but decreased 36% from \$112m in Q1 2018.

Mario Plourde, president and chief executive, said: "We are pleased with our first quarter operational performance, with all of our business segments generating solid results that were in line with or above expectations."

He added the company is "very pleased with the important sequential improvement generated by the Tissue Papers segment".

He said: "At the centre of this were higher average selling prices owing to both improved sales mix and the implementation of price increases announced in 2018, in addition to lower raw material prices and lower production costs."

"Other significant events announced during the first quarter include the closure of the felt floor backing plant in our Specialty Products segment in Quebec, and two paper machines in Ontario in our Tissue segment."

He added that the company is expecting near-term results to improve both sequentially and year-over-year for all of its North American business segments, taking into account usual seasonal trends and current market dynamics.

Plourde said: "Our outlook for Tissue is positive, driven by internal initiatives and expected improvements in market conditions, in addition to more favourable raw material pricing. "We are making progress with our internal initiatives to realign this segment's operational and financial performance, the early effects of which we began to see in the current quarter."

"In addition, management is focused and confident that the steps being taken will successfully position this segment for long-term success."

Essity invests SEK 400m in sustainable alternative fibre technology

Tissue manufacturer Essity is investing SEK 400m in an integrated facility for the production of pulp based on alternative fibre from plant-based agricultural by-products. The investment is taking place at the company's tissue plant in Mannheim, Germany. Production is expected to commence in the second half of 2020.

Essity has signed a license agreement securing exclusive rights to a new proprietary technology to produce pulp from alternative fibre that will have the same quality as conventional wood-based pulp at a competitive cost. The source of the fibre is agricultural by-products such as wheat straw which is often made into compost or incinerated. Essity is now evaluating the integration of this alternative fibre as a complement to fresh and recovered fibre as raw material in its production. Magnus Groth, president and chief executive of Essity, said: "To support our sustainability ambitions, we continuously assess new production methods."

"This is one example of how innovation can contribute to a sustainable and circular society."

The process will enable a reduction in the use of water, energy and chemicals while the by-product of the integrated pulping process can be further refined to serve as a substitute for oil-based chemicals. In 2018, Essity decided on new climate targets for 2030 that, according to the Science Based Targets Initiative, are aligned with the ambition of the Paris Agreement to limit global warming.

Södra reports "better than expected" Q1 results

Södra has reported a net sales increase of 11% to SEK 6,318m in its first quarter results. Operating profit increased 22% to SEK 1,148m. The company said the result is due to "favourable demand and continued high price levels, combined with production facilities that delivered an excellent performance".

Lars Idermark, president and chief executive, said: "Despite signs of a slowing global economy, Södra's first quarter result was better than expected."

"Prices for the company's core products – market pulp and sawn timber – remained at a favourable level throughout the quarter, even though a certain price decrease was foreseeable."

In the Södra Cell business area, the company reported an operating profit of SEK 1,112m compared with SEK 926m year-on-year.

It said this was mainly attributable to "a continued high price level, a favourable USD exchange rate."

Sales for the division amounted to SEK 3,501m compared to SEK 3,129m.

Essity Q1 results helped by innovations, cost savings and price increases

Essity has reported a year-on-year net sales increase of 9.4% to SEK 30,656m in its first quarter results. Emerging markets accounted for 37% of net sales and here organic net sales increased 9.1%. Operating profit before EBITA increased 9% to SEK 3,002m, while higher raw material and energy costs had a negative impact of SEK 1,017m on earnings.

Profit for the period increased 12% to SEK 1,929m.

Magnus Groth, president and chief executive, said: "We have continued our activities to increase profitability and implemented further efficiency improvements that have yielded significant costs savings. Our digital initiatives across all parts of the business have helped to enhance efficiency, quality and our offering to customers and consumers. In addition, we carried out price increases in all business areas. We continued to invest in our strong brands and launched innovations that have further reinforced our customer and consumer offering and improved the product mix."

Metsä Group reports "good Q1 result as anticipated"; announces co-determination negotiations in operations as part of cost saving programme

Metsä Group has reported year-on-year sales of €1,438m compared with €1,428m in its Q1 results. Operating result was €183m compared with €208m a year earlier. The company said that delivery volumes of market pulp began to grow again after the sudden decline in the previous quarter. It said: "The market in China picked up, and prices began to rise. In Europe, prices declined."

President and chief executive Ilkka Härmälä said: "As anticipated, Metsä Group achieved a good result in the first quarter

of 2019.

"Our profit-making ability weakened compared to the excellent last year, mainly due to the decline in the price of pulp in late 2018.

"In Asia, the price level of pulp began to rise during the first quarter. In Europe, pulp prices were still in decline, following the price changes in China with a typical market delay. "Compared to the strong growth in demand during the corresponding period in the previous year, the caution attributable to uncertainty factors in world trade was visible in the demand situation in all Metsä Group's business areas."

He added that the long-term growth drivers impacting forest industry and Metsä Group's products included the demand for products made from renewable raw materials, the growth of the global economy, and urbanisation, which continue to be the trends the company will focus on.

"The basis for further development is good. Our future steps will consist of a strong response to the challenge we all face due to climate change.

Metsä Group also announced the start of co-determination negotiations in operations in its tissue business as part of its previously announced fixed cost saving programme.

It said: "As a part of the operational review and €25m fixed cost saving programme, Metsä Tissue starts co-determination negotiations also in the operations.

"The aim is to improve internal efficiency, focus and reduce complexity in tissue business. Planned restructuring can lead to organisational changes, such as job changes or redundancies."

Co-determination negotiations in operations commenced in May 2019 in compliance with labour-laws in each country. The company said the estimated reduction is approximately 110 in total. The cost savings programme will be finalised during the second half of 2019.

ESSITY HAS REPORTED A YEAR-ON-YEAR NET SALES INCREASE OF 9.4% TO SEK 30,656M IN ITS FIRST QUARTER RESULTS. EMERGING MARKETS ACCOUNTED FOR 37% OF NET SALES AND HERE ORGANIC NET SALES INCREASED 9.1%.

Cascades joins Amazon Packaging Support and Supplier network

Cascades has said it is now an official member of the Amazon Packaging Support and Supplier (APASS) network.

The company said it views this participation with Amazon as a way of offering "creative and sustainable packaging solutions that comply with the e-commerce industry's most rigorous requirements and specifications, thus creating value in our customers' supply chain".

Charles Malo, president and chief operating officer of Cascades Containerboard Packaging, said: "As a member of the APASS network, Cascades will be able to help its customers in three ways: by making sure that their products are well protected, by offering our customers sustainable solutions that also provide the best customer experience possible, and by enabling our vendor and manufacturer partners to align themselves with Amazon's requirements."

The company said it is now able to conduct baseline testing on boxes and components (liner and medium), as well as competitive analysis, root cause analysis and qualification testing of individual packages or pallets.

Danick Lavoie, vice-president, operations, packaging at Cascades Containerboard Packaging, said: "E-commerce represented 14.3% of total retail sales in 2018, in the US, and Amazon is an important part of this. "Our goal at Cascades is to partner with our customers as they grow their e-commerce business, and by joining the APASS network, we can offer our clients the essential services they need to successfully certify their packaging with Amazon."

APASS is a programme designed by Amazon to support vendors, sellers, and manufacturers in certifying their products as Prep-Free Packaging (PFP), Ships-in-Own Container (SIOC) and Frustration-Free Packaging (FFP).

METSÄ GROUP HAS REPORTED YEAR-ON-YEAR SALES OF €1,438M COMPARED WITH €1,428M IN ITS Q1 RESULTS. OPERATING RESULT WAS €183M COMPARED WITH €208M A YEAR EARLIER. THE COMPANY SAID THAT DELIVERY VOLUMES OF MARKET PULP BEGAN TO GROW AGAIN AFTER THE SUDDEN DECLINE IN THE PREVIOUS QUARTER.



"Consistent and responsible choice by Sofidel," Luigi Lazzareschi, Sofidel chief executive.

Sofidel aims to reduce 50% of its plastic production

Sofidel has further broadened its environmental efforts after announcing plans to reduce 50% of conventional plastic from its production by 2030 when compared to 2013. The Italian tissue giant said this is equivalent to eliminating more than 11,000 tonnes of plastic from the market every year. The company has also previously announced plans to generally reduce the thickness of the plastic film used in its production process, an initiative it launched some years ago, as well as introducing new kraft paper packaging, which it said is already present or due to arrive on European distribution shelves.

The commitment begins with Sofidel's brands, and by the end of 2020 the company aims to have already eliminated the equivalent of 600 tonnes of plastic per year from the product packaging of its main European brands (including Regina, Cosynel, Nalys, Le Trèfle, Sopalin and KittenSoft).

This will mainly be achieved due to the introduction of paper packaging in place of or alongside the existing products.

Luigi Lazzareschi, Sofidel chief executive, said: "This is a consistent and responsible choice by Sofidel."

"A commitment that falls within a broader product innovation and differentiation strategy that we are pursuing."

"A new contribution towards fully sustainable development which intends to meet the growing demand for attention to the environment."

In Italy, the new Rotoloni Regina line, Rotoloni Regina Eco, will be arriving in supermarkets from July.

This new line, with packs made of kraft paper – a plant-based material Sofidel said is renewable, biodegradable and easy to recycle – instead of standard polyethylene film, joins the traditional range and is manufactured using electricity from 100% renewable sources, generated at the Sofidel production plants.

Metsä Tissue to book €107m impairment and restructuring review and focus on tissue

Metsä Tissue, part of Metsä Group, has announced a strategy update that includes an operational review with the target to improve internal efficiency, reduce complexity and focus on the tissue business.

In the second quarter of 2019, the company will book a mainly goodwill related impairment of approximately €102m.

In addition, it will book a restructuring provision of approximately €5m related to the ongoing and already completed co-determination negotiations.

AMERICA

GP boosts bath tissue capacity with \$120m investment

Georgia-Pacific (GP) will install a new tissue machine and roll storage building to increase its consumer (retail) bath tissue business at its Naheola, Alabama-based mill. In a \$120m investment, the new tissue machine will use modern Crescent former technology, replacing two older machines but increasing capacity at the mill.

It will support new bath tissue converting lines that are currently being started up at Naheola. Engineering and related work has begun, and start-up of the new machine is scheduled for 2020.

Christian Fischer, chief executive and president of GP, said: "This is one of many investments we are making at our operations across the State of Alabama, and it highlights the long history and great relationships we have in the state and in the communities where we operate."

In the past five years, capital investment at the Naheola mill has totalled more than \$500m, and GP's statewide investments have totalled approximately \$1.6bn. The Naheola mill currently employs more than 900 people. It produces retail bath tissue and paper towels, and also makes bleached paperboard. These latest investments continue Georgia-Pacific's modernisation of the Naheola mill, which includes ongoing construction of a new biomass boiler and woodyard.

Historic Marcal mill starts trial TM production after devastating fire

Soundview Paper Company - which manufactures the famous Marcal tissue brand - has started trial production on one

GEORGIA-PACIFIC (GP) HAS CONFIRMED THAT PRODUCTION HAS RESTARTED AT ITS RECYCLED-CONTENT TISSUE PAPER MILL AND CONVERTING OPERATION IN MUSKOGEE, USA. A SPOKESPERSON FOR THE COMPANY TOLD TWM THAT: "THE MILL MANAGED A SAFE AND EFFECTIVE RESTART OF VARIOUS LINES OVER SEVERAL DAYS AND CONTINUES TO RAMP UP PRODUCTION."

of its two tissue machines five months after a devastating fire engulfed the New Jersey-based plant.

A spokesman for the company told TWM that the Elmwood Park-based site is running one of its machines part-time to test its capabilities.

While not yet fully restarted, the line is currently being trialled to produce parent rolls of the 100%-recycled-paper Marcal brand.

A devastating fire engulfed the tissue mill on 30 January 2019, destroyed most of the historic building. No injuries were reported.

At the time, Soundview president and chief executive Rob Baron said: "The fire resulted in catastrophic damage to our facility."

Selected aspects of the Soundview Paper Company/Marcal business continued, primarily the company's Putney, Vermont operation and shipping of existing inventory to customers from Elmwood Park.

The 1930s-era mill was acquired by Atlas Holdings in 2012 and the company

then established Soundview Paper to manufacture recycled and virgin fibre towel and tissue products for the local AfH, private label and At-Home markets.

According to local reports, the cause of the blaze still remains undetermined, despite six months of investigation.

The fire started in a storage area of the most north-eastern building.

GP Muskogee tissue mill back up after 13 May fire

Georgia-Pacific (GP) has confirmed that production has restarted at its recycled-content tissue paper mill and converting operation in Muskogee, USA. A spokesperson for the company told TWM that: "The mill managed a safe and effective restart of various lines over several days and continues to ramp up production."

Start-up has been gradual and commenced in the middle of June. The spokesperson added that he couldn't provide a specific restart date because "it wasn't a matter of everything restarting at once".

According to reports, the mill had shut down on 13 May after a forklift explosion and major fire damaged two converting and parent roll storage buildings.

Start-up was delayed by severe rains that occurred in the area. None of the mill's employees was hurt in the accident. The Muskogee mill has five paper machines.

VIETNAM

Xuan Mai Paper targets high-quality tissue with capacity boost

Xuan Mai Paper has invested in a PrimeLineECO tissue machine to be installed at its Ho Chi Minh City-based plant. Supplied by Andritz, the machine has a design speed of 1,300m per minute and a paper width of 2.85m and start-up is scheduled for the second quarter of 2020. Scope of supply includes a separate DIP line, a stock preparation system for LBKP/NBKP market pulp, an approach flow system, a fibre recovery and broke handling system as well as basic and detail engineering.

The entire line is equipped with an Andritz PrimeControl automation package and an advanced Multi Motor Drive system.

It will produce high-quality tissue grades made of either 100% virgin or 100% deinked pulp (DIP). The supplier said the PrimeLineECO tissue machine is a new machine extending Andritz's product portfolio, focusing on emerging markets and their need for energy savings.



PrimeLineECO TM: Xuan Mai Paper's new machine will focus on the production of high-quality tissue

ESSITY IS DIVESTING ITS 50% STAKE IN THE PARTLY OWNED COMPANY SCA YILDIZ IN TURKEY TO THE OTHER PART OWNER YILDIZ. SCA YILDIZ IS PRIMARILY ACTIVE IN BABY CARE PRODUCTS. IN 2018, THE COMPANY REPORTED NET SALES OF SEK 364M (TRY 197M).

TURKEY

Essity divests partly-owned company

Essity is divesting its 50% stake in the partly owned company SCA Yildiz in Turkey to the other part owner Yildiz.

SCA Yildiz is primarily active in Baby Care products.

In 2018, the company reported net sales of SEK 364m (TRY 197m).

The transaction is subject to customary regulatory approval by the competition authorities and is expected to be finalised in the second quarter of 2019.

Essity will retain a presence in Turkey through its wholly owned Professional Hygiene, Incontinence Products and Medical Solutions operations.

GERMANY

Essity's Kostheim mill hit by small fire

Essity has said a small fire hit one of its paper machines at its Kostheim mill in Germany on 12 June. No body was injured, and the company said it was able to quickly extinguish the fire.

The company told TWM that "a smouldering fire" occurred at the site, but added that the damage to the machinery was "very minor". "The incident had no impact on our production schedule," the spokesperson added.

ALGERIA

Faderco boosts presence in Mediterranean region with investment

Faderco has invested in a complete Advantage DCT 100HS tissue production line. Supplied by Valmet, the line will have a width of 2.8m and a design speed of 2,000m/min.

It will be installed at the company's mill in Warak, Setif, and start-up is planned for June 2020. It will add 30,000tpy to Faderco's current production of tissue products.

The order also includes a rewinder and an extensive automation package including process and quality control solutions.

Amor Habes, chief executive, Faderco, said: "The investment in Valmet's Advantage DCT technology, the new complex, will boost our production and support our ambition to reach the position as the fifth exporter in the Mediterranean region."

The company is already present in Morocco, Tunisia, Libya, Mauritania, Senegal, Togo, Mali, Guinea Conakry and Qatar, among others.

The Warak mill currently produces baby diapers, sanitary napkins, adult diapers and tissue paper for the domestic market and surrounding countries.

The new line will support Faderco's ambition to consolidate its position as the Algerian leader in the sector by reaching 35% of market share in 2019.

With an addition of 30,000 annual tonnes, Algeria will move from importer to exporter of tissue products.

Valmet's scope of delivery will comprise a complete tissue production line featuring bale handling, stock preparation system, the Advantage DCT 100HS tissue machine, a rewinder and auxiliaries.

The tissue machine will be equipped with an OptiFlo II TIS headbox, a cast alloy Yankee cylinder, the Advantage technologies ViscoNip press, the AirCap hood and WetDust dusthandling systems as well as a F(O)CUS Rewinder with its ENS technology.

Faderco is an Algerian company active in the industrial hygiene field, through cotton derived products and hygiene items with absorbent pads.

It was founded in 1986 and became a joint stock company in 2009.

Today it has 1,800 employees, 11 brands in seven business areas and two

subsidiaries.

It produces baby diapers, adult diapers and paper products in the industrial Complex at Setif, which opened in July 2012. In addition, it has another production facility in Algiers.

Faderco's commercial coverage is 80% of the Algerian national territory and the company also exports products to other countries in Northwest Africa and sub-Saharan.

CANADA

Kruger Products boosts capacity with investment

KP Tissue and Kruger Products have officially announced their future \$575m Sherbrooke tissue plant, which will be equipped with TAD technology.

Located in the borough of Brompton, the new plant will be constructed on a site adjacent to an existing Kruger paper mill.

Some 180 jobs will be created, as well as some 1,700 direct and indirect jobs during the construction period, which will end in 2021.

Kruger Products' Sherbrooke Plant will include an ultra-premium tissue manufacturing TAD tissue machine as well as converting lines.

Ultimately, it will manufacture 70,000 metric tonnes a year of ultra-premium bathroom tissue and paper towels under the Cashmere, SpongeTowels and Purex brands.

Dino Bianco, Kruger Products chief operating officer, said: "We are very proud to strengthen Kruger Products' presence in Québec with this large-scale project that will provide significant benefits to the Estrie region."

"What's even more exciting is that the local know-how will shine across North America with products distributed throughout Canada and in the United States."

"THE INVESTMENT IN VALMET'S ADVANTAGE DCT TECHNOLOGY, THE NEW COMPLEX, WILL BOOST OUR PRODUCTION AND SUPPORT OUR AMBITION TO REACH THE POSITION AS THE FIFTH EXPORTER IN THE MEDITERRANEAN REGION."

AMOR HABES, CHIEF EXECUTIVE, FADERCO

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KP TISSUE AND KRUGER PRODUCTS HAVE OFFICIALLY ANNOUNCED THEIR FUTURE \$575M SHERBROOKE TISSUE PLANT, WHICH WILL BE EQUIPPED WITH TAD TECHNOLOGY. LOCATED IN THE BOROUGH OF BROMPTON, THE NEW PLANT WILL BE CONSTRUCTED ON A SITE ADJACENT TO AN EXISTING KRUGER PAPER MILL. SOME 180 JOBS WILL BE CREATED, AS WELL AS SOME 1,700 DIRECT AND INDIRECT JOBS DURING THE CONSTRUCTION PERIOD, WHICH WILL END IN 2021.

UK

Accrol finishes 2019 in "much stronger position"

The UK's Accrol Group Holdings has said the group "performed well" in Q4, following a "transformational" restructuring programme.

It said it is achieving and maintaining "acceptable levels" of monthly profitability on an adjusted EBITDA level.

Total revenues for the full year ended 30 April 2019 were c.£119m, largely unchanged on a like-for-like basis against the prior year, as the group exited a number of low margin contracts.

Sales in its core toilet roll product increased by c.12% year-on-year to c.£85m from £76m in full year 2018.

Adjusted EBITDA was c.£1m, an c.£7m improvement on the prior year.

Adjusted loss before tax is expected to be in the range of £2.5m to £3.0m.

Chairman Dan Wright said: "We finished the full year 2019 in a much stronger position, following the conclusion of a transformational restructuring, and that the new financial year has started well. "The group is now enjoying the full benefits of the structural cost savings achieved in the full year 2019, achieving an acceptable level of margin for a business of its type.

"Our management team is confident of delivering further profitable revenue growth and creating new exciting opportunities for the group."

Accrol Group Holdings is a leading tissue converter and supplier of toilet rolls, kitchen rolls and facial tissues, as well as

other tissue products, to major discounters and grocery retailers throughout the UK.

CHINA

China's Libang Group boosts capacity in Hebei and Hubei

The Libang Group has ordered four new tissue machines for its mills in China, according to domestic supplier Baotuo Paper Machinery Engineering.

The supplier told TWM that the four new tissue machines will be provided successively during the next 12 months.

Each will have a capacity of 20,000 metric tpy, jumbo roll width of 3.55m, and a design speed of 1,300 m/min.

Two lines will be installed at the group's mill in Baoding city, Hebei, which is run by its subsidiary Baoding Gangxing Paper.

The other two units will be installed at a greenfield mill in Xiaogan city, Hubei province, and will be run by another subsidiary, Hubei Libang Paper.

Baotuo is one of the subsidiaries of BaoSuo Enterprise which supplying machinery and services for tissue turnkey project from tissue making, converting to packing.



Sealing the deal: Teams from The Libang Group and Baotuo Paper Machinery Engineering.

GROWTH IN TISSUE INDUSTRY'S SHARE OF BCP LIKELY TO CONTINUE

Rapid changes in supply and pricing in the pulp market presents major challenges for both suppliers and buyers. The need for price hedging tools is likely to increase. Report by Pierre Bach, Hawkins Wright research manager.

MI



Pierre Bach
Research manager, Hawkins Wright

More than 37% of all bleached chemical market pulp shipments went to the tissue industry last year. This compares with just 27% in 2010, with market pulp consumption within this sector expanding at an average rate of 8% pa during this period, equal to 1.1Mt/yr.

We expect the tissue sector to continue to grow in prominence during the next five years, as more virgin fibre content tissue capacity is installed which will mostly be dependent on market pulp.

Global tissue production is estimated at just over 36Mt in 2018, having risen by an average of 3.2% pa (~1 Mt/y) since the financial crisis. Around 47% is produced in the mature markets of North America, Europe and Japan, where growth has averaged 0.9% pa, 1.3% pa, and 0% pa respectively.

These regions also account for the highest proportion of recycled based tissue demand. Fortunately for the market pulp sector, growth is much stronger in emerging markets where most tissue is

based on virgin fibre. Indeed, even in the developed economies, recycled-based tissue production has been limited by the falling availability of high quality recovered fibre, much of which derives from the dwindling P&W paper sectors.

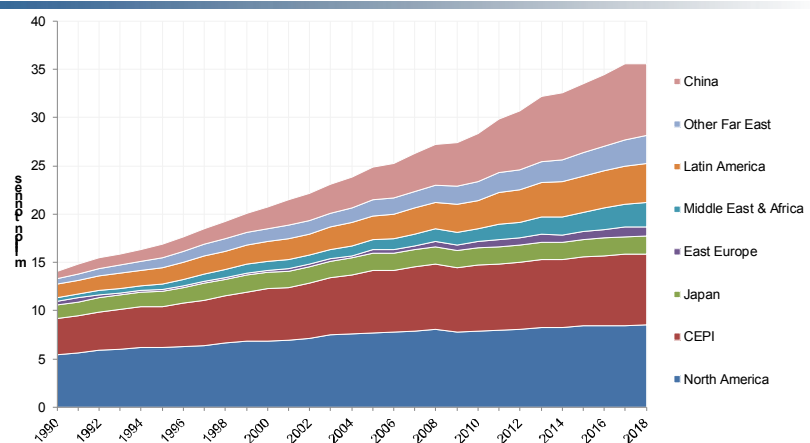
As a result of these and other furnish trends, the mature regions have consumed increasing volumes of market pulp, even with only modest overall production growth.

Last year saw a continuation of these trends, with particularly healthy growth in China, where preliminary estimates suggest that production has increased by just over 8%, despite the economic slowdown.

Although global growth is increasingly geared towards China (now the largest market in the world), this positive performance was also supported by other emerging markets such as Brazil (+3.9% y-t-d), and also Korea (+8.7% y-t-d). Meanwhile, output in Japan has contracted by 1.4% so far, and CEPI statistics show European production down 0.2%. The AF&PA reports tissue production growth of just 0.6% in the US over the first ten months.

FORTUNATELY FOR THE MARKET PULP SECTOR, GROWTH IS MUCH STRONGER IN EMERGING MARKETS WHERE MOST TISSUE IS BASED ON VIRGIN FIBRE. INDEED, EVEN IN THE DEVELOPED ECONOMIES, RECYCLED-BASED TISSUE PRODUCTION HAS BEEN LIMITED BY THE FALLING AVAILABILITY OF HIGH QUALITY RECOVERED FIBRE, MUCH OF WHICH DERIVES FROM THE DWINDLING P&W PAPER SECTORS.

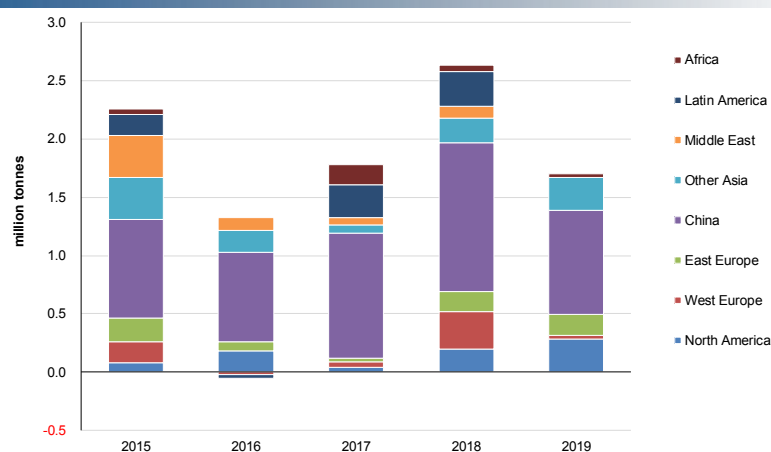
Global tissue production by region, 1990-2018
(million tonnes)



Source: Hawkins Wright

HAWKINS WRIGHT

Global tissue capacity additions, by region 2015-2019
(million tonnes)



Source: Hawkins Wright

HAWKINS WRIGHT

Broadly speaking, investment trends reflect these regional patterns, with China clearly dominating. However, in all markets capacity growth has exceeded underlying demand quite significantly, clearly to the detriment of operating rates and pricing power. Capacity growth reached a record-high of +2.7Mt in 2018, more than double the rate of growth in output.

It should be noted however that there has been a huge amount of capacity rationalisation in China, and it is almost impossible to accurately determine the real net capacity growth after accounting for capacity closures.

Furthermore, operating rates are likely to vary quite significantly from mill to mill, with some of the newer machines starting up very gradually, particularly in China and Indonesia. Capacity growth is expected to fall back to 1.5Mt in 2019, somewhat lower than the past two years, but still

well in excess of the growth in underlying consumption.

Challenges of over-capacity are of course exacerbated by the tissue market structure, where large supermarkets and retailers dominate. Such Fast Moving Consumer Goods (FMCG) companies are highly price sensitive and invariably demand long-term (annual), fixed-price contracts. The penetration of private label (i.e. supermarket brands) over branded products in recent years has intensified the pressure on prices and margins.

This evolving competitive landscape was certainly a contributing factor behind Kimberly-Clark's decision last year to consider the sale of its European tissue business where challenger brands have been particularly aggressive in trying to grow their market share.

Tissue prices remain rather opaque, but we can draw on two examples to illustrate the squeeze felt by mostly non-integrated producers in North America and Europe.

The US's Bureau of Labor Statistics publishes a producer price index (PPI) for tissue products each month, and we have rebased it using 2016 as a base year. Taking North American net pulp prices and building a similar index produces the graph across.

We can observe that since January 2017, NBSK and BEKP net prices have soared by 40% and 45% respectively while tissue prices have remained virtually flat (-3%) – implying intense margin pressure.

In fact, the data reveals that tissue prices peaked in Q3 2012, and have been on a deflationary trend ever since. A small uptick in the second half of the year appears to have been short-lived,

PERHAPS THE GREATER THREAT TO OUR FORECAST IS POSED BY GENERAL MACRO-ECONOMIC ACTIVITY, WHICH IS SHOWING SIGNS OF A SLOW-DOWN IN EARLY 2019, PARTICULARLY IN CHINA. AS WE HAVE MENTIONED, TISSUE DEMAND HAS HELD UP VERY WELL EVEN AS GDP HAS SLOWED, BECAUSE THE ECONOMY IS TRANSITIONING TOWARDS CONSUMPTION RATHER THAN INVESTMENT.

with prices falling back in Q4 despite efforts from leading North American tissue suppliers to increase prices. Looking at Q3 reported earnings, very few could boast double-digit EBITDA margins, and a handful appeared precipitously close to 0%.

For Europe, we have used trade statistics from Italy and Turkey, whose combined exports of jumbo (or parent) rolls has increased by around 30% over the past four years (from 500,000 tonnes in 2014, to around 650,000 tonnes in 2018).

Turkey has developed most recently, with over 0.5 million tonnes of capacity installed from 2011-2016. Turkish capacity growth peaked around 2014-15, and for a period the growth in Turkish exports seemed to occur partly at the expense of Italian volumes. Prices fell by 25% as a result of this competition, but also because pulp prices were also trending lower for much of this time, lowering production costs.

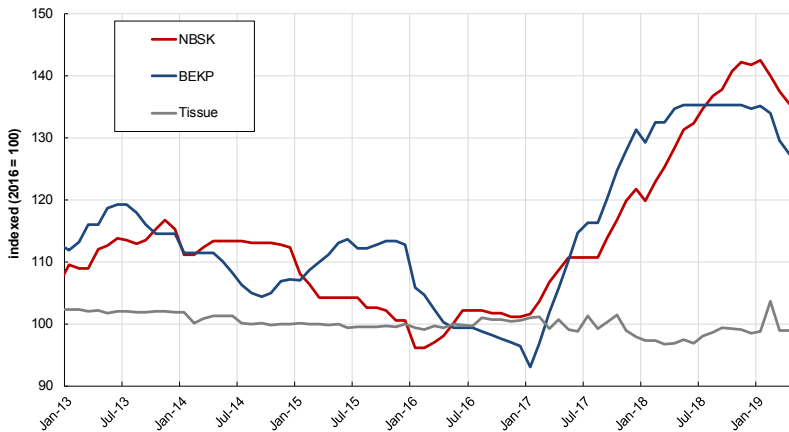
Through 2017 exports from both countries have increased, and prices have recovered at the same time. This recovery may be related to stronger macro-economies, slower capacity growth and the weaker euro. However, the cost inflation resulting from the pulp price increases has clearly played a key role.

Note however, that whilst the tissue price indices have barely recovered to their 2014 levels, pulp prices exceeded their previous peaks by 25-35%.

Although monthly trade data is only available until July for Turkey and September for Italy, it appears that the collapse of the Turkish lira (which started through Q2 and gathered pace in Q3) has

THROUGH 2017 EXPORTS FROM BOTH COUNTRIES HAVE INCREASED, AND PRICES HAVE RECOVERED AT THE SAME TIME. THIS RECOVERY MAY BE RELATED TO STRONGER MACRO-ECONOMIES, SLOWER CAPACITY GROWTH AND THE WEAKER EURO. HOWEVER, THE COST INFLATION RESULTING FROM THE PULP PRICE INCREASES HAS CLEARLY PLAYED A KEY ROLE.

US sanitary tissue paper products PPI versus net pulp prices (2013-2018, indexed 2016 = 100)



Source: Hawkins Wright

HAWKINS WRIGHT

encouraged a rise in export sales, once more at the expense of Italian volumes and prices. Of course, this could also relate to slowing macro-economic activity across the Eurozone, or indeed production curtailment in Italy resulting from margin pressure.

The decline in pulp prices through November and December may provide some much needed respite, providing it does not cause a commensurate fall in tissue pricing.

We expect the global tissue sector to absorb an additional 5Mt of market pulp over the next five years, by which stage it might account for 41% of global BCP shipments (and fluff a further 11%).

The rapidly changing structure of the pulp market presents major challenges for both suppliers and buyers, given that market pulp remains as volatile as ever, whilst very soon over half of global BCP shipments will be geared towards sectors that are highly price-sensitive and operate on long-term, fixed-price contracts. Logically, the requirement for price hedging tools should increase under such a scenario.

Another potential result could be a trend towards integration within the tissue sector. Perhaps the most obvious example is APP, which has integrated over 0.8Mt of pulp capacity into tissue at the Hainan complex in China, and a further 1.5Mt in Indonesia (tissue machines have been installed at all three pulp mills in Jambi, Perawang, and most recently OKI).

In China, several smaller pulp lines (both hardwood and bamboo) have

integrated partially or entirely e.g. Lee & Man, Guizhou Chitianhua, YFY Dingfeng. In Brazil, Suzano has installed machines in both Imperatriz and Mucuri mills, and has also acquired Facepa.

In the USA, Woodland (St. Croix) and Resolute Calhoun are now partially integrated. In Portugal, Navigator has added a new machine at the Cacia pulp plant in Q4 2018.

In reality these investments were made for different reasons specific to each company.

Indeed, rather than tissue producers aiming to reduce exposure to the pulp cycle, certain investments were in fact motivated by higher cost pulp mills wanting to reduce their own exposure to

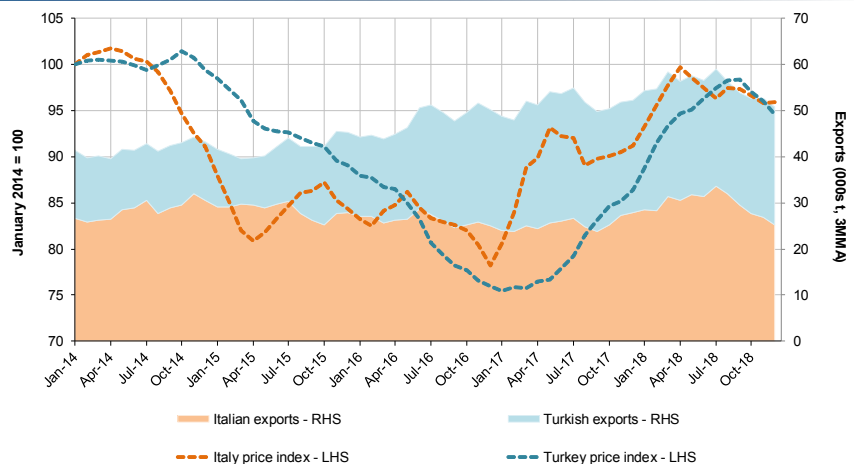
THE DECLINE IN PULP PRICES THROUGH NOVEMBER AND DECEMBER MAY PROVIDE SOME MUCH NEEDED RESPITE, PROVIDING IT DOES NOT CAUSE A COMMENSURATE FALL IN TISSUE PRICING.

low pulp prices, or shrinking domestic demand. Such are the difficulties in predicting pulp cycles.

Perhaps the greater threat to our forecast is posed by general macro-economic activity, which is showing signs of a slow-down in early 2019, particularly in China. As we have mentioned, tissue demand has held up very well even as GDP has slowed, because the economy is transitioning towards consumption rather than investment.

However, part of the growth has also been generated by the closure of smaller mills, and the displacement of low grade tissue based on straw and wastepaper. The potential for further displacement is much lower, meaning that future growth will depend solely on domestic spending and rising living standards amongst China's poorer population.

Italian & Turkish exports of jumbo rolls, volume & price (HS code 4803, 2014-2018 as a 3-month moving average)



Source: Hawkins Wright

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POLAND'S TISSUE BUSINESS MODERNISES BUT COAL POWER LINGERS

Poland is one of the most robust countries in Central Europe. It has the sixth largest economy in the European Union and has enjoyed steady growth since 2014. Its paper business is focused on tissue and towel, containerboard, and a small amount of specialty papers. Internal fibre capacity consists of 99% recycled fibre with 1% mechanical fibre. All other fibre sources are imported.

The unemployment rate has steadily decreased for adults but remains relatively high for youth. Figure 1 shows the steady growth of household final consumption expenditures and Figure 2 shows the drop in Poland's unemployment since 2013. However, population growth has stalled and has begun shrinking in more recent years. This suggests that tissue consumption growth may begin to slow if the economy were to slow down, reducing further per capita consumption increases.

Poland is rated the 18th highest source of carbon dioxide global emissions from energy consumption. This is the highest emission rate of any European Union country, except for the United Kingdom. Poland is the third-largest producer of coal in Europe, after Russia and Germany.

Electricity production is 80% based on coal. This percentage is forecast to be cut in half by 2040, requiring significant expenditures for alternative energy sources.

Poland's tissue business has grown through the economic expansion, and tissue producers have steadily upgraded their tissue mills. Figure 3 shows the change in number of lines producing tissue since 2007. Tissue manufacturers have removed the old lines as they added new machines. Including the forecast through 2023, the net effect will be one less operating line than in 2007. However, total tissue capacity has more than doubled during the same time period as larger and faster machines replaced the older equipment.

The country's tissue business also includes active trade with regional partners in parent rolls and converted tissue products. Figure 4, based on United Nations Comtrade data, shows the evolution of the parent roll trade between Poland and the world. Poland imports more tissue parent rolls than it exports, but import rates appear to be slowing in the most recent data. Poland exports more finished tissue products than it imports as shown in Figure 5. These exports have steadily increased in the past five years. Overall, these charts show that the country is exporting more tissue than importing.



Bruce Janda
Senior consultant, Fisher International

Breaking this trade down by individual trading partner shows that Germany is the most significant partner by volume for both parent rolls and converted product. Other key trading partners identified by volume include the Czech Republic, Hungary, Italy, Lithuania, Russia, Slovakia and the United Kingdom. These countries will serve as a comparison set when examining the strength of Poland's tissue producing assets.

Poland's tissue furnish is shown in Figure 6. Only 25% of the tissue fibre comes from recycled furnish generated within the country. The large percentage of kraft pulp is imported for tissue production. Figure 7 shows that consumer tissue grades make up

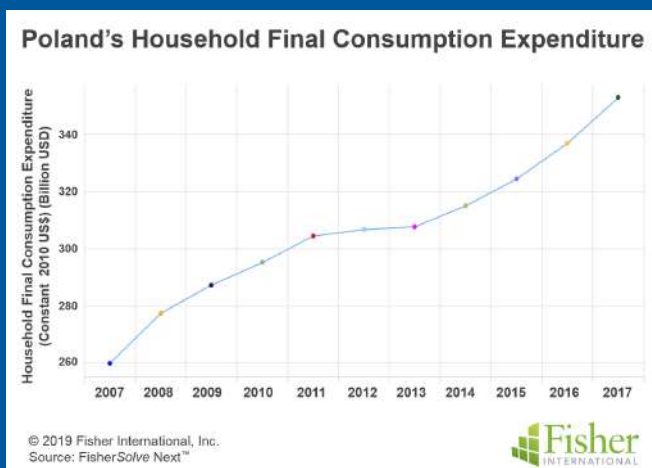


Figure 1

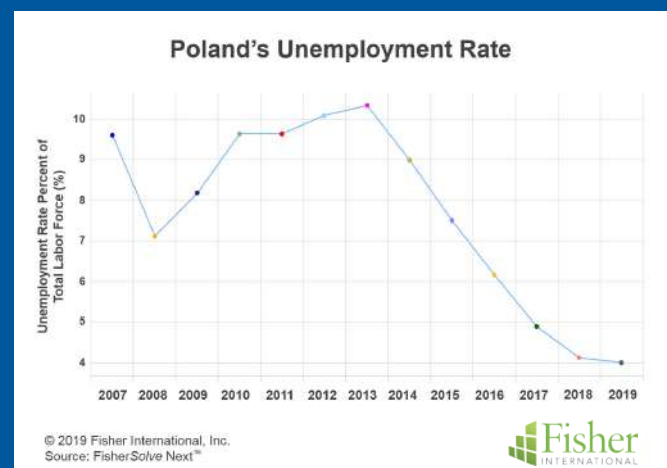


Figure 2

86% of the total tissue production. Commercial grades for business use are 14% with very little specialty tissue produced.

Figure 8 provides a breakdown of the finished products produced, with consumer bath and towel making up the largest product formats.

The future of Poland's tissue business will be partially driven by its relative competitiveness to its tissue trading partners. Figure 9 presents an analysis of the average tissue machine quality in each of the trading partners. The bubbles plotted for each country show the relative size of the tissue capacity and the x-axis shows the average machine technical age. The y-axis shows tonnes produced per unit of trim width. The average of Poland's tissue assets is relatively low, but it can be assumed that the steady replacement shown earlier will result in improved competitive position.

Figure 10 shows that Poland's tissue production costs are low to moderate when expressed on a per tonne basis.

Figure 11 shows each of the country's tissue mill energy consumption supplied by coal. Poland and Germany are the only countries that show significant mill energy production by coal in the trading partner set. This can make their tissue businesses especially vulnerable to changes in regional energy policy. This is better illustrated in Figure 12 where carbon emissions per tonne of tissue from purchased mill energy are shown for the competitive set. Poland does have the highest carbon emission per tonne of any of the countries shown.

Poland's domestic tissue industry supply has expanded to support exports of mostly converted products. However, the high carbon emissions associated with its coal fired industrial

GERMANY IS THE MOST SIGNIFICANT PARTNER BY VOLUME FOR BOTH PARENT ROLLS AND CONVERTED PRODUCT. OTHER KEY TRADING PARTNERS IDENTIFIED BY VOLUME INCLUDE THE CZECH REPUBLIC, HUNGARY, ITALY, LITHUANIA, RUSSIA, SLOVAKIA AND THE UNITED KINGDOM. THESE COUNTRIES WILL SERVE AS A COMPARISON SET WHEN EXAMINING THE STRENGTH OF POLAND'S TISSUE PRODUCING ASSETS.

infrastructure may become a risk to these exports in the future. The country's plan to cut coal consumption from the current 80% to 40% by 2040 may not be fast enough. Will European Union consumers expect quicker action?

Poland has enjoyed stronger economic growth than most of the Western European countries. However, it is experiencing the same aging population. Can the above average growth rate continue to drive domestic tissue consumption?

This article presents a static picture summary. Fibre prices, exchange rates, and environmental regulations will change, giving some participants advantages and other challenges. Tissue companies will continue to change hands and perhaps consolidate; neighbouring countries may invest in tissue-making capacity thus affecting Polish exports.

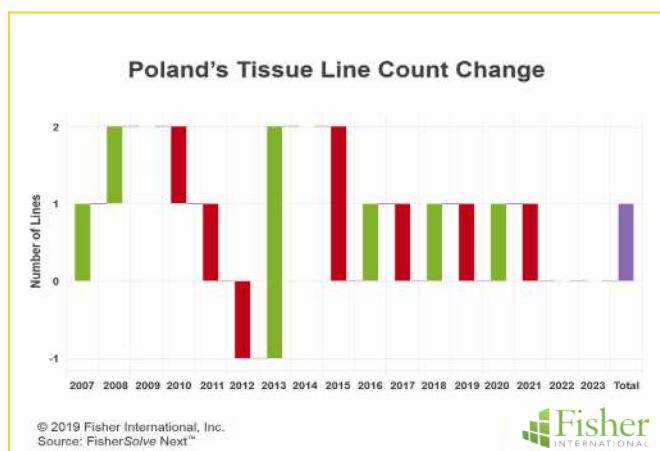


Figure 3

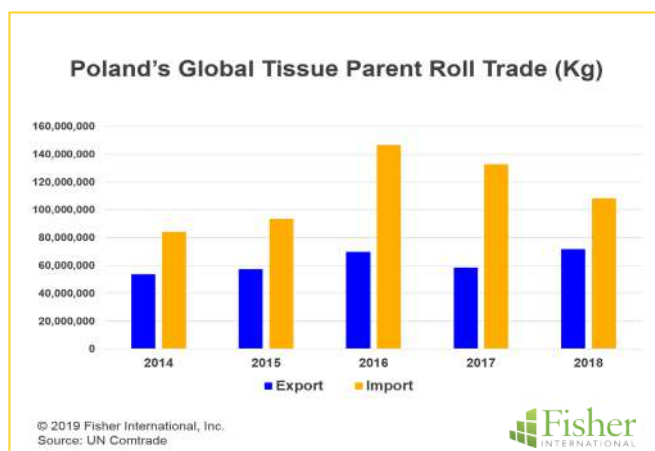


Figure 4

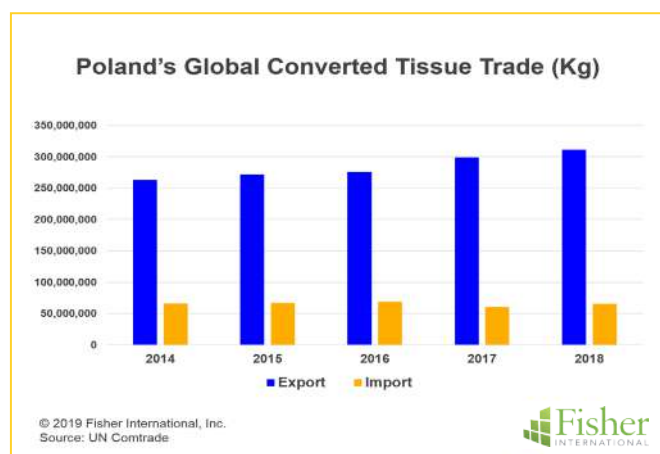


Figure 5

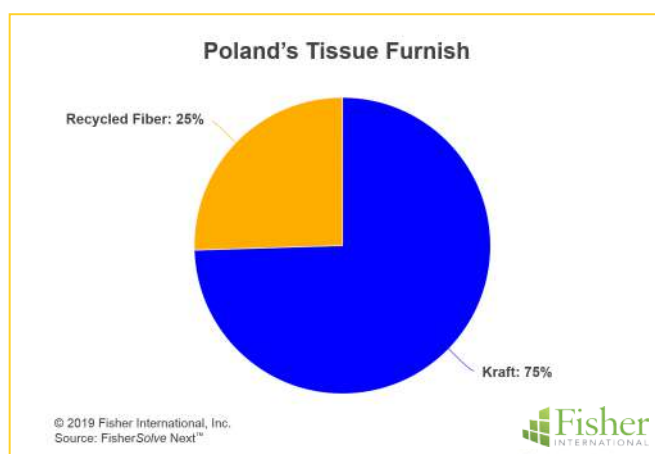


Figure 6

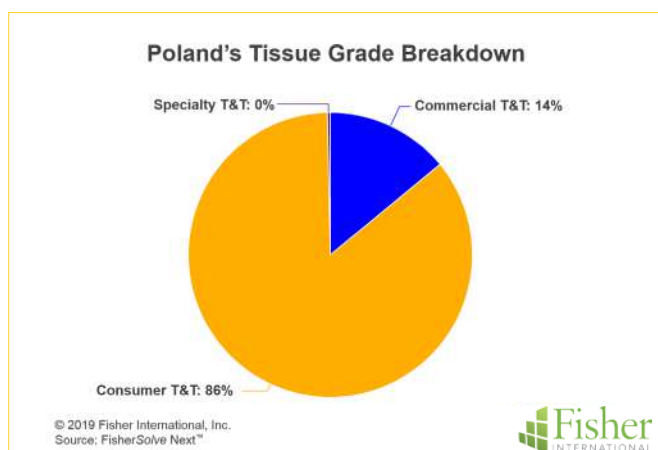


Figure 7

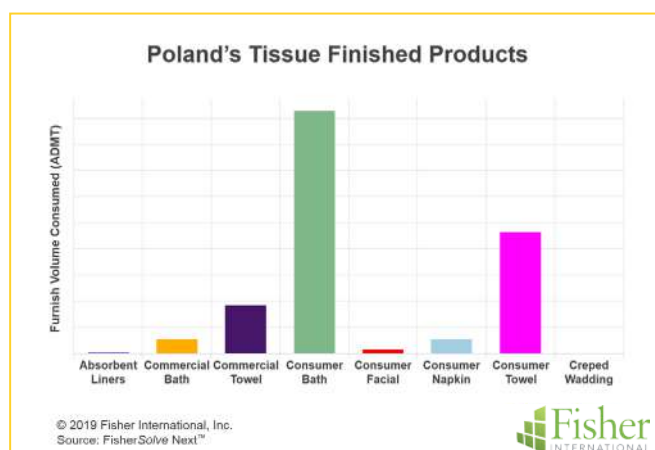


Figure 8

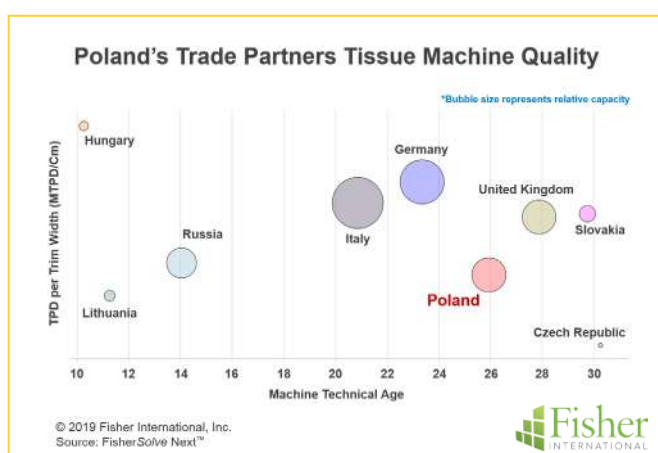


Figure 9

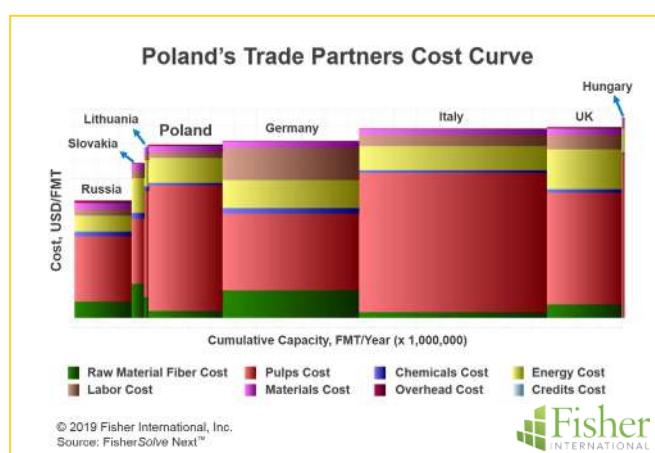


Figure 10

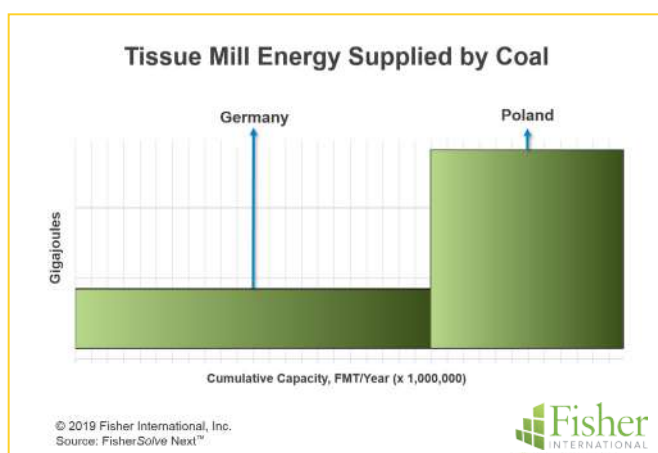


Figure 11

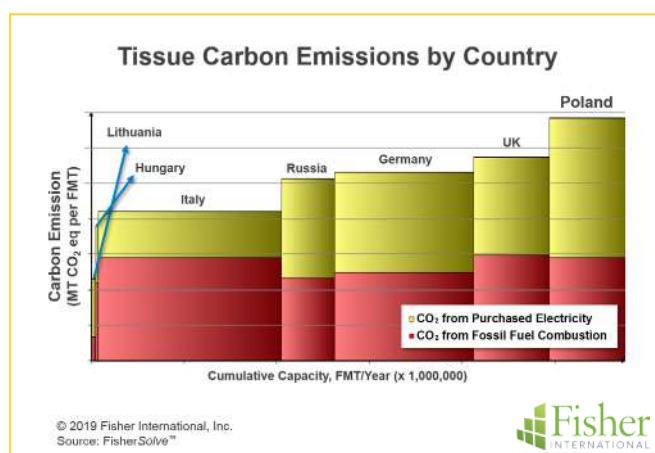


Figure 12

About Fisher International, Inc.

Fisher International, by virtue of its deep expertise in the pulp and paper industry, provides insights, intelligence, benchmarking, and modeling across myriad scenarios. By arming companies with the knowledge that will help them gain a better understanding of their strengths and help identify weaknesses, Fisher is helping businesses stave off challenges and better position themselves for long-term growth. For more information, visit www.fisheri.com, email info@fisheri.com or call +1 203.854.5390 (USA)

CONSUMER TISSUE IN POLAND: OPPORTUNITIES IN A FAIRLY EVOLVED MARKET

With per capita consumption of retail tissue at nearly 7kg in 2018, Poland is one of the most developed consumer tissue markets in Eastern Europe, behind only Croatia and Slovenia.

Poland's per capita consumption of retail tissue is more than twice that of Russia. Furthermore, in 2023 the country's per capita consumption will be approaching that of key Western European developed markets such as France and the UK.

Given already fairly high consumption of retail tissue, over 2018-2023 Poland is expected to see slower growth in volume terms, at a CAGR of 5%, compared to historic growth. Retail sales are projected to reach 340,000 tonnes in 2023. While growth will inevitably slow down as the market evolves, Poland still offers an estimated 130,000 tonnes in unmet potential.

While fundamentals, such as GDP growth, play a significant role in supporting the demand, soft drivers such as product variety and availability as well as lifestyle changes will provide industry with an opportunity to support organic growth.

Expanding discounters and positive consumer attitude support private label

Poland features over 4,000 discounters, and this number has been growing every year. A large network of stores across the country places them within easy reach of consumers, while retailers' investment in

product development under private label helps to draw consumer attention to the widened assortment of consumer tissue. Private label tissue in Poland ranges from economy to premium quality, with the latter often favourably compared to well-known branded products sold under Velvet, Regina, and Zewa.

The two biggest chains - Biedronka and Lidl - are the two great examples of how discounters thrive to be among the top ranked retailers selling retail tissue. The retailers' private label tissue products were among the top fastest growing in the country's retail tissue in 2018. Biedronka's private label recorded 14% value sales growth, while Lidl's products noted 17% value sales increase.

Euromonitor's Consumer Lifestyles Survey conducted in 2019 indicates that over 20% of consumers in Poland regularly seek private label or low-cost products. Furthermore, 77% of consumers in the country are planning to maintain their spending on private label products at the same level, while 14% intend to increase their shopping for private label. These consumer tendencies continue to provide a solid platform for private label in Poland.

Branded products in Poland certainly



Eka Barcys
Senior analyst,
Euromonitor International

then come under significant pressure from private label. While in 2017 branded retail tissue products generated 60% of value sales, in 2018 this number dropped to 59%. Nonetheless, well-known brands with established positions on the Polish market still lead sales. Euromonitor's Consumer Lifestyles Survey conducted in 2019 indicates that 42% of Polish consumers would rather buy fewer but higher quality things, 22% regularly seek strong or well-known brands, and 20% seek niche brands that are hard-to-find or unique. These tendencies help support demand and sales of quality branded tissue products.

Velvet Care Sp zoo remains the leader in retail tissue sales in Poland, generating nearly 21% of retail value in 2018. The company's strong position on the market is grounded in a very good perception in terms of quality.

Furthermore, Velvet is associated with a broad product portfolio and products being present via a wide range of distribution channels, from small independent stores to discounters to large grocery hypermarkets and drugstores.

Paper towels – the most dynamic consumer tissue category

Overall, in 2018 paper towels recorded the fastest growth in volume and value terms within retail tissue in Poland, and the category is projected to continue a healthy

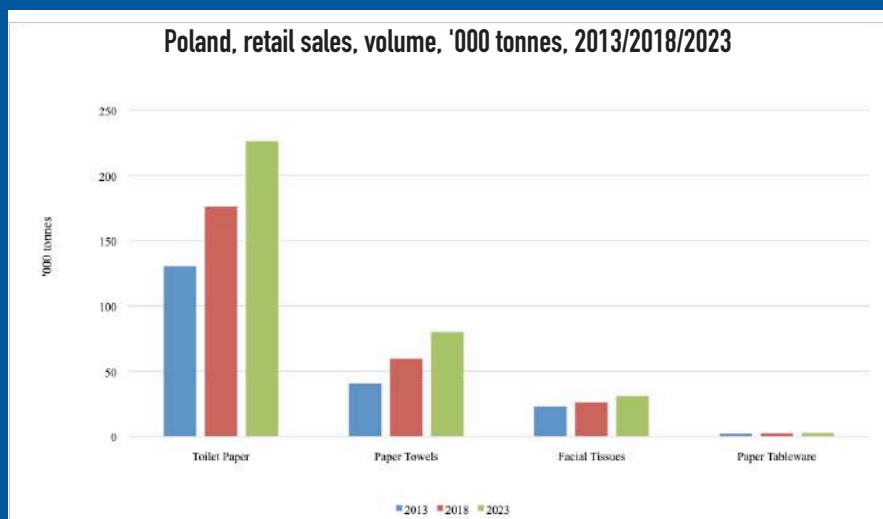


Table 1: Poland, retail sales, volume, '000 tonnes, 2013/2018/2023. Source: Euromonitor International

retail consumption, Poland is already among the leaders within Eastern Europe, there is still some potential to develop further.

Poles are keen on using various paper towels and increasingly perceive them as a necessary product in kitchen. Convenience of use, high absorption and relatively attractive price will be supporting good performance of this category over the coming years.

Toilet paper, however, remains the biggest category within retail tissue in Poland, accounting for nearly 66% of retail volume sales in 2018. Although this category is fairly saturated already, with many players present on the market, it is still noting positive annual volume and value sales growth.

This is connected with stable GDP growth and overall consumer confidence, which allow Poles to opt for better quality products, including 3-, 4- or even 5-ply toilet paper. Added value in the form of scents or prints also helps support higher value.

Sustainability agenda, recycled tissue, and bamboo fibres

With sustainability and eco-friendliness on the agenda across consumer products, there might be some threats down the road from consumers reducing spending on single-use disposable products, as is the case with, for example, paper tablecloths that recorded negative value and volume sales growth. Sustainability also draws attention to recyclable products, including tissue. However, the perception of recycled tissue in Poland is not very positive. Most consumers consider it not very good in quality, unattractive, and providing no good value for

WITH SUSTAINABILITY AND ECO-FRIENDLINESS ON THE AGENDA ACROSS CONSUMER PRODUCTS, THERE MIGHT BE SOME THREATS DOWN THE ROAD FROM CONSUMERS REDUCING SPENDING ON SINGLE-USE DISPOSABLE PRODUCTS, AS IS THE CASE WITH, FOR EXAMPLE, PAPER TABLECLOTHS THAT RECORDED NEGATIVE VALUE AND VOLUME SALES GROWTH.

the price. The choice of this kind of product is also still very limited. Polish consumers use 0.4kg per capita of recycled toilet paper yearly, which places them at the lower end among other Eastern European countries and well below the Eastern European average of 1.3kg per capita.

On the other hand, the country sees a number of tissue brands coming into the market that use bamboo fibres, such as Zuzii for example. These brands can be found mainly in stores specialising in consumer products positioned as natural and eco-friendly. They also typically carry a variety of certifications, such as, for example, from the Forest Stewardship Council (FSC), which resonates with some consumers who prefer to see an independent body certification attesting to the brands' claims.

As in many other European markets, bamboo-based tissue still accounts for a small proportion of consumer tissue sales.

However, as awareness of eco-friendly options on the market grows, this segment of consumer tissue could receive a further boost from Poles who seek to make a positive impact on the environment. Results of Euromonitor 2019 Lifestyle surveys indicate that 65% of Poles try to have positive impact on the environment through every day actions and 53% trust environmentally conscious and eco-friendly claims.

Pricing, however, would require a careful approach. Euromonitor surveys indicate that only one in 10 Poles are willing to pay premium for environmentally friendly household essentials.

Will Sunday trading ban take a toll on retail tissue?

A new law limiting trade on Sundays came into force in Poland in early 2018. First, it banned trade during two Sundays per month. However, in 2019 it was extended up to three Sundays, and there is a plan to make it even stricter over the coming years. There are some exceptions to this ban: online stores, forecourt retailers (petrol/gas stations), and in general retail stores run by their owners are allowed to open on Sundays.

This new law is likely to influence various retail categories, such as food and drinks, apparel or even beauty and personal care products. However, will it also reflect negatively on retail tissue?

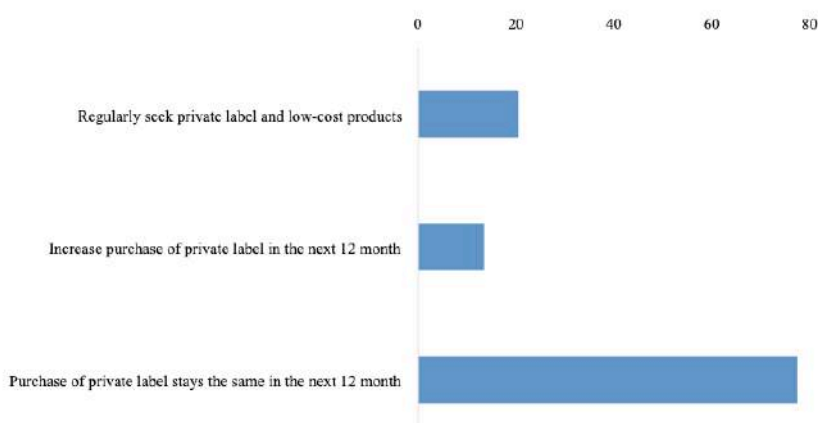
First of all, retail tissue products, especially products such as toilet paper, are often perceived as necessities and are used daily, so when the shopping ban takes action, it prevents consumers from restocking from stores.

However, since online retail is exempt from the ban, there is an opportunity for e-commerce to pick up sales that would have gone to physical stores otherwise. In 2018, online sales accounted for 5% of the overall retail tissue sales in Poland, up from less than 2% in 2013.

In view of the changing regulations, there are further opportunities for retailers with online presence to develop infrastructure for services such as express deliveries on Sundays.

In addition to online retail, the Sunday trading ban can provide opportunities for convenience stores/forecourt retailers and smaller independents to develop shelf space and in-store merchandising practices to provide products and services to consumers who are looking to restock on household staples or are in need of an emergency replenishment.

Table 2: Poland, shopping preferences, spending and saving priorities, 2019



Source: Euromonitor Lifestyle Surveys



Velvet Care's impressive 40+ hectare site in Klucze, north west of Kraków

POLISH TISSUE CONSUMPTION IS BOOMING — SAYS THE BOSS OF THE BRANDED MARKET LEADER

Velvet Care* has a long history of firsts, perhaps none like the recent surge ... doubled its workforce in five years, tripled production capacity, more than doubled converting capacity, and increased turnover from €121m to €150m in a year. Annual growth figures were at 20%. TWM senior editor Helen Morris reports.

THEIR DEDICATION TO THE COMPANY SPANS MANY YEARS: ŚCIAŻKO HAS BEEN WORKING IN THE PAPER SECTOR FOR 35 YEARS, WHILE CURYŁO HAS WORKED AT VELVET CARE SINCE THE BEGINNING OF HIS CAREER, WHEN HE STARTED AS A TRAINEE 20 YEAR AGO. CIESIELCZUK HAS WORKED IN THE AREA FOR 18 YEARS. ALL THREE ARE VERY AFFABLE AND ENTHUSIASTIC.

Travelling out to Velvet Care's impressive 40+ hectare site in Klucze is both a historical journey back in time and a confirmation that the future for tissue here in Poland looks bright. This site was established in 1897, first as a paper mill before starting up a tissue mill in 1976. This adds up to no less than 122 years of production.

The hour's drive north-west of Kraków has taken TWM through mile after mile of picturesque fields and villages. Since those early days, the rural setting has seen a fascinating story of continuity ... the start-up of seven different paper machines at the plant, as well as several different owners, ranging from local government to two American-owned corporations.

The sense of successful long service is soon confirmed again. TWM is greeted by Marek Ściażko, plant manager and vice president of the board, Rafał Curyło, vice president and finance director, and production manager Wanda Ciesielczuk, who oversees production across the whole mill and oversaw the start-up of the company's brand new 5.56m Valmet-supplied TM in March 2018.

Their dedication to the company spans many years: Ściażko has been working in the paper sector for 35 years, while Curyło has worked at Velvet Care since the beginning of his career, when he started as a trainee 20 year ago. Ciesielczuk has worked in the area for 18 years. All three are very affable and enthusiastic.



After World War II and until 1996 the Klucze plant was a state-owned company prior to being bought by International Paper. In 2003, it was acquired by another American corporation – Kimberly-Clark (K-C)— and in an instant the company “became part of one of the largest international corporations in tissue in the world,” Ściążko says.

The historical record has also seen the site produce pulp until the beginning of the Eighties, before the government decided to close the pulp mill, which at the time was state-owned.

In 2013 it became Velvet Care after K-C exited the Eastern Europe tissue market. “And then we – managers – along with investment fund Avallon, bought this business from K-C and became an independent company,” he adds. “Five years later, there was another change and Abris Capital took over the majority of the shares from the Avallon fund. We are now currently in the group of private equity company Abris Capital.

“So for 17 years, we have been part of two big international companies,” Ściążko says.

The key milestone in the company’s history – in terms of tissue at least – was 1976, when it diversified and invested in its first tissue machine, PM6.

“POLAND WAS A COMMUNIST COUNTRY, AND THE TISSUE MARKET HERE DIDN’T HAVE HIGH QUALITY TISSUE PRODUCTS. WE WERE THE FIRST TO INTRODUCE HIGH QUALITY TISSUE PRODUCTS TO THE POLISH PEOPLE. OUR TM6 – A VOITH-SUPPLIED, 3.4M LINE WITH A DESIGN SPEED OF 1,200MPM – WAS VERY MODERN FOR THAT TIME.”

Ściążko says: “Starting from this day, we became the indisputable leader in the tissue market in Poland. You must remember that at that time, Poland was a Communist country, and the tissue market here didn’t have high quality tissue products. We were the first to introduce high quality tissue products to the Polish people. Our TM6 – a Voith-supplied, 3.4m line with a design speed of 1,200mpm – was very modern for that time.”

“So in the tissue market, we were the first – and only – to introduce high-quality virgin pulp products to the Polish people at that time,” Curyło adds.

When the first tissue machine started production in 1976, there was a lot of grey, recycled tissue paper products in the market. Ciesielczuk adds the company was also the first to launch branded tissue products into the Polish market, introducing the Velvet brand in 1997.

The company has only officially existed as Velvet Care for the last six years: “We decided after exiting K-C to take advantage of our main brand of tissue products, Velvet”, Ściążko says. “We are now a big company with more than 600 people. We have also doubled our headcount in the past five years, and we have also made several investments during that time that have tripled our production capacity and more than doubling our converting capacity.”

Turnover in 2018 was €121m and this year will be €150m. “So starting from exiting a company like K-C, we are growing in the double digits year by year in terms of turnover and profitability,” he adds.

There are now two tissue machines, TM6 and TM7, with a total capacity of 94,000tpy, as well as 12 converting lines. Two more converting lines are planned for startup in 2020. While the main HQ is in Klucze, there

is also a commercial office in Warsaw.

The domestic market is the company's main focus and currently 75% of its products are sold there, while 25% is exported. Export remains a vital part of the company's plans for future growth: "Export is growing much, much faster for us than the domestic market," Curyło says. "This year a minimum of 30% of our sales will be export. It is very, very important for us, and we would like to grow massively abroad in countries and regions such as Germany, Czech Republic, the Nordic, and also the Baltic countries. Our location here makes us have a lot of opportunity to expand our export offering in these core regions. We are unique because from the beginning our strategy was to sell – and export – as many finished tissue products as possible. We want to be as effective as possible to sell our finished products and control what we are selling."

Curyło cites recent research that shows the Velvet brand is one of the 20 top best-known brands in Poland, sitting side-by-side with Milka and Lipton. "We belong to the top 20 best-known brands," he adds. "Brand recall for Velvet is very strong."



In 2013/14, almost 90% of the company's production was for brands, mainly the Velvet brand. "But in 2014, we decide that we should develop and invest and also focus on private labels," he adds. "At that time, private label was already almost 50-60% of the Polish tissue market, so anyone that is in this Polish tissue market needs to be in private label. And we have succeeded in this – 50/50 of our production is now branded and private label products. So we have three very strong legs: one for export, one for private label, and of course the very strong Velvet brand."

The company mainly targets the consumer tissue market only – 99% of its production heads there. "We are the clear leader in the branded part of the tissue market in Poland," Ściążko says. "We are the leader of three of four categories in tissue: toilet paper category, pocket handkerchief and facial tissue. And we are the second player in kitchen towel."

Toilet paper is its key product, making up some 63% of its production, with 14% for kitchen towels, 8% for facial in boxes and 6% pocket handkerchief. It has diversified its product offering even further and launched some cosmetic products, investing in moist toilet paper and also baby wipes.

In 2016, the company also started to look at the AfH market: "Now we offer some products for this category," Ściążko adds. "We are constantly working to innovate, especially now we have TM7, it helps us with softness and bulk. Very limited capacity is the main reason for our little presence in AfH business. We are trying to learn the professional segment and there is a lot of work in front of us just to be big in this sector. So now we are undisputed leader in the branded sector, but we are also very strong in the private label segment."

Investment in developing new products remains key: in 2015 it implemented Velvet Balm, added balm to toilet paper products. Baby wipes and wet wipes were also introduced, as well as mini



"We were the first to introduce high quality tissue products to the Polish people," Marek Ściążko (pictured), plant manager and vice president of the board; PM7, one of the site's two tissue machines.



Capacity increase: the company has 12 converting lines, and two more are planned for startup in 2020

pockets of the Velvet tissue. A year later a line for jumbo kitchen towels was also started: "We are the leader in this sector in Poland," Curyto says. "There are only two countries in the world seeing the quick growth of this market, Italy and Poland. So we focus very heavily on jumbo kitchen towels."

The next key steps will also include ecological aspects: "Everyone in the world is looking at this now," Curyto says. "The shift in the consumer mind has been very rapid and we need to follow this. So we are looking how we can decrease the amount of plastic we are using. In terms of the grammage we are using, or the type of plastic. We are even trying to reduce plastic in the boxes."

"Recently, we have also introduced important eco innovation in the production system," Ciesielczuk adds.

The aim, Curyto says, is to make products "more beautiful, efficient and more ecological, and at the same time be user-friendly and hygienic. We want to make products that are less invasive on the environment".

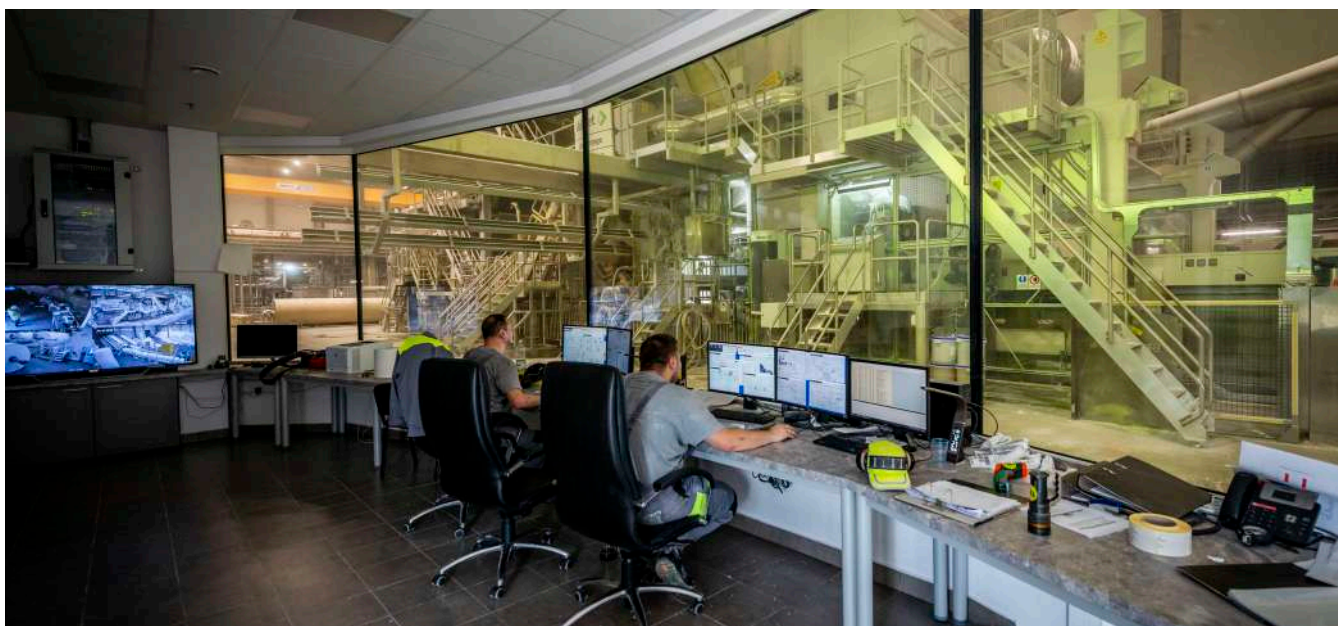
The site has its own biological and mechanical waste water treatment plant, and also ISO, FSC, PEFC, Eco Label certifications, and it is working on the Nordic Swan certification. "It confirms that we are very strong in terms of our environmental efforts. It is quite unique to have these variety of certifications," he adds. "They are often standard for multi-

national companies, but for independent companies like us, it is unique to get all these certificates."

TM7 also has its own gas boiler, so for the production of tissue the company uses gas waste heating from thermal energy. For TM6, last year the company decided to install its own gas base boiler house instead of the old coal base. "Due to this decision we have reduced 40% of our gas and CO2 emissions," Curyto says. "That means we have reduced more than 7,000 tonnes of CO2 emissions annually. We are very proud that we have such good standards."

The Polish paper market is growing in value 8% year-on-year, growing not only in volume but in price as well. "Polish consumption is booming," Curyto says. "In 2018, the retailers tried to increase their prices, but the volume is also growing. The biggest factor about why it's growing is the discounter stores. They are growing very rapidly here in Poland, just as they are in the UK and Germany. They are building a lot more stores here, especially in the smaller cities. We are seeing a lot more of these retail giants in Poland. But also drugstores are growing well also. They are mainly producing 3ply products, so similar to the products seen in Western Europe. The towel category is the second category and is growing 12% year-on-year."

He adds that Poland has also seen an influx of people coming from the East: "We are seeing a lot of Ukrainians moving here, so the number of people using these products is increasing. The population locally is slightly lower year by year, but for the big cities, the number of people



Growth plans: following substantial investments to the site, the company now employs 600 people.



"The company was the first to launch branded tissue products into the Polish market, introducing the Velvet brand in 1997." Production manager Wanda Ciesielczuk, who oversaw the start-up of the site's 5.56m Valmet-supplied TM in March 2018.

is growing, mostly from immigration. We are very grateful for that because unemployment in Poland is very limited, they are very important. It means that the hygienic, consumer market is very strong in Poland."

The past five years has seen rapid growth and development for the business. From the beginning, Curyło says the company has tried to sell as many finished goods as possible and to prepare itself for a huge investment: "Because from the very first day, we knew we wanted the paper machine, the big one. So it was very important to prepare ourselves in terms of turnover and our converting capacity. We grew in volume in sales, so we also increased our logistics space and invest in a new warehouse, 20,000sqm. And phase three was to start to invest in the new tissue machine, the double size. More than 2,000m per minute, and 60,000tpy. The start-up ended March 2018 and it has been a success for us. Wanda was the project manager for it. We are very proud that we did it."

Ściażko says: "It was a historic stepping stone for our company. This investment was comparable only to the investment in 1976, in terms of the scale and the investment in buildings. We can compare this investment to the decision of the management when they decided to install the Voith line – 40 years later we are doing the same."

"The difference was the start-up," Ciesielczuk says. "The start-up for us was very smooth and immediately worked after

"WE WERE GROWING ON AVERAGE 20% YEAR-ON-YEAR," CURYŁO SAYS. "SO THIS KIND OF GROWTH WOULD BE DIFFICULT TO MAINTAIN IN THE FUTURE. EVERY YEAR IT IS DIFFICULT TO GROW MORE. FOR THIS AREA OF THE WORLD WE ARE QUITE BIG ALREADY. THE GROWTH OF TISSUE CATEGORIES AT HOME AND ABROAD IS HELPING US BUT IT IS DIFFICULT TO PREDICT THAT THE FUTURE GROWTH WILL BE AS RAPID AS IT HAS BEEN IN THE PAST."

a few days we achieved the right speed. We were all prepared, everyone was prepped. We were sure that that machine would work 2,000mpm, and it has been reliable for us."

Based on the company's history, does it want to continue to grow as rapidly as it has done? "We were growing on average 20% year-on-year," Curyło says. "So this kind of growth would be difficult to maintain in the future. Every year it is difficult to grow more. For this area of the world we are quite big already. The growth of tissue categories at home and abroad is helping us but it is difficult to predict that the future growth will be as rapid as it has been in the past."

"Current level of turnover is not the level we would like to stay at and we also have a strategy for the next four years, we would like to grow our turnover to Polish zł1bn, from our current zł600m. We understand this will be very very difficult, but we will achieve it. We are looking to grow further organically but also through acquisition. We would like to acquire a mill in

Western and Central Europe that is in a similar market to us. We want to buy in a region we know. We are at this stage now, looking for a potential partner."

Abris Capital Partners also owns the Romanian manufacturer of tissue paper and hygiene products Pehart Tec. Will the two companies be merged? "From the beginning Abris wanted to join these two companies and we may do that in the future, but not yet," Ściażko says.

"All we can say is that we are looking more to Germany and the Baltics. In the next four years, Abris is looking to grow, and we would like to focus on the sector we know and love, consumer. But we can also say that we would also look at AfH, we would definitely like to grow in the segment. But we want to find a partner first."

**The company has had that name for six years.*



"This year a minimum of 30% of our sales will be export. It is very, very important for us," Rafal Curyło, vice president and finance director; The site's jumbo reel warehouse

A DOMINANT NAPKIN PRODUCER IN EUROPE AIMS TO BE BIGGER STILL

Family run POL-MAK exports 60% of its 1,200 decorative niche designs to 70 countries, and plans to reach 80%. With salaries at home rising fast, growth in Poland also looks assured. Report by Helen Morris, Tissue World magazine senior editor

"POL-MAK WAS STARTED UP BY MY PARENTS IN 1986 WHEN THEY SAW AN OPPORTUNITY IN THE GREETINGS CARDS AND PAPER BAGS MARKETS. WE ARE STILL A 100% FAMILY-OWNED BUSINESS AND IN 2008 WE ADDED PAPER NAPKINS TO OUR PRODUCTION. TODAY WE ARE ONE OF THE BIGGEST PRODUCERS IN EUROPE FOR DECORATIVE NAPKINS AND THAT IS OUR MAIN FOCUS."

It was almost impossible to get hold of POL-MAK's sales and marketing director Dariusz Makowiak before our meeting at the company's impressive site in Batorowo, close to Poland's picturesque city of Poznan. But it turned out he had one of the best reasons for his elusiveness – he had been incredibly busy with preparation for his marriage a few days later. So in the end it was generous of him to give of his precious time. Speaking in excellent English and surrounded by a room full of the company's substantial range of napkin products that are sold throughout Poland as well as to retailers such as Germany's Aldi and the UK's Tesco and Sainsbury's, he described to TWM the history – and modernisation – of the family-owned company.

TWM/1: How was POL-MAK established?

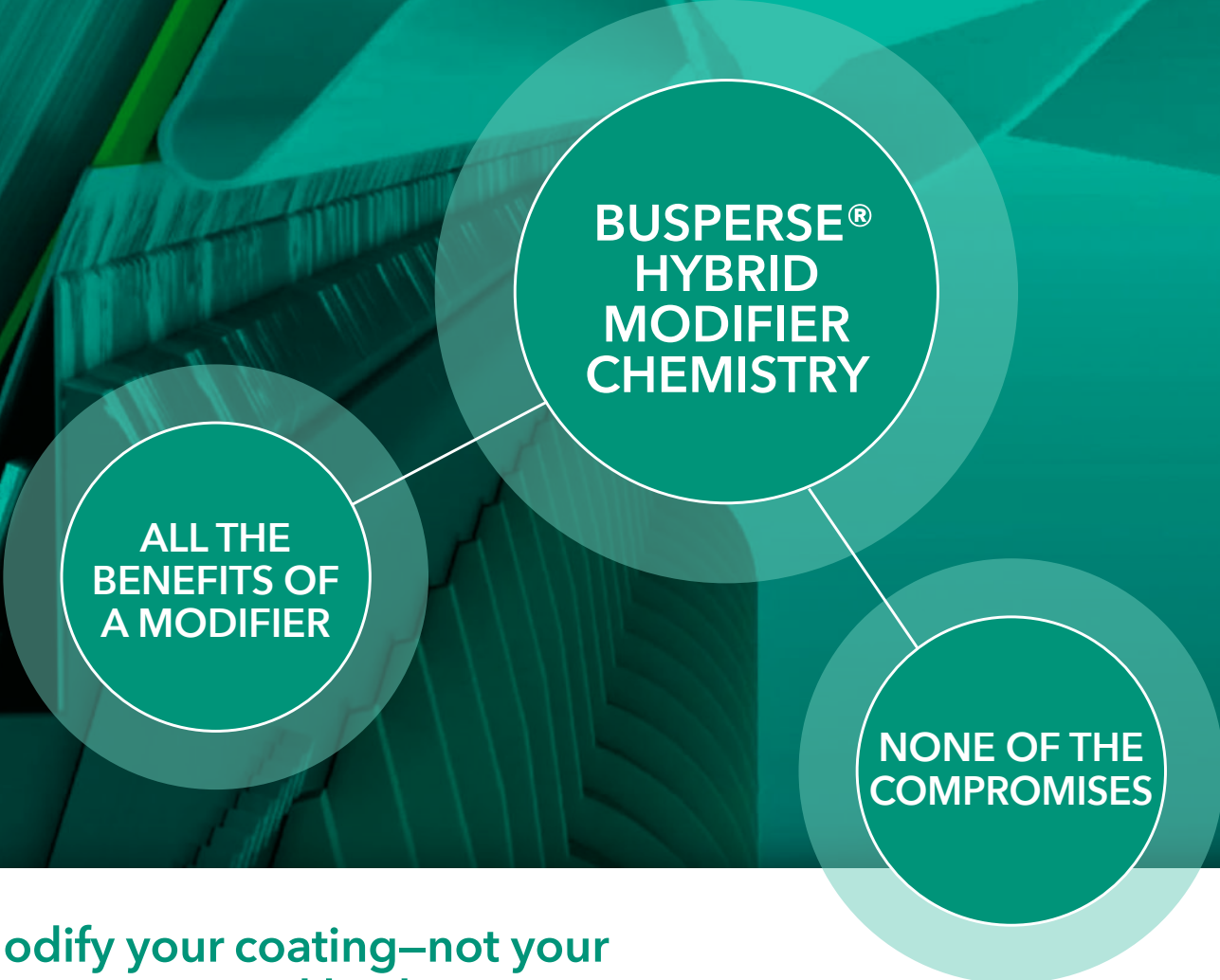
"POL-MAK was started up by my parents in 1986 when they saw an opportunity in the greetings cards and paper bags markets.

"We are still a 100% family-owned business and in 2008 we added paper napkins to our production. Today we are one of the biggest producers in Europe for decorative napkins and that is our main focus.

"We deliver our goods to 70 countries, mainly in Europe, Germany, France, Italy, the UK and Romania. Our main competitors are companies like Hanke Tissue. And of course, we have the Chinese competitors, although we're not yet seeing an increase in the



Targeted output: the company's Hergen-supplied TM has a production capacity of 80tpd



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Investment capacity: the company will soon install its 11th converting line.

number of napkin products from China.

"We have two brands – Maki and Daisy. Daisy is dedicated to retailers and big supermarket chains, these markets are cheaper and lower grammar tissue. It is our economic brand, with 24 packs in a box and a density if 16.5 g/m².

"Maki is dedicated to more sophisticated brands, more luxury stores. We offer 12 packs in a boxes as well as printing up to nine colour, 18.5 g/m² products.

"In total, we have 1,200 designs for our napkins."

TWM/2: Would you look to diversify your product offering?"

"No, we want to stay within the areas we currently produce in. It is a strong niche. We don't want to invest a lot of money in new converting lines to toilet paper and kitchen towels."

TWM/3: What's your current napkin capacity?

"Today we have 10 converting lines for napkins. We are also investing in an 11th converting line like that will be installed in the next month or so.

"We have three sites: two in the Batorowo region, including our printing house and headquarters here, as well as a napkin site and warehouse, and we also have a paper mill in Itawa, where we have our Hergen tissue machine which has a production capacity of 80tpd."

TWM/4: Are you looking to increase that?

"For now, it's enough for us. We also produce tissue for other converters, and we sell the tissue in jumbo reels. And we export a lot, around 60% of our products are exported out of Poland. With

"FOR TISSUE, IN THE LAST FIVE YEARS MANY COMPANIES HAVE INSTALLED NEW MACHINES, SUCH AS TRONCHETTI AND WEPA, VELVET CARE. IN TOTAL IN THE PAST FIVE YEARS, THE POLISH TISSUE COMPANIES HAVE INSTALLED MAYBE 10 NEW MACHINES, SO THAT'S QUITE A LOT. SO WHILE THE MARKET – FOR NOW – IS NOT QUITE FULLY COVERED, IT'S VERY NEARLY THERE, VERY NEARLY AT FULL CAPACITY."

our machinery investments, we are looking to increase that to 80% in the next few years. We currently keep the jumbo reels for Poland, and the napkin tissue for other converters are sold to Slovakia, Czech Republic, Germany."

TWM/5: Is the Polish napkin and tissue market seeing an increase?

"I think so yes, we are seeing more overcapacity here in both the napkin and tissue markets.

"For tissue, in the last five years many companies have installed new machines, such as Tronchetti and WEPA, Velvet Care. In total in the past five years, the Polish tissue companies have installed maybe 10 new machines, so that's quite a lot.

"So while the market – for now – is not quite fully covered, it's very nearly there, very nearly at full capacity.

"And of course the Polish market is still growing because the Polish people are buying more and more tissue and napkin products because salaries here are increasing very fast. So local consumption is growing.



Luxury target: the company's Maki products are dedicated to more sophisticated brands



"We expect to see small capacity increases for tissue and napkin in the next few years."

TWM/6: Will your focus continue to be on exporting to Europe?

"We are seeing some increase in demand in Eastern Europe and we are selling some there, but of course the currency rates are still changing, so sometimes it's a good time to sell East, sometimes not."

"For now, it's not currently good and our main focus is on Western Europe. And I know the companies from Russia, for example, are going to implement some new capacity for tissue, so it will change. We sell some napkins into Russia currently, not for kitchen towel however."

"The market is still changing because of the last year and all the high pulp prices we have all seen."

TWM/7: How have the high pulp prices impacted you? Has it levelled off at all?

"Actually yes, there has been a small decrease in the pulp price increases as of January 2019, but I don't think that will last after August 2019. In the fourth quarter this year, the pulp prices are expected to go up again, maybe not so fast as last year was very fast, but we still expect them to increase later this year."

"Last year was really a disaster with the pulp prices. But if we see the PIX prices each month, each week, they are going down. We have an agreement with the mills, the suppliers, to buy the pulp at a much better price. There is so much high demand for pulp at the moment, which is why all the suppliers have such high stocks. And why we are being offered good prices currently, because they would like to get rid of that extra stocks. So for us it is very good, but last year was a disaster. Last year our margin was nearly zero."

TWM/8: Can you offset the pulp price hikes in any way or do you have to absorb them?

"The pulp price is growing €10 per tonne, then we can add an increase by €3-4 for our customers. So 30-40% we can pass on, but the rest we have to cover ourselves. So last year was a disaster, but this year is much better."

TWM/9: Any other investments planned?

"Yes, for next year. For now though, we don't have enough space to install more converting lines, but we would like to grow, we will definitely invest in more converting lines in the next few years. We want to grow. And here, we are going to build a new production site to increase the space for new converting lines dedicated to napkin production."

TWM/10: What are the main challenges you face?

"Definitely the pulp price hikes, but electricity costs have also been challenging, especially for the tissue mills. Our government is still changing the law and rules, so we never know what will happen in Poland. Only for this year, the electricity costs increased 60%. Year by year we are seeing this increase. Gas increased 25%, so all our production costs are increasing."



Product variety: the company is always looking to innovate further and produce new products

"But generally, we're not seeing many other companies come into our sector. We have dominance in Poland. And any competitors we have are stable and also growing, all the producers have the piece of the market and they control it, and that's it."

TWM/11: What opportunities are there? Is there a lot of potential for you in private label?

"Yes, we produce a lot of private label products also. For example we are the main supplier for Tesco in the UK, and we don't know about Brexit, that's created a lot of uncertainty for us."

"The UK market for us is an important market, so Brexit has been a problem for us. We are working with many retailers in the UK like Sainsbury's, Wilko and Tesco. We're not yet hearing from the UK retailers that they can't take our products any more. In the UK, there are no factories producing napkins, so they need our products there."

"But currently, 60% of our production is private label, and there is a lot of potential for us to continue to grow there. Within the private label market in Poland, the discounter stores are doing very well. We have a few big players, Biedronka, Lidl, Dino Market, Auchan, etc. We work with most of them, including Aldi, Tedi and Woolworths."

"In Poland we still have many local small shops, because we also have maybe 400 distributors/wholesalers in Poland. Quite a lot, and these customers sell to the smaller shops, because the Polish market has many small retailers also, in different areas, so they have a strong hold over the market's distribution. The wholesalers,

we are seeing a lot of them close because the big retailers have an increasingly strong hold, and are becoming bigger and bigger and they are building a lot of new stores in the small cities also. They are taking the market. So for us, we have to work with the biggest retailers."

TWM/12: Do you sell into America?

"Yes we have one distributor there. Do you want to increasingly prioritise the American market, or focus on Europe? It is a difficult market in America. So we still have a lot of other countries that we can cover closer to us here in Poland. So the US market, maybe ... we will see."

TWM/13: And what about environmental and green opportunities for the company?

"We only produce FSC tissue in our mill. Of course we have to pay more euros for FSC-certified pulp. But we want to protect the forest and believe in what it is trying to achieve, so we only buy pulp from responsible sources, we are implementing the Nordic Swan certificate."

"The Polish customers are also keen to buy FSC-certified products. So for napkins, we must have FSC. We are also PEFC, BRC, ISO 9001 and ISO 14001 certified."

TWM/14: What main trends are you seeing in the Polish tissue and napkin market?

"Companies are changing the tissue grammage, they want to decrease the grammage. In the past it was 18.5gsm and now it's 16.5gsm and sometimes 15gsm. So the retailers want to have better prices, so the tendency is to decrease the grammage. We also produce 2ply products more and more because customers want to reduce the price of the products they sell. And the same I can see in toilet paper and kitchen towels, the companies want to decrease the grammage. They want to keep the same diameter, but there's 5-7% less. They transport more then. The transportation costs for toilet paper and kitchen towel are extremely high. So there's no sense in it for us."

TWM/15: What is your immediate strategy for the next year or two?

"Increase our export production ... and we will also look to produce new products because we are still thinking what we can produce from tissue, still thinking what we can implement. For example, the big packs of napkins for the Horeca market, hotels, restaurants, etc. We don't do that much in this market at the moment, but this market in Poland is increasing, we have a lot of nice hotels here and are seeing more and more tourists. So this market is growing."

"We are also thinking about advertising napkins, the ones with logos for different companies, etc."

"So in the future, we will maybe not be the number one player, but we will be one of the best. One of the biggest producers of napkins in the world, not just in Europe."

TISSUE COMPANIES EMBEDDING SOCIAL PURPOSE INTO THEIR BUSINESS MODELS CAN GAIN A COMPETITIVE ADVANTAGE

Lucinda Hardwick is a partnerships manager at UNLtd, the leading provider of support to social entrepreneurs in and around the UK. She lives in London.

When it comes to buying tissue products, I mainly stick to toilet tissue and facial tissues. I have always been very conscious of the need to protect our environment, and from the time my sister and I were in our early teens we were badgering our parents about buying ethically (there was a list of companies to boycott on the fridge!)

As a result, I have always selected recycled toilet tissue and facial tissues. The idea of a 'luxury' product for something that you use for a second and then throw away seems rather silly to me.

Given the vast numbers of people using tissue products across the world, and the provenance of tissue – trees – we all need to have a responsible attitude to consumption. Sustainability is more important and urgent than ever.

I have never used facial wipes to remove make up. I simply use soap, water and toner. Facial wipes are terrible for the environment, along with being yet another product that women must buy.

I tend to buy my tissue products in a local supermarket. I live in London, so you are never too far from one of the major chains. Supermarkets offer a bewildering array of tissue products, which is bad for me because I hate both being in a supermarket and having to make choices.

Therefore, I don't spend too much time thinking about my choice – I tend to go with the recycled product that is best value – whatever gets me out of the shop as quickly as possible. If the only choice is between a recycled branded tissue and an own-brand non-recycled tissue, I will choose the former, even if it is more expensive.

I used to live in Stamford Hill, north London, where there was a huge Charedi Jewish community. For years my housemates and I couldn't figure out why, at the local supermarket, Charedi families

could be seen loading up their trolleys with boxes and boxes of tissues. They bought way more than they could possibly need.

Eventually we realised that their strict requirement to do no work on the Sabbath (Saturday) included the action of ripping toilet tissue. So, the families were faced with a choice – rip all the toilet rolls into tiny squares or buy tissues.

Obviously, the latter won. You might be thinking that a household couldn't need that much toilet tissue for one day, but you should know that Charedi families have an average of six children. That is a lot of tissue!

Environmental sustainability shouldn't be the only concern of the tissue industry. Businesses should also be striving to create social impact.

I work for an organisation that supports social enterprises, and I would like to see more tissue companies embedding purpose into their business models.

Purposeful business is not about CSR (Corporate Social Responsibility), which tends to be an afterthought, it's about ensuring that social benefit is at the heart of what a company does.

For instance, Hey Girls sells feminine hygiene products using a buy-one-give-one model to fight period poverty among women and girls in the UK. There is surely a great deal of scope for the tissue world to tackle key global problems through its trading activities.

WASH (Water Sanitation and Health) programmes would be an ideal match, since tissues play a vital role in hygiene and disease prevention.

Purposeful businesses use their social impact as a competitive advantage, so there is a lot to be gained when business leaders decide to act on global and local social problems.



I TEND TO BUY MY TISSUE PRODUCTS IN A LOCAL SUPERMARKET. I LIVE IN LONDON, SO YOU ARE NEVER TOO FAR FROM ONE OF THE MAJOR CHAINS. SUPERMARKETS OFFER A BEWILDERING ARRAY OF TISSUE PRODUCTS, WHICH IS BAD FOR ME BECAUSE I HATE BOTH BEING IN A SUPERMARKET AND HAVING TO MAKE CHOICES.

SUSTAINABLE PRODUCT SALES GROWING THREE TIMES FASTER THAN CONSUMER-PACKAGED GOODS MARKET AS A WHOLE

As awareness of the climate crisis increases across the world – especially among millennials – environmentally-friendly production and delivery expected to grow to \$140.5bn market by 2023. Report by Richard Cho, global marketing director, Solenis.



By Richard Cho
Global marketing director, Solenis

For today's consumers, purchase decisions reflect their personal values. This is especially true for millennials, who often seek out products that contain environmentally-friendly or sustainably-sourced ingredients, organic or natural ingredients, or products that have social responsibility claims. Sustainability-marketed products have grown more than three times faster than the consumer-packaged goods market as a whole and, according to the IRI/NYU Stern Centre of Sustainable Business, are expected to grow to \$140.5bn by 2023.

A change in attitude is happening in the commercial landscape as a growing number of retailers are launching sustainability-focused private label brands that cross multiple categories, including tissue and towel.

Though it's more prevalent in the AfH segment, the use of recycled fibre in consumer tissue and towel is not a new dynamic.

Over the past few decades, the tissue aisle has featured a small number of products that have a "100% Recycled" claim on the label. What has changed in

recent years is the emergence of recycled tissue products in the consumer premium and super premium quality segments, indicating that products with 100% recycled content can also deliver premium softness, strength, and absorbency.

In addition, an increasing number of tissue makers are looking for and launching products made with non-wood alternatives from non-petrol sources, such as wheat straw and bamboo, which is easily renewable.

With enhanced consumer expectations concerning product sustainability AND premium product attributes, the requirements to delight consumers has become more complex. The use of recycled fibres and non-wood fibres in consumer premium/super premium tissue brings a variety of new challenges to tissue manufacturers:

- Machine runnability issues due to higher fines and stickies;
- Waste and water treatment complications due to heavier solids loading and fibre charge changes;
- Tissue softness and absorbency difficulties due to the presence of alternative pulp in tissue.

Though many stakeholders in the papermaking industry are collaborating to satisfy the demands of the environmentally conscious consumers, chemical suppliers in particular have taken great strides to be agents of change in this effort.

Working together, suppliers and mills are implementing innovative solutions that optimise productivity without sacrificing final product attributes.

Some of the most promising solutions to recycled fibre and alternative tissue-making challenges are found in innovative contaminant control materials. Today, Solenis uses specifically targeted materials

to neutralise or mitigate contaminants before they deposit on the wires, felts or rolls. In addition, we offer new tools for retention of fine particles while maintaining or improving drainage. These tools can both increase a tissue maker's yield and improve drying costs. Solenis also works with tissue makers to adopt advanced measurement and control strategies that both improve and stabilise whitewater quality while reducing costs by only adding the specific amount of chemicals required to handle the real-time conditions in the water system.

Another important focus area is the Yankee dryer and the creping process. Introducing recycled fibre and non-wood alternatives can make it challenging to control the Yankee system and maintain predictable crepe quality and product attributes. Solenis' understanding of the Yankee coating ensures that we can work closely with tissue makers to develop the most robust and cost-effective Yankee coatings to ensure a safe and reliable creping process, reduce variability and improve product performance.

Of course, there are many other aspects of tissue-making production that must be considered. Solenis offers a diverse portfolio of new absorbency aids, strength aids, and softeners, which mills can use to build a dynamic and flexible programme to handle all the challenges using recycled and alternative fibres can bring. In the end, having an innovative chemical supplier partner like Solenis enables tissue makers to produce the best possible product and to satisfy the modern consumer making extremely conscious product selections.

This article was written by Richard Cho, global marketing director, Solenis, for TWM.

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THE RIGHT CHEMISTRY TO LOWER YOUR PULP COSTS

By Mark Christopher, global market development manager – Tissue, Buckman, Daniel Glover, innovation director – Pulp & Paper, Buckman



Mark Christopher (left)
Global market development manager –
Tissue, Buckman

Daniel Glover (right)
Innovation director – Pulp & Paper,
Buckman

Current Market Drivers

When it comes to cost drivers in the manufacture of tissue paper, the basic raw material of pulp accounts for more than all other inputs combined, sometimes reaching as much as 70% of the total contribution.

Since mid-2016, the tissue industry has had to deal with pulp prices fluctuating 40% to 50% in price in some geographies.

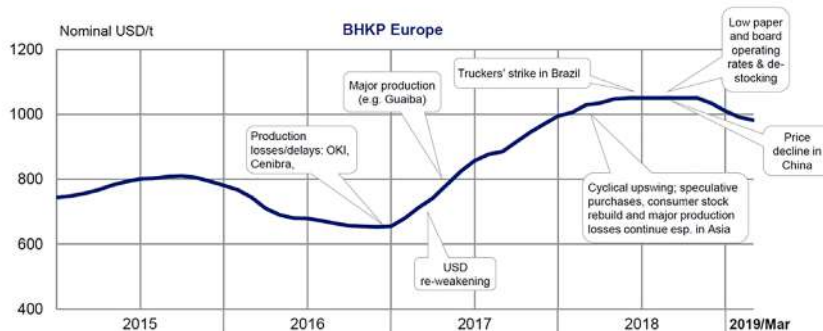
The drivers of this price swing have been increasing demand for Bleached Hardwood Kraft (BHKP) intersecting with the unfortunate reduction in supply caused by several important, unplanned capacity reductions.

Major contributing factors to the tightening of supply included catastrophic equipment failures at major pulp facilities, trucking strikes, unplanned facility downtime and severe weather impacts. This trend can be seen right in a slide presented by Tomi Amberla of Pöyry at Tissue World Milan 2019.

The CEPI European Pulp & Paper Industry Quarterly Report, 1st Quarter 2019, reported it is expected that the current pulp market tightness will continue into 2021 before loosening can begin giving any significant reduction of the pricing trend according to the futures market.

MARKET BHKP PRICE DEVELOPMENT AND DRIVERS IN EUROPE

Most of the 2017-18 pulp price increase due to unforeseen production losses



PÖYRY

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TOMI AMBERLA
MARCH 25, 2019

Financial futures (based on FOEX indexes)

Contract	BHKP USD/MT	NBSK USD/MT
Q2 2019	958	1 052
Q3 2019	955	1 042
Q4 2019	955	1 065
2020	972	1 070
2021	977	1 085

Implications for tissue manufacturers

With their most significant raw material increasing in cost at an alarming rate, tissue producers can be viewed in three distinct categories with respect to their exposure to these price increases:

- Nonintegrated, virgin pulp tissue producers
- Integrated virgin pulp and tissue producers
- Integrated recycled fibre tissue producers

The disparity and impact between the first category and second are obvious. Integrated tissue producers have not been subjected to the same pressures and input cost increases as those tissue producers buying BHKP on the open market. Integrated recycled tissue producers using Mixed Office Waste (MOW) and mechanical furnish, by contrast, have actually seen reductions in the cost of their raw materials in regions like Europe, according to CEPI data.

This disparity has made it difficult for non-integrated producers to pass along pricing increases in the private label market as well as the retail market. Non-integrated producers will have to be more diligent than ever with respect to optimising their pulp use.

Opportunities for pulp cost optimisation for integrated recycled tissue producers

A very large number of producers use a portion of recycled furnish (usually MOW) in at least some of their brands and away from home tissue products.

Integrated producers who are recycling MOW furnish for this purpose usually have significant opportunities for reducing their yield loss and improving their final quality. Doing so allows the manufacturer to increase the percentage of recycled furnish in their products which reduces their final cost per case of finished product. Let's examine how this can be done:

MOW is generally recycled in a plant with a layout such as the below:

The purpose of this process is to remove contaminants and reach acceptable final brightness levels as required by the finished product specification of the tissue.

Some of the problems associated with this process include the following:

1. High bleaching costs due to lack of removal of inks and pigments.
2. High yield loss due to lack of concentration of the contaminants in the flotation rejects.
3. Redeposition of inks onto the surface and into the lumen of the fiber which suppresses brightness and limits the use in high quality products.
4. High yield loss through the washing stage, due to over reliance on this step, due to poor efficiency in the flotation stages.

These problems are why deinking surfactants were invented and employed as part of the deinking process. Over the past decade, however, there has been a trend towards integrated tissue producers with deinking plants foregoing the use of deinking surfactants. Times were good, fibre was cheap, and the drive to quality was pushing MOW out of mid-tier grades in favour of BEKP (Bleached Eucalyptus Kraft Pulp). In those market conditions, it was not uncommon for a deink plant audit to show a zero brightness gain across flotation with a reduced hyperwash potential prior to bleaching, which is evidence of ink redeposition through the process.

These sorts of conditions can be identified and remedied with the right application of knowledge of chemistry:

1. Full deinking operation audit to quantify brightness and reject streams.
2. Application of correct deinking surfactant to remove, isolate and concentrate the ink and contaminants.
3. Optimisation of flotation to the customer needs: reduced rejects for same brightness or increased brightness at same reject rate.
4. Optimisation of washing stage to optimal brightness vs curve.
5. Pulper time optimisation exercise.
6. Rejects stream clarification optimisation.

The results are yield and bleaching cost optimisations that result in a positive ROI for the customer and a better-quality Deinked Pulp (DIP) product. This higher

quality DIP can be used to increase fibre substitution rates in the customer base sheet, thereby displacing more expensive fibre sources such as BEK and Northern Bleached Softwood Kraft (NBSK).

For any substitution of a recycled furnish for a virgin furnish to be successful there can be no loss of quality of the base sheet. Outside of the obvious brightness, dirt and stickies issues that come with recycled fibre, there are two additional concerns that become apparent in this process: strength and softness.

Strength

In most cases adding MOW fibre into a tissue making furnish may not directly impact strength per se. While the useable fibre quality may not be that much different than BEK for example, the increased ash and fines that come with the fibre are mostly what impacts strength development. There are good options for increasing strength of blended MOW / virgin furnishes.

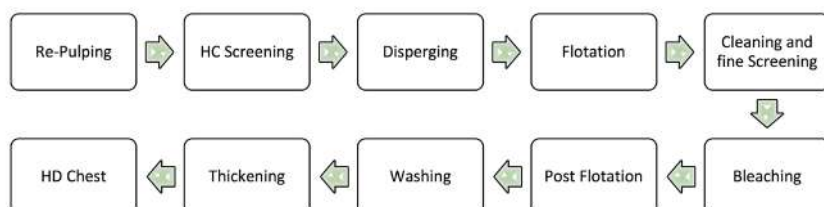
Increased refining: If there is capacity to increase refining or change refiner plates to increase fibrillation, this is a good option. However, with this increased refining, there comes a corresponding reduction in bulk and reduction in hand feel. Refining flattens fibres and can reduce bulk if overused. Additional fines created through refining when retained in the sheet give more of a scratchy feel. This type of sheet scores poorly in the softness test panels.

Chemical Strength Additives

Starch: Starch is such a generic term that it over simplifies this class of chemistry. Starch in its many versions is effective and well adopted. However, starch is nutrient rich for bacteria and fungus and if overused and not retained in the sheet can create deposit issues. With proper attention to deposit control programs including biocides, starch can be a cost-effective option.

Dry strength resins: Whether the resin is anionic, cationic or amphoteric, these resins increase inter fibre bonding either alone or in the case of the anionic versions, paired with the addition of a cationic donor to fix it to the anionic fibres. As with any chemical additive, special attention should be paid to storage conditions that may impact shelf life. As with other wet end additives, excessive use of dry strength resins can negatively impact the Yankee coating chemistry.

Fibre modification enzymes: At its most basic level, a cellulase enzyme acts upon a



fibre to precondition it for better fibrillation during the refining process. Being very specific to cellulose, these enzymes have minimal impact on other additives, wet end chemistry, or Yankee coatings. Special care should be taken to protect the enzyme while it is acting on the fibre. Oxidising agents and reducing agents can affect the enzyme's ability to perform. A proper pH, temperature and oxidant / reductant survey of the mill process must be conducted to choose the best location to add the enzyme.

Often with the simple addition of the right enzyme, the same strength can be achieved at lower refiner energy thus increasing bulk. Alternatively, keeping the same refiner energy should result in higher strength. This ability to get better strength with minimal disruption to other additives lends itself well to fibre substitution. Reference "The Chemistry of Soft Tissue" in the July/August 2018 issue of Tissue World Magazine for more information about enzymes.

Providing additional strength to a weaker fibre stream thus allowing a higher percentage to be included is easy to calculate. Adding 20% more of a furnish that is \$200 / ton less expensive to a total recipe is a \$40/ton savings minus the cost of the enzyme, of course. Based on current market conditions an estimated cost difference between MOW and SWK of \$200 per ton is a reasonable number. As with any commodity, prices will fluctuate. This fluctuation in pricing also gives further credence to developing multiple furnish options. The same sort of logic can be applied to virgin pulps as well. Treating the weaker, less expensive pulp with enzyme to increase its strength allows for a higher percentage to be used in the recipe.

Softness

When considering fibre substitution for improved cost position, strength is not

the only consideration. Softness must be maintained. There are many factors that impact softness and hand feel. The impact of fibre substitution on softness / hand feel is well known. For example, excessive fines and fillers retained in a sheet will produce a lower TSA softness and corresponding scratchier feel that will not score as well in hand test panels. How can you use more MOW or even 100 % MOW and produce an equal quality base sheet that passes the softness test panels?

Fortunately, there are some good options available.

Spray-on Softeners

Applying a hand feel agent directly where it is needed may be the most cost-effective way to improve hand feel. When applying a product directly to the surface of the sheet there is no doubt whether the material is retained or not. It is on the surface. Buckman® 795 is a synergistic blend of softening agents in a natural oil carrier. The product was developed to be applied directly to the surface of the sheet. Below is an example of where Buckman 795 was applied. This mill was making a 9-pound bath tissue from 100% deinked MOW. The softness target was a hand feel of 62.5 as measured by Emtec TSA. About 4 pounds (2 kg) per ton of the softener was the optimum dosage for this application.

Wet End Addition of Softeners

For some mills there are reasons not to use a spray-on softener. For these mills a wet end addition of a self-retaining softening or hand feel agent makes more sense. In the tissue industry the term softener is often mistakenly used when applying a debonder. The key difference is that a debonder is added to reduce tensile strength. A softener should primarily impact hand feel and not necessarily strength.

Using more DIP in the furnish blend lends itself to more strength needed so a debonder is likely not a good fit for a mixed virgin / DIP tissue manufacturer. A true softening agent that is easily retained in the sheet is likely the better option. As with any wet end additive, careful attention to addition points is critical and charge control necessary to maximise the benefit of the softener.

Summary

Using more recycled fibre or even all recycled fibre for now seems to be a good option for those who can handle it. Improved recycled fibre mill operation which includes the proper deinking chemistry is crucial. Determining what furnish to use for optimum cost becomes much easier once the problems of low strength and poor softness with these materials can be mitigated with the right chemistry. The proper use of strength additives including enzymes for strength combined with the best available technology for hand feel, whether it is surface applied or wet end added, opens a very wide operating window for furnish selection and thus cost optimisation for the tissue manufacturer.

References

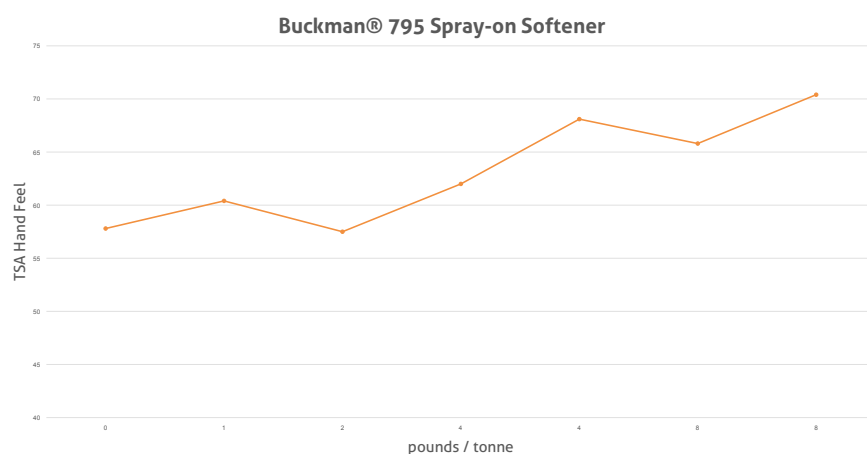
MECHANISM AND NOVEL DEINKING METHODS FOR NON-IMPACT PRINTED PAPER
A Thesis Presented to The Academic Faculty
By Daniel T. Lee

T. W. Jeffries, J. H. Klungness, M. S. Sykes, and K. R. Rutledge-Cropey, "Comparison of enzyme-enhanced with conventional deinking of xerographic and laser-printed paper," TAPPI J., vol. 77, pp. 173-9, 1994.

A. Das, T. Paul, S. K. Halder, A. Jana, C. Maity, P. K. Das Mohapatra, B. R. Pati, and K. C. Mondal, "Production of cellulolytic enzymes by *Aspergillus fumigatus* ABK9 in wheat bran-rice straw mixed substrate and use of cocktail enzymes for deinking of waste office paper pulp," Bioresour. Technol., vol. 128, pp. 290-296, 2013.

T. W. Jeffries, R. N. Patel, M. S. Sykes, and J. Klungness, "Enzymic solutions to enhance bonding, bleaching and contaminant removal," Mater. Res. Soc. Symp. Proc., vol. 266, pp. 277-87, 1992.

This article was written for TWM by Mark Christopher, global market development manager - Tissue, Buckman, and Daniel Glover, innovation director - Pulp & Paper, Buckman.



KEMIRA KEMVIEW™ GEN II SHEET STRUCTURE ANALYSER FOR TISSUE

By Kemira's Clay Campbell, global business development, senior mgr. Kemira, and Lucyna Pawlowska, tissue process application specialist, Kemira

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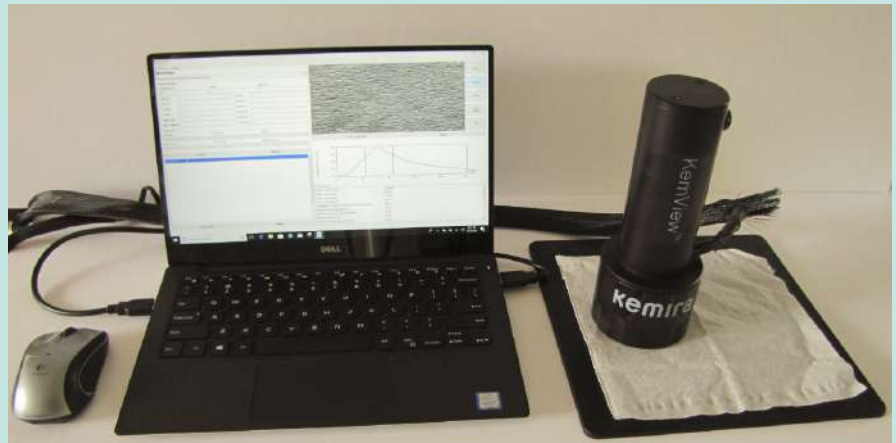
Clay Campbell
Senior manager,
Global business development

A great deal of information can be ascertained through in-depth diagnostics of the structure of the parent roll and/or converted finished sheet. Some of the key process variables that effect the sheet structure include: variations in the CD sheet profile, the creping process and blade changes, and the effect of changes in fibre source and wet end chemistry. Changes in sheet structure can significantly impact tissue softness.

There are different roads one can take to achieve tissue softness. The key is to be able to determine how to get there and when you are at your target destination. An easy and reliable measurement of sheet properties that determine softness will help to choose the most effective path and set a measurable sheet quality target.

Paper manufacturers can utilise a variety of process tools to improve overall surface softness, formation and appearance. The most significant factor is the fibre type and ratios, followed by machine type and creping process configurations. Each process change impacts the sheet structure in positive or negative ways.

The key to improving and maintaining final sheet softness is to measure how each process factor change impacts the sheet structure and then how each change in sheet structure impacts the softness.



KemView™ Sheet Structure Analyser (SSA) description / features

Kemira's KemView Gen II unit is an easy to use, fast response, sheet structure analyser that provides a diverse array of sheet measurements and can be effectively used as a laboratory and field support tool assisting in the diagnostics of paper sheets. KemView SSA consists of a digital optical detector positioned at the top of the unit. Multiple LED light emitters illuminate the sheet sample. Analysis of a sheet sample is easy by simply placing the KemView Gen II unit on top of the sheet and clicking the analysis button. Generating images at several different sheet locations takes seconds, and the data can easily be exported to an Excel file for comparative analysis.

Kemira's KemView Gen II unit has diverse features that are beneficial for a new grade development, external product benchmarking, comparison of the same product manufactured on different machines, and troubleshooting sheet quality issues. It provides quick feedback allowing for optimisation of creping, softening and strength programs.

A variety of sheet surface properties can be measured by utilizing KemView SSA and emtec Tissue Softness Analyser* (TSA). Combined results from these two measurements in conjunction with physical properties sheet testing provides a comprehensive insight into the sheet

structure and softness and allows for comparative analysis of various tissue products.

KemView SSA is a novel image-based measurement tool that provides in depth 3D analysis of the sheet with the ability to easily measure the following parameters:

- Crepe bar count (#/ inch)
- Crepe bar width, length and height
- Crepe bar uniformity and distribution
- Sheet roughness and intensity (crepe visibility)
- Pinholes
- Number of free fibre ends (FFE)
- Markings (sheet patterns and embossed marks).

Typically, a sheet structure that has a high crepe bar count and low crepe bars intensity (visibility) provide softer tissue. The higher free fibre ends (FFE) count, the

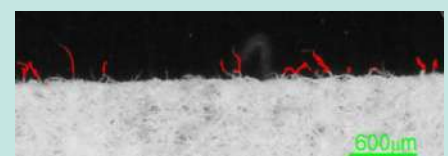
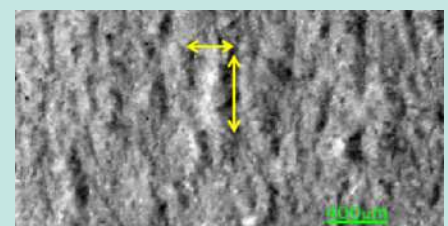


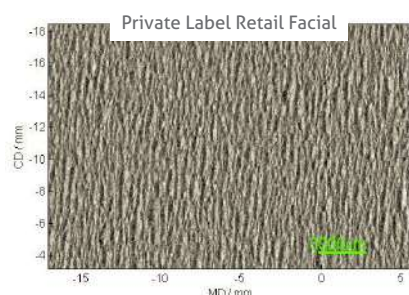
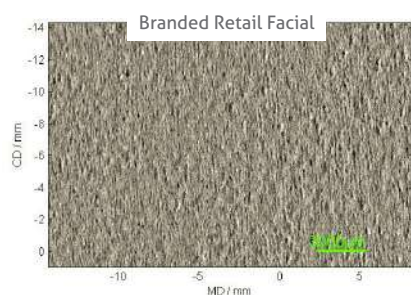
Figure 1, illustration of crepe bar width and length. Figure 2, shows the free fibre ends marked in red

softer or more velvety hand feel surface. However, if the FFE count is too high in the sheet, it could lead to dusting and linting conditions.

Example:

Two retail facial tissue samples were analysed using the KemView SSA, emtec TSA and physical properties testing. As shown in Table #1 and photos, branded facial tissue has significantly higher crepe bar count and produces lower surface roughness, while private label (P/L) facial tissue has lower crepe bar count and higher intensity (bars are more visible). In addition, the FFE count is quite higher than normal and may contribute to sheet dusting and linting.

		Crepe bars	Roughness	FFE Count	Intensity	Irregularity	Waviness	Regular
Retail	Facial	ct./inch	microns	(#/cm2)	%	#/inch	degrees	Marking
Private Label	Premium 2ply	69.6	5.5	202	1.2	26.6	13.2	2.9
Branded	Premium 2ply	105.3	3.9	137	0.6	57.4	21.2	3.5



Retail	Mean (MD DT) gf/inch	Mean (CD DT) gf/inch	MC/CD Ratio %	Bulk cm3/g	Caliper mm	Basis Wt. g/m2	Bulk/BW ratio
Private Label	543.5	295.1	1.8	4.2	0.154	36.6	0.11
Branded	413.5	185.3	2.2	4.0	0.128	32.1	0.12

Sheet properties testing was performed (as shown in Table #2) with branded facial having lower dry tensile strength, basis weight and bulk.

reduction in bulk, but an increase in overall sheet surface smoothness.

- Utilising a dry strength agent that allows for reduced refining while

Retail	Subjective Hand feel Higher better	HF Higher better	TS7 Lower better	TS750 Lower better	D Higher better
Private Label	6.4	76.2	20.6	20.7	2.3
Branded	8.2	86.5	14.3	9.3	2.8

In Table #3, subjective hand feel panel and emtec TSA softness results clearly indicate that the branded facial has higher overall softness than the private label facial.

In conclusion, if private label was looking to compete against the branded facial to achieve closer hand feel softness results,

maintaining strength and providing opportunity to reduce overall basis weight. In addition, certain dry strength agents provide a secondary benefit by anchoring free fibre ends into the sheet and reducing overall sheet dusting and linting.

KEMIRA'S KEMVIEW GEN II SHEET STRUCTURE ANALYSER IS AN EFFECTIVE FIELD SUPPORT TOOL ALLOWING QUICK TESTING FEEDBACK, TROUBLESHOOTING FOR SHEET QUALITY AND PRODUCTION ISSUES, AND OPTIMISATION OF THE CREPING PROCESS.

then several chemical and process actions can be considered:

- Decreasing sheet dry tensile strength via the use of wet end softener, reduced refining or a reduced crepe release/adhesive ratio.
- Increasing crepe adhesive dosage will increase crepe bar count with slight

Examples of KemView SSA application in the tissue mill

- Evaluation of new products in a creping program
- Evaluation of blades at different bevels
- Blade wear effect on sheet
- Effect of dry strength resins application on creping
- Effect of softeners on creping process and the impact to the sheet
- Comparison of sheets creped at different sheet moistures
- Measurement of sheet structure profile in cross machine direction
- Degradation of crepe at the felt seam mark
- Effect of basis weight reduction
- Replacement of virgin fibre with recycle fibre.

Kemira's KemView Gen II Sheet Structure Analyser is an effective field support tool allowing quick testing feedback, troubleshooting for sheet quality and production issues, and optimisation of the creping process.

This article was written by Kemira's Clay Campbell, global business development, senior mgr. and Lucyna Pawlowska, tissue process application specialist, for TWM.

Tissue

News, forecasts and market analysis



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Maen Tabari
Fine Hygienic Holding
Director of supply chain, Jordan

FINE HYGIENIC HOLDING BEGINS OPERATION OF INNOVATIVE WATER TREATMENT FACILITY IN JORDAN

In its bid to optimise the conservation of water, Fine Hygienic Holding (FHH) has partnered with Engicon to design, finance and build a modular process water treatment plant (PWTP) for its Jordan-based operations. This project provides its two paper machines, PM2 and PM4, located in the Arenbeh site in Jordan, with the ability to treat its process water and reuse it in the paper making process.

The smartly designed modular water treatment plant allows rapid adjustment of the capacity through the addition or removal of modules. The design capacity of the plant is 900,000 thousand litres per day. Almost 80% of the water coming to the PWTP is recycled back to the paper machines. As a result, it was possible to replace more than 50% of the fresh water with high quality treated process water.

The PWTP plant consists of four different treatment technologies in order to reach the high standards of water quality required by the two paper machines.

The primary treatment consists of Dissolved Air Floatation System (DAF). In the DAF system, solids are lifted by using dispersion water and then scraped off. The effluent is then pumped to the secondary treatment unit which consists of Moving Bed Biofilm Reactor (MBBR) which is an aerobic biological wastewater treatment system. The process is easy to operate because it is insensitive to peaks of organic load and variations in flow rate. Micro-organisms, which are mostly attached to plastic carriers, reduce the organic load. The MBBR unit is followed by Lamella Clarifier and equalization tanks to prepare the effluent for the tertiary treatment, which

THE SMARTLY DESIGNED MODULAR WATER TREATMENT PLANT ALLOWS RAPID ADJUSTMENT OF THE CAPACITY THROUGH THE ADDITION OR REMOVAL OF MODULES. THE DESIGN CAPACITY OF THE PLANT IS 900,000 THOUSAND LITRES PER DAY. ALMOST 80% OF THE WATER COMING TO THE PWTP IS RECYCLED BACK TO THE PAPER MACHINES. AS A RESULT, IT WAS POSSIBLE TO REPLACE MORE THAN 50% OF THE FRESH WATER WITH HIGH QUALITY TREATED PROCESS WATER.



Energy efficient: The company says the PWTP has not only reduced its operating costs, but even more importantly has reduced its consumption of fresh water in our paper machines.



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Committed: FHH says it is resolved to optimise its water and energy consumption along its supply chain to conserve finite resources in the environment.

Parameter	Units	Value
NH4	mg/L	0.01
K	mg/L	0.14
Na	mg/L	2.38
Mg	mg/L	0.08
Ca	mg/L	0.21
Sr	mg/L	0.00
Ba	mg/L	0.00
CO3	mg/L	0.00
HCO3	mg/L	2.73
NO3	mg/L	0.01
Cl	MPN/100ml	1.99
F	mg/L	0.09
SO4	mg/L	0.99
SiO2	mg/L	0.1
Boron	MPN/100ml	0.01
Co2	µS/cm	9.54
TDS	mg/L	< 500
TOC	MG/L	0.00
TSS	MG/L	< 0.1
PH	MG/L	7.5

THE PROCESS IS EASY TO OPERATE BECAUSE IT IS INSENSITIVE TO PEAKS OF ORGANIC LOAD AND VARIATIONS IN FLOW RATE. MICRO-ORGANISMS, WHICH ARE MOSTLY ATTACHED TO PLASTIC CARRIERS, REDUCE THE ORGANIC LOAD.

includes multi-media bed filters followed by carbon filters.

As a final stage of treatment, the effluent is pumped to the advanced treatment stage which includes containerised Ultrafiltration (UF) and Reverse Osmosis (RO) systems. The UF system ensures the removal of suspended solids, bacteria, endotoxins and other pathogens to produce water with high purity and low silt density suitable for feeding the RO system with the treated effluent for the removal of dissolved ionic species and in order to achieve the required final product water quality. The final treated effluent even exceeds the Jordanian standards for drinking water quality.

To further optimise its consumption of fresh water, FHH went one step further in using the brine generated from the PWTP to irrigate brine tolerant landscape spaces within its Arenbeh site in Jordan.

The PWTP has not only reduced operating costs, but more importantly it has reduced our consumption of fresh water in our paper machines.

FHH is committed to optimising its water and energy consumption along its supply chain to conserve finite resources in the environment. We are very proud to be the first private sector company in Jordan to take up such a project with Engicon at this scale. We will continue to invest in innovative solutions to further solidify our position as the benchmark for Jordan's manufacturing sector.

This article was written by Maen Tabari, Fine Hygienic Holding director of supply chain, Jordan, for TWM.

BAROMETER ISSUE: SPECIAL FEATURE

ONE YEAR ON... YOU REPORT BACK ON YOUR PROGRESS

Talking to tissue professionals on-site and on their front-line is a crucial source of industry intelligence in judging local and international trends and strategies. In 2018, TWM visited tissue mills around the world ... including sites in North America, Turkey, the United Arab Emirates, Mexico and Vietnam for the magazine's Country Reports. Here, we revisit mills who have been in the headlines since to assess their progress.



Hayat Kimya: The company says it has followed innovation since day one, and kept on upgrading machinery as well as continuing to invest in the "smart factory"

TURKEY

OUR DEDICATION AND INNOVATIVE ATTITUDE HAS ALLOWED US TO CONVERT NATURAL GAS INTO HEAT, HOT AND COLD WATER, TO BE USED IN THE TISSUE PRODUCTION PROCESS. HAYAT HAS CONTINUOUSLY WORKED ON THIS TECHNOLOGY AND RECENTLY REACHED UP TO 88% EFFICIENCY LEVEL AT CO-GENERATION IN ITS MERSIN TISSUE PLANT IN TURKEY.

HAYAT KIMYA

TWM/1: What investments have you made in the past year?

Lütfi Aydın, global tissue production director: "At the end of 2018, we started up the fourth toilet paper machine in Russia. At the beginning of 2019, we continued to invest in Russia to expand our capacity with second machine.

"We have followed innovation since day one in the business, and kept on upgrading machinery as well as continued investments in the "smart factory" infrastructure in all of its production premises. The infrastructure provides a common platform where the factories "speak to each other", which enables precise recording of raw material management, momentary follow up on

the production efficiency and intervention. Hayat distinguishes from others with innovative, environment-friendly and sustainable manufacturing approach. Co-generation technology is one significant example to this approach. Our dedication and innovative attitude has allowed us to convert natural gas into heat, hot and cold water, to be used in the tissue production process. Hayat has continuously worked on this technology and recently reached up to 88% efficiency level at co-generation in its Mersin tissue plant in Turkey. A remarkable and unprecedented "record-high" efficiency at this plant has been noticed as "Most Efficient Cogeneration Practise in Tissue Industry" by Renewable Energy and Cogeneration Association in Turkey in March

2018. This technology was recognised not only in Turkey, but it was recognised internationally, as industry members have visited our Russia tissue mill to observe this technology."

TWM/2: Why have you made these investments?

Aydin: "Hayat has organically grown through expanding investments in Turkey and abroad in the past decade. As an influential player in the global market, we keep an eye on potential markets, but we also continue our investments in our existing campuses where we see fit. Our investments showed us that there is a high demand for high quality parent reels and finished goods. We understand consumer needs and meet their demand with our investments. A quick example would be Russia which has radically changed its market habits. In tissue category, 63% of market was made of recycled products, but we offered 100% cellulose products taking the risk and the challenge. We have understood the consumers' expectation of tissue was white and soft products. In only a couple of years, large tissue players of the market followed us, finally the market share of recycled products were down to 30-35%."

"HAYAT CONTINUES TO GROW, LEVERAGING ITS AGILITY, PROVIDING THE RIGHT, THE SAME QUALITY PRODUCTS SATISFYING CUSTOMERS' TIMELINE, SEASONAL AND INSTANTANEOUS NEEDS. WE EXPAND INVESTMENTS IN OUR SUBSIDIARIES AND ALSO RE-BUILT OUR EXISTING INFRASTRUCTURE, TO KEEP OUR PACE AS A GLOBAL PLAYER IN TISSUE SECTOR."

TWM/3: Do you plan to grow in the next few years?

Aydin: "Hayat continues to grow, leveraging its agility, providing the right, the same quality products satisfying customers' timeline, seasonal and instantaneous needs. We expand investments in our subsidiaries and also re-built our existing infrastructure, to keep our pace as a global player in tissue sector."

TWM/4: What trends are you seeing in your local market? What has changed since we met in 2018?

Aydin: "Understanding market needs, consumer insights is very important for a sustainable business. From this point of view, our brand Familia, being the first in Turkish market, is an innovative

product which facilitates consumers' lives by providing them a combination of the practicality of a paper towel and the hygiene of detergent. It is created by the insight given by consumers. Women give a lot of importance to their house and its cleanliness.

"They describe and divide the cleaning into detailed and practical areas. For the practical ones, they prefer to use a cloth and some detergent and they do not like cleaning these cloths each time and re-using them. They cannot be sure of the re-used cloth's hygiene and they also don't find that practical. With Familia, we offer consumers the practicality of the paper tissue and the hygiene of the detergent in just one product; The Familia Tissue Roll with Detergent. You can activate it with water, wipe and clean the desired areas and dispose of it. We have received "Best Tissue Marketing Strategy Award" with Familia Tissue Roll with Detergent in Tissue World Milan. As tissue brand companies, we should seek to understand our consumer and offer ways to satisfy the needs of them, integrating innovation and technology is in our DNA."

TWM/5: What are your three main opportunities and three main challenges in 2019 and beyond, and how are you dealing with them?

Aydin: "Our primary focus is "Operational Excellence" on a global scale. We analyse best practices in production systems around the world and blend them with Hayat culture. Our vision to grow is based on the expansion of this operational excellence on all global premises. We awarded successful "Operational Excellence" practices in Information Technology, Autonomous Maintenance, Best Plant and Best Project categories to highlight emphasise of the project. We also carry autonomous maintenance practices from HQ Turkey across the global. Continued training in technological excellence is important for our workforce."



Tissue World Milan 2019: Hayat Kimya's Aysel Aydin and Simin Ozkar (l-r) collect the "Best Tissue Marketing Strategy Award" for the company's Familia Tissue Roll with Detergent.



Market strategy: Partek's main aim is to create innovative products at reasonable prices

PARTEKS PAPER INDUSTRY

TURKISH TISSUE IS ONE OF THE FASTEST GROWING MARKETS IN THE WORLD

"Turkey is becoming the tissue capital of the Middle East and Europe" – so said our report in the September/October issue of TWM. We interviewed Parteks Paper Industry general manager Fatih Çapar, who at the time said although the consumption per capita in Turkey is still very low, "there is a great potential for the future".

He said that while the consumption per capita is around 5.9kgs, the average growth rate of the market is around 7.9% in the last three years, a result of fast economic development.

The company was established in 1996 and is a fully integrated manufacturer of virgin pulp parent reels, consumer tissue and AfH tissue together with corrugated cardboard and paper board production. Its plant is located in Kayseri, the Central Anatolian Region. It has two tissue mills which manufacture 45,000 tonnes of tissue per year and a converting facility close by to the plant where it converts 12,000 tonnes per year.

The company is equally concentrated on consumer, private label and AfH products.

Last year, Çapar said the company had

made "huge investment progress" in the last four years. "We have an investment plan in a new tissue mill and AfH converting lines. We are also conducting a feasibility analysis in order to invest in a new tissue mill in Western Europe."

Export was also high on the agenda: "We deliver paper all around the world. Our main export markets are the Middle East, Western and Eastern Europe and Africa. We export tissue parent reels, tissue converted products and corrugated cardboards like pizza boxes. We are doing feasibility studies to export to new regions."

Speaking to TWM for our Barometer Issue Special Feature, he said: "In 2018, we started up a new converting line, for AfH tissue, to extend our capacity and

production range. With this investment we have started to produce new types of rolls in different configurations to meet the demands of our market.

"On the parent reel side, we have created new receipts to extend our gsm and quality range so we are able to produce lower gsm tissue with higher strengths. As a result, our customers save both costs and quality.

"The tissue sector continues to go through a transition. The market is always changing and consumption behaviour is determined by economic climate and people's needs. Our main goal is to create innovative products at reasonable prices."

He added that while consumer tissue continues to be the dominant tissue type, AfH products "are the most dynamic

"WE DELIVER PAPER ALL AROUND THE WORLD. OUR MAIN EXPORT MARKETS ARE THE MIDDLE EAST, WESTERN AND EASTERN EUROPE AND AFRICA. WE EXPORT TISSUE PARENT REELS, TISSUE CONVERTED PRODUCTS AND CORRUGATED CARDBOARDS LIKE PIZZA BOXES. WE ARE DOING FEASIBILITY STUDIES TO EXPORT TO NEW REGIONS."

category" in terms of both volume and value growth.

"Agility is the key term in AfH category," he said. "If you make things happen faster, you may have found your key differentiation. Consequently, we plan to grow more in AfH products to develop reasonable and sustainable solutions as a differentiation."

He says that although people want better quality products, they still want to feel that they are getting good value for their money: "Shoppers increasingly realise that the quality of a "branded" product is not better than a private label product. Sales of premium and ultra-premium private label products have raised as high as 18% at the end of 2018. The trend is expected to continue because people are increasing their shopping trips to discount stores. Private label products are getting more share together with AfH products in the total consumption."

As for the main challenges and opportunities he expects to see for the company and the tissue market in the next few years, he says: "Unstable pulp prices are the main challenge in the tissue market. Unstable pulp prices create an uncertainty for us to estimate our costs in long term deals.

"Expanding agility is the second main challenge. We live in the age of 'now' and



"The expanding tissue market is the main opportunity for us: the Turkish tissue market is one of the fastest growing markets in the world," Fatih Çapar, Parteks Paper Industry general manager

the market wants instant responses and services.

"Innovation is the third main challenge. It is the key for differentiation. The companies that figure out how to make their products the easiest/fastest to access with the given of competitive price and quality, will get the advantage.

"The expanding tissue market is the main opportunity for us: the Turkish tissue market is one of the fastest growing markets in the world. The growth rate was 18% at the end of 2018. Moreover, there is a great potential for the future as the consumption per capita is as low as 6.9kgs. It is an encouraging figure for Turkish producers.

"Pressure on "Brands" is another opportunity for the medium-size manufacturers. It is harder for a medium size company to create a famous brand than a multi-national company. However, private label is growing rapidly because the products are an economic alternative, and most of the private labelled products have the same, even higher quality when you compare to "famous brands".

"Competition in the market is a key opportunity, which may sound strange. But competition enables us to make innovations happen. The winners will be those companies that figure out how to offer products their customers desire."



Fully integrated: The company manufactures virgin pulp parent reels, consumer tissue and AfH tissue together with corrugated cardboard and paper board production.



Capacity boost: When TWM met Convertipap in 2018, the most recent TM was supplied by Recard and had started-up in June 2017, boosting production capacity by 25,000tpy

MEXICO

CONVERTIPAP

BOOSTED PRESENCE ACROSS THE AMERICAS

TWM met the general director of family firm Convertipap Luis Alberto Reséndiz in February 2018. The visit showed the potential for growth in the local Mexican tissue market, where consumer growth figures were up to 6%.

There was quite simply not enough tissue to supply the population.

The site had been established in 2000 and over the years had strategically expanded with two plants located in the Mexican Republic; one in Ixtapaluca, State of Mexico, and the other in the state of Tlaxcala.

There were four machines, one of which produces kraft paper and the other three produce more than 55,000 tonnes of tissue paper, towel or napkins per year. At the time, the most recent tissue machine was supplied by Recard and had started-up in June 2017, boosting the company's production capacity by 25,000tpy.

However, in the past year the company has made a number of substantial

investments and boosted its capacity in Mexico as well as increasing its presence in the whole of the Americas.

The company's investments have included a consumer line from Fabio Perini, five napkin lines from STAX, and one tissue paper machine from PMP.

The investment in the Intelli-Tissue Advanced 2100 tissue machine was key, according to Reséndiz. The company wanted to produce more high-quality paper to target the Americas. The Crescent Former line will have a maximum capacity of 41,000tpy, a reel trim of 2.8m and a

maximum balance speed of 2,100mpm. It will produce high quality tissue with the basis weight range of 12.5-40gsm at the reel. Delivery and start-up are scheduled for the middle of 2020.

The business operates in three different markets: the AfH market, consumer and the remainder in private label. When we met, Reséndiz said the consumer tissue market in Mexico was "growing very rapidly, it's growing faster than Mexico's population. We're also seeing that GDP growth is slowing down, but demand for tissue products continues to grow."

THE BUSINESS OPERATES IN THREE DIFFERENT MARKETS: THE AFH MARKET, CONSUMER AND THE REMAINDER IN PRIVATE LABEL. WHEN WE MET, RESÉNDIZ SAID THE CONSUMER TISSUE MARKET IN MEXICO WAS "GROWING VERY RAPIDLY, IT'S GROWING FASTER THAN MEXICO'S POPULATION. WE'RE ALSO SEEING THAT GDP GROWTH IS SLOWING DOWN, BUT DEMAND FOR TISSUE PRODUCTS CONTINUES TO GROW."



Family firm: CEO and founder Nicolás Reséndiz (pictured left) and his son, general director Luis Alberto Reséndiz

The consumer tissue market was forecast to continue to grow at 5% year-on-year, while private label products are growing at 6% year-on-year.

"There are a lot of opportunities to be taken," he says. "Mexico needs more tissue: there's not currently enough to supply the population, we have a lot of empty market." He added that private label products weren't at that time very popular in Mexico, although interest is growing.

Asked in June 2019 what his plans are for the company to grow in the next few years and he told TWM: "First of all, we needed to increase our converting production and diversify some new products. With the tissue annual growth we decided to invest in a bigger machine that we will start up in middle of 2020.

"The trend here in Mexico is always the same – give to the customer a good product but most important of all is to give them the service that they need. If they do not grow as a consequence of their investment, we do not grow either.

"Our principal opportunities are to remain competent in supplying a strong service that answers all our clients' needs. The second main opportunity is also to remain zero bureaucracy to open new markets. We believe in clients and the business is also about confidence.

"And the main challenge is to maintain the customer service so we can invest in new distribution units."

THE TREND HERE IN MEXICO IS ALWAYS THE SAME – GIVE TO THE CUSTOMER A GOOD PRODUCT BUT MOST IMPORTANT OF ALL IS TO GIVE THEM THE SERVICE THAT THEY NEED. IF THEY DO NOT GROW AS A CONSEQUENCE OF THEIR INVESTMENT, WE DO NOT GROW EITHER. OUR PRINCIPAL OPPORTUNITIES ARE TO REMAIN COMPETENT IN SUPPLYING A STRONG SERVICE THAT ANSWERS ALL OUR CLIENTS' NEEDS.



AMERICA

ERVING INDUSTRIES

SUSTAINABLE SOLUTIONS FOUND FROM SUBSTANTIAL R&D TIME, ENERGY AND MONEY



ERVING EXPECTS "INCREMENTAL GROWTH" IN THE NEXT FEW YEARS. "WE HAVE PLANS TO INCREASE THROUGHPUT AND QUALITY ON ONE MACHINE IN EARLY 2020 AND WE HOPE TO FURTHER IMPROVE THE EFFICIENCY OF OUR WASTE WATER TREATMENT PLANT,"

CHIEF EXECUTIVE AND PRESIDENT MORRIS HOUSEN

Morris Housen, chief executive and president of Erving Industries, operates a paper mill in Erving, Massachusetts. Established in 1905, the company employs more than 100 people and has sustainability high on the agenda: it uses nearly 50 million kilowatt hours of electricity and 400,000mcf of natural gas annually. The mill produces napkin, towels and tissue paper.

When TWM interviewed him for the January/February 2018 issue of TWM, he said that the main opportunity the company was seeing was the opportunity to build a natural gas pipeline so that the company could take advantage of piped, low cost energy. The main challenges were "China's appetite for wastepaper", which he said impacts the company's wastepaper supply and pricing. He also added that New England electricity was the most expensive in the country and reducing this cost was "critical to long term sustainability".

During early 2018, he said that Erving was always interested in incremental growth and was considering organic and acquisitional avenues: "Our focus will

remain on jumbo rolls, continuing to provide more, higher and higher quality rolls that meet our customers' needs.

"Our mind-set is always on continuous improvement and lately we have had a focus on uniquely innovative products. With regards to environmental sustainability, our Millers River is known to be among the best trout fishing in Massachusetts.

"We are vigilant about keeping it clean and healthy. As a recycling mill, we produce a by-product comprised of significant quantities of precipitated calcium carbonate mixed with small paper fibre. We've spent a lot of R&D time, energy and money to find a sustainable solution for this product."

Elsewhere in the tissue market, he said the company was experiencing overcapacity in the jumbo roll market: "Offshore paper and new domestic mills oversupply and soften pricing. Obviously, we would prefer not to have this factoring into our business, but at the end of the day, we believe that competition breeds excellence."

When TWM spoke with him in June 2019 for the update, the company had made significant strides forward.

The past year has seen it install a high-speed slitter rewinder on the back end of one of its paper machines. The investment was made to increase its multi-ply capabilities.

The company is also in the process of installing additional drying capacity for its sludge on its waste water treatment plant.

Housen told TWM: "The slitter rewinder allows for an improved product offering and helps machine scheduling. The dryer will improve the efficiency and reduce the cost at the waste water treatment plant."

He adds that the company expects "incremental growth" in the next few years. "We have plans to increase throughput and quality on one machine in early 2020 and we hope to further improve the efficiency of our waste water treatment plant."

As for the local tissue market, he says the waster paper supply market has gone through a dramatic cycle of "up and down pricing". "The jumbo roll market has been exceedingly strong and demand has been very strong for a long stretch of time.

The main challenges and opportunities for the immediate future and next few years included innovation at the company's waste water treatment plant, increased capacity, and more deeply engaging the company workforce. "These are our three main opportunities that we are working on right now", he said. "The main challenges we are seeing include stability and volatility in the waste market and in jumbo roll sales, as well as environmental regulation. These are the two main challenges we face."

THE PAST YEAR HAS SEEN ERVING INDUSTRIES INSTALL A HIGH-SPEED SLITTER REWINDER ON THE BACK END OF ONE OF ITS PAPER MACHINES. THE INVESTMENT WAS MADE TO INCREASE ITS MULTI-PLY CAPABILITIES. THE COMPANY IS ALSO IN THE PROCESS OF INSTALLING ADDITIONAL DRYING CAPACITY FOR ITS SLUDGE ON ITS WASTE WATER TREATMENT PLANT.

CHINESE CONSUMPTION GROWTH DOWN FROM RECENT HIGH OF 10% TO A 4.8% FORECAST

Tissue's strong upswing was broken in 2018. Much now depends on the economy and consumer expenditures recovering from external and internal pressures. Report by Esko Uutela, principal, tissue, Fastmarkets RISI.

EI



Esko Uutela
Principal, tissue, Fastmarkets RISI

IN OUR OPINION, THE 4.5% CONSUMPTION GROWTH FOR 2018, PUBLISHED BY CNHPIA IN LATE APRIL, SOUNDS RATHER LOW. BUT IT COULD BE A REFLECTION OF HIGH MARKET PULP PRICES THAT NEGATIVELY AFFECTED THE PROFITABILITY OF THE BUSINESS AND THE SUDDENLY POOR CONSUMPTION MENTALITY IN CHINA IN THE LAST FEW MONTHS OF 2018,

For years, the Chinese tissue market has been in a very strong upswing, with new peaks in consumption and production being recorded each year. The growth in tissue consumption has recently exceeded GDP growth, but the very latest information from the China Household Paper Industry Association (CNHPIA) suggests that this trend was broken in 2018, and tissue consumption remained below economic growth.

In our opinion, the 4.5% consumption growth for 2018, published by CNHPIA in late April, sounds rather low – our forecast for 2018 was almost 6.8% growth. But it could be a reflection of high market pulp prices that negatively affected the profitability of the business and the suddenly poor consumption mentality in China in the last few months of 2018, which influenced all shopping and reduced retail growth radically from the earlier high growth figures in annual comparison. This attitude likely hit consumer tissue purchases in China as well, and the result was a low annual growth rate.

CNHPIA collects both sales and output volumes from Chinese tissue companies on an annual basis. Consumption is calculated as sales volume plus imports minus exports, while we globally employ the formula of tissue base paper production plus imports and exports, including both parent rolls and converted products.

We use slightly different foreign trade figures than CNHPIA, and although the base is the same (i.e., customs statistics), for some reason CNHPIA excludes the medical and other tissue category (48.18.90) from its trade figures, whereas we include it, so there is some difference. Our export figure in particular is substantially higher for this reason.

The other tissue category includes tissue specialties and converted tissue products not otherwise specified, as well as narrow tissue parent rolls used for converting facial tissue or napkins. We use this practice

worldwide and make no exception for China. Chinese exports in this category have grown, particularly to the USA. One reason for this may be that the 10% import duty that President Trump raised for Chinese tissue goods is not applied to this category. In the event that the duty jumps to 25%, as recently threatened, even more tissue goods may be traded in this category.

Based on CNHPIA figures, Chinese tissue consumption grew from 8.511 million tonnes in 2017 to 8.896 million tonnes in 2018, which corresponds to a relative growth rate of 4.5%.

But using the RISI calculation scheme, which includes about 200,000 tonnes more net exports than the CNHPIA figures, tissue consumption grew from 8.360 million tonnes in 2017 to 8.691 million tonnes in 2018, which gives an even lower growth rate of 4.0% for 2018.

Compared to the 8.1% consumption growth measured in 2017, this figure is quite poor. However, that raises the question - did growth radically collapse or are the CNHPIA figures too conservative? And if the latter, will CNHPIA revise its figures at a later date?

There are also indications other than the low growth in tissue consumption that the Chinese tissue market is in a slowing mode.

For example, according to CNHPIA, new capacity launches peaked at 2.2 million tonnes in 2017 and fell to about 1.67 million tonnes in 2018. Industry restructuring was also in its hottest phase in 2017, when as much as 1.3 million tonnes of old and obsolete capacity was removed, but in 2018 closures reduced to about 720,000 tonnes (CNHPIA reports 540,000 tonnes but this does not fit with the other figures).

The number of installed new, modern tissue machines increased steadily from 2010-2017 (2010: 20, 2011: 27, 2012: 33, 2013: 35, 2014: 41, 2015: 43, 2016: 66 and 2017: 110) but fell to 71 in 2018. Originally, the total new capacity of tissue projects planned to be launched in 2018

FULL-AUTOMATIC

JRT REWINDING CONVERTING LINE

tissue and towel

TYPE 707J

Tissue Paper

SPECIFICATION

Design Speed	600M/Min or 10 Cycles/min	Basis Weight	11-25gsm
Operation Speed	Max.500 M/Min. or 10 Cycles/Min	Tail Sealer speed	Max. 10 logs/min
Parent Roll Dia.	Max. Ø2500mm	Accumulator Capacity	30 logs
Rewind Diameter	160-350 mm	JRT log saw speed	60 cuts/min.
Paper Width	Max. 3650mm	Clamp adjust	set on HMI with Servo control
Material	Tissue Paper 、 Hand Towel		Dia. Range 160-350mm



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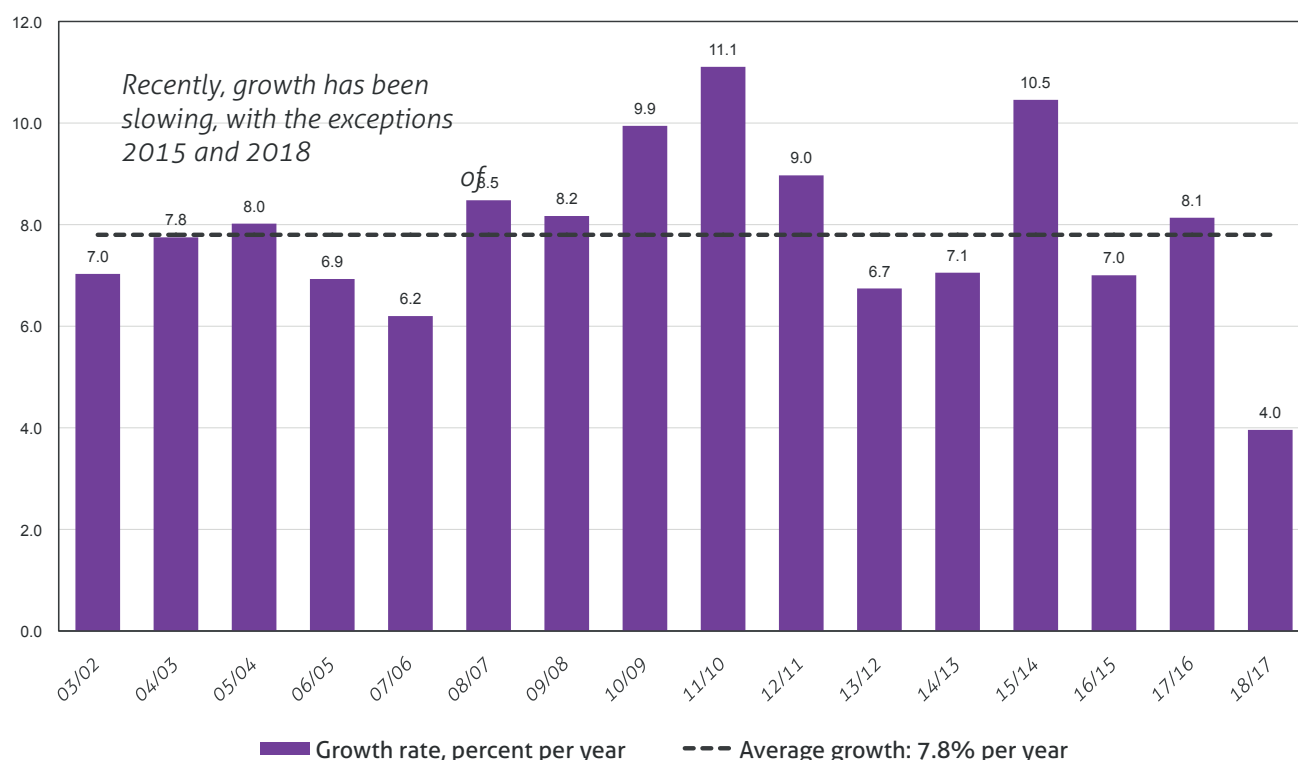


Figure 1: Recent growth rates of Chinese tissue consumption

was as much as 3.155 million tonnes, but just 1.67 million tonnes actually came on stream, which means that only slightly more than half of planned capacity additions were realised. According to CNHPA, the new capacity planned for start-up in 2019 totals 2.084 million tonnes, and capacity scheduled for 2020 and later is 1.194 million tonnes.

Investment activity seems to be getting quieter in the Chinese tissue industry. During the CIDPEX exhibition, discussions with numerous suppliers, both foreign and domestic machinery makers, confirmed this opinion as well.

The current uncertain situation in the Chinese economy and potential further negative outcomes from the trade war with the USA are dark clouds on the horizon. Tissue is suffering in part from this situation.

In the first three months of 2019, Chinese tissue exports decreased by about 4% compared to the first quarter of 2018, and exports to the USA plummeted almost 26%. Exports have helped several Chinese tissue suppliers to expand their business, but this year the growth trend in exports may break.

The outlook has changed somewhat, but by how much is the main question at the moment. CNHPA forecasts 5.1% growth in tissue consumption for this year and 4.8% for 2020. In the past, CNHPA projections have regularly been rather conservative, so future growth may be slightly higher, although they will still be slower than the

high rates of 10% per year or more that were reached just a few years ago. Much depends on how the Chinese economy and consumer expenditures recover from the current external and internal pressures.

Esko Uutela, principal, tissue, is the author of Fastmarket RISI's Outlook for World Tissue Business study, the World Tissue Business Monitor and the US Tissue Monthly Data.

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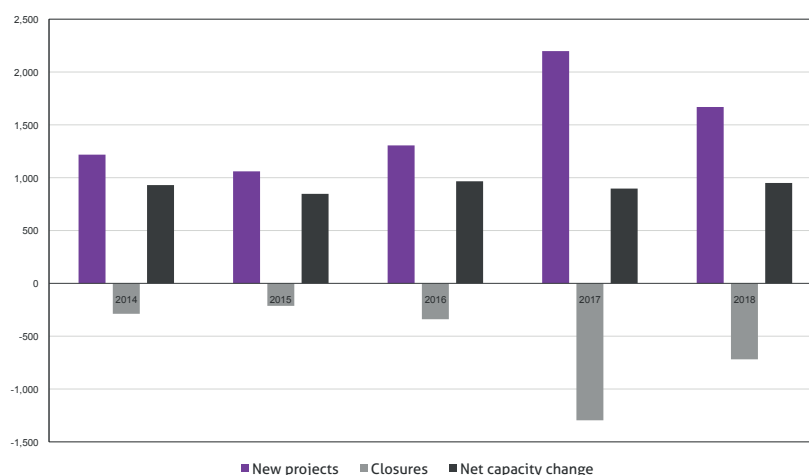


Figure 2: New projects, closures and net capacity change¹ in the Chinese tissue industry, 2014-2018 (Thousand tonnes per year)



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