4
JULY/AUGUST 2018

The independent news provider for the global tissue business

TWM
TISSUE WORLD MAGAZINE

UNITED ARAB EMIRATES
As the oil giant opens up ... can tissue thrive?

PLUS:

Kimberly-Clark
Kim Underhill to head $8bn North American consumer business
WaterLoupe advances vital water strategy

Asian Paper / Tissue World Bangkok 2018
Trade show launch attended by 3,163 industry professionals from 92 countries

EXITISSUES
Region specific trends in recovered paper markets

TECHNICAL THEME: Chemicals
Kemira: Re-pulping to meet new regulations
Solenis: Search for Yankee coating quality
Buckman: Advances in softening strength

CONSUMERSPEAK
At the lakeside Tree House idyll, British Columbia

Image: Inside the stunning Louvre Abu Dhabi museum

UBM
MCI (P) 013/12/2017

TWM meets Crown Paper Mill MD Abdullah Al Khateeb as he explains the key to success in the Gulf in our Country Report. Plus, World News: Kim Underhill is the new group president of Kimberly-Clark North America, leading the company's $8bn North American consumer business.

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TWM
TISSUE WORLD MAGAZINE

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Cover: the stunning new Louvre Abu Dhabi – the first universal museum in the Arab world By PURPLEPRINT Creative.

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The **3SAward** - Sofidel Suppliers Sustainability Award -, now in its third year, recognizes our suppliers who implement the best practices and improvements in the field of social and environmental sustainability. Through the 3SAward, we wish to acknowledge the value of this collaboration by rewarding initiatives that show commitment to sustainability.

The 2018 3SAward ceremony will be held on October 4th in Columbus, Ohio, U.S.A. to coincide with the inauguration of our new U.S. plant in Circleville, Ohio. We are proud to announce that our Ohio plant is now our largest, most modern and sustainable integrated production site. The successful opening has been in large part due to the valued contribution of our suppliers.

We encourage all of our valued suppliers to register for the award through our website *sofidel.com*, in the Sofidel Suppliers Sustainability Award section. The Sofidel Group is convinced that the road to an increasingly sustainable future must be travelled together, step by step, through commitment and continuous improvement of the supply chain.

What does the UAE's growing cultural confidence mean for tissue?

The Arab world's first universal museum – Louvre Abu Dhabi - has opened in the United Arab Emirates.

Emmanuel Macron, president of France, described the stunning symbol of a wider cultural perspective as "a bridge between civilisations." Sheikh Mohammed bin Rashid, vice president and ruler of Dubai, the emirate along the coast, said: "We don't just aim for a dialogue between civilisations, rather an alliance between civilisations".

The museum is described as another significant sign of a wider cultural outlook in the Gulf region.

The UAE itself, has much to offer tourists and international business people. Abu Dhabi, the capital, has a while enjoyed an emerging cultural quarter.

All encouraging news. In this edition we explore if, how, and when this will affect the UAE's business climate, and especially its tissue prospects?

With unmet potential of 53,000 tonnes, seen predominantly in toilet paper and paper towels, is the UAE a growth market for tissue?

Adel Al Far, director of UAE operations at Fine Hygienic Holding is convinced it is. He plans to double capacity at the Al Nakheel site next year and predicts a conservative estimate of 5% annual tissue growth.

Crown Paper Mill managing director Abdullah Al Khateeb aims to be the largest tissue manufacturer in the Cooperation Council for the Arab States of the Gulf by 2020.

As an example of his determination and ambition, he says: "The discussion was what size of tissue machine … so we went for the latest and fastest. We wanted everything, the most modern, the most energy efficient, in order to produce the best quality of tissue with better energy costs and to reduce our carbon footprint."

In many ways the UAE is a unique market: it's a largely worker immigrant nation of 10m people, only about one million of whom are citizens, giving a whole new meaning to the AfH category.

Most analysts ascribe this ambitious and at times controversial new UAE to Abu Dhabi's 56-year-old crown prince, deputy commander of the UAE's armed forces, younger brother of the emir of Abu Dhabi … Muhammad bin Zayed.

A robust military foreign policy is one of those controversies in an already conflict region. Inside, tissue professional tell us how they see the future.

Asian Paper / Tissue World Bangkok 2018 launches to acclaim

Miami, Milan, São Paulo, Istanbul… and now Bangkok.

Helen Morris

Senior Editor,
Tissue World magazine

Tissue World has strengthened its global reach with the successful launch of our latest tradeshow … Asian Paper / Tissue World Bangkok at BITEC, Bangkok, in June.

An impressive 3,163 industry professionals attended from 92 countries to do business in sectors including pulp, paper, tissue, packaging and related industry supplies.

The event signals the joined forces of two long-standing brands drawing on over 20 years of success in staging diverse and robust exhibitions oiling the wheels of trade.

This market is huge. Asia Pacific is currently the world's largest and fastest growing region for retail tissue, last year accounting for close to 40% of global sales.

You will find a full report inside.

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Kimberly-Clark reaches out to advance the cause of preserving precious water

In just seven years' time 1.8bn people will be living with absolute water scarcity. Tissue giant Kimberly-Clark (K-C) recently launched WaterLoupe, an analytical tool to advance the science of water sustainability... for its mills, the surrounding high risk river basins, for local communities, and the wider environmental source. Here, Vetrivel Dhagumudi, K-C global water programme leader, explains the strategy to TWM.

TWM/1: Why did K-C launch WaterLoupe? Can you explain the background behind it?

Dhagumudi: "K-C's water strategies have traditionally been focused on conservation and reductions in water use and optimising wastewater treatment and quality at our mills. However, we have learned a local watershed approach is needed to address the broader challenges associated with of water security.

"We realised that lack of clean water availability could result in disruption of our operations, which would also be a problem for the communities and families relying on the watershed.

"K-C and Deltares developed the WaterLoupe dashboard as a tool to raise stakeholder awareness of water risks at the local level and to encourage collaboration in developing sustainable water management plans within watersheds of concern.

Vetrivel Dhagumudi

Kimberly-Clark global water programme leader

Water management: *WaterLoupe is employed at Kimberly-Clark's mill in Cuaca, Colombia. The company's aim is to engage government authorities, farmers and industries in discussions regarding local water use.*

"Population growth is increasing the demand for water, at the same time a hotter, drier climate is threatening available supply. By 2025, according to U.N. projections, 1.8bn people will be living in regions or countries with absolute water scarcity and nearly two-thirds of the world's population could be living under water-stressed conditions, up from one billion in 2005. The world's poorest countries and the poorest communities within them are the most vulnerable to inadequate management of water resources.

"The introduction of WaterLoupe is the latest step in K-C's global water risk management programme. It builds on long-standing efforts including:

- Investments in water recycling systems which have reduced the volume of freshwater used in its manufacturing operations by nearly 35m cubic metres between 2010 and 2016;
- Water security screening assessments to determine which K-C operations are at high risk for water stress, followed

by watershed analyses and target setting for water-stressed locations;
- Engagement with key NGO partners and key stakeholders in the development of sustainable water management plans at the local level."

TWM/2: What key issues are you and the tissue industry generally facing in terms of water sustainability?

Dhagumudi: "Water is one of the world's most vital resources and a key input material to our tissue manufacturing operations. In 2015, we conducted a water risk screening assessment to determine which of our operations are at high risk for water stress, recognising that constraints on water supply could affect our future operations in these areas.

"On the production side, we are focused on mills in high water-stress locations to reduce water use, improve waste water treatment, and increase recycling of water within the production process.

"Decreasing water use in our mills is only part of the solution. We need to engage local stakeholders, including government, industrial and agricultural users, to develop total strategies for the sustainable management of local water resources to ensure we address both environmental and social needs within local communities."

TWM/3: How does WaterLoupe work?

Dhagumudi: "WaterLoupe is an innovative web-based tool to share data and insights on current and future risks to local water resources. It tracks data on social, economic and climate factors impacting water availability within river basins and displays the information on a highly visual, user-friendly dashboard. The WaterLoupe dashboard visualises the water scarcity risks to all stakeholders at the local level and provides insights into water demand and supply, so that all parties can use freshwater more efficiently and sustainably now and in the future.

"Deltares developed the dashboard based on a study of the Aburrá and Cauca Valley catchment areas in Colombia, where K-C operates manufacturing facilities. K-C helped pilot the tool and provided input to its design based on our experience using dashboards for performance data within our manufacturing facilities. By employing WaterLoupe in Colombia, we aim to engage government authorities, farmers and industries in discussions regarding local water use and vulnerabilities now and in the future. We are now working on building a water stewardship goal, which will drive more impact on the basin level than reducing the mill's water consumption."

TWM/4: What is unique about it?

Dhagumudi: "The tools currently available in the market such as WRI – Aqueduct and the WWF water-risk filter use global data and are a starting point for identifying local water risks. WaterLoupe could be considered the next step in the process. The dashboard tracks hydrology, exposure and vulnerability at the local level using local data. The public and private sector can use this tool to engage local stakeholder groups to drive collective action for sustainable water stewardship in the river basin."

TWM/5: What are the main opportunities and challenges in the next few years in terms of water sustainability, and how are you reacting to them?

Dhagumudi: "Water is an essential resource for K-C because our products require some form of water for their manufacturing. Through a focus on the mills which are located in high-stress water regions, we are establishing context-based, site-specific goals and proactive water management plans designed to deliver social, environmental and business benefits."

TWM/6: How does WaterLoupe help the local community?

Dhagumudi: "The WaterLoupe tool allows users to assess local water risks for an entire watershed as well as specific sectors and sub-groups, such as industrial users, farmers and households, over a 30-year time horizon. Insights from WaterLoupe can help local stakeholders understand the challenges and participate in creating sustainable water stewardship goals and action plans.

"This ensures environmental objectives are integrated with those for economic stability and other social and cultural goals."

TWM/7: How will you develop WaterLoupe?

Dhagumudi: "Ultimately, we hope to use this tool to develop water management plans for our mills and the surrounding communities. Over the next four years, K-C plans to extend this process to all of our mills located in high-risk watersheds. By 2022, we expect to have developed targeted goals and implemented appropriate plans to improve water security for these mills and the surrounding communities.

"The WaterLoupe tool will provide key insights to establish those goals and model the impact of potential solutions to meet them.

"At present, we are working with Deltares to further refine WaterLoupe and add capabilities that will enable users to explore different strategies to reduce local water risks, based on alternate environmental, social and economic scenarios. Over the coming months, K-C and Deltares will present the dashboard to their NGO partners and other manufacturers to obtain feedback on its functionality and content and identify further improvements.

"After the final improvements and additions have been implemented, we intend to make the WaterLoupe tool publicly available online."

Bangkok launch success in the world's largest and fastest grown retail tissue region

More than 100 exhibiting companies from 18 countries at Asian Paper / Tissue World Bangkok 2018 showcase technologies and solutions in pulp, paper, tissue, packaging and related sectors

The launch of Asian Paper / Tissue World Bangkok 2018 has successfully showcased the latest technologies and innovations from over 100 exhibiting companies.

Held between 6-8 June at BITEC, Bangkok, the trade show was attended by visitors and delegates from an impressive 92 countries, with visitors from Thailand, Malaysia, Indonesia, India, Vietnam and China.

Exhibitor profiles of industry suppliers ranged from paper converting machineries, tissue packaging machineries, stock preparation, bleaching chemical solutions to sanitary product OEM (original equipment manufacturer) manufacturing and many more.

The event signalled the first joined forces of two long-standing brands, each bringing with them over 20 years of success history and a diverse and robust pool of exhibitors and visitors.

It offered exclusive and invaluable business opportunities to all regional and international industry players operating in the sector of the pulp, paper, tissue, packaging and related industries.

A three-day conference took place concurrently and featured 23 presentations under the theme of "Shaping Success: Strategies for Sustainable Growth in Paper, Packaging and Tissue".

Wichan Jitpukdee, president of The Thai Pulp & Paper Industries Association (TPPIA), delivered the opening address.

His presentation entitled "Growth and Innovation: The Pattern for Thailand's Future" highlighted the growth and the future of the Thailand's paper industry.

Attended by over 90 attendees, the conference took place on the show floor, with the first day dedicated to the Senior Management Symposium and the two subsequent days to the New Applied Technology Sessions.

Among the attendees were SCG Packaging, Siam Kraft Industry, Thai Paper Company, Metso, Double A, Voith, RiverPRO Pulp & Paper and many more.

The event was supported by the following industry associations:

- The Thai Pulp and Paper Industries Association (TPPIA)
- Australian and New Zealand Pulp and Paper Industry Technical Association (APPITA)
- The Association of Indonesia Pulp and Paper Industries (APKI)
- Chinese Taipei Paper Industry Association (CTPIA)
- Indian Agro & Recycled Paper Mills Association (IARPMA)
- Japan Technical Association of the Pulp and Paper Industry (JTAPPI)
- Myanmar Pulp and Paper Industry Association (MPPIA)
- Malaysia Pulp and Paper Manufacturers Association (MPPMA)
- Technical Association of the Pulp and Paper Industry of Southern Africa (TAPPSA)
- Vietnam Pulp and Paper Association (VPPA)

BREAKING DOWN THE GROWTH DECOMPOSITION OF TISSUE IN ASIA

Gilbert Lai, research analyst, Euromonitor

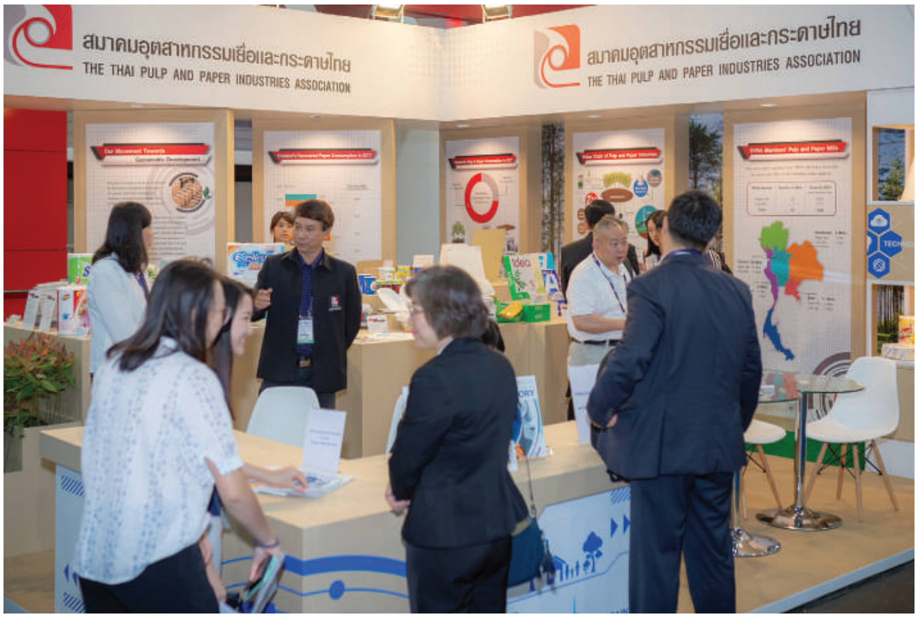
RETAIL TISSUE IN ASIA: GLOBAL VOLUME SALES OF RETAIL TISSUE

Asia Pacific is currently the world's largest and fastest growing region for retail tissue, accounting for close to 40% of global sales in 2017.

>5% CAGR volume growth (2017-2022): China, India, Indonesia, Thailand, Vietnam

<5% CAGR volume growth (2017-2022): Hong Kong, Japan, Malaysia, Philippines, Singapore, South Korea, Taiwan

Ample room for growth in Asia Pacific: population: 4.1bn, consumption: 2kg per capita, forecast growth: 5% volume CAGR (2017-2022).



Premiumisation: *Asia Pacific is the largest and fastest growing region in terms of value sales of tissue*

DISPOSABLE INCOME VS RETAIL TISSUE CONSUMPTION

RETAIL TISSUE STATISTICS IN ASIA: given the level of disposable income, most Asian countries are consuming less than their potential (bottom of the line).

CONSUMER MEGATRENDS

PREMIUMISATION: Asia Pacific is the largest and fastest growing region in terms of value sales of tissue

Manufacturers offer more value such as higher quality and comfort at higher prices;

Consumers value convenience and multifunctional products. Features that Asian consumers look out for when buying household essentials: value for money, high-quality, low price, multi-functional, able to buy in bulk. High quality and multi-functional tissue.

HEALTHY LIVING: Shifting beyond just physical health to represent more holistic view; mental wellbeing and lifestyles.

What does being 'green' entail? Natural and organic, recallable packaging, safe for usage, sustainable sourcing.

RISING IMPORTANCE OF EMERGING MARKETS: ASIA PACIFIC

- 42% of World GDP in 2017, expected to be more than 50% in 2030

- 7% CAGR until 2030.

Millennials not to be neglected. Features that Asian consumers look out for when buying household essentials: 100% organic, hypoallergenic, ingredient formulation, all natural. Third-party safety certifications are key.

ETHICAL LIVING: 63% of consumers believe their choices or actions make a difference. Asian consumers' green attitudes:

60% agree or strongly agree: worried about climate change; 63% agree or strongly agree: they try to have a positive impact on the environment through everyday actions; 24%: are willing to pay more for environmentally conscious household products; 11% are willing to pay more for recyclable packaging.

FEARS OVER SAFETY AND QUALITY HINDER SALES OF RECYCLED PULP: ASIA PACIFIC

- Marked preference for virgin pulp over recycled pulp;

- Safety: Chemical used in treatment process;

- Quality: Insufficient quality control and inferior texture.

SUSTAINABILITY UNDER THE SPOTLIGHT

Rise of alternative pulp sources and packaging: Bamboo pulp, 'Waste' material, Biodegradable packaging.

Forecast volume sales of retail tissue: South Korea leads, followed by Vietnam, Taiwan, Thailand, India, Malaysia, Hong Kong, Philippines, Indonesia, Singapore.

Conclusion: region has the most growth potential, more value at higher price, prioritise health and safety, alternative pulp and packaging.

Given the level of disposable income, most Asian countries are consuming less than their potential (bottom of the line).

COMPETITION FOR FIBRE RESOURCES: GLOBAL SUPPLY CHAINS UNDER SUSTAINED PRESSURE

Tim Woods, managing director, IndustryEdge

- Fibre demand growth is across sectors;
- Drivers for demand are fundamentals;
- Role of secondary (recovered) fibre has peaked;
- Rising prices for pulp, and most wood and fibre products are here to stay;
- Fibre competition outlook is intense.

Asian paper and board consumption growing 3.1% pa.~ Almost four times faster than global average growth for the decade.

Global pulp production has been stable. ~ Recovered paper has filled the gap.

Global pulp production totalled 181.0Mt in 2016. Lower than a decade earlier. Recovered paper has filled some of the fibre supply gap.

GLOBAL MARKET PULP PROPORTION IS GROWING

Market pulp supplies growing around 2.5%pa.

More pulp is being traded, but it is not additional pulp.

Pulp production in Asia is flat~ Market pulp share is low.

Production is stable over the decade. Estimated 40.5Mt in 2017. Market pulp just 16%.

Global non-pulp fibre demand is growing – Not just solid wood products, dissolving pulp, pellets, organic chemicals...

Asian non-pulp fibre demand is growing rapidly – more than doubled over a decade.

'Peak recovery' adds more pressure on pulp supplies~ Growth in recovered paper availability has stalled.

Global consumption –228.4Mt in 2016. Growth of 2.0% pa. Added significantly to fibre supplies over last decade. But growth began to stall in 2014.

ASIAN RECOVERY MAY ALSO HAVE PLATEAUED

Formal consumption = 149Mt in 2016. Consumption rose 4.0% pa since 2006. Production or local collections up 4.4% pa. Imports up 3.5% pa.

In mature markets – recovery may have peaked~ Theoretical maximum recovery of 75% has been achieved in many cases.

Evidence of peak recovery in some mature markets. Commenced around 2013. 75% is theoretical maximum – a little higher for packaging.

MEGATRENDS ARE DRIVING CONSUMPTION GROWTH:

Global population continues to grow, middle-classes (the 'Consumption Class') is growing rapidly, on average, living standards are rising, 90% of growth to 2022 is in Asia. This is the greatest resources soak in history.

Fibre's sustainability is also a consumption driver.

Circular economy approach to packaging: container deposit schemes for packaging paper and board? Small-scale collections in regional areas; target specific grades; link to 'local' mills.

Pulp prices have risen and are holding. ~ Has a new bench been set?

Main chemical pulps experienced a large and sharp price lift over the last six months. Importantly, prices remained high. Given demand and supply, prices are back on trend and

Above: *The trade show was attended by visitors and delegates from an impressive 92 countries* the differential between NBSK and BEK seems reasonably stable.

Log and woodchip prices are also rising ~ As shipments grow, vessels are getting larger.

Softwood log export prices up 32% last 2 years ~ solid wood competing with pulp.

Hardwood chip export prices up 9% last 2 years.

To maximise efficiencies, woodchip vessels becoming larger.

SUPPLY CHAIN IS GETTING TIGHTER!

Outlook is for increasingly intense demand.

NEW GLOBAL PAPER & BOARD MULTI-CLIENT STUDY

Trang Ly, senior consultant, Pöyry Management Consulting

KEY REGIONAL MARKET TRENDS AND DRIVERS IN ASIA

Changing consumer habits like convenience and on-the-go eating, as well as rapidly rising disposable income and evolving food retail environment belong to the key consumer market trends driving the Asian markets.

Demographics: Polarisation of consumers; ageing population vs. millennials, reduced home cooking and differentiating tastes of consumers, especially among the younger; "on-the-go" eating, convenience, aspiration of Western lifestyle, fit-for-purpose sizes and formats; multipacks, smaller packages.

Changes in economics: strong economic development, high population, low per capita consumption, rapid expansion of middle class, rising disposable income, rising labour costs; shift of manufacturing and consumption from China to other new economic centres, e.g. Vietnam, Thailand, Indonesia, increasing manufacturing of export products and local packaging.

Changes in market dynamics: packed fresh food sector is growing; now only ~10-20 % of food is packed, higher quality packaging is growing in food; increasing health-consciousness, luxury segment is growing, localbrands' strong presence in the low-income segment, very price-conscious market; "good enough" quality is favoured, retail supply chain & business environment unorganised in some countries, strong growth of international fast food chains & expansion of modern shopping centres, changing retail environment; supermarkets, convenience stores, e-commerce, gradual shift from plastics to paper.

WORLD POPULATION TO REACH 8.5 BILLION BY 2030

Global population is expected to grow by 1.0 %/a through 2030; Asia and Africa experiencing the fastest growth.

ESTIMATED LONG-TERM GDP GROWTH BY REGION UP TO 2030

Global economy is projected to grow by 2.9 %/a through 2030; the growth will be the fastest in India and China.

GLOBAL MIDDLE CLASS SPENDING CONTINUES TO GROW

As the share of middle class is growing, also the purchasing power of the middle class is growing rapidly, especially in Asia-Pacific (~7.5 %/a between 2015-2030).

TISSUE PAPER PRODUCTION PROSPECTS THROUGH 2030

Tissue paper production is expected to grow by 17 million tonnes through 2030 – the growth will be strongest in China, other Asia countries and Europe.

MANY SIGNS POINT TO A SLOW-DOWN IN CHINA'S ECONOMY

China's economic growth is slowing; GDP growth is projected to decline from the current 6 %/a to circa 5.2 %/a by 2030.

Real GDP growth development by 2030.

Main drivers: stagnation of global trade and weakening demand for Chinese-made products;

Factor productivity growth is declining;

Shift from agriculture to industry has already taken place in China;

Softness of the domestic real estate market with strong impacts up-and downstream; Accumulation of capital contributes less to growth as capital/labour ratio rises;

Labour force started to shrink in 2014/15;

Old age dependency ratio will double by 2030.

CONSEQUENCES: INDUSTRIAL OVERCAPACITY;

Restructuring; firm closures, wave of bad loans;

Transformation of the Chinese economic model: From manufacturing to services, from investment to consumption.

E-COMMERCE IS CHANGING THE BUSINESS DYNAMICS IN RETAIL

Largest e-commerce countries are China and USA, accounting for some 60% of the market. Asia is the largest retail e-commerce market, where growth is the fastest.

Global trends driving the e-commerce growth; number of e-shoppers is growing, mobile e-commerce is becoming more popular, safer payment methods increase online and mobile sales, online and offline commerce will merge, growing competition between e-commerce players.

AMERICA

Essity announces job cuts at Ohio; focus on "operational efficiency and long-term competitiveness"

Tissue giant Essity has announced the loss of 55 jobs at its Middletown, Ohio USA-based operations.
The site was a part of the company's 2016 acquisition of Wausau Paper Corp and has around 200 staff. It produces and converts towel and tissue rolls.
Amy Bellcourt, vice president, communications, said: "Our aim is to support operational efficiency and the long-term competitiveness of our Middletown, OH site.
"Essity cares about its employees and is making every effort to find the best possible solution to minimise the impact on employees."
Essity, formerly SCA Hygiene, boosted its presence in the American AfH market when it acquired Wausau for $513m in 2016.

Buckman hikes up freight prices following limited capacity and driver shortage

Buckman is to increase the price of products sold and delivered to customers in North America by $0.02 to 0.04/pound.
The increase came into effect on 1 July and is being driven by "limited capacity, a shortage of drivers, new freight regulations and rising cost of fuel".
Jim Doan, president/COO of Buckman North America, said: "The widely-publicised driver shortage along with other factors, such as the new electronic logging device rule, are causing a significant increase in freight rates.
"We have worked diligently to find the best solution to alleviate the effect of these issues, but unfortunately Buckman can no longer absorb all of these higher freight costs."
Buckman is a privately-held, global specialty chemical company with headquarters in Memphis, USA.

GP closes Augusta site; 55 staff redundancies

Georgia Pacific (GP) is to permanently close its Augusta Select Tissue mill following increased competition in the tissue business. The move will result in 55 staff redundancies.
GP said: "The decision to close the facility comes after careful review of the current state of the mill and the tissue business.
"Specifically, this business decision was driven by increased competition in the tissue business and improvement in asset performance at other GP facilities, as well as the size and competitive cost position of the Augusta facility."
The site was part of the company's acquisition of SPG in 2014 and made tissue for multiple products.
Rob Shaw, vice president of manufacturing who has oversight for the Augusta tissue facility, said: "Our commitment is to work with employees to find ways to minimise the difficulty as best we can.
"That includes working with state and local employment agencies that can also support these employees."
The plan for the site is that any usable equipment will be relocated to other GP facilities. Equipment that can't be moved, including the paper machine, will be dismantled and sold for scrap, and the property will ultimately be sold.
The closure of the tissue mill does not affect GP's Augusta Corrugated plant or its employees.

Irving boosts capacity with PM start-up

Irving Pulp and Paper and sister company Irving Tissue have started up a Valmet-supplied Yankee Dryer as part of a $40m investment.
The line has been running at the company's New Brunswick-based site since completion of the project on 14 May.
The company said its pulp mill is already "95% green", and the investment will improve its energy use further and reduce the site's carbon footprint.

Buckman is to increase the price of products sold and delivered to customers in North America by $0.02 to 0.04/pound.The increase came into effect on 1 July and is being driven by "limited capacity, a shortage of drivers, new freight regulations and rising cost of fuel".

UK

WEPA Group targets European private label market with N&W acquisition

The WEPA Group has signed a contract to acquire all shares in UK-based Northwood & WEPA (N&W). Since 2013, WEPA and Northwood previously both had a 50% share in the N&W joint venture. The acquisition was expected to be completed on 5 July 2018. The contracting parties will not disclose the purchase price.
N&W's Bridgend-based site has 230 staff and produces rolled products (toilet paper and kitchen towels) for the British consumer market. It has one paper machine with a capacity of 52,00tpy and a converting capacity of 80,000tpy.
Martin Krengel, chief executive of the WEPA Group, said: "The company has demonstrated its hygiene paper expertise in the UK consumer market.
"With the acquisition of all shares and with our outstanding team, the WEPA Group takes the opportunity to work even more intensively in the UK to generate further growth.
"With a total of 12 factories we are logistically very well positioned and can supply our customers with the usual reliability and quality."
The WEPA Group is one of the three largest suppliers in the European tissue market, with 3,800 employees and a turnover of around €1.2bn following the transaction.
The company added the acquisition will further increase its presence in the European private label market.
Paul Fecher, chairman of the Northwood Companies, said: "The transaction gives our leadership team and the whole Northwood family of companies the opportunity to accelerate our continued growth.
"Northwood is one of the UK's leading independent manufacturer and suppliers in the AfH and hygienic tissue sector.
"Following the recent, significant multi-million-pound investment programme in state of the art plant and machinery, Northwood has created a platform that will facilitate further intensive growth."
Northwood Hygiene Products has tissue paper mills and converting sites across seven different UK locations include recycling, tissue making/sourcing, converting and logistics.
It employs over 450 people and has sales of £250m.

FisherSolve™ supports the Pulp & Paper Industry's DECISION CHAIN

ANALYSIS & PLANNING

How big is the market and how is it growing?
How is capacity changing?
How competitive are we?
Is there profitability in exporting?
How do financial performances compare?
Which regions have the most potential?

OPERATIONS & PRODUCT DEVELOPMENT

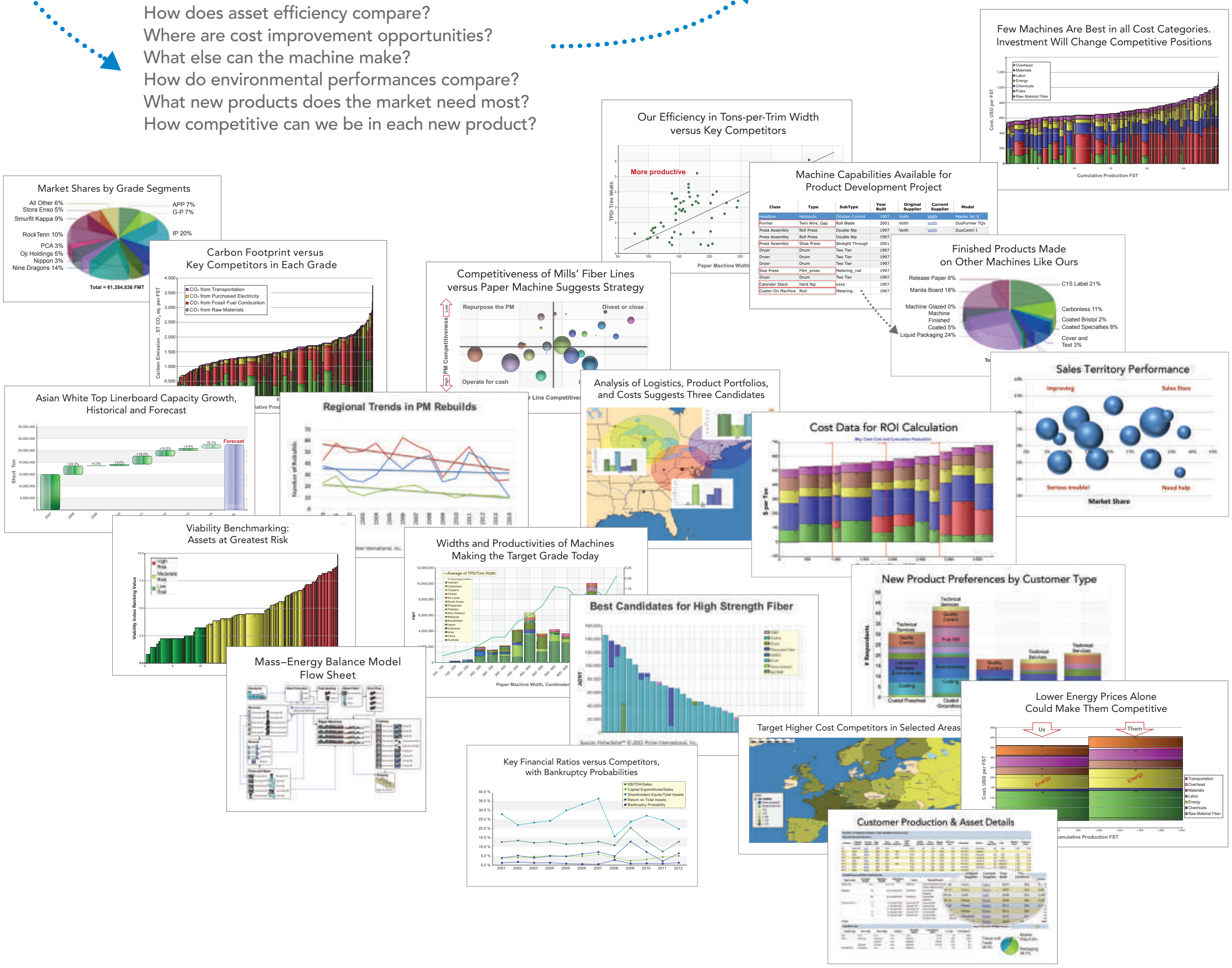
How does asset efficiency compare?
Where are cost improvement opportunities?
What else can the machine make?
How do environmental performances compare?
What new products does the market need most?
How competitive can we be in each new product?

SALES & MARKETING

Where are the best margins to be found?
How cost-competitive is each asset?
How attractive is the market for a new product?
What's in the pipeline and where's the best ROI?
Is sales well prepared?
Who's a star and who's not?

INVESTMENT, M&A, & ASSET DISPOSAL

What should be sold, repurposed, or closed?
Which competitors should be targeted?
Whose products and locations fit best?
Where should capital be spent and why?
Who has a long-term viability problem and who will survive?



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EUROPE

Södra announces price hike; demand "considerably outstripping supply"

Södra Cell is increasing the price of its northern bleached softwood kraft (NBSK) pulp in Europe by $30/tonne to $1,230.
The hike took place on 1 June.
Magnus Björkman, VP marketing and sales Södra Cell, said: "Demand is still outstripping supply considerably and the market remains imbalanced.
"We see no sign of easing in the short term, and consequently the upward momentum on prices continues."

The Navigator Company announces price hikes

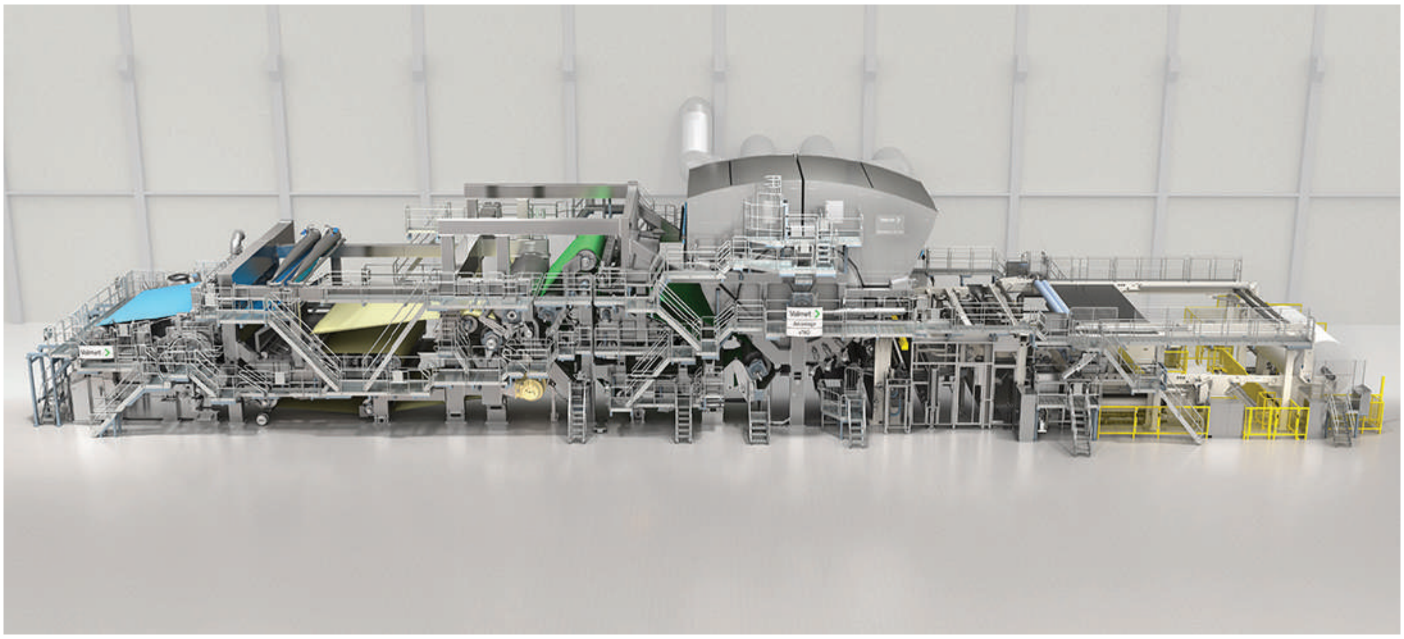
The Navigator Company has increased its tissue prices by 5 - 8 % in all products and markets across Europe on 1 July.
It said the decision follows "the continuous increase in key raw materials costs".
The company produces printing and copy paper and entered into the tissue market in 2015 with the acquisition of the AMS mill in Vila Velha de Ródão, Portugal, a 100% virgin tissue operation.
It is completing the construction of a new tissue mill in Cacia, Portugal, which is integrated with its eucalyptus pulp mill and where tissue converting started at the beginning of May.

GLOBAL

K-C announces executive leadership changes; 1Q net sales increase and improved performance in North America

Consumer re-vamp: *Kimberly-Clark's newly appointed group president for North America, Kim Underhill, will lead the company's $8bn North American consumer business.*

Kimberly-Clark (K-C) has appointed the president of K-C Professional - Kim Underhill - group president K-C North America.
In her new role, Underhill will lead the company's $8bn North American consumer business.
She is succeeding Larry Allgaier who the company said has "announced his intent to pursue opportunities outside of the company".
Aaron Powell, president, K-C Europe, Middle East and Africa, has been named president of K-C Professional.
A successor to Powell in the EMEA region will be named in the near future.
Both will report to Mike Hsu, president and COO. The moves are effective immediately.
Underhill has led K-C Professional since 2014.
From 2011 to 2014, she served as president of the company's consumer business in Europe.
Powell previously served as president for K-C Professional in North America.
In April, the company reported a net sales increase of 5% to $4.7bn compared to the same period a year ago in its first-quarter results.
Changes in foreign currency exchange rates benefited sales by 3%.
Chairman and chief executive Thomas J. Falk said: "I'm encouraged by the 2% organic sales growth we delivered in the first quarter, led by improved performance in North America.
"While our margins were impacted by significant commodity inflation, we're taking actions to increase net realised revenue and reduce costs in order to improve performance.
"We are broadly on track with our plan for the year and we remain optimistic about our opportunities to create long-term shareholder value through execution of our Global Business Plan strategies."
First quarter operating profit was $247m in 2018 and $848m in 2017.
Results in 2018 included $577m of charges related to the company's 2018 Global Restructuring Programme.
In its consumer tissue segment, first quarter sales of $1.6bn were up 9% while volumes increased 7%.
Changes in currency rates benefited sales by more than 3%, however first quarter operating profit of $249m decreased 11%.
It was impacted by input cost inflation and unfavourable product mix.
Sales in North America increased 6% while sales in developing and emerging markets increased 7%.
Volumes increased more than 4%, driven by Asia-Pacific, while sales in developed markets outside North America increased 17%.



Ultra-premium: *Georgia-Pacific's Advantage eTAD technology was developed in response to demand for high bulk to fibre ratio products*

GP and Valmet partner on eTAD Technology

Georgia-Pacific (GP) and Valmet have entered into a licensing agreement covering the tissue manufacturer's eTAD(TM) technology. Under the license agreement, Valmet will market, manufacture and install Advantage eTAD machines for tissue customers outside North America.

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Under the license agreement, Valmet will market, manufacture and install Advantage eTAD machines for tissue customers outside North America.

The technology was developed by GP and the company has three eTAD(TM) machines operating in North America, the latest two were re-built by Valmet in 2012.

The PM supplier said the eTAD concept provides "an ultra-premium product with high bulk to fibre ratio in combination with low energy and water consumption".

Kurt Adams, vice president, R&D, GP, said: "We are pleased to license eTAD(TM) technology to Valmet as we recognise the value-creating potential of offering this technology more broadly.

"This technology meets consumer needs for premium qualities in tissue products, including softness and absorbency."

Essity reports net sales increase in Q1 results; higher raw material costs partially offset by price increases

Hygiene products group Essity has announced a net sales increase of 10.9% to SEK28,020m in its first quarter results, helped by increased volumes and cost savings. Compared with the same period a year ago, operating profit before amortisation rose 6% to SEK 2,760m

Hygiene products group Essity has announced a net sales increase of 10.9% to SEK28,020m in its first quarter results, helped by increased volumes and cost savings. Compared with the same period a year ago, operating profit before amortisation rose 6% to SEK 2,760m, while the group's adjusted EBITA increased 7%. Higher volumes, a better price/mix, cost savings of SEK232m and the acquisition of BSN medical had a positive impact on earnings.

While higher raw material costs had a negative impact of SEK 755m on earnings, the company - which was spun off from SCA in 2017 – said this was partially offset by price increases mainly in consumer tissue in Asia and professional hygiene. Price increases were also implemented in consumer tissue in Europe during the quarter.

Essity also launched four innovations to strengthen its product offering and increase efficiencies in its consumer tissue and professional hygiene segments. For its consumer tissue segment, it added that the European market demonstrated "low growth" while the Chinese consumer tissue market noted higher demand.

Net sales for the segment increased 5.1% to SEK 11,003m year-on-year.

In February, the company announced it was restructuring its production facility in Santiago, Chile, to strengthen its presence in the country's consumer tissue and professional hygiene segments.

In April, it announced it was to restructure its consumer tissue production in Spain, announcing plans to close its production facility in La Riba and close one of its tissue machines at its site in Allo.

It said the move was to further increase production efficiencies, increase cost and capital efficiency, and bolster its efforts in the consumer tissue segment.

Mario Plourde:
Cascades president and chief executive

Cascades reports improved 1Q results; tissue segment impacted by prices and competitiveness

Cascades has said its first quarter performance improved year-over-year and sequentially, but added its tissue segment results were impacted by lower than average selling prices, increased competitiveness and higher raw material costs.

Sales for the company increased 9% to $1,098m compared with the same time a year earlier.

Operating income before amortisation was $167m, an increase of 114%.

The tissue papers division increased shipments by 7% year-over-year within the "challenging market conditions and market related downtime" taken at the beginning of the year.

However, Mario Plourde, president and chief executive, said that results for the segment were "impacted by lower average selling prices driven by increased competitiveness in several markets, higher raw material prices, and negative operating margin related to the Oregon converting facility that was started in the second quarter of 2017".

He said: "Our consolidated first quarter performance improved both year-over-year and sequentially in terms of sales levels, shipments and operating income.

"Changes in raw material prices were positive on a consolidated basis both sequentially and year-over-year, while higher transportation costs negatively impacted profitability in our North American operations."

On a sequential basis, consolidated first quarter results reflected improvements in capacity utilisation, sales, and operating income. This was driven by a strong performance from the European boxboard division, and was supported by a slight progress in tissue.

Plourde added the company expects profitability levels in its tissue paper division to remain under pressure as a result of the heightened competitive marketplace and rising raw material costs.

He said: "While external factors remain challenging in this segment, we remain focused on managing inventory, growing sales levels in our targeted markets, incorporating lower cost materials in our production processes when possible, and increasing sales levels in our Oregon tissue converting facility where we continue to make positive and measurable progress.

"In Europe, underlying industry fundamentals suggest continued strength, raw material prices continue to be favourable, and both order backlog and order intake levels remain healthy.

"Operationally, we will concentrate on managing raw material costs and countering the trend of increasing transportation costs through optimisation of our transport strategies."

High standards: *Bataan 2020's TT SYD is said to reduce steam consumption and increase efficiency*

PHILIPPINES

Bataan 2020 boosts capacity

Philippines-based tissue manufacturer Bataan 2020 has started up two Toscotec-supplied TT SYD-3600MM tissue lines. The Steel Yankee dryers have been started up at the company's Samal mill in the Bataan province.

Emmanuel Gaspar, executive vice president of Bataan 2020, said: "We are committed to responsible industrial production to protect the environment.

"Among other projects we produce steam from renewable power sources. The TT SYD makes it possible for us to actually reduce steam consumption and keep up the highest standard of efficiency on our operations."

The supplier's second generation TT SYD replaced previous installations of cast iron Yankees on PM2 and PM5.

The scope of supply also includes erection supervision, commissioning and start-up assistance, as well as onsite training programs on operation and maintenance.

Bataan 2020 is a leading manufacturer of fine quality paper, board and tissue in the Philippines. It operates paper mills in Samal, Bataan, and Baesa, Quezon City, producing over 100,000 metric tonnes of paper annually.

SOUTH AFRICA

Twinsaver Group boosts capacity

Twinsaver Group has started up an AHEAD-2.0S tissue machine at its Kliprivier operations in Gauteng.

PM5 is a turnkey project supplied by Toscotec and is equipped with a second-generation TT SYD-15FT Steel Yankee dryer with a diameter of 15ft.

The line will produce premium quality super-soft toilet tissue to supply the local and export markets, with a total production of over 30,000tpy.

It is part of a R580m investment announced by the branded tissue manufacturer last year.

The scope of supply included the stock preparation system, the AHEAD-2.0S tissue line, the electrification and control systems, complete plant engineering, erection, and supervision for erection, commissioning, training and start-up.

Twinsaver Group is a leading South African manufacturer and distributor of branded tissue products, including toilet tissue, facial tissues, roller towels, house and leisure and AfH products.

CHINA

Xiamen Sin Yang Paper boosts capacity

Xiamen Sin Yang Paper has invested in a tissue machine restart-up package from Valmet.

Delivery will include project management, maintenance, spare parts and start-up of a tissue machine idled in 2014 and originally delivered by Valmet.

The start-up is scheduled for July 2018.

POLAND

Velvet Care acquired by Abris Capital Partners

Tissue manufacturer Velvet Care has been successfully acquired by private equity company Abris Capital Partners.
The transaction has been approved by Poland's Office of Competition and Consumer Protection.
Velvet Care is a leading manufacturer of brand-name, paper-based personal care products (including tissues, toilet paper and kitchen paper towels) and the owner of the Velvet brand in Poland.
The change will facilitate further acceleration of the company's rapid growth, including international expansion in the CEE region.
Velvet Care was established in August 2013, although its origins date from 1897.
Artur Pielak, chief executive of Velvet CARE, said: "One of the core principles hardwired into our company's DNA is the drive to grow the business rapidly and deliver on ambitious goals.
"For that reason, we appreciate the great accountability involved in selecting the business partners who will help us attain those goals.
"As we open a new chapter in the company's history, this time with Abris Capital Partners as our new partner and with whom we share a similar approach to business, we are poised to pursue a path of international expansion by acquiring attractive entities in our region while also growing organically in Poland as well as on selected western European markets."
In March 2018, Velvet Care started up a new 5.6m wide Valmet-supplied PM at its Klucze tissue mill.

LATIN AMERICA

Sepac boosts capacity with TM start-up

Tissue producer Sepac has started up an XcelLine tissue machine in Brazil.
Supplied by Voith, TM6 is based at the company's Mallet plant in Paraná and will be used to produce tissue paper for sanitary products.
It has a design speed of 2,000m per minute and is able to produce 110 metric tonnes of paper per day.
The scope of supply included the entire machine which was fitted with a MasterJet Pro T headbox, a CrescentFormer, a NipcoFlex T shoe press, an EvoDry Y Steel plate Yankee cylinder, a high-efficiency EcoHood T hood and a MasterReel winder.
The project's main features are the NipcoFlex T shoe press and its 4.8m Steel plate Yankee cylinder, which the supplier said enables the machine to consume up to 20% less thermal energy.
It is part of a growth strategy by SEPAC, which is focused on manufacturing tissue paper from virgin cellulose fibres and increasing its production capacity to 180,000tpy, making it one of Brazil's largest tissue manufacturers.
Over the last ten years, Voith has supplied four tissue machines to SEPAC.
Sepac is one of Latin America's largest tissue paper producers and has 40 years of experience in the domestic and international markets.
Headquartered in the state of Paraná, the company is a market leader in tissue paper for sanitary products in Brazil's Southern region.
Its towels, napkins and toilet papers are marketed in all regions of Brazil and the Mercosur countries under the Duetto, Paloma, Maxim and Stylus brands.
In 2017, Sepac also joined the personal care segment with the launch of its BabyBoo disposable diapers brand.

ITALY

Paperdi boosts capacity with start-up

Tissue producer Paperdi has started up a Toscotec TT SYD-16FT at its Cartiera di Pietramelara mill. The second-generation TT SYD-16FT replaced a cast iron Yankee. The scope of supply included a complete Yankee steam and condensate system.
Located in the province of Caserta, the Cartiera di Pietramelara mill has been producing tissue products including industrial rolls, kitchen rolls, toilet jumbo rolls and towel tissue, with the household brand Soavex and the professional brand paperdi since 1989.
It has an annual production of 45,000 tonnes.

New heights: *Paperdi's TT SYD-16FT moves into the Cartiera di Pietramelara mill*

UAE: Imports and costs dominate but emission curves suggest competitive position in future

The United Arab Emirates (UAE) was formed from a merger of six states in 1971 (Abu Dhabi, Ajman, Fujairah, Sharjah, Dubai, Umm Al Quwain), with Ras Al Khaimah joining in 1972. The United Nations (UN) estimated the country's total population at a little over 9.4m in July 2017, with immigrants making up more than 88% of the total population. According to the CIA World Factbook, 86.1% of the total UAE population live in an urban environment and 97.6% has access to improved sanitation facilities. The UAE economy's GDP was reported at USD $378.7bn in 2017, growing at 1.3%, which resulted in a 2017 per capita income of USD $68,200.

The UAE economy is very open and oil exports support a trade surplus. The UAE is importing tissue (parent rolls and finished products) at four times the rate of imports as reported in UN data (Figure 1). Tissue exports have been flat over the past three years and spread over many regions, with Australia, Cambodia and Laos as the top three partners. Tissue imports on the other hand have been on the rise, accounting for 60,000 tonnes in 2017 or about the equivalent annual production of one 5.8 metre high-speed tissue machine.

Around 50% of the total imports come from Indonesia and most of the total import volume is parent rolls for converting. In Figure 2, we can see the location of all the tissue mills in the Middle Eastern region, with the four operating UAE tissue mills tightly clustered in-shore from Abu Dhabi. Three of the four UAE tissue mills use virgin kraft pulp, but one is integrated with recycled fibre.

The UAE ranks number two in total tissue capacity with Iran as number one. Consumer product grades are the focus of UAE's tissue producers. Consumer bath makes up 61% of production followed by facial at 28% (Figure 3). Commercial or AfH products are not used in this busy working economy.

Most of UAE's tissue production (65%) is based on virgin fibre (Figure 4). Figure 5 provides a more detailed look at UAE's tissue furnish as used by finished product type. Although representing a small percent of tissue production, consumer napkin and towel products use a larger percentage of recycled fibre in their furnish. Consumer bath and facial products represent the majority of tissue grade volumes and use more hardwood pulp than softwood.

Bruce Janda

Senior consultant,
Fisher International

The UAE's tissue capacity has grown in the last 12 years through new mills and tissue machines. Figure 6 shows two new tissue mills were added between 2012 (Queenex Tissue) and 2017 (Al Nakheel Paper). These two mill additions brought the total number of tissue machines up to seven in 2017, and an additional machine is expected to come online in the Crown Paper Abu Dhabi mill in 2019 (Figure 7). Star Paper is building a new tissue machine, and Queenex is also planning a new tissue machine for 2020.

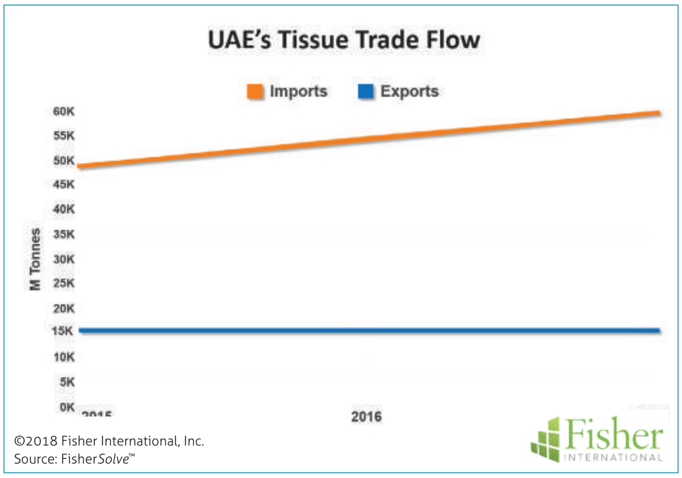

Figure 1: *UAE's tissue trade flow*

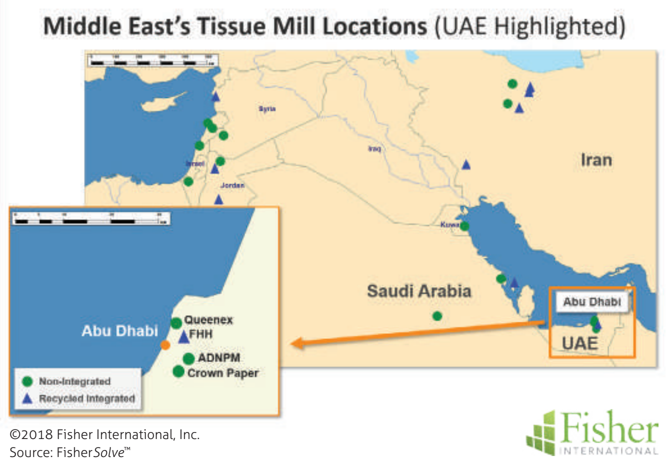

Figure 2: *Middle East's tissue mill locations*

Figure 8 shows the tissue capacity curve growth in the same period, growing by ~200%, from 100,000 tonnes in 2007 to about 300,000 tonnes in 2017. This represents a 9.8% CAGR (Cumulative Annual Growth Rate) over the period 2007 through 2019.

Figure 9 provides an average manufacturing cash cost and cumulative production ranking by country in the Middle East region. Looking at the UAE tissue industry compared to the rest of the region, UAE tissue mills have higher costs than Iran or Saudi Arabia, the other larger capacity producers.

Figure 10 shows another way of rating production capability between countries in the region. The cash costs of Figure 9 are replaced by the Fisher International Viability Index that takes into account not only the cash costs but the capital required, size, technical age, and productivity of the mills and machines relative to the region. Here we see that UAE ranked ahead of all the countries in the region after Iran.

Figure 11 provides one source of the improved UAE viability ranking, with an average technical age for tissue machines less than 15 years. This will continue to improve with the new additions expected in the near term.

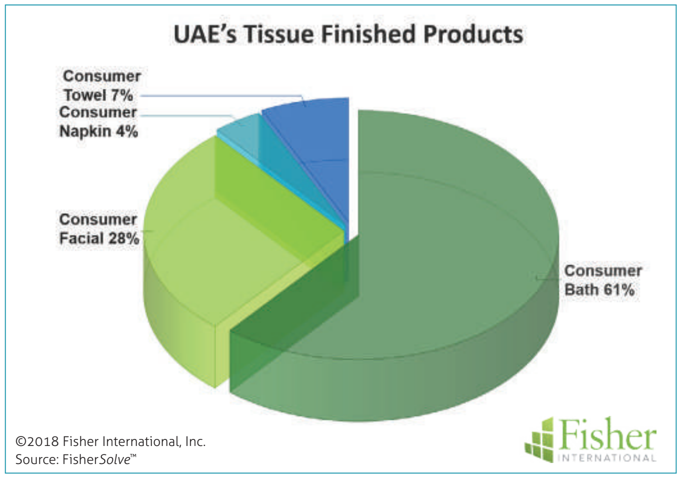

Figure 3: *UAE's tissue finished products*

Figure 12 shows another method of evaluating UAE tissue business assets relative to the overall Middle East region. This chart uses the same format as the Figure 10 (Costs) and Figure 11 (Viability) but now examines the Middle East tissue industry by country regarding Total Carbon Emissions. Carbon emissions are expressed as MT CO_2 eq per tonne of tissue production. Total emissions include raw materials, fossil fuel consumption,

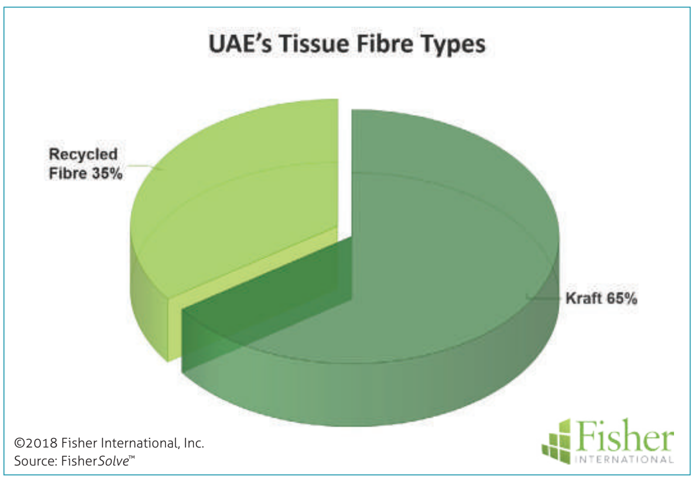

Figure 4: *UAE's tissue fibre types*

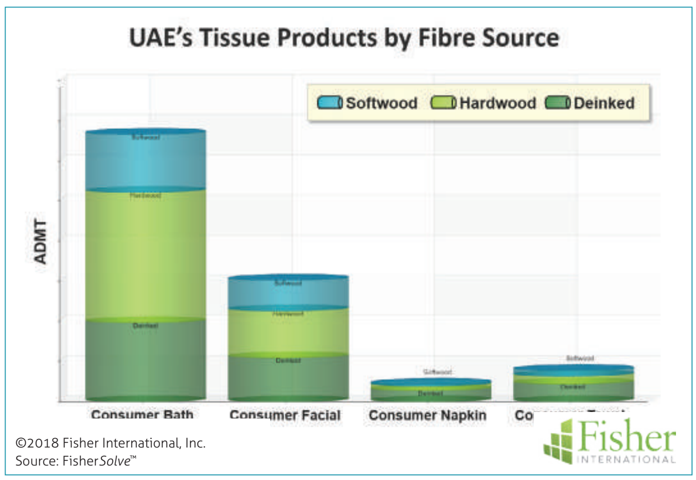

Figure 5: *UAE's products by fibre source*

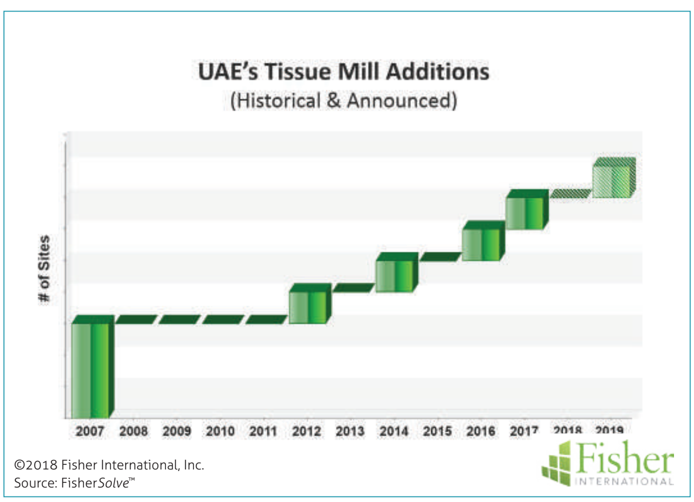

Figure 6: *UAE's tissue mill additions*

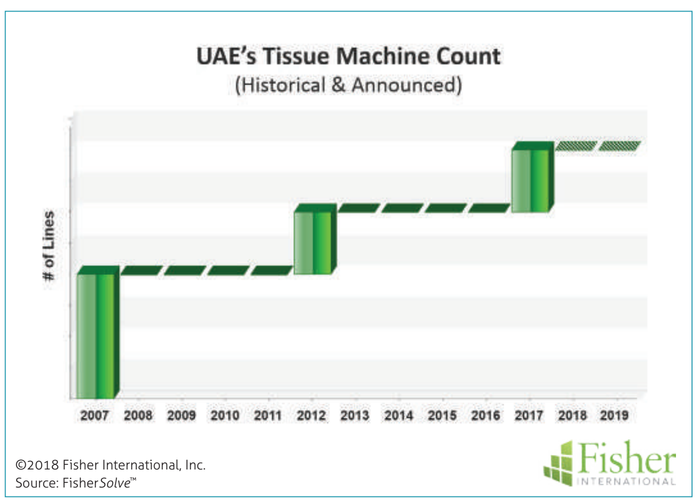

Figure 7: *UAE's tissue machine count*

By Fisher International's **Bruce Janda**

and purchased electricity. Carbon emissions are becoming a viability factor in some regions. This graph shows UAE switching places with Saudi Arabia with lower carbon emissions per tonne, indicating that some of the components of carbon emissions are related to technical age and productivity factors.

Conclusions:

The UAE's tissue industry is based mostly on virgin non-integrated fibre and focused on consumer product grades. Tissue exports are small but imports, primarily parent rolls from Indonesia, exceed 20% of the domestic production. Current manufacturing cash costs are higher than average in the Middle East region, but viability and carbon emission curves suggest that domestic production is being well positioned to compete in the future.

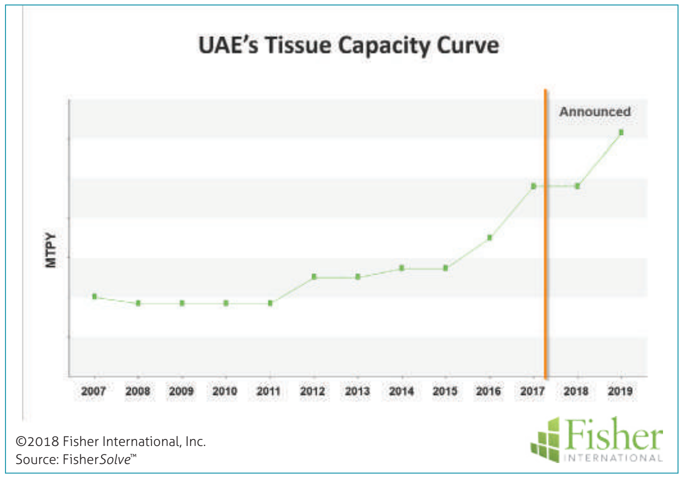

Figure 8: *UAE's tissue capacity curve*

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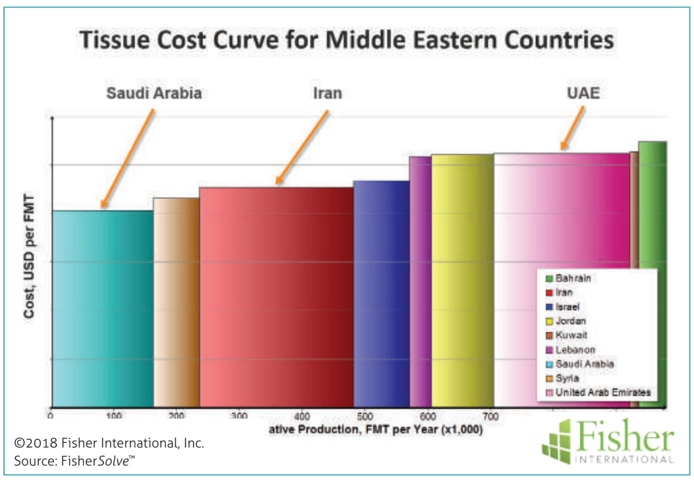


Figure 9: *Tissue cost curve for Middle Eastern countries*

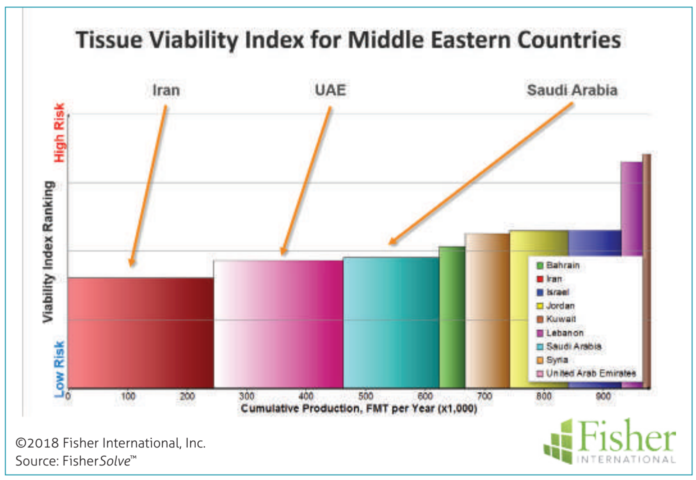


Figure 10: *Tissue viability index for Middle Eastern countries*

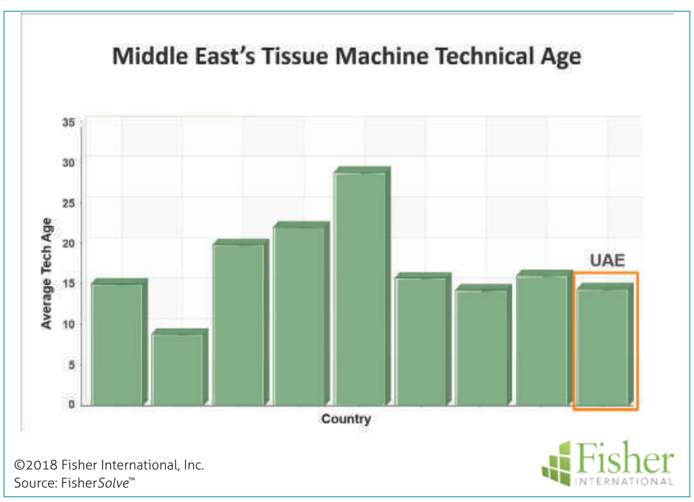


Figure 11: *Middle East's tissue machine technical age*

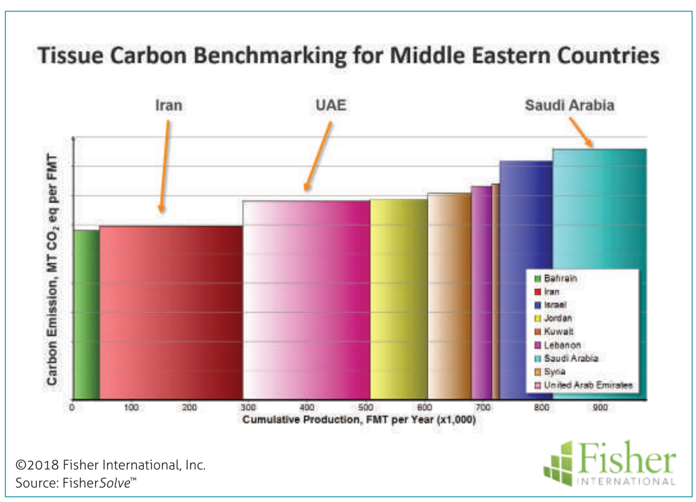


Figure 12: *Tissue carbon benchmarking for Middle Eastern countries*

Retail tissue in the UAE: value, pricing pressures, and outlook for the coming years

The UAE's economic performance is expected to improve in 2018 but remain below trend for the next several years. Real GDP is expected to grow by 3.4% in 2018, following a 1.3% increase in 2017. A large increase in fiscal spending, led by Dubai's preparations for the 2020 World Expo, will be the major driver of the economy. A rise in oil prices also provides support, although it is partially offset by OPEC-mandated oil production cuts.

In 2017, prices in the UAE rose by 2%, and inflation is expected to be 3% in 2018. The recent introduction of VAT pushes up prices. Private final consumption (in real terms) rose by 4.3% in 2017, and an increase of 3.3% is expected in 2018. Unofficially, double-digit unemployment is thought to exist among nationals and represents a drag on consumer spending.

Disposable income per capita amounted to AED104,290 (USD28,397) in 2017, and it is expected to rise by 1.9% (in real terms) in 2018. During the period 2018-2030, total disposable income in the UAE is projected to increase by a cumulative value of 47.8% in real terms – growing at an average annual rate of 3.3%. With the economy in the UAE facing challenges, consumer spending on retail tissue weakened in 2017, with brands and retailers heavily dependent on promotions to maintain demand. Consumers based purchase decisions on products' basic functions and price.

With per capita consumption of retail tissue at 5.9 kg - well below average retail per capita in North America and Western Europe – the UAE continues to offer potential for growth. The country's estimated unmet potential stands at about 53,000 tonnes, with the majority of the potential coming from toilet paper and paper towels. However, economic uncertainty and a heavy focus on promotional activity create challenges for branded consumer tissue products trying to drive sales.

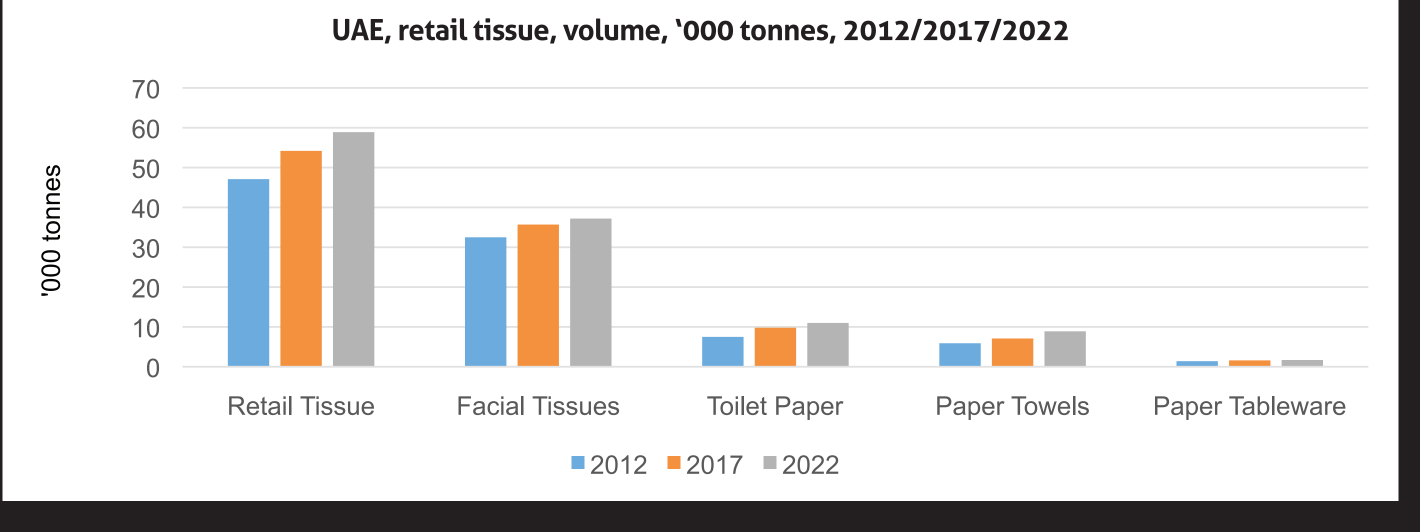
With the economy in the UAE facing challenges, consumer spending on retail tissue weakened in 2017, with brands and retailers heavily dependent on promotions to maintain demand.

C E Gilbert Lai

Research analyst,
Euromonitor International

Challenging times in 2017

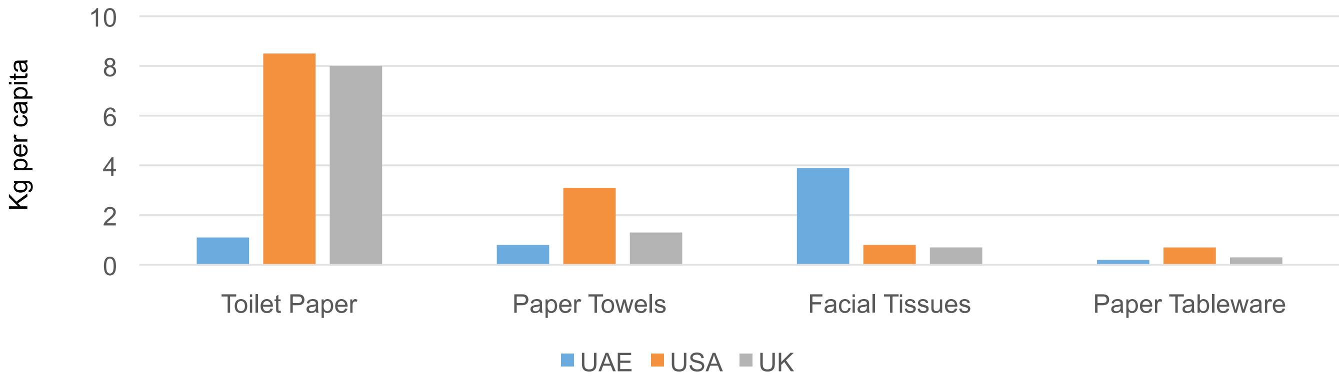
Retail tissue sales in the UAE declined in value terms (US, fixed 2017 exchange rate, real value) in 2017, while demand in volume terms also showed signs of slowing down across most categories and declined in facial tissue. Due to manufacturers' extensive promotional offers, value sales declined much stronger than volume, as unit prices registered a significant drop across major retail outlets.



Euromonitor

By Euromonitor International's **Gilbert Lai**

Retail tissue, per capita consumption, kg per capita, 2017



The decline in value was led mainly by facial tissue – the largest tissue category in retail in the country. In value terms, retail sales of facial tissue in 2017 dropped by 6%, while retail volume decreased by 1%.

However, against the backdrop of the overall weak tissue demand, paper towels demonstrated a better performance in 2017, although still below growth levels experienced in previous years. Consumers in the UAE became more aware of the different uses of each type of product and continued to switch to paper towels in kitchens, instead of using facial tissues. The functionality of the product contributed to its growing popularity. In addition to being used for kitchen cleaning, many consumers started to use the product for other cleaning purposes around the house.

Following weakened consumer purchasing power, many have been looking for bargains in retail and have been turning to private label in search of quality products at a lower price. This tendency resulted in share growth of private label within UAE retail tissue in 2017. Thus, for instance, the Carrefour No 1 private label from MAF Hypermarkets was among the top paper towels brands in the UAE, increasing its share further in 2017.

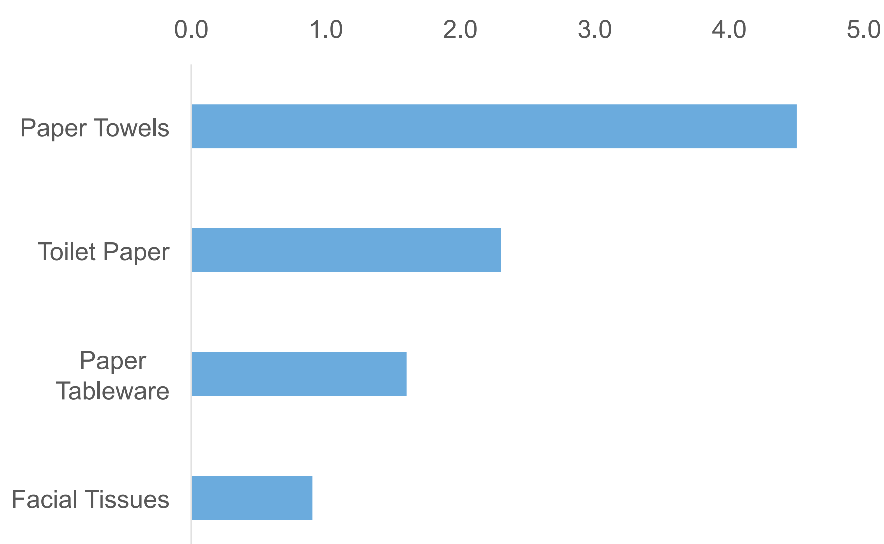
All in all, changes within the competitive environment for retail tissue in the UAE in 2017 were driven mainly by promotions. Consumers were more influenced by price shifts within brands than by brand equity and loyalty. How long the products would last was one of the key factors behind purchasing decisions. As such, products like Fine toilet paper (500m jumbo rolls) were among the bestselling toilet paper brands. Some brands witnessed stable growth due to their balanced strategy with a focus on both promotions and innovation, such as Selpak.

Improved performance ahead but pricing pressures remain

With improved GDP performance – one of the key drivers behind retail tissue sales in the UAE – the sales across tissue categories are expected to improve between 2018 and 2022, with better growth expected in both value and volume terms. Paper towels is expected to be the fastest growing category. The UAE already has a high per capita consumption of facial tissue in retail, far ahead of that of developed markets. On the other hand, toilet paper and paper towels fall significantly behind, thereby opening opportunities for future household penetration and organic growth.

However, leaving the promotional race in retail will be a challenge for manufacturers and retailers. With consumers getting used to lower unit prices through ongoing promotions and bundles, brand equity is being compromised. Expansion of private label will also continue to put pressure on brands. Strategies that involve a combination of innovation, targeted marketing, and quality reassurance might help to draw consumer attention and focus on "value-for-money" rather than price alone.

UAE, retail tissue volume, % CAGR growth, 2017-2022



"The discussion was what size of tissue machine... so we went for the latest and fastest. We wanted everything, the most modern, the most energy efficient, in order to produce the best quality of tissue with have better energy costs and to reduce our carbon footprint."

Managing director Abdullah Al Khateeb explains the key to success in the Gulf as Crown Paper Mill aims to be the largest tissue manufacturer in the Cooperation Council for the Arab States of the Gulf by 2020. By Helen Morris, Senior Editor, Tissue World Magazine.

Driving through the grand streets of the UAE's capital in June to visit Crown Paper Mill (CPM) gives just a glimpse into the daily life of the desert city. It's a stifling 41 degrees, and there are very few people out and about.

The vibrant aquamarine Arabian Sea that runs through Abu Dhabi perhaps hints best at local life: jet skis swing past, speed boats carry holiday-makers and locals, while swanky hotels, palm trees and sandy beaches line the river banks hosting locals and tourists sipping Arabic coffee and exotic cocktails.

There are plenty of glass sky scrapers, sand-colour mansions, extravagant shopping malls, substantial new-builds, and surprisingly few billboards or advertisements. We speed past the Sheikh Zayed Grand Mosque (which has room for 40,000 worshipers), and along the Sheikh Zayed Bridge (named after the country's principal architect, former president and founder, Sheikh Zayed bin Sultan Al Nahyan).

The views beyond are of the Arabian Sea, and the neighbouring Gulf states of Bahrain, Iraq, Kuwait, Oman, Qatar, Saudi Arabia, and Iran.

Once outside the city and immediately the contrast is stark; mile after mile of desert, dusty skies and giant power lines accompany the road until we arrive at the industrial region that is home to some of the country's top businesses.

TWM is greeted by Abdullah Al Khateeb, the managing director of CPM. He is friendly and witty, speaking in excellent English and first discussing the weather: "Here in the UAE there's not much choice, it's either hot... or very hot! But winter here can be very beautiful, it's like your (British) summer, but without the non-stop rain and strong winds", his travels, as well as his love of Barcelona Football Club.

Originally from Jordan, he has lived in the UAE for almost 20 years. Upon joining Ittihad International Investment, a private holding and multi-disciplinary conglomerate, and parent company of CPM, he says: "The Ittihad Group is investing almost in everything, health, trading, the industrial sector. In the last few years we have started to focus more on industry

Helen Morris

Senior Editor, Tissue World magazine

"There will be tough competition here in the next few years. But people are looking at us in a different way now." Abdullah Al Khateeb, managing director of Crown Paper Mill

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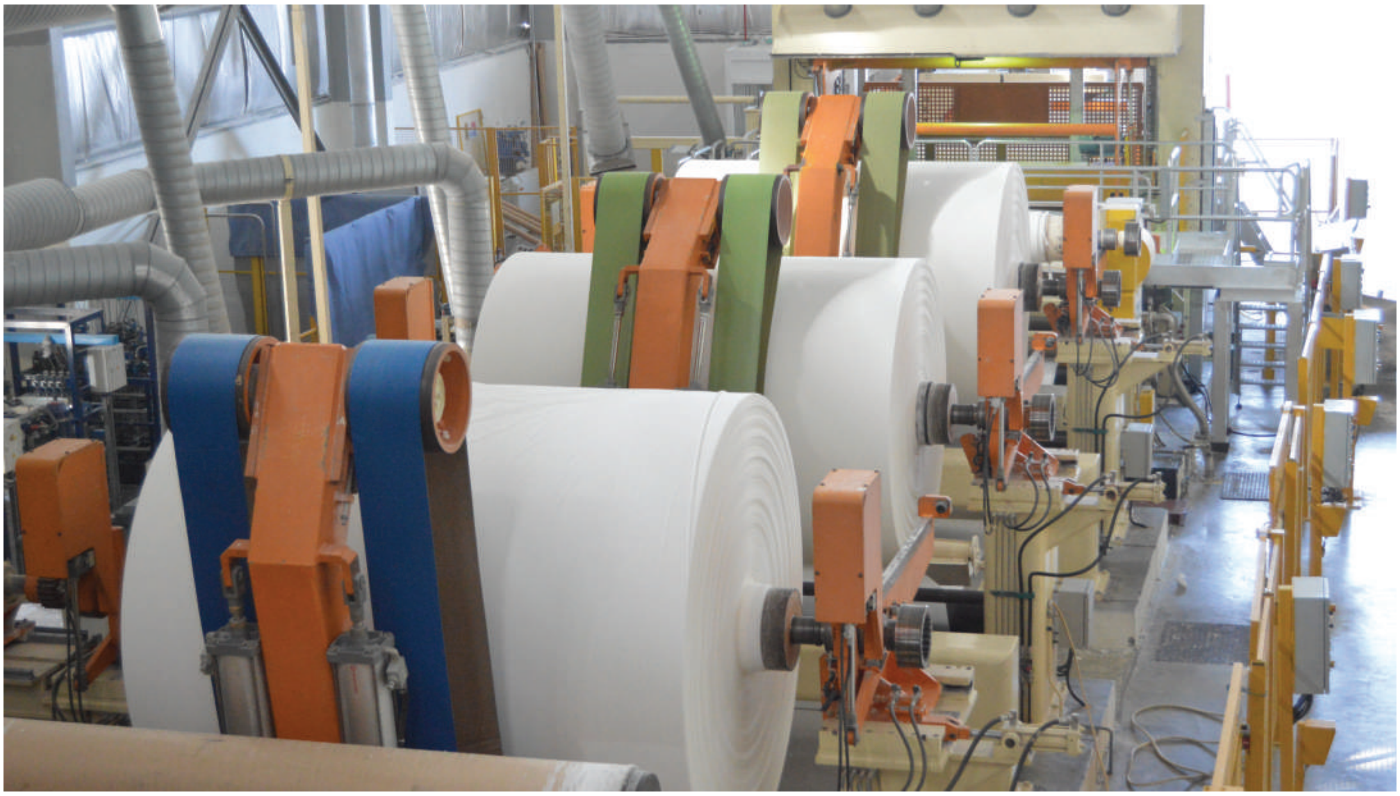

Product variety: *from its 50,000sqm plant, CPM produces jumbo rolls for a variety of products, from 13.5gsm facial tissue to 45gsm hand towels, all from high-quality virgin pulp grades.*

"The market isn't growing as it was because of the current political situation in this region... the Arab Spring, the wars in Yemen and Syria... it has impacted the tissue market and created a tough competition for us."

and especially in the paper industry, we have seen a lot of potential there and we own the largest printing and writing mill in the MENA region, Ittihad Paper Mill (IPM), with annual production capacity of 320,000mt."

He was then asked to spearhead CPM, a leading producer of jumbo tissue paper rolls in the Gulf. From its 50,000sqm plant it produces jumbo rolls for a variety of products, from 13.5gsm facial tissue to 45gsm hand towels, all from high-quality virgin pulp grades, which are then sold to converters in the region.

The range also includes "Deep Dye" tissues, which it sells into developed markets including the UK and the USA.

Of the Gulf region's tissue market, he says it is a little slow: "The market isn't growing as it was because of the current political situation in this region... the Arab Spring, the wars in Yemen and Syria... it has impacted the tissue market and created a tough competition for us.

"All the tissue mills here are suffering. We are doing well, but we still can't increase prices because of the competition here and the slow market."

The company faces strong competitors within the UAE. The Nuqul Group is present as well as Abu Dhabi National Paper Mil. The latter is currently the largest manufacturer of jumbo rolls for the UAE, producing 90,000tpy. In 2015 it started-up its third TM, Valmet's Advantage NTT New Textured Tissue machine. It is targeting the production of premium- quality tissue and was the first, and currently the only, NTT machine in the Middle East.

Al Khateeb says: "As the market just isn't here as much as we would like for our capacity, and we have large competitors in this region, the solution was for us to take advantage of IPM and our access to pulp and using almost the same chemicals as our printing and writing paper plant, and go for an expansion at CPM with annual production capacity of 65,000mt.

"The discussion was what size of tissue machine... so we went for the latest and fastest. We wanted everything, the most modern, the most energy efficient, in order to produce the best quality of tissue with better energy costs and to reduce our carbon footprint."

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By Tissue World Senior Editor **Helen Morris**

Responding to market demands: *the strategy is to produce mid-range, high-quality products*

"Especially here in the Gulf and Abu Dhabi, we had the privilege of low energy costs for gas, water and electricity for many years, but not anymore because in the last two years they increased everything.

"So now if you want to compete in this area, you have to have the advantage of low cost. So we are focused on best quality, and low cost, and best service."

A new Valmet-supplied Advantage DCT 200HS is currently in construction and expected to be up and running by the end of 2018.

The investment was made to specifically target the increasing demand for high quality tissue products in the Middle Eastern market and, crucially, will add 65,000tpy of capacity to CPM's current 37,000tpy, launching the company into the big league within the Gulf region's tissue market.

"Today, we are one of the smallest capacities … but later this year, when we reach 100,000tpy, it's a different story. We are now very well established here as Crown."

The machine includes an Advantage ViscoNip press and Advantage ReTurne energy recovery system and will have a width of 5.6m and a design speed of 2,000m/min: "This investment will differentiate us from the rest of the market," he says.

"Today, we are one of the smallest capacities … but later this year, when we reach 100,000tpy, it's a different story. We are now very well established here as Crown."

"There will be tough competition here in the next few years," he adds. Today Crown, with its two machines, is competing with strong competitors and the latest technologies. And with its investment plans, it is expecting to continue along its growth path.

"We have a very clear strategy: to expand out of the Gulf, into the UK, the States, certain areas in Africa… wherever there are opportunities. Because of IPM, export will be much cheaper for us, benefits of raw materials and logistics.

"We need to continue to produce the products right for this market. Until we see an improvement here in the Gulf, that will continue to be our strategy. Our aim is to serve our customers with the best quality, and the best service with competitive prices in the region."

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Optimyze® and Optimyze® Plus patented enzymatic technologies from Buckman work naturally in pulp to break down the chemical bonds of pitch and man-made adhesives, significantly reducing the size and quantity of stickies and preventing them from combining and depositing in your system. Optimyze technology can help you reduce downtime, improve runnability and sheet quality, and lower furnish costs. Plus, it can help reduce your mill's impact on the environment. In fact, it's a U.S. EPA Presidential Green Chemistry Challenge Award winner!

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Target markets: *in the UAE, FHH is the number one player in most tissue categories, including facial tissue, toilet tissue and AfH, and the second player in the kitchen towel sector.*

FHH targets impressive '5% annual tissue growth' potential in the UAE

Fine Hygienic Holding (FHH) plans to double capacity at its integrated Al Nakheel site in the next two years. Director of operations Adel Al Far explains the strategy. Report: Helen Morris, TWM Senior Editor.

Helen Morris

Senior Editor,
Tissue World magazine

One of the most striking aspects on arriving at Fine Hygienic Holding's (FHH) Al Nakheel site is its obvious potential for expansion. Located around 40 minutes outside of Abu Dhabi, the 145,000sq metre integrated space currently houses one TM that produces 55,000tpy, as well as converting lines that manage 30,000tpy, producing products mainly for the At-Home and AfH markets.

Adel Al Far, FHH director of operations, UAE, greets TWM warmly from his on-site office. Originally from Jordan, he has lived in the UAE since the start of the Al Nakheel project.

He admits it's very challenging in Abu Dhabi and the UAE: "But we're clear on our strategy here, and we have the space to grow," he says. "We offer a wide range of tissue paper products, from premium products to value products, and with an integration mill we have a unique selling point, producing either high-quality premium products or value products."

FHH – of which the Jordan headquartered, and MENA-region tissue leader Nuqul family owns the majority shares – now operates five tissue paper mills across Jordan, Egypt and now Al Nakheel, with a total capacity of 210,000tpy. It also has five converting sites in Jordan, Egypt, Saudi Arabia, UAE and Morocco, with a total capacity of 150,000tpy.

In the UAE, it is the number one player in most tissue categories, including facial tissue, toilet tissue and AfH, while it is the second player in the kitchen towel sector. Al Far says the company will continue to target and invest in these sectors.

The start-up of the new Valmet-supplied machine is a step in that direction. It has a width of 5.6m, a design speed of 2,200m/min, and is converting grades into high-quality facial tissue, towels, napkin and toilet paper for customers in the Middle East. It also included the brand-new building.

There was also impressive potential for tissue in the UAE region: "It is unique here compared to the other gulf countries," he says.

"Per capita consumption for tissue is 12kg, one of the highest in the Gulf region. The total tissue paper market size is 110,000 tones, so a big market compared with the UAE's 9.2m population."

***Growth potential:** as the number one player in most tissue categories in the UAE, FHH will continue to target and invest in these sectors*

By Tissue World Senior Editor **Helen Morris**

He offers a conservative estimate of 5% annual growth for tissue in the county: "Total jumbo reels production capacity is almost 200,000 per year, almost double the demand, with two mills planned to come on stream in the first quarter of 2019, boosting the production capacity to almost 290,000 tonnes.

"This means the UAE and Abu Dhabi in particular will host one of the biggest production capacities in the MENA region."

He's also seeing AfH growing faster than retail, and the private label sector growing faster than retail and becoming more popular: "This is mainly driven by the younger generation, it's very popular with them. Tourism is also increasing this sector. Saudi Arabia is the most similar market in the region to us here, but there they don't have as much tourism as the UAE does, which really helps drive demand for AfH tissue products."

FHH's strategy is to continue to invest into a region where there was good access to energy: "We're able to sustain our operations more efficiently here. The infrastructure and logistics are much better, electricity is cheaper.

"But you can't separate the UAE with the surrounding countries," he says. "Wars impact the whole area. Syria, Iraq... so while we're seeing some demand improving the economy in the Gulf countries, at the same time political issues and oil prices are impacting us."

However, he adds that investment, especially in Abu Dhabi, is attractive: "With availability of land with excellent infrastructure, availability of gas, electricity and water at reasonable prices, access to many markets, including Lower Gulf, Saudi Arabia, Pakistan, and many other countries ... it is an attractive region for us."

" With availability of land with excellent infrastructure, availability of gas, electricity and water at reasonable prices, access to many markets, including Lower Gulf, Saudi Arabia, Pakistan, and many other countries... it is an attractive region for us."

FHH has a strong presence in each market sector; retail, AfH and private label. AfH represents approximately one third of total tissue demand in the UAE and is estimated to be growing faster than other sectors due to high travel tourism, the World EXPO 2020, and also because 88% of the UAE population are expats. Some 65% of the population's age range fall between 25-54 years, with a male to female ratio of 72% to 28%. This all represents strong drivers for the AfH sector, and it continues shifting from premium to economy. This is also happening to other channels, but he says at a much slower rate."

FHH is also keen on green and energy efficient operations and he adds that the group is the sole company that uses SteriPro sterilising technology, a unique sterilisation process that eliminates germs. The unique patented sterilisation process ensures that only the cleanest and best quality product reaches

Changing demographics: *FHH is well established in the AfH market, which is being driven by the younger population and tourism.*

By Tissue World Senior Editor **Helen Morris**

Increase in demand: *the company predicts demand to improve, and has plenty of room for expansion when it does*

the consumers.

"The MENA region has surplus capacities today and will likely continue to have surplus capacities in the coming two years," he adds. "The regional demand growth has slowed down since the Arab Spring started in some markets (mainly Libya, Yemen, Iraq and Syria), while other markets' growth has slowed down because of oil prices. Consumer spending has continued to decline, and this was clear in most tissue categories. This forced all suppliers to heavily depend on promotions to maintain demand. Suppliers have also continued reducing their costs parallel with improving basic element in tissue functionality to stay attractive."

"The demand will improve if governments succeed in reform, oil prices recover, tourism improved, closed borders open, and the economic cycle improves. Still no clear picture when such will happen."

Until then, the capacity in the UAE is double the demand: "This is very challenging. With all the new mills coming on-stream, this will triple capacity," he adds. "But if the situation of the area improved, this would be of great benefit for all the tissue mills here. We're creating a "mini Lucca"!"

FHH is also keen on green and energy efficient operations and he adds that it is the sole company that uses SteriPro sterilising technology, a unique sterilisation process that eliminates germs. The unique patented sterilisation process ensures that only the cleanest and best quality product reaches the consumers.

Quality and savings key for Queenex as energy costs rise and supply outstrips demand

Based in Abu Dhabi, Queenex Hygiene Paper Manufacturing (QHPM) is a subsidiary of Queenex Paper Products. In 2012, it started up a crescent former tissue machine that produces first-class tissue paper from the high-quality virgin pulp. TWM talked to general manager Medhat Saleh.

TWM/1: What is your position in the UAE's tissue market?

Medhat Saleh: "As we are producing 28,000mt/annum, we are not the highest production from a quantity perspective, but we can confirm that we are a quality-oriented paper mill and our benchmark in the Cooperation Council for the Arab States of the Gulf (GCC) has made it hard for our competitors. We can confirm that our paper is the highest quality of tissue in GCC and might be in MENA."

TWM/2: What are your growth plans for the next few years?

Saleh: "Our main plan was to expand our production to reach 80,000MT/annum. However, due to the current market conditions … recession, political situation and disputes, etc.... many industries in the region have been impacted. The demand and supply gap indicates supply has become higher than the demand as importation from Asian suppliers due to lower prices is escalating.

O **Helen Morris**

Senior Editor,
Tissue World magazine

"Our strategy is to strengthen our current position and develop a slight production capacity increment (currently we are running with 88% of machine capacity) and focus on energy savings methodology to improve our competitiveness."

"Our strategy is to strengthen our current position and develop a slight production capacity increment," QHPM general manager Medhat Saleh

By Tissue World Senior Editor **Helen Morris**

Responding to customer demand: *the company uses 100% virgin tissue paper to focus on the high-quality paper market*

TWM/3: Are you looking to export?

Saleh: "We are selling in UAE and exporting to Kuwait, Oman, Saudi Arabia, South Africa and a small amount to UK."

TWM/4: What trends are you seeing in the UAE tissue market?

Saleh: "For the last few years, the growth is about 4-5%. Compared to 2011, this is a decrease as we were seeing 6-8% then."

TWM/5: How is the economic environment impacting the tissue market?

Saleh: "Up until 2016, the UAE was in a strong position and encouraging investors for greenfield projects, especially in high-energy consuming industries. But all of a sudden, during the last two years energy tariffs have increased magnificently, for example, one cubic metre of fresh water jumped from AED 2.2 to AED 8, which means a four times increase. A similar trend has happened for gas and electricity, which has made it too tight to generate a decent profit.

"Lastly, the current pulp price and the absence of any local industry protection (Custom Free), where any customer could import with at least $100 less priced products, is also impacting the market."

TWM/6: Are environmentally-friendly tissue products popular in the UAE, is this a growth area for you?

Saleh: "Environmental rules and regulations in the UAE have always been strict, and most of the industries have no option as every process is being monitored by the local authorities where fines and penalties could mean shutting down the facility, and subjected to really huge fines."

TWM/7: What are the main challenges and opportunities you face over the coming years?

Saleh: "As long as there is no legalisation of local industries protection, the threat of losing market share due to low prices will be there.

"Additional capacities brought to the market are challenging, especially when we see those that produce more than 5,000MT a month starting to sell on a loss base as they consider the current situation to be temporary and that they can quickly recover.

"Luckily, we chose to use 100% virgin tissue paper and to focus on the high-quality paper market and this allows us to share our production over a various customer base, and on a fractured base (selling to as many as 30 customers for their niche and high-quality products, which is about 5-30% of their requirements). But we are also seeing a continuing price war in the region."

TWM/8: How are you tackling energy efficiencies?

Saleh: "We are running a program with Abu Dhabi Distribution Company/ Governmental Energy Provider (ADDC) to improve our consumption, as we are also in the middle of an investment with a high-tech company in the energy field to improve our consumption by 2-4% on the short term."

It could only be 5-star tissue at this idyllic treehouse by the lake

One-stop bulk bought tissue is transported by boat – The Hangover – across Lake Harrison in British Columbia to her thriving home and business. Coleen Brown shares a glimpse of her beautiful lifestyle.

We live on the edge of Lake Harrison in British Columbia, Canada, directly adjacent to the lakeshore. Our home is there, as well as the Tree House, a log cabin that we opened up as a guest house in 2016.

It's very peaceful, quiet and off-grid. Both homes are only accessible by boat from Harrison's Public Dock, and our neighbours are Mount Cheam, coastal forests, our boat ("The Hangover") and the beautiful Harrison Village skyline.

As there are no roads or vehicle access points, and as we run a guest house, when we do buy tissue supplies for the properties we stock up and plan the trip so it is as cost-effective as possible.

Treehouse Harrison buys the majority of our tissue products at Costco. It's the closest large supermarket to us and makes sense as it's a one-stop for all of our needs. We can buy in bulk there to share between the two homes. The tissue products I mainly use and buy in bulk are Purex toilet paper, Kirkland paper towel and Scotties Kleenex.

I've designed the Tree House so it's as environmentally-friendly as possible, and where possible the products that we use here are also green products.

That principal was important from the start and applied to everything.

When we started to construct it the first phase was to build a concrete base for the future cabin. All the building materials had to be barged in and unloaded by hand. The principal utilities are now managed by a combination of eco-friendly solar power, propane appliances and a back-up generator, which we use for heating the hot water on-demand for the outdoor hot tubs and outdoor showers.

All the interior cedar finishing was milled from a local family heritage property and the log cabin structure was pre-fabricated in nearby Popkum BC and then barged to the property, so that we could be as much a part of our natural surroundings as possible.

We transport all the products on The Hangover across Harrison Lake, which is about a 10-minute boat trip. I keep a ready stock of everything… toilet paper, kitchen towel, wet wipes, make-up wipes, etc. We have outdoor toilets as well as inside the cabin, and the kitchen is also stocked with kitchen towels and wet wipes which we use for spillages and also for cleaning the fireplace, wiping up spills on the boat, the canoes, etc.

I like to buy good quality products to keep Treehouse Harrison a 5-star rating.

Coleen's Tree House can be found at: www.Treehouse-Harrison.com

"It's very peaceful, quiet and off-grid. Both homes are only accessible by boat from Harrison's Public Dock, and our neighbours are Mount Cheam, coastal forests, our boat ("The Hangover") and the beautiful Harrison Village skyline."

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"I designed the Tree House so it's as environmentally friendly as possible, and where possible the products that we use here are also green products."

Coleen Brown

Discussing eco-friendly and effective repulping aids in response to new regulatory challenges

By Kemira Chemicals Germany's Vladimir Grigoriev, senior manager, applications and marketing, Pulp&Paper EMEA, and Tea Hannuksela, group leader

Vladimir Grigoriev

Senior manager, applications and marketing, Pulp&Paper EMEA

Tea Hannuksela

Manager, applications laboratory, Pulp & Paper EMEA

Abstract

Wet-strengthened paper grades often require a use of oxidative repulping aids. Traditional hypochlorite is undesirable due to its hazardous nature and a contribution to AOX. New stricter regulations, especially in Europe, will restrict its use even further. Alternative persulfate powders are more eco-friendly, but often limited in their effectiveness and have some drawbacks, e.g., alkaline yellowing of pulp.

A new eco-friendly repulping aid, FennoSpec 9368, was developed by Kemira.

This product is based on sodium percarbonate chemistry and provides an economic alternative without significant drawbacks. The benefits, advantages and industrial experiences with FennoSpec 9368 are reviewed in this paper.

Risks and limitations of conventional repulping aids

Handling wet-strength broke or recycled fibres with high wet-strength can be a challenging task.

Conventional tools such as high mechanical shear, high temperature and caustic soda are not always sufficient to provide uniform fibre stock within a reasonable pulping time, especially for aged converting broke.

For difficult wet-strength papers, additional oxidative chemicals are required that can break down strong covalent bonds of a wet-strength resin [Ref 1].

Sodium hypochlorite has historically been used to aid in repulping of wet-strength papers although its use is currently less desirable.

Hypochlorite is a hazardous chemical that requires special handling. It is also a source of free chlorine, which can cause metal corrosion as well as contribute to AOX in paper and effluent.

If the residual levels after repulping are not carefully controlled, the Cl carryover to the wet end can destroy some of the wet-strength resin and reduce its efficiency. High level of free Cl can also negatively impact Yankee coating and machine runnability.

Due to its poor environmental and safety profile, the use of hypochlorite for repulping has been trending down, but surprisingly there are still many tissue manufacturers that use it.

The upcoming changes in the AOX regulations will force tissue makers to look for alternatives, at least in Europe. The EU Directive 2010/75/EU, coming into effect in September 2018, will reduce the AOX limit in effluent in the wet-strength paper production from 150 to 50 g/t of paper produced [Ref 2].

Due to its poor environmental and safety profile, the use of hypochlorite for repulping has been trending down, but surprisingly there are still many tissue manufacturers that use it. The upcoming changes in the AOX regulations will force tissue makers to look for alternatives.

Figure 1. *FennoSpec 9368 is supplied in a granular form, providing a lower dusting tendency and a faster dissolution rate compared to other powder repulping aid. FennoSpec 9368 is conveniently packed in 10 kg white repulpable paper bags, which can be fed directly to a pulper without opening.*

Until recently, persulfate has been the only alternative chemistry. Various persulfate salts are available in the powder form. Their eco-profile is more favourable compared to hypochlorite (no Cl), yet with several drawbacks.

The powder does not dissolve fast and the oxidation potential is lower compared to hypochlorite; therefore, it requires longer pulping times and higher temperatures.

Caustic soda must be added to achieve the desired effect from persulfate, which causes alkaline yellowing of fibres.

There have also been reports of a negative impact on Yankee coating performance.

FennoSpec 9368 – a new eco-friendly repulping aid

Kemira has developed FennoSpec 9368 as an eco-friendly alternative to hypochlorite. This product is based on the sodium percarbonate chemistry and is supplied as a granulate, shown in Figure 1.

The uniqueness of this chemistry comes from a combination of both alkaline and oxidative components in one product.

The fast dissolving FetnnoSpec 9368 releases sodium carbonate and hydrogen peroxide into a solution.

This brings both alkalinity (pH 9-10) and oxidative power to the system, creating favourable conditions for effective break-down of the wet-strength resin in paper.

FennoSpec 9368 is conveniently packed in 10 kg white repulpable paper bags, which can be fed directly to a pulper without opening.

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The key advantage of this chemistry is its superior eco-profile as it does not form any harmful residuals.

Only water and sodium carbonate remain after repulping. Therefore, this product has no contribution to AOX and has every major eco- and regulatory approval.

Other advantages of FennoSpec 9368 over persulfate include a faster dissolution, which helps reduce repulping time. Figure 2 demonstrates an increased repulping rate when the persulfate powder was replaced with FennoSpec 9368.

The uniformity of fibre distribution clearly demonstrates a more advanced dispersion of fibres after repulping with FennoSpec 9368 compared to no chemicals or persulfate.

FennoSpec 9368 does not require additional caustic soda as it alone can bring pH to 9-10. When working with difficult fibres, e.g., aged converting broke or tetra pack recycled fibres, additional caustic soda could further boost the effect of FennoSpec 9368.

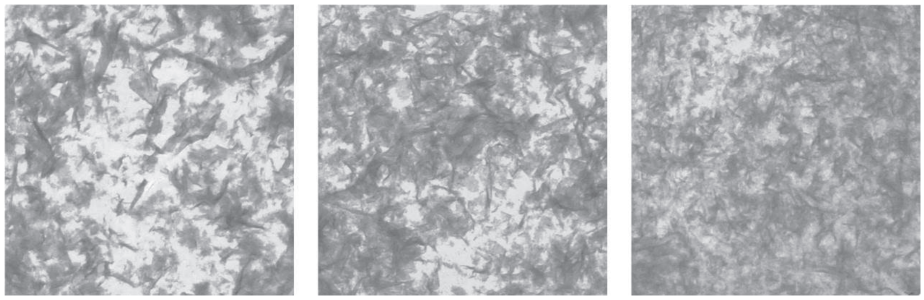

Figure 2. *Photos of handsheets on an illuminated screen. The handsheets were made from pulp taken from the pulper after 15 min. The left photo is pulp without any pulping chemicals, the middle photo is with 10 kg/t of persulfate and the right photo is with 10 kg/t FennoSpec 9368. The uniformity of fibre distribution clearly demonstrates a more advanced dispersion of fibres after repulping with FennoSpec 9368 compared to no chemicals or persulfate.*

This is demonstrated in Figure 3 showing the results from an industrial trial of FennoSpec 9368 against the reference persulfate chemistry.

A high temperature in the repulping stage is beneficial. The product will dissolve faster, and the peroxide will be more reactive. In general, a sufficient effect can be seen from FennoSpec 9368 above 35°C and pH 9,5 or higher.

In general, the higher the temperature, the faster the reaction will be. The temperature requirements for FennoSpec 9368 are still lower than for persulfate powders, which require hot alkaline conditions, 70°C or above and pH 10 or higher [Ref. 1].

Industrial experiences with FennoSpec 9368

FennoSpec 9368 has proven successful in repulping of not only tissue and towel grades, but also tetra pack, decorative papers or even labels. It naturally works well for repulping of converting broke.

Under proper repulping conditions, FennoSpec 9368 reacts fast and can either shorten the repulping time or allow more difficult wet-strengthened recycled raw materials in the pulper.

FennoSpec 9368 may not bleach the pulp like hypochlorite but, thanks to the in-situ release of hydrogen peroxide, it will prevent alkaline yellowing of the pulp, unlike persulfate and other alkaline powdered products.

A case study demonstrating the use of FennoSpec 9368 for wet-strength broke is shown in Figure 4.

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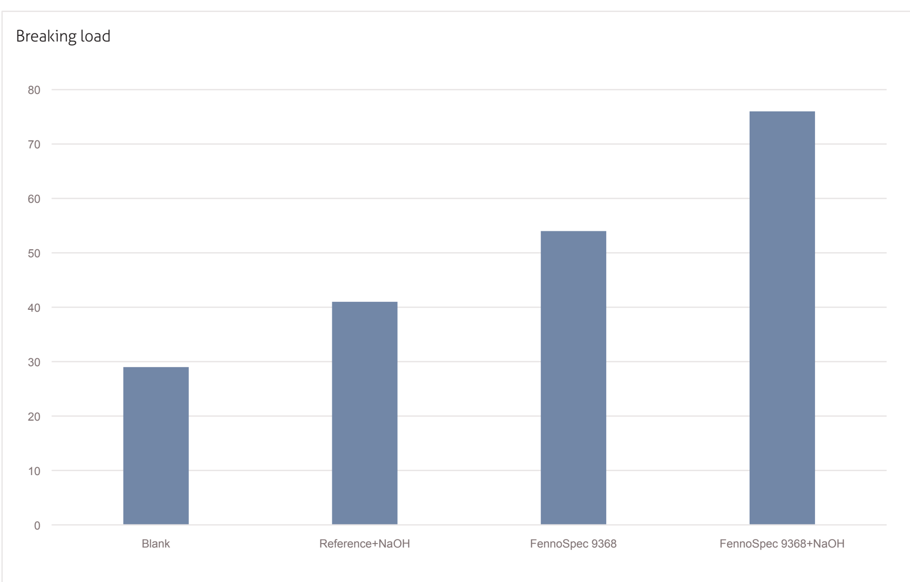

Figure 3. *Breaking load of handsheets made from the pulp taken from a pulper after 15 min of repulping the tetra pack recycled fibres. The higher the breaking load, the more effective repulping is. The incumbent persulfate powder (reference) required caustic to reach pH 11. FennoSpec 9368 alone at pH 9,5 could already accelerate the repulping process, which was further improved at pH 10,5 by adding extra caustic soda.*

Under proper repulping conditions, FennoSpec 9368 reacts fast and can either shorten the repulping time or allow more difficult wet-strengthened recycled raw materials in the pulper.

Case study: FennoSpec 9368 for repulping WS broke

Machine overview	• Grade: Kitchen towel, AFH towel, hankies, facial, toilet paper
	• Machine type: 2 layer Crescent, 6-8 t/hr, 1700 m/min
	• Furnish: 100% virgin fibers
	• Chemicals
	  • WSR: FennoStrength @ 15-35 kg/t
	  • Anionic promotor: FennoBond 85E @ 4-7 kg/t

Needs	• Need for effective repulping aid for WS broke with a good safety and eco-profile • Hypochlorite is not allowed due to poor safety and eco-profile • Caustic soda causes yellowing of paper and also calcium deposits in broke lines due to high water hardness
Solution and Benefits	• FennoSpec 9368 @ 30 kg/t dry broke, 70 min, 50ºC, pH 10 • Effective repulping of WS broke • Safe and easy handling: 10 kg repulpable bags, no dust • Less calcium deposits → less downtime for cleaning up the broke line • Superior environmental profile: chlorine free tissue production

Figure 4. Industrial case study for FennoSpec 9368 successfully used for repulping of wet-strength broke.

Summary

FennoSpec 9368 is the new eco-friendly wet-strength repulping aid that can provide economic benefits to tissue makers.

It should be strongly considered as an alternative to hazardous and eco-challenging hypochlorite, especially in Europe in view of stricter AOX regulations.

FennoSpec 9368 has also advantages over other powder alternatives, such as persulfates. Below is the summary of benefits and advantages of FennoSpec 9368.

- Superior eco-profile, safe and easy handling
  - o No chlorine, no AOX, no corrosion
  - o 10 kg repulpable bags.
- More efficient repulping compared to other oxidizing powders
  - o Faster dissolution and shorter repulping time, energy savings
  - o Possibility to use more difficult wet-strengthened-fibres
  - o Less fibre losses from reject screening
- Improved sheet quality
  - o More uniform repulping, improved sheet formation, higher dry tensile
  - o Higher brightness, no alkaline yellowing unlike with persulfate or caustic soda alone.

FennoSpec 9368 is the new eco-friendly wet-strength repulping aid that can provide economic benefits to tissue makers. It should be strongly considered as an alternative to hazardous and eco-challenging hypochlorite, especially in Europe in view of stricter AOX regulations.

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This article was written for Tissue World magazine by Kemira's Chemicals Germany's Vladimir Grigoriev, senior manager, applications laboratory, Pulp & Paper, EMEA, and Tea Hannuksela, manager, applications laboratory, Pulp & Paper, EMEA.

Widening the operating window to improve competitiveness in today's environment

By Richard Cho, Solenis global marketing manager, tissue and towel

Richard Cho

Solenis global marketing manager, tissue and towel

Tissue makers have to face consumer demands every day — demands for softer, stronger and more absorbent products at an efficient cost. Whether producing premium brands or value brands for consumers or the away-from-home market, the need to improve product quality and machine productivity never ends.

Market trends towards sustainable fibre usage and water conservation are adding even greater complexity to optimizing Yankee cylinder performance. In addition, private label brands are raising quality standards as they look to win share from branded competitors. In today's environment, gaining a competitive edge is becoming increasingly challenging and requires a tapestry of specialised capabilities.

Concurrent with this increasing quality demand is a need to run tissue-making operations more efficiently and cost competitively. Investment in new machines will increase capacity at an accelerated pace versus projected demand.

This imbalance will lead to lower machine utilization rates and create increasing pressure on market price. The growth of e-commerce will provide consumers easy access to real-time price comparisons (Euromonitor, 2017) and may also introduce new private label competitors into the category.

Tissue makers will need to identify solutions across the value chain to deliver against consumer and retailer expectations regarding product quality and price. The Yankee drying cylinder is the most critical area of the tissue machine because its performance has a significant impact on final tissue properties, as well as machine productivity. Using a high-quality and reliably stable coating to protect the surface of the Yankee dryer is vital to every tissue-making operation.

Quality and price: *tissue makers will need to identify solutions across the value chain to deliver against consumer and retailer expectations*

A **TWM** report

With the proliferation of different types of structured sheet machines, working with a partner who understands how to optimise the Yankee coating on different machine types will be a key advantage.

The role of the coating is to adhere the sheet to the Yankee and to aid in the release. As a result, tissue properties are more easily controlled, and the Yankee cylinder is better protected, which helps to extend the operational life of the cylinder and the creping blade. Investment in a more robust coating will help deliver a more efficient total production cost and will have a significant long-term payoff.

The challenge

Many mills struggle to achieve and maintain coating stability because they are subject to changing conditions on a constant basis. These shifting conditions can impact Yankee coating performance and cause machine upsets. Common factors that can compromise performance include:

- Cross-direction moisture variation driven by felt plugging, papermaking speed, and furnish processing changes;
- Inconsistent water quality related to shifts in pH, conductivity, and dissolved solids;
- Variable levels of hemicellulose, fines, and inorganic ions in furnish;
- Temperature variation, which can affect drying performance.

These compromises can lead to productivity, quality, and asset-protection issues. Only the most robust and reliable Yankee coating will widen the operating window and enable a tissue maker to overcome these issues.

The solution and benefits to the customer

When it's working optimally, the coating promotes adhesion of the papermaking web to the Yankee cylinder, shorter drying times, and superior doctorability. Successful Yankee coating development requires a tapestry of capabilities including differentiated chemistries, field and application expertise and innovative approaches to problem-solving.

With the proliferation of different types of structured sheet machines, working with a partner who understands how to optimise the Yankee coating on different machine types will be a key advantage. On any machine type, a reliable Yankee coating with a wide operating window will consistently deliver the following properties:

- Doctorability. The coating has the right rheology for optimum creping — a coating that remains stable and consistent throughout the life of the creping blade and quickly reestablishes itself after the blade changes. It also absorbs potential blade vibrations.
- Edge control. The right coating leads to clean edges on the Yankee cylinder, which reduces sheet breaks and delivers predictable creping quality.
- Coating uniformity. Excessive buildup or streaks can occur on a Yankee cylinder with some types of coatings. Streaks can cause differences in the profile of adhesion across the width of the dryer, resulting in lumps or wrinkles in the finished roll of paper. A more uniform coating improves the operational stability of the Yankee system.

A reliable Yankee coating with a wide operating window and supported by world-class field and application professionals enables high-quality creping, which leads to improved bulk control, sheet softness, Yankee protection (less chatter), and enhanced runnability (with fewer blade changes and longer intervals between cylinder polishes and grinds). As a result of these benefits, tissue makers are able to accelerate revenue growth, increase production tonnage, and improve profitability.

This article was written for TWM by Richard Cho, Solenis global marketing manager, tissue and towel.

Above: *Solenis' Crepe Simulator*

The chemistry of soft tissue

As urbanisation increases, so does demand for more varied and sophisticated tissue products. The tissue giant tells TWM why it has growing confidence in its Thai and Asian tissue operations.

The exact recipe for soft tissue is often a well-guarded trade secret. While the recipe or SOP to manufacture soft tissue can be different from corporation to corporation, the physical properties that give the perceived softness are not secret. Physical properties of bulk, bulk to basis weight, crepe structure, drape, strength and hand feel all impact the perception of softness. Each of these physical properties can be influenced if not controlled through the application of the proper chemistry.

Bulk is a measure of thickness of the tissue, but must be corrected by the amount of fibre used, thus most if not all manufacturers use bulk to basis weight as the yard stick. The objective is to achieve a bulky sheet with minimal fibre. Of course, the combinations used is the starting point and often dominates the bulk to basis weight equation. Different fibres with different characteristics such as length, kink, curl and thickness impact directly the bulk of the sheet. However, there are certain processes and chemistries that influence the final bulk of the sheet.

Pulp must be refined to affect the fibrillation needed to improve hydrogen bonding and generate strength in the final sheet. However, with refining comes a corresponding cutting of fibres and more importantly, their flattening. This flattening causes an accompanying reduction in bulk. In a perfect world, soft bath tissue would not be refined. While great strides have been made in the last decade to design refiners and refiner plates to gently fibrillate the fibres while minimising cutting and flattening, refining still results in some flattening and thus some reduction in bulk. In reality, anything a manufacturer can do to reduce refining and refiner energy will of course improve bulk. This is actually somewhat deceiving as bulk is not really improved, but the reduction in bulk is minimised. One relatively new development to reduce overall refining energy is known as enzyme assisted refining.

Enzyme assisted refining involves the use of enzymes and in particular cellulase enzymes to help in the de-lamination of the outer wall of the cellulose fibre. Not just any cellulase enzyme will suffice. Careful research over the years has identified the specific enzymes that are most useful for this purpose.

Each enzyme will have a preferred pH, temperature and contact time to achieve the highest level of activity. Activity is determined by relative number of reactions carried out per given amount of time. These activity curves of pH, temperature and time are usually bell-shaped curves. Applying the enzyme at the proper pH and temperature, then retention time becomes important. For example, longer contact time with the fibre before refining allows for less enzyme to be used.

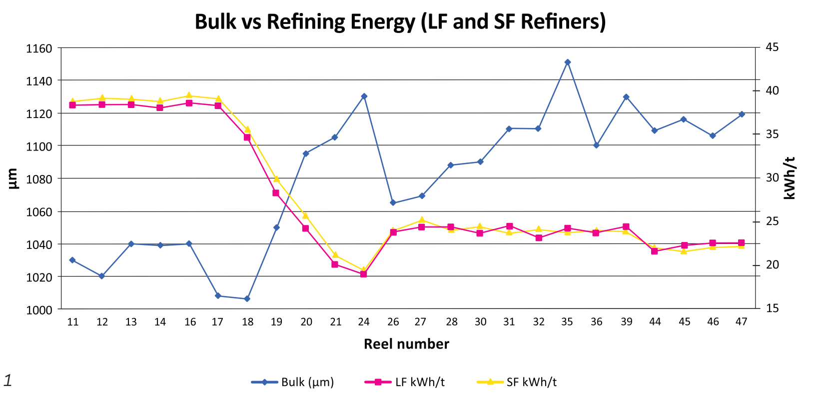


Figure 1

Daniel Glover

Technology director – pulp & paper, Buckman

The best way to think of an enzyme in this case is as a catalyst. The enzyme catalyzes these reactions or breaking of the bonds that make up the outer wall of the cellulose fibre without being consumed in the process. One enzyme can catalyze hundreds or thousands of reactions. These reactions or manipulations of the surface of the cellulose then prepare the fibres for refining. This pre-conditioning allows refining to be more efficient, meaning less refining or less energy in refining is needed to achieve the same level of fibrillation, which translates into the same final sheet strength. It is this reduction in refiner energy from pre-conditioning with enzymes that improves bulk.

Figure 1 shows data collected at a virgin premium tissue manufacturer. The furnish is a combination of short and long fibres. At 250 grams per tonne of the enzymatic product, refiner energy was reduced by approximately 50% which resulted in at least a 10% increase in bulk at the same basis.

Over the last few years, a significant amount of time and effort has been expended to find performance additives for enzymes in this area. Materials or combinations of materials were identified to improve the activity rate. Novel performance additives are included are included in Buckman's US patent numbers 8,784,613 and 8,652,301. As these materials improve the rate of activity of the enzyme, they allow

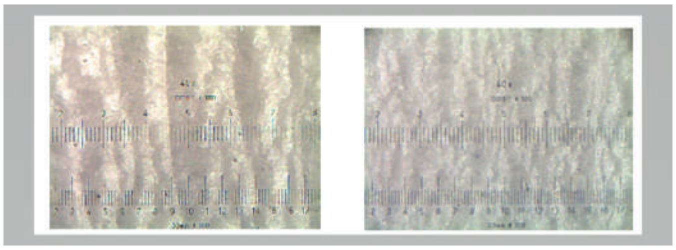


Figure 2

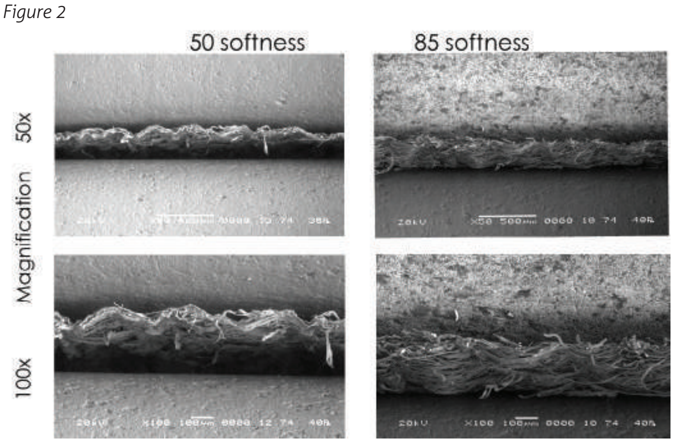


Figure 3

for lower end-use application rate of the enzyme. Examples of these patented products include Buckman's Maximyze 2596 and Maximyze 2597. Each uses a different enhancing material, but both are more efficient than previous products.

Bulk is also a function of how well the sheet is creped. A good crepe structure with good crepe bars per inch is critical to the manufacture of soft tissue. While crepe structure is not as important on a structured asset, meaning a tissue machine that imparts a three-dimensional structure by way of a felt, belt, fabric or other mechanism prior to the Yankee dryer, crepe structure is still important for softness and hand feel.

On a conventional, light dry crepe machine, since there is no structure imparted prior to the Yankee, creping the sheet is more important. Also, the creping blade is the last opportunity to impart mechanical energy into the sheet.

Creping chemistry is essential to impart the proper crepe structure to the sheet. The intimacy of the creping adhesive to the sheet is the beginning of this process. The creping chemical package must assist in the pickup of the wet sheet, penetrate the sheet to some degree, cure on the Yankee, then deliver the sheet to the creping blade for the final crepe structure.

This is an oversimplified explanation of what actually happens during this process. The point is that without good creping chemistry proper crepe structure is impossible, but when conditions are right, the creped structure yields increased bulk, crepe bars per inch and better hand feel (Figures 2 and 3).

For many years, developing the chemical products for Yankee coatings was partly based on the experience of the chemists and the savvy of the technical specialists in the field that apply this chemistry. As these adhesives are polymers, understanding which physical properties of the polymer resulted in better performance was not always apparent. At Buckman, we have refined this product development process by using new techniques and creating our own proprietary test methods to identify the properties of the product that impact performance. Some of the physical properties of polymers that are measured include: molecular weight, glass transition temperature, drying speed, tack, and stress/strain modulus.

The proprietary application tests attempt to mimic what happens on the Yankee before, during and after the crepe blade. The combination of physical property measurements and these proprietary tests have yielded a more efficient product development process and predictive performance on the Yankee.

The latest development that employed these new techniques in this area is Bubond® 2646. This product is unique in its physical properties and a departure from what is normally expected to function well on light dry crepe machines.

Bubond® 2646 provides better adhesion from pickup to the blade and is more substantive to the Yankee allowing good coating build. The addition of a good modifier softens the coating to allow for good doctorability, blade lubrication and runnability while simultaneously improving stretch.

A recent evaluation of Bubond 2646 resulted in improved bulk over the competitive program. The machine is a traditional light dry crepe machine using a combination of virgin hardwood and deinked mixed office papers.

At an add rate of 2.2 – 2.5mg/square metre mated with a modifier dosage of 8 – 12mg/square metre, the mill was able to increase stretch by 5% and bulk by 11% while maintaining all other quality specifications. Blade wear was similar and runnability improved.

Probably the most common chemical method to increase softness of tissue is with debonder chemistry (Figure 5). Fatty, quarternary amine chemistry has been used for many years to debond the sheet. The mechanism is simple, but the application can be complicated. This cationic material when added in the pulp slurry, attaches to the anionic sheet and the hydrophobic tail rotates freely from this fixed point. It is the fatty tail that interferes with the hydrogen bonding process from fibre to fibre.

Interfering with the bonding process, of course, reduces sheet strength. A weaker sheet with additional drape generally scores

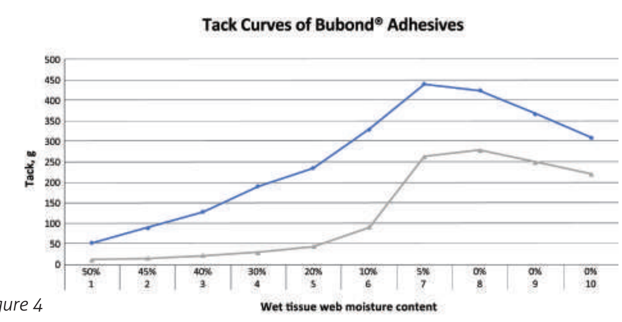


Figure 4

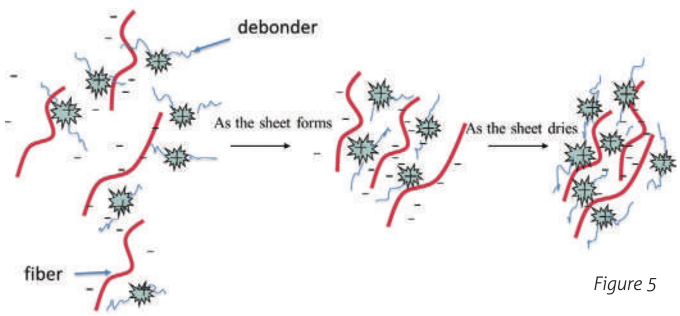


Figure 5

There has been a need in market for a softening agent that does not impact sheet strength. Stated another way, the market needs a non-debonding softening agent that can be added in the wet end with minimal impact on Yankee chemistry, wet end chemistry or final product absorbency while improving hand feel.

well in hand panel testing. The strength of the sheet is also an important part of the algorithm used in most mechanical softness measurement devices.

Although the mechanism is simple and known, balancing the necessary sheet strength generated through refining with the debonder dosage can be difficult for machine operators. Over feeding of the debonder can also impact the Yankee coating chemistry. The added release caused by the debonder at the Yankee can negatively impact the crepe structure and thus negate the benefits to hand feel of the lower strength sheet. This balance of debonder dosage, refiner energy and creping chemistry optimization can sometimes be more than a novice machine operator can handle.

Another negative of the traditional debonding chemistry is its interference with absorbency. As the quarternary ammonium compounds have large hydrophobic moieties the hydrophobicity of the compound is transferred to the sheet. If over fed, these debonders can reduce water absorbency which is a desirable property for creped products.

There has been a need in market for a softening agent that does not impact sheet strength. Stated another way, the market needs a non-debonding softening agent that can be added in the wet end with minimal impact on Yankee chemistry, wet end chemistry or final product absorbency while improving hand feel.

Buckman began the search for this type of product more than four years ago. Investment in new hand feel instruments, water absorbency instruments, and improved techniques for testing in the lab were employed to predict performance. Some of the chemistry for hand feel components have been disclosed in patents over 25 years ago. New compounds have been developed based on this known chemistry. However, determining which known components and novel components to use and how to formulate these materials to be substantive to the fibres and have little impact on strength, creping chemistry or absorbency is where the science is concentrated.

Developing a water based, stable, flowable softening agent that met all these requirements while meeting regulatory allowances was a tedious process. The products developed for this project met these objectives.

Figure 6 shows trial data collected from a middle market producer of private label bath tissue. Furnish is a combination of deinked mixed office papers and hardwood market pulp. TSA was collected using the EmTec TSA, and results are reported as hand feel from the TPII base sheet algorithm.

In this case a dosage of 2 kg per ton of Buckman softener appears to be best compromise of cost vs performance and allowed this customer to develop their own new product in the private label arena. There was no impact on wet end chemistry, no impact on strength, and no impact on absorbency, but a nice increase of at least 5 points in hand feel. The creping chemistry was not effected and crepe count per inch remained stable. The mill's hand panel also scored these test reels favourably. This new chemistry is a game changer in this market. With no investment in spray booms, make down equipment, converting equipment or other capital improvements, just a pump with dilution water added in the proper location, resulted in a new tissue grade to be marketed to their customers.

In the last decade there have been so many advancements in tissue asset design and manufacture that the advancements in chemistry are often overlooked. Regardless of asset design or market served, the proper chemistry is essential. Buckman remains committed to and focused on bringing innovative chemistry and smart technology to meet the higher standards demanded by the tissue market and tissue consumers. Advances in enzyme chemistry, creping chemistry and softener technology have allowed an easier route to the end goal of soft tissue.

Buckman recognises Jian Tan for the testing and data used in this paper.

This article was written for TWM by Daniel Glover, technology director – pulp & paper, Buckman.

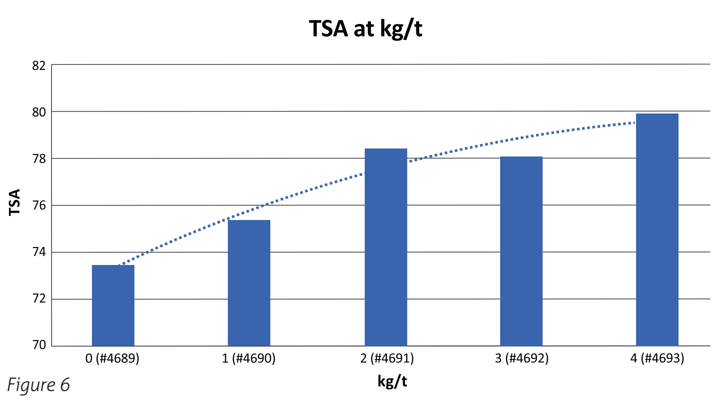


Figure 6

The Barometer Issue: One year on... you report back on your progress

In 2017, TWM visited several tissue mills around the world, including sites in Scandinavia, Italy and Canada for the magazine's Country and Regional Reports. Here, we revisit a few mills who have been in the headlines since to see what has changed. A TWM report.

CANADA

Cascades PRO

The past few years has seen the emergence of Cascades PRO as a new global tissue player following a substantial rebrand and a $64m investment in its new converting facility in Oregon, USA. Last year, TWM met president and COO Jean Jobin, vice president of marketing and innovation Thierry Trudel, and marketing director André Daviault at the company's Candiac site near Montreal to talk about their substantial investments, innovation, modernisation, new product launches, as well as the Scappoose plant. Here, Daviault takes as though the latest developments.

TWM/1: What machinery investments have you made in the past year, and why?

Daviault: "During the planning and development of our facility in Scappoose, Oregon, we made a substantial investment in state-of-the-art converting lines, high-speed rewinders and folders in order to effectively and efficiently manufacture towel and tissue products for our customers out West.

"A year later, we are taking the time to appreciate and enjoy the new capacity Scappoose has opened for Cascades PRO. We are excited to use our current equipment to serve new markets and look forward to what else we can accomplish as we further invest in our facilities."

TWM/2: How has your local tissue market developed in the past year?

Daviault: "The tissue market overall has seen growth of about 1% and we have been exceeding that thanks, in part, to the Cascades PRO rebranding and our new facility in Scappoose.

"With our expansion to the West Coast, we have been able to gain insights into tissue preferences on both a regional and national level and address them accordingly. Additionally, with population growth being directly linked to tissue product consumption in the U.S., we are working to locate these trends on an ongoing basis and find ways to better serve our customers in these growth areas."

Investment and innovation: *the new Oregon facility enables Cascades PRO to continue along its growth path*

By Tissue World senior editor **Helen Morris**

TWM/3: What key challenges has the company experienced in 2017/2018?

Daviault: "Over the past year, it has been very interesting to navigate the tissue industry as more and more of our customers consolidate to improve their national footprint. This comes at an ideal time because now that Cascades PRO has a national footprint, we are in a better position to handle the demands of these new, larger customers."

TWM/4: And the key opportunities?

Daviault: "The opening of our Scappoose facility has presented a number of opportunities for Cascades PRO. We have seen positive growth across the United States since the opening and we are excited to build on that in the coming years. The company's presence in Scappoose has allowed us to not only enhance our relationships with current customers, but also build relationships with new ones. There is always room for growth and as we look to the future, we will continue on the path to making our products and facilities industry leaders in innovation and sustainability.

"Innovation will continue to be the key to growth in the US tissue market and last year we set a lofty goal of having 20% of our sales come from innovation by 2020. We've made a significant investment in research and development to meet this goal and are looking forward to introducing the first wave of new hygiene solutions at this year's ISSA in Dallas."

MPI Paper Mills

Last year, Quebec-based MPI Paper Mills reported that output was set to rise by 25% following a PM4 upgrade, and this was before adopting a new sales model that could mean overhauling or replacing PM5. The niche manufacturer was targeting key new markets. Here, TWM reports back on the latest.

TWM/1: What machinery investments have you made in the past year, and why?

"This past year we have made significant investment in our fibre plant (screening and cleaning) and are 80% complete on the installation of a system that will allow us to manage the cost of our inputs while maintaining the level of quality our customers have come to expect.

"We anticipate improved uptime as a result of better screening from the commonly found contaminants in fibre and, through an improved cleaning system, we will continue to provide the same or even better quality high bright napkin grade, which has gained tremendous momentum with our customers this past year. We have installed a third slitter/rewinder to accommodate our customers' needs for slitting trim rolls of 42" or narrower, allowing them to minimise their waste and maximise the use of their machine trim. This is in addition to our 156" and 123" slitter/rewinders already in operation.

"We have just started up our 1/8-fold dinner napkin line to complement our other napkin/folded towel lines already in operation. We are now engaged in our first contract converting opportunity for dinner napkin which will expand our overall contract manufacturing business.

"We have continued the investment to improve our ply bonding system for 2 and 3 ply-napkin in order to expand our non-commodity parent roll business. And we plan to continue to focus on and improve in the manufacturing of parent rolls, slitting and rewinding, napkin and towel contract manufacturing, as well as our wax paper division.

"With Phase I capacity improvements for our PM4 complete and the fibre plant upgrade near completion, we will be looking to expand capital investment at our mill to allow us opportunities for continued growth in our mission of being the industry's supply chain solution."

TWM/2: How has your local tissue market developed in the past year?

"Overall the market has been consistent, though we have found growth in our high bright napkin grade and our contract manufacturing segment."

TWM/3: What key challenges has the company experiences in 2017/2018?

"The key challenge we currently face is the consistently rising cost of pulp (which is also driving up the cost of other fibre grades), hence our investment in the fibre plant."

TWM/4: And the key opportunities?

"As a supply chain solution for our industry, we are finding that existing customers in one area of our business are now also utilising our services in other areas. For example, a parent roll customer will also work with us on contract manufacturing opportunities or a customer in our slitting and rewinding division will also purchase parent rolls for making tonnage."

ITALY

Lucart

"We are facing a sophistication of demand", said Francesco Pasquini, sales and marketing director for Lucart's professional international markets, when TWM visited him at the company's 106,000tpy Diecimo-based tissue site. In the Italian tissue market, where a never-ending price war means competition is fierce, a market strategy of balanced expansion and targeted innovation continues to be vital for the company.

The mill is one of the largest facilities in Europe and dedicated to the production and conversion of tissue paper. Tommaso De Luca, communication manager, Lucart, says that during the past year the company continues to grow its presence in Europe: "We have recently acquired Group CEL in Spain and we have built a new converting factory in Hungary in Nyergesujfalu. Our new logistic centre in Altopascio, Italy, is ready and fully operating ... some 24,000sqm is dedicated to our Away from Home Business Unit.

"During this summer, we will dismiss our old MG paper machine (PM2) in Porcari and we will install a new tissue machine supplied by Toscotec to replace it. We are also replacing one turbine in Porcari and one in Diecimo with the new NovaLT12

By Tissue World senior editor **Helen Morris**

Turbine by General Electric."

The company is also investing in new converting lines, the most recent of which include a new toilet paper line supplied by Perini at its Nyergesújfalu site in Hungary, and a new napkin line by SDF at its Torre di Mosto factory in Italy.

"Our aim is to satisfy our customer needs all around Europe, bringing our hygiene solutions that are innovative and environmental-friendly," he adds.

SCANDINAVIA

Vajda-Papir Scandinavia

When TWM visited Drammen, Norway-based Vajda-Papir Scandinavia, the story of the historic tissue mill was one of survival. A year and a half later, the company is now reporting the successful outcome of its investments, efficiency improvement plans, sales growth and presence in new tissue markets.

TWM/1: What machinery investments have you made in the past year, and why?

"We have carried out many activities to develop our business in Scandinavia over the last 12 months. First and foremost, we invested around €2m to improve our PM and to revamp a converting line, enabling us to significantly increase our production capacity. We strive to meet a growing interest and market demand for our products, made of good quality and passion."

TWM/2: How has your local tissue market developed in the past year?

"Local for us means the Scandinavian market. We have been able to catch +20%, reckoning both on widening our clients portfolio and on volumes supplemented to existing clients."

TWM/3: What key challenges has the company experiences in 2017/2018?

"Competition is getting stronger and stronger, due to the tight room for price increase although the costs for pulp and paper are rocketing to the sky. Recently, transportation costs have also been dramatically increasing, partly because of fuel and partly because of new regulations concerning drivers. Unfortunately, the market is reluctant to acknowledge such a challenging situation by awarding better prices to the suppliers. Obviously we strive to improve our efficiency, but whatever we can do on this side as this doesn't offset the cost increase we have to face in order to keep supplying our customers.

"I believe this is not a situation we can afford long term and, mainly, it doesn't benefit either the producer or the customer."

TWM/4: And the key opportunities?

"As always, a challenging environment unleashes a better capacity for a company to react. I am very grateful to all our employees, who did their utmost to increase efficiency, keep high quality standards and keep supplying our clients. I am confident this situation will reward the commitment and the passion we all put in our products."

Capacity increase: *Vajda-Papir Scandinavia has carried out several activities to develop its business in Scandinavia over the last 12 months*

Analysis: how supply and costs are changing across the world's recovered paper markets?

As SOP and easy-access OCC supply declines, Bill Moore, president of Moore & Associates, assesses region specific trends in emerging kraft pulps in the Global Recovered Paper (RCP) market.

Bill Moore

President, Moore & Associates

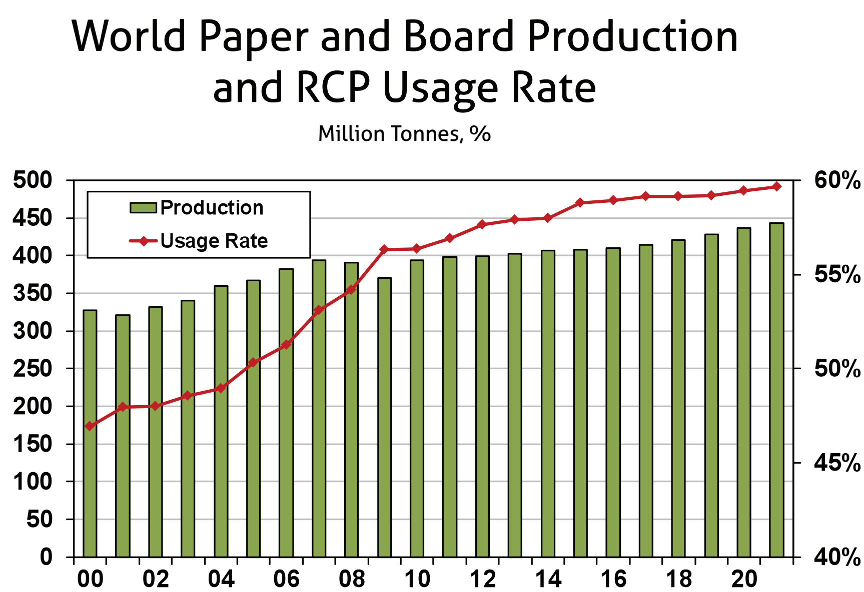
Key trends: Global Recovered Paper (RCP) market

Producing paper & board using recycled fibres

- For the last several decades, recycled fibre has had a distinct cost advantage over virgin fibres for the production of newsprint, AfH tissue products, containerboard, and recycle paperboard. But in most markets, this isn't the case for printing/writing grades (India is an exception) and high-end packaging.
- Increasing recovered paper costs over the next ten years may change the cost advantage dynamic:
- The global market will see higher commodity cycle costs;
- As well as lower quality recovered paper, shorter fibres and non-fibre contaminants – lower yields, higher processing costs;
- Moderate cost of virgin pulps, especially short fibre bleached hardwood – primarily effects tissue and printing/writing papers.

Old corrugated containers (OCC) supply

- OCC recovery in the developed regions of the world is very high, almost at the maximum level in many parts of Europe and headed that way in the US, but box supply growth continues;
- China and India (as well as the rest of the developing regions of the world) will continue to increase their domestic OCC recovery;
- All of the "easy to get" OCC is already recovered – grocery store and large generators;
- But we are not 'running out' of OCC that can be recovered. In the US, almost 21 million tonnes per year of paper is still disposed and OCC is a part of it.



OCC future demand trends

- China's huge appetite for OCC drives the world – although China's latest restriction on RCP imports has disrupted the global marketplace for the time being;
- Over the next five plus years, we may see unbleached kraft pulp be competitive with OCC, especially at the top of the pricing cycles in China. But supply of the grade is limited and expensive;

Over the next five plus years, we may see unbleached kraft pulp be competitive with OCC, especially at the top of the pricing cycles in China. But supply of the grade is limited and expensive.

- An even more likely scenario is the use of additional virgin kraft pulp in place of some OCC in the US Southeast (expect kraft pulping/recovery system debottlenecking projects);

- New OCC based containerboard mill projects in Asia (including China), Europe, Middle East and North America – the demand it is creating will keep the market strong.

Region specific trends in the use of recycled fibre in tissue production

- Recycled fibre-based tissue is more prevalent in certain markets – North America (US, Canada, & Mexico), Europe, Middle East, and developed Asian countries (Japan, Korea, etc.)

- Recycled fibre use regional trends: – North America – stable, Europe – small decline, Middle East – declining, developed Asia – stable;

- China's tissue business is largely growing with virgin fibre (as compared to their newsprint and paperboard sector, which rely heavily on recycled fibres). This is also the case in much of other developing and emerging Asian countries.

Trends in use of recovered paper in the tissue sector

The trends in all regions of the world are similar:

- Sorted Office Paper (SOP) supply is declining – less printed documents;

- Less use of Coated Book Stock – more coated material in SOP – process changes to reduce the need for this low yield grade?

- Sorted White Ledger (SWL) and Manifold White Ledger (MWL) markets have merged. All Solid Bleached Sulphate (SBS) scrap recovered, slow growth;

- Some increase in the mechanical fibre grades – Old Magazines (OMG) and Coated Groundwood Sections (CGS);

- Searching for alternative grades.

The impact of 0.5% Prohibitive has created increased demand for the cleaner, higher end grades: – OCC grades that are cleaner than standard #11: double sorted, grocery/big box and Double Lined Kraft (DLK) – Clean Mixed Paper substitutes – books, low end SOP, etc.

Global trends in printing/writing paper production

- Total world production – in 2016: about 104m tonnes, down 4% from 2012;

- Europe – 27.5m tonnes in 2016, down 11% from 2012;

- North American production – 17.5m tonnes in 2016, down 13% from 2012;

- China – 26.2 million tonnes in 2016, up only 2% from 2012;

- 2017 saw declines in printing & writing papers use in almost all markets.

China – one cannot discuss recovered paper markets without covering this important country and its impact on the world

2018 New China RCP Import Policy Effective 1 March 2018 (material arrival in China)

- Weight of recovered paper (RCP) prohibitives (non-paper contaminants) must be < 0.5% – all grades;

- No unsorted RCP;

- China import permits regulated and issued quarterly;

- Mills with <50,000 MT/year production prohibited from importing RCP directly;

- China buyers must be associated with a mill group.

Quality impacts on export to China

The impact of 0.5% Prohibitive has created increased demand for the cleaner, higher end grades: – OCC grades that are cleaner than standard #11: double sorted, grocery/big box and Double Lined Kraft (DLK) – Clean Mixed Paper substitutes – books, low end SOP, etc.

These grades will see a wider price gap to #11 OCC and #54 Mixed Paper than we have experienced in the past.

Southeast Asia and other Asian markets

India

- Economic growth rate is strong, but from a low base;

- Percentage growth rate increase in recovered paper use quite high, but from a very low base;

- Small inefficient mills – the success of western companies that have come into India is a question;

- No China by a long shot;

- Wide range of key grades;

- Need high quality OCC – double sort;

- Have been taking a lot of RCP that used to go to China.

RCP quality and E-commerce

Recovered paper quality and its impact on pricing

- Material Recovered Facilities (MRFs)/ processors/collection operators are having to add cost to make higher quality products from lower quality input streams. Margins in these businesses are slim, but some of the extra costs will be borne by this sector;

- The mill industry will wind up picking up part of the cost, but not a lot as the global paper industry finances are not real healthy in some grades (tissue and packaging grades are better);

- Pushing more costs back to the generators is what is happening.

Europe: – 25 + mills now have automated quality measurement systems – Based on NIR (measures moisture, plastics, ash, etc.) bale drilling or microwave (moisture only) technologies – will probably be 40+ such systems by the end of 2018 – Pushed by CEPI, the paper industry trade association.

Generators (both residential and commercial/industrial) will be incentivized to supply higher quality input materials or pay higher prices for processing.

Mill RCP quality measurement

- Europe: – 25 + mills now have automated quality measurement systems – Based on NIR (measures moisture, plastics, ash, etc.) bale drilling or microwave (moisture only) technologies – will probably be 40+ such systems by the end of 2018 – Pushed by CEPI, the paper industry trade association;
- China – some movement in the same direction as Europe: – Maybe a dozen automated systems, mostly microwave – Aimed at domestic supply – open sided trucks only. Can't do export containers (yet);
- In the US nothing significantly new in quite some time, but the merQbiz (an online RCP transaction platform) approach to better quality measurement is gaining traction.

Rising E-commerce and its effect on recycling and the OCC market

- Direct to home box shipments increasing dramatically;
- Less OCC at distribution centres/ retail physical store locations – very high recovery;
- Shifting OCC to the residential recyclables stream;
- More OCC coming into residential MRFs – sortation issues?
- Lower recovery from residences;
- OCC in residential stream going into mixed paper.

E-Commerce directional view retail distribution centre volume

•Clean segregated OCC;

•OCC from single stream MRFs – quality;

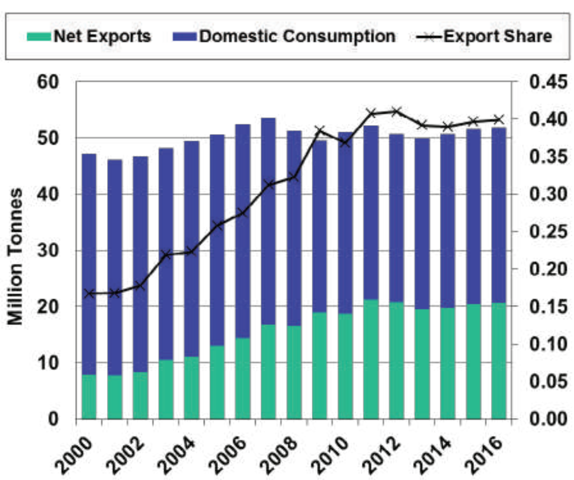
•Lower recovery rates:

Massive expected E-commerce growth, packaging solutions will continue to evolve, sustainable image vital to customer's business.

Today's view will be outdated rapidly.

North American RCP Market

Domestic Consumption vs. Exports



Net export share
2000: 17%
2005: 26%
2010: 37%
2015: 40%
2016: 40%

North American & Europe RCP market

US paper and board production

- From its peak in 1999 of 95m tonnes, the US paper industry produced only 70m tonnes of paper and board in 2016 – a decrease of over 27%!
- A major part of the decrease is in newsprint and printing/writing papers;
- But the corrugated box business is growing after 20 years of limited growth – E-commerce.

US recovered paper exports by country: 2016

China – 66%, Mexico – 8%, India – 8%, Korea – 5%, Canada – 3%, all others – 10%. This changed dramatically in 2017, with China's shares moving downwards and will change even more in that direction.

RECOVERED PAPER SUPPLY FOR TISSUE MANUFACTURING

Generation trends of SOP

- From 1998 through 2005, the growth in supply in the US from shredded office papers kept market pricing down;
- Moore & Associates estimates that shredded material now is about 85+% of the US SOP market, much less so in Latin America;
- The US Post Office delivered 103.7bn pieces at its peak in 2001. 2016 – 61.2bn pieces;
- Growth in supply of SOP from document destruction in the US is slowing after ten years of rapid increase. Confidential document

destruction will grow in Latin America.

Composition of Deinking High Grades (DHG)

American Forest & Paper Association definition gives this approximate composition for this 'statistical' grade:

– 55% SOP

– 20% Coated Book Stock/Printers Mix (book and printing scrap)

– 15% Sorted and Manifold (pre-consumer from printers) Ledgers

– 10% Other Bleached Chemical Grades – mostly SBS scrap (white/bleached box scrap).

Demand for US DHG by Region:

North central – 33%, South Atlantic – 18%, East south central – 20%, West south central – 10%, Pacific northwest – 4%, Mountain & California – 3%, New England – 4%, Mid-Atlantic – 8%.

Export destinations for US DHG

Mexico – 36%, Canada – 21%, India 20%, China – 5%, Colombia – 4%, Netherlands – 2%, all others – 12%.

Other factors related to the supply of deinking papers

- The generation of printer recovered paper grades (many of which are in tissue production) is declining due to overall downturn in printing;
- World printing industry is declining;
- The world recession of 2008/2009 certainly had an impact on the printing business, but it is suffering from the structural trend of printing less hard copy documents;
- Single stream office recycling collection is the growth area for collection of the "last" of office papers in the US: but frequently cannot be separated into SOP, will go into Mixed Papers, a much lower value grade.

New supplies of recovered paper for the tissue industry

- With the declining use of printing/writing papers in the office workplace and printers, new sources must be found – but where?
- Where does the amount of freesheet papers in the household go from here? Static to declining?
- The emergence of the collection of poly-coated and uncoated bleached paperboard packaging from residences – will add some small part of the DHG supply and good for tissue making;
- Specialty grades: hogged books and UV coated materials;
- Mechanical fibre grades are not the answer – only limited use possible and declining volumes available;
- Wood pulp – Bleached Eucalyptus Kraft (BEK), Bleached Hardwood Kraft Pulps (BHK) – most likely scenario;
- Alternatives – bamboo, wheat straw? Long shots, at best.

Current pricing

- High Grade pricing moving up as bulk grades decline;
- SOP – 1 Q 2018 – US average – $159/tonne;
- CBS – 1 Q 2018 – US average – $159/tonne.
- Prices have been rising in the second quarter.

SOP price premium paid over published prices

- Average premium of FOB actual average mill price paid over RISI's Pulp & Paper Week SOP high side index price;
- 2017 – $11.94 – Moderate market – SOP – $163;
- 2014 – $6.43 – Weak market – SOP – $148;
- 2011 – $20.50 – Strong market – SOP – $225;
- 2007 – $18.50 – Moderate market – SOP – $188.

SOP freight cost

- Average freight cost for all North American mill – ($/tonne) – 2nd H 2017 – $30.35 – 1st H 2017 – $28.30 – 2014 – $31.70 – 2011 – $29.50 – 2007 – $27.50.

Conclusions

- High grade supply will remain tight on decreasing use of printing & writing papers;
- But demand for DHG will be modest as the industry shifts more to virgin fibre over the long term;
- Higher bottom cycle prices for DHG;
- Limits on top cycle prices due to virgin pulp substitution.

The above is a summary of Bill Moore's conference talks given at Tissue World Miami in March 2018 and Tissue World Bangkok in June 2018.

The world recession of 2008/2009 certainly had an impact on the printing business, but it is suffering from the structural trend of printing less hard copy documents.

The emergence of the collection of poly-coated and uncoated bleached paperboard packaging from residences – will add some small part of the DHG supply and good for tissue making.

Event	Date	Location	Website
China International Paper Technology	Aug 29-31 2018	Shanghai, China	www.chinapaperexhibition.com/en/
Tissue World Istanbul 2018	Sept 4-6, 2018	Istanbul, Turkey	www.tissueworld.com/istanbul
Ipack Turkey	Sept 6-9, 2018	Istanbul, Turkey	www.ite-ipack.com/
CCE Southeast Asia	Sept 5-7, 2018	Bangkok, Thailand	www.cce-southeastasia.com/english/
RISI International Woodfiber Conf. 2018	Sept 17-19, 2018	Durban, South Africa	events.risiinfo.com/wood-fiber/
China International Exhibition 2018	Sept 19-21 2018	Shanghai, China	en.chinapaperchem.com/cnt_27.html
Labelexpo Americas 2018	Sept 25-27, 2018	Chicago, USA	www.labelexpo-americas.com/welcome-labelexpo-americas
Tissue 2018	Oct 2-5, 2018	Appleton, WI, USA	www. tissue2018.com/
MIAC 2018	Oct 10-12, 2018	Lucca, Italy	www.miac.info/
ABTCP EXPO 2018	Oct 23-25, 2018	São Paulo, Brazil	www.abtcp2018.org.br/en/
Tecnicelpa	Oct 24-26, 2018	Castelo Branco, Portugal	www.tecnicelpa.com/
ISSA/INTERCLEAN North America	Oct 29- Nov 1, 2018	Dallas, TX, USA	www.issa.com/trade-shows/issainterclean-dallas-2018.html
PAP-FOR	Nov 13 -16, 2018	St. Petersburg, Russia	www.papfor.com/
Paperex South India 2018	Nov 15-18, 2018	Chennai, India	www. southindia.paperex.in/
Labelexpo India 2018	Nov 22-25, 2018	Greater Noida, India	www.labelexpo-india.com/
Paperweek Canada	Feb 4-7, 2019	Montreal, Candaa	www.paperweekcanada.ca/
Tissue World Milan 2019	Mar 25-27, 2019	Milan, Italy	www.tissueworld.com/milan

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Job Title*

Company*

Address*

Postal Code*

Address 2

City* State* Country*

Telephone* Fax*

Email*

Company Website*

What is your company's primary field of business (tick all that apply):

A. INTEGRATED TISSUE PRODUCTS MAKER

Primary business making paper and producing:

☐ Consumer (At Home) Finished products
☐ Away-from-Home (AFH) Finished products
☐ Other Tissue Grades, please specify: ....

B. JUMBO ROLL SUPPLIER

☐ Jumbo Roll Maker, for sale to converters

C. TISSUE CONVERTER

Primary business is converting jumbos and producing:

☐ Consumer Finished products
☐ Away from Home (AFH) Finished products
☐ Other Tissue Grades, please specify: ....

D. RETAILING AND DISTRIBUTION

☐ Retailer
☐ Broker
☐ Distributor

E. SUPPLIER TO THE TISSUE INDUSTRY Please check all that apply:

☐ Paper making machinery
☐ Fabrics, felts, clothing
☐ Drying technologies
☐ Process automation and control
☐ Water treatment, environmental and effluent control
☐ Dust control and air treatment systems
☐ Doctors and creping blades

☐ Deinking
☐ Stock preparation, fiber processing and pulping equipment
☐ Fibers: Market pulp and recycled fiber
☐ Chemicals and chemical technologies

☐ Converting machinery and supplies
☐ Printing machinery and supplies
☐ Inks, glues and dyes
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Signature **Date**

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