

Tissue World

Magazine

The independent news
provider for the global
tissue business

RAW MATERIAL WORLD

**How circularity and proximity are
opening up new energy streams**

Plus

BRAZIL: COUNTRY REPORT

Global pulp leader's longer term tissue
recovery 'promising'

MARKETISSUES

As India surges, tissue shows signs of growth

ANNUAL REVIEW

Energy crisis, overcapacity, quality AI, quantum computing

EXITISSUES

Rapidly expanding market leader Velvet Care gears up again

CONSUMERSPEAK

"And those tissue boxes! I go for the best-designed
box that fits the décor of my busy home"



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Cover: Image showing the global potential of a "truly circular society" that uses locally sourced raw materials to manufacture tissue products.

Image by Stefano Vuga, Founder, PurplePrint Creative, Spain/ Italy, www.purpleprint.eu

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CONSUMERSPEAK

"And those tissue boxes! I go for the best-designed box that fits the décor of my busy home where I store them in a safe closet so they'll be in good shape when company arrives." Creative designer Katie Stern used to work in plastics until she discovered Swedish dishcloths - 70% wood cellulose, 30% cotton, and 100% biodegradable. Based in Wisconsin, US, her business and home life now put the environment first.

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EXITISSUES

The pace of expansion at market leader Velvet Care is gearing up again. Capacity increases in converting and tissue machine output are being boosted by further investment as the Polish-headquartered company plans to "create a market" and then build the processing capacity to meet it, says Wanda Ciesielczuk, Vice President, Production & Technical Director.

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Tissue converting is now part of Valmet's offering



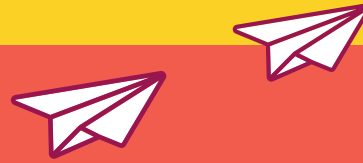
Valmet has acquired Körber's Business Area Tissue, a global supplier of tissue converting and packaging lines. We are happy to welcome the market leader in tissue converting and close to 1,200 dedicated new colleagues to Valmet.

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Circularity And Proximity – Waste Not Want Not

Helen Morris, Senior Editor, Tissue World Magazine

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Tissue giant Essity is recycling 60% of all collected food and beverage cartons in France to its mill in Hondouville, Normandy. They come from waste sorting centres across the country. That is 25,000tpy, with a further 35,000tpy available site capacity which may or may not be taken up depending on logistical CO2 considerations, the kind of decision now prevalent across the industry.

In *Environment: Technical Theme* Donato Giorgio, President, Global Supply Chain, Essity, talks extensively about the “truly circular society”. The company’s Mannheim plant in Germany already takes native wheat straw from agricultural by-products surrounding the mill to make tissue products.

Elsewhere in this issue, the pace of change in what Nashant Grover, Chief Executive Tissues International, Asia Pulp & Paper, Indonesia, calls in TWM’s *Annual Review* the “ever-evolving industry”, and it is evident across many regions.

In Poland, Velvet Care is planning TM 10. Our *ExitIssues* interview hears from Vice President, Production & Technical Director Wanda Ciesielczuk who explains two slates of 60% and 40% capacity increases in recent years: “We create a market and then build the processing capacity using outside supplies of tissue. We then build our own paper machine to ensure we have regular supplies of the highest-quality raw materials.”

In Brazil, recent years have seen a slew of high-profile consolidations. TWM’s *Country Report* details strong supply chain optimisation, and centralisation of all production chain processes. Four year retail growth is projected at 2.4% CAGR with AfH growing 3% in volume. By then the market looks set to be significantly different, with seven new tissue machines projected to have started up in Brazil by the end of 2024/25. Inflation easing, improving economy drivers, and societal trends – lower birth rates, changes to the average Brazilian family with more single or two-people households without children – reflect towards significant changes in consumers’ purchasing habits.

India’s huge tissue potential has long been frustratingly out of reach. Demand choices are different from many countries. Consumption is less than 0.5kg/person, ranking India 77th nationally. AFRY Management Consulting Principal Somnath Ray explains in *MarketIssues*: “It is evident that apart from the known economic factors supporting market growth, some cultural nuances influence the demand.” He examines them.

QUOTE OF THE EDITION:

“Today, he is a legend.”

Cascades co-founder Bernard Lemaire has passed away, aged 87. Among his many honours were the insignia of Officer of the Order of Canada, Officer of the National Order of Québec, and Knight of the National Order of the Legion of Honor, granted by the President of the French Republic.

His brothers Laurent and Alain said: “Bernard was visionary, generous and charismatic, he convinced countless people and communities to participate in a huge project, the project of his life: Cascades. Our big brother was a great man. Today, he is a legend.”

Obituary – *World News* page 9.

FROM ITS LOW TISSUE CONSUMPTION BASE, THE INDIAN MARKET IS SHOWING THE SIGNS OF SIGNIFICANT NEW SECTOR GROWTH



As India is roaring forward being one of the countries with steady economic and market growth, P&B has also been reaping benefits. Report by Somnath Ray, Principal, AFRY Management Consulting.

India's market leads among the world's growing markets with much younger demographics, disposable incomes, improving living standards, rapid industrialisation, and development of tier 2/3 level cities. Additionally, several changes in government regulations and commitment towards a more sustainable and environment-friendly future have fuelled more interest and traction regarding the Paper & Board (P&B) industry segment. This brings the Indian market into much more focus, and more questions remain unanswered, especially in the case of the tissue paper segment. The question remains on the minds of Indian and international producers – how much growth is there, and how much of this is possible to tap?

On the first comparison, India's P&B market demand growth is projected at 2.9%/a (CAGR till 2030), above the global average of P&B, translating into around 7.9m tons of additional demand. This is a decent growth opportunity given that the current per capita consumption is at 14kg per capita, placing India at the very lower end than the top five countries listed in Figure 1. So, this is good news for

domestic and international producers focused on the Indian market.

This potential market growth has triggered producers to pace themselves towards tapping into this growth with capacity increase, conversion, and new investment.

Albeit the other challenges intrinsic to the Indian P&B segment – raw material shortage, lower logistics, energy and water shortages, sustainability challenges, and competition from import – this growth potential has also attracted the attention of investment from other industry-leading producers from different parts of the world with several investment announcements being made in the recent past.

When we slice and dice this growth opportunity, we notice that the growth is unequal among the paper grades, which is not unusual compared to comparable regions/countries. However, a couple of exciting surprises come to our attention when we compare further.

The first is the resilience of the P&W segment, which still has a decent positive demand volume

growth, and the second is the smaller market volumes of the tissue paper segment.

In terms of market, India's tissue paper market growth is poised on a demand growth of 8.7%/a (CAGR till 2030), which is again above the global and Asia average. This translates into around 0.2m tons of additional demand, which is moderately good growth despite being on the lower end as a growing market. However, more interesting surprises are noticed when we look at per capita consumption levels and sub-segments.

In terms of consumption per capita, the Indian market consumes less than 0.5kg/person, which is significantly much lower than other countries we have compared with. If we put a country ranking based on consumption per capita, then India's tissue paper consumption per capita features at 77th rank.

This puts the Indian market far behind comparable countries from the top five P&B consumption per capita list we discussed earlier. Furthermore, this is much lower than the global average regarding tissue paper consumption.

This is an interesting dynamic that is important to understand. Clearly, the demand structure is very different than any other countries with a comparable market growth aspiration. This makes us wonder what additional elements are contributing to this. It is evident that apart from the known economic factors supporting market growth, some cultural nuances influence the demand.

To simplify this complex topic, we can highlight that India's tissue paper consumption is influenced strongly by the cultural approach to hygiene and sanitation standards, perceptions of paper usage in general, availability of products, and value for money. As producers and marketers, these underlying factors fuelling the market growth are important to understand. Also, understanding these nuances of consumer behaviour will help bring innovation to products to meet the consumers' unique needs.

We have seen that tissue paper consumption is highly linked to a country's human development and health standards. I. Accordingly, high-income countries rank at the top of the list, and countries with low income and low health standards have the lowest share.

The worldwide increase in access to and improvement of sanitation facilities, human development, and healthcare directly affects tissue paper consumption. Robust growth is seen in middle-income countries as the infrastructure is further expanding. All these underlying factors seem applicable in the case

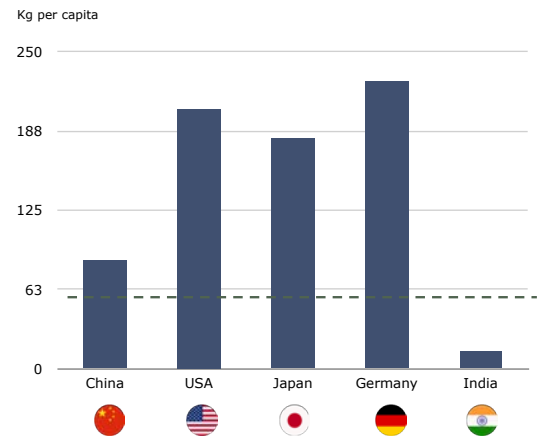


Figure 1: Per capita consumption of the top five countries for P&B paper

of India; however, the average consumer in India still prefers other forms of cleaning and drying in terms of hygiene requirements.

Water usage is highly predominant even in urban settings, and so is the usage of reusable towels and other fabric, making the transition to paper hand towels and toilet tissue much slower. In earlier days and still in some places, washroom cloth towels were the key source of hand drying. Similarly, it has been the case in hotels and restaurants where high usage of reusable napkins is limited, albeit using paper as tablecloth in some settings. Interestingly,

In general, the better the access to improved sanitation facilities and the better the drinking water supply, the higher the consumption of tissue paper

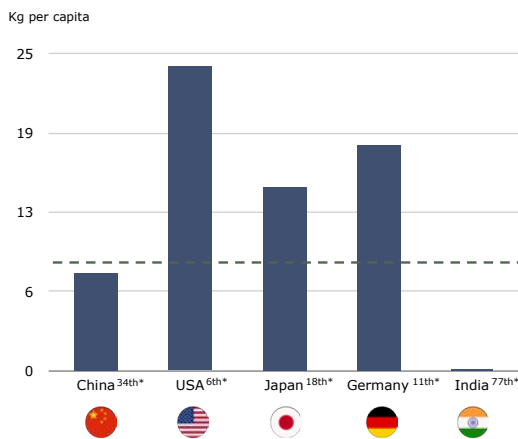


Figure 2: Per capita consumption of the comparable countries for tissue paper

this is also supported by the notions of sustainability and the value of reusing resources.

However, this is slowly changing, and paper towels are increasingly finding their way into public washrooms. There is a transition to the usage of more toilet tissue paper instead of other means supported by the adaptation of more Western toilet formats and education in hygiene related to disposable paper. Similarly, more hotels and restaurants are opting for disposable napkins and tissue paper. The onset of Covid-19 has also triggered faster adoption of disposable hand towels and napkins in hotels and restaurants, which is becoming more convenient for these establishments.

Also, as the demand in the service sector and general wish for premium products are getting mainstream, these formats are more appealing as they offer the opportunity to further branding.

Several producers and brand owners have taken innovative approaches from educating their consumers and complimenting the existing tissue paper range with other hygiene and cleaning products – handwash dispensers, paper towels, facial tissues and napkins, toilet rolls, wet wipes, disposable bed covers, antibacterial and biodegradable liquid and foam handwash, hand-sanitiser, automatic odour neutralisers – and are adding to the range consistently.

These products are often targeted to cater to diverse enterprises such as offices, hospitals, airlines, and high-volume food processing industry and service facilities to start with and eventually trickle to home usage by trial.

The tissue paper segment is often perceived as an 'unnecessary luxury' and seen as a premium commodity. This also goes hand-in-hand with the

limited availability of good quality or soft tissue. Not so far away in the past, most consumers were unaware of the superiority of soft tissue over MG Poster. They didn't have access to some of the standard quality soft tissue paper as the market is served by cheap hard tissue (non-absorbent), which is poster grade. This made it inconvenient for proper usage and intensified the negative perception that good quality soft tissue paper is expensive.

To crack open the consumption in India, more so in the untapped tier 2/3 cities, it is imperative to generate awareness about soft tissue's superiority and hygiene benefits over hard tissue, thereby influencing its demand.

It's not an easy task, which has been tackled by investing in newer and better technology for tissue paper production and utilising a diverse mix of fibres while maintaining a competitive pricing strategy.

In summary, much work is carved out for the producers and brand owners to tap into India's growing tissue paper market. It will need a delicate balance of educating the public about the benefits of using disposable tissue paper products while bringing forth reasonably priced yet good quality soft tissue paper. All would be eager to see how this market unfolds.

The tissue paper segment is often perceived as an 'unnecessary luxury' and seen as a premium commodity. This also goes hand in hand with the limited availability of good quality or soft tissue.



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GLOBAL NEWS UPDATE

A roundup of news from across the global tissue industry. To get the very latest news go to www.tissueworldmagazine.com



Start-up team: colleagues at Ukraine's Kochavinska Paper Factory and A.Celli celebrate TM3, which started production on 28 October 2023

UKRAINE

KOCHAVINSKA PAPER FACTORY BOOSTS CAPACITY WITH TM START-UP

Ukraine's Kochavinska Paper Factory has started-up its A.Celli-supplied turnkey iDEAL tissue line at its site in the Lviv region. TM3 was started up on 28 October and is equipped with A.Celli's EVO-LOCK Yankee Dryer, which features a 12' diameter for a paper width of 2.8m at reel. Roman Vasilyevich Pirig, Chairman of the Board of Directors of Kochavinska Paper Factory, said: "We are happy to finally see this A.Celli Paper production line up and running, given the obvious difficulties caused by the war."

"A.Celli's and Kochavinska's teams managed to achieve a great result, and we have no doubt that the line, equipped with this innovative Yankee Dryer concept, will be a source of great satisfaction for us."

Yaroslav Melnyk, Ukrainian Ambassador, added: "It is very important for us that the production in such a socially important sector as paper continues

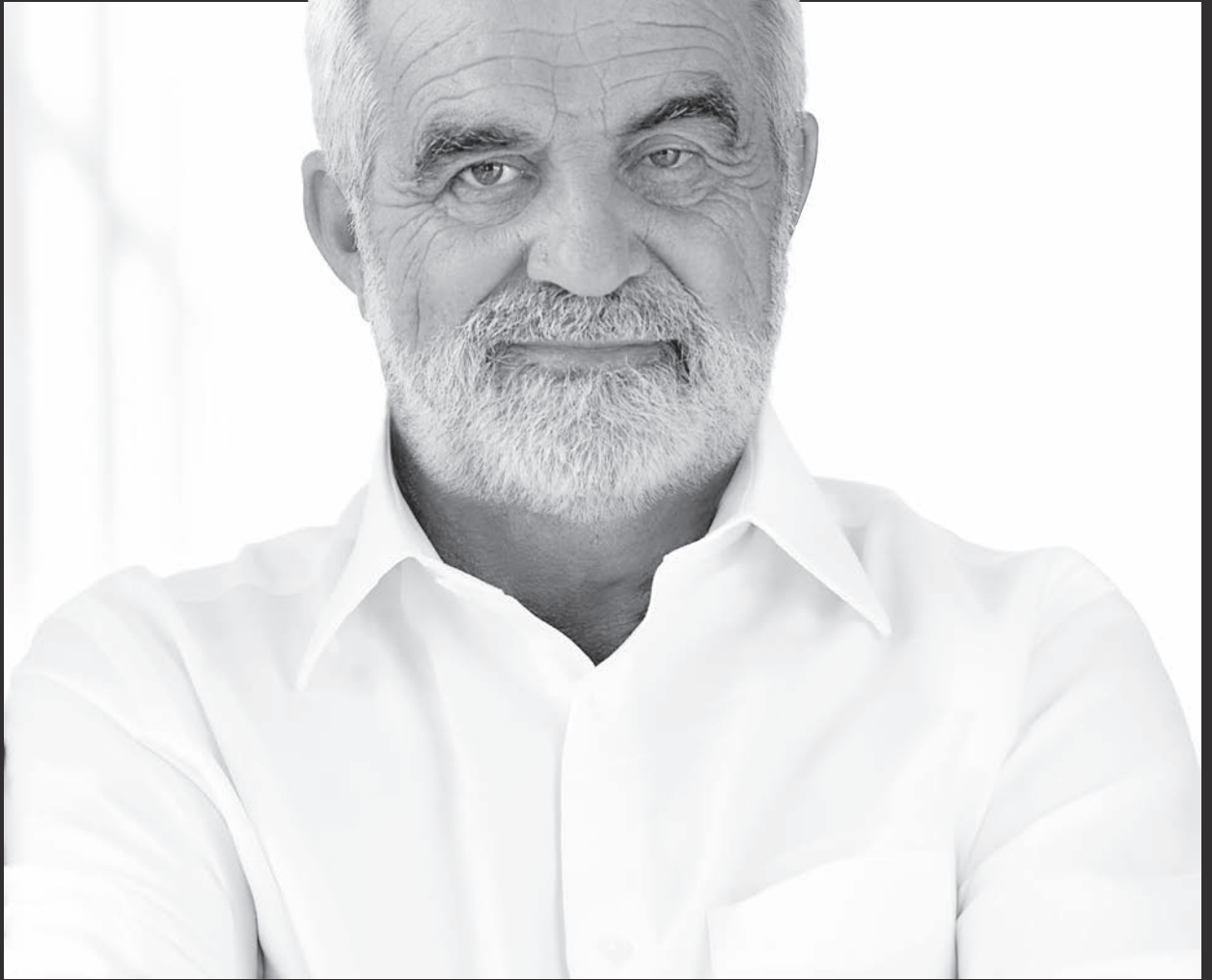
and even develops during the war. I hope that many Italian businessmen will follow A.Celli's extraordinary example of work and start their joint projects with Ukrainian partners in the near future."

A.Celli said the difficulties caused by the war in Ukraine "posed a real challenge to the success of the project, leading to the search of new ways to complete the planned interventions."

The supplier said it installed the plant and performed the commissioning and start-up with very few field resources and intensive remote support.

Kochavinska Paper Factory is one of the largest producers of recycled base paper and tissue for the AfH, At-Home, and private label sectors.

Located in Western Ukraine, the company dates back to 1938, when the plant was built with the involvement of experts from Germany, Poland and Sweden.



"VISIONARY, GENEROUS, AND CHARISMATIC": CASCADES CO-FOUNDER BERNARD LEMAIRE PASSES

Cascades has announced the death of Bernard Lemaire, 87, a Co-founder of the company. Born in Drummondville, Québec in 1936, in 1960 Lemaire joined the family business of waste recovery, Drummond Pulp and Fibre. Four years later and with the support of his brothers Laurent and Alain, a second life was given to the disused Dominion Paper Co. mill in Kingsey Falls. He then laid the foundation for Cascades, where for nearly 30 years he was president.

Lemaire was also involved in the founding of Boralex, a Québec flagship company that produces renewable wind, solar, hydroelectric and thermal energy in Canada, France and the United States.

His brothers Laurent and Alain said: "Bernard was an exceptional man, a larger-than-life character.

"Visionary, generous and charismatic, he convinced countless people and communities to participate in a huge project, the project of his life: Cascades. His career embodies the emergence of a francophone Québec that is proud of its roots. Our big brother was a great man. Today, he is a legend."

Mario Plourde, President and Chief Executive, said: "Bernard is the source of the ingenuity and dedication of the 10,000 or so Cascaders. It is thanks to him that they are working today in a multinational company that is a role model and whose vision, success and values are praised. He gave the Company the momentum that has made it grow and shine for nearly 60 years. His legacy is rich and will live on."

Contribution to the business world: In 1985, the newspaper *Finances* awarded Lemaire the title of Businessman of the Year. In 1991, the Association des professionnels en ressources humaines du Québec awarded him the Iris d'honneur for his contribution to the advancement of human resources management.

He has been awarded the insignia of Officer of the Order of Canada, Officer of the National Order of Québec, and Knight of the National Order of the Legion of Honor, and granted by the President of the French Republic.



(L-r) Oswaldo Cruz Junior, Head of Tissue Converting Business Unit, Valmet, and Pasi Laine, President and Chief Executive of Valmet

GLOBAL

VALMET COMPLETES ACQUISITION OF KÖRBER'S BUSINESS AREA TISSUE

Valmet has officially entered the global tissue converting business after completing the previously announced acquisition of Körber's Business Area Tissue.

According to the company, the move creates "the markets' widest technology, automation and services offering for the growing tissue industry covering the entire tissue value chain from fibre to finished products."

The new Tissue Converting business will operate as a business unit integrated in Valmet's Paper business line.

It will focus on delivering and serving converting lines for rolled and folded tissue products, packaging equipment and on providing digital

solutions and services.

Pasi Laine, President and Chief Executive of Valmet, said: "Today we are happy to welcome the market leader in tissue converting and close to 1,200 new dedicated colleagues to Valmet. "The acquisition is a good strategic fit and complements Valmet's tissue making offering with strong expertise and complete solutions from tissue converting to packaging. By entering the tissue converting business, we take again a step forward with strengthened capabilities to serve our global customers even better."

Oswaldo Cruz Junior, Head of Tissue Converting Business Unit, Valmet, said: "Today marks the beginning of an important new chapter in our history, and we are very excited to be joining Valmet.

"Being part of Valmet will support the growth of our operations in the tissue converting business and allow us to boost innovative projects. Now we can be even closer to customers as a one stop shop market leader".

The enterprise value of the acquisition is approximately €380m on a cash and debt free basis subject to ordinary post-closing adjustments.

The acquisition was completed on 2 November 2023 and follows the acquisition agreement that was announced on 7 July 2023.

Valmet said it estimates the acquisition will bring sales, service, and cost synergies worth of €8m by the end of 2026.

NORTH AMERICA

KRUGER PRODUCTS REPORTS BOOSTED CONSUMER Q3 RESULTS

Kruger Products has reported volume and margin recovery in its Q3 results, highlighting "robust" Consumer tissue sale volumes.

Revenue for the quarter increased 10.9% year-on-year to \$473.4m, while adjusted EBITDA was \$72.4m, an increase of 135.7% compared to \$30.7m in Q3 2022.

Net income for the quarter increased \$51.7m to \$12.9m.

Dino Bianco, Chief Executive of KP Tissue – which holds a 13.1% interest in Kruger Products – said: "Our Adjusted EBITDA was highlighted by robust sales volume in our Consumer segment and improved productivity from our network assets.

"We also benefited from a seasonally strong quarter, lower pulp and other input costs, as well as 2022 pricing carry over. As a result, we outperformed expectations despite an uncertain economic environment."

For the fourth quarter, he added the business is seeing moderation in input costs but continued inflationary pressure.

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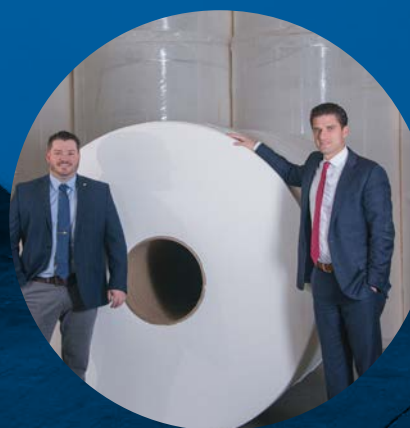


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"We believe volume will continue to be strong and with our previously announced pricing, our margins will be stable," he said.

Bianco said he expects margins for the fourth quarter of 2023 to stabilise and adjusted EBITDA is expected to be in the \$60-\$65m range. He added that the business will continue to reinvest to drive long-term value.

SHERBROOKE EXPANSION PROJECT

As a result of significant inflation across the supply chain and interest rate increases during construction, the capital cost of the Sherbrooke Expansion Project is now forecast to increase to \$377.5m from \$351.5m.

The additional costs are being financed by investments from Kruger Products and an \$8.2m increase in the construction facility.

CASCADES REPORTS SOLID RESULTS; TISSUE PAPERS SEGMENT REPORTS MORE FAVOURABLE SALES MIX

Cascades has reported solid Q3 results fuelled by "a robust" 39% increase in its Tissue Papers segment.

Sales of \$1,198m compared to \$1,168m in Q2 2023 and \$1,174m in Q3 2022, while EBITDA of \$161m compared with \$141m in Q2 2023 and \$111m in Q3 2022.

Mario Plourde, President and Chief Executive, said: "Sequential sales growth of 2.6% reflects stronger Containerboard volume and more favourable sales mix in Tissue Papers. "Quarterly EBITDA improved 14%, exceeding expectations, fuelled by a robust 39% increase in Tissue Papers as benefits from lower raw material costs, price increases, and repositioning of this segment's operational platform and other profitability, efficiency and productivity initiatives undertaken over the past year continued to yield results.

"Sequentially, raw material costs were a headwind for our packaging businesses, but remained below prior year levels, while production costs were a tailwind.

"Notwithstanding a less favourable exchange rate, we maintained our net debt levels stable due to strong cash flows from operations and lower capital expenditures during the quarter."

Plourde forecasted fourth quarter results to decrease sequentially, driven by lower expected results in the company's containerboard segment due to higher raw material costs, slightly lower average selling prices and usual softer seasonal volumes in the fourth quarter. Results in the Specialty Packaging and Tissue Papers segments are expected to remain stable on a sequential basis.

He said: "More broadly, we continue to remain prudent on the demand-side, most

notably in our packaging businesses, due to general economic uncertainty.

"Notwithstanding this, we are very pleased with the continued ramp-up of production at the Bear Island facility, and the benefits being realised in our Tissue Papers segment following the wide-ranging measures executed in recent quarters."

SWEDEN

REXCELL BOOSTS CAPACITY WITH TM INVESTMENT

Rexcell Tissue & Airlaid has invested in a Toscotec-supplied complete drying section rebuild for PM1 at its Skåpafors mill.

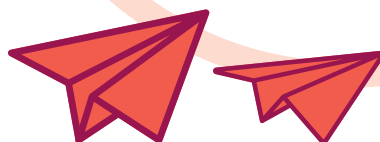
Planned for the second half of 2024, the scope of supply includes a customised offering designed to deliver substantial gas consumption reductions, as well as a significant increases in machine run-ability.

This includes a press section upgrade, a latest generation TT SYD Steel Yankee Dryer with steam and condensate system, and a high efficiency TT Hood with a complete air system. The hood plant is also equipped with TT Drying Equilibrium.

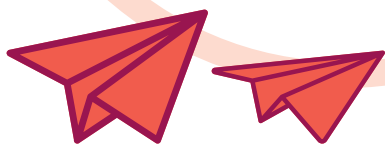
According to the supplier, the rebuild aims to reduce PM1's thermal energy consumption through the use of state-of-the-art drying technology designed for energy efficiency, and to increase the machine speed and production capacity.

Lars Andersson, Chief Executive at Duni Rexcell, said: "At Rexcell we take global environmental challenges very seriously.

Plourde forecasted fourth quarter results to decrease, driven by lower expected results in the company's containerboard segment due to higher raw material costs and usual softer seasonal volumes.



Suzano reported a net loss of R\$729m in its third quarter results. Sales of pulp fell by 11% year-on-year, and the average prices for the product dropped by a third to \$547 per metric ton.



"As a part of Duni AB, we share the same vision to be Net Zero 2030 along with considerable energy reductions. This machine upgrade is a strategic investment that perfectly fits into this vision."

Rexcell is a wholly owned subsidiary of Duni Group, and first started paper production in 1898.

BRAZIL

SUZANO ANNOUNCES R\$1.66BN EXPANSION PROJECTS; REPORTS NET LOSS IN LATEST RESULTS

Pulp and tissue producer Suzano has announced investment plans worth R\$1.66bn to boost its installed production capacity and enhance its operational efficiency, as it reports a net loss of R\$729m in its third quarter results.

The company will invest R\$650m to build a tissue paper mill in Espírito Santo, Brazil, where it will also invest R\$520m to replace a biomass boiler.

Some R\$490m will also be invested to expand its fluff pulp production capabilities in São Paulo.

It is expected that the new fluff- and tissue-based capacity will reach the market by the end of 2025 and in 1Q26, respectively, and will add 340,000 tons of fluff and 60,000 tons of tissue to the company's production capacity.

A third investment will continue the modernising of the company's Brazilian Aracruz Unit, where a new biomass boiler will be installed. It is expected to be operational in the fourth quarter of 2025.

Walter Schalka, Suzano Chief Executive, said: "Suzano's competitive edge in the production of sanitary papers and fluff pulp, and the long-

term growth of these markets driven by changes in consumption habits, underpin the strategy of strengthening our presence in these segments.

"We are the leaders in the Brazilian tissue paper market and pioneers in the production of fluff pulp from eucalyptus, which is why we must always be ready to serve our customers."

THIRD QUARTER RESULTS IMPACTED BY WEAKENING OF BRAZILIAN REAL

Suzano reported a net loss of R\$729m in its third quarter results. Sales of pulp fell by 11% year-on-year, and the average prices for the product dropped by a third to \$547 per metric ton.

The company said the results were impacted by the weakening of Brazilian Real during the quarter, which it added had affected the portion of debt in American Dollars and derivatives. However, it said its results also benefited from the cash cost of production to R\$861 per ton, "at a time still marked by weak global pulp prices."

It reported adjusted EBITDA of R\$3.7bn and operating cash flow of R\$1.9bn. Pulp sales totalled 2.5m tons and paper sales reached 331,000 tons. Net revenue was R\$8.9 bn.

FRANCE

SOFIDEL INVESTS IN BIOMETHANE FOR ROANNE

Sofidel has signed a 10-year contract with ENGIE for the supply of renewable gas biomethane at its production plant in Roanne.

The contract is a BPA (Biomethane Purchase Agreement), which Sofidel said is one of the first of its kind in the tissue industry.

Biomethane is a renewable gas that is produced through the purification of biogas, generated by the anaerobic fermentation of organic residues.

ENGIE's plant is located adjacent to Sofidel France's Roanne production facility and will use sewage sludge sourced from the municipality of Roanne and residues from the local agribusiness sector.

Under this contract, ENGIE will supply Sofidel with 25,000MWh/year of biomethane, effectively covering 40% of Sofidel France plant's thermal energy needs.

The company added that by transitioning to this renewable energy source, it is poised to cut its annual carbon emissions by 4,600 tons.



Start-up team: Panda Paper Mills (1997) delegation at Toscotec's TT SYD Technology Center in Massa, Italy

ISRAEL

PANDA PAPER MILLS (1997) BOOSTS AFH CAPACITY WITH REBUILD

Panda Paper Mills (1997), a subsidiary of Israeli manufacturer Sano Enterprises, has invested in a Toscotec-supplied complete drying section rebuild of PM1 at the company's Netanya production facility. PM1 produces high quality tissue from recycled fibres for the AfH market, and the scope of supply includes a latest generation TT SYD Steel Yankee Dryer, the entire steam and condensate removal system, and high-efficiency TT Hoods.

The upgrade aims to "substantially increase" the machine's drying capacity and is planned for the second half of 2024. Eliran Elbaz, Vice President

Paper & Complementary Products Division of Sano Bruno's Enterprises, said: "Toscotec's state-of-the-art technology will allow us to raise the bar on our paper products portfolio.

"Their added value is key for our customer base, and we keep on investing and working towards this goal."

Panda Paper Mills (1997) is a tissue manufacturer based in Netanya where it operates one tissue machine. The company is a subsidiary of Sano Enterprises, an Israeli manufacturer of non-food products.

GLOBAL PULP LEADER BRAZIL SHOWS STRONG GROWTH IN FINISHED PRODUCT TISSUE EXPORTS



Trend driven by eucalyptus fibre resources, efficient plantations and mills with much room for further expansion, seven new machines under construction, and substantial increases in consumers' personal income. Report by Bruce Janda, Senior Consultant, Fisher International.

Portuguese-speaking Brazil escaped the fracturing experienced by the Spanish-speaking countries of Latin America in the colonial period, retaining its size and unique culture. Avoiding fracturing increased the scope of natural resources and climates available for development compared to its smaller neighbours. However, it also resulted in a somewhat different tissue culture. For example, Brazilians didn't flush their used tissue paper but instead collected it in rubbish bins by the toilet.

Brazil continues to expand its tissue production and resulting exports each year. We noted the country appeared to make the switch from tissue importer to exporter when we last visited Brazil in this column in 2021, post-pandemic. The country continues to be a global tissue pulp leader with substantial eucalyptus plantations. However, it is now capturing increased value through added tissue production at home and then exporting the finished products. This is a sound manufacturing strategy to get the most value from the eucalyptus fibre resources from highly efficient plantations and pulp mills. However, it does increase the shipping cost and carbon footprint as soft and bulky tissue products consume shipping containers or cubic

meters disproportionately to the product weight, unlike packaging paper or market pulp grades.

Brazil's population is estimated at 218,689,757 in 2023, making it the sixth most populous nation with the seventh largest land mass globally. Figure 1 shows the population trend as a yellow line. The population growth rate is estimated at 0.64% for 2023. This slowing population growth is one reason Brazil looks to tissue exports for manufacturing growth. Also, its workforce is relatively young compared to more fully developed countries.

The country's economy grew at a rate of 4.62% in 2021. The bars in Figure 1 show GDP per capita growth at purchasing power parity to facilitate global comparison. The post-Covid-19 recovery and growth are shown in Figure 1. Years 2021 and 2022 saw substantial increases in personal income that should support further domestic tissue growth, especially in other tissue formats such as paper towels.

Brazil's recent experience with unemployment and inflation is shown in Figure 2. Inflation hit a peak in 2022, but 2023 data indicates some improvement, along with unemployment. These trends should help further support the further development of domestic tissue demand.

Figure 3 shows Brazil's tissue import trend. Tissue imports dropped dramatically since 2013. Recently, Columbia and China supplied the largest share of imports, with smaller amounts from South Korea, Germany, and the United States. Its import volume in 2022 was about one-sixth of the rate in 2007.

Brazil's tissue export trend shows strong growth, as seen in Figure 4, as tissue exports now greatly exceed imports. The 2022 import volume is about 3.5% of the 2022 export volume. Brazil's tissue export customer focus includes its Latin American neighbours of Chile, Argentina, Uruguay, and Paraguay, with lesser volumes to Mexico.

Brazil has added significant tissue capacity since 2007. Total tissue capacity by 2025 is expected to reach more than 2.2 times the 2007 level, as more new capacity is coming online in 2024. This is supported by Figure 5, which shows the country's tissue machine count change trend for the referenced periods. As we can see, it indicates that seven new machines are under construction. The count change chart tends to understate the impact as the new machines represent a much larger capacity than the old machines going out. For lower costs, several new machines will be located at virgin integrated or recycled integrated fibre sites. Most of Brazil's tissue production is still consumed at home, and the increased exports represent a small portion of the total capacity so far.

As one of the largest suppliers of export market pulp to the tissue industry, Brazil's eucalyptus is known worldwide as a critical ingredient for tissue softness and premium quality production for higher margin products. Eucalyptus has several unique properties that maximise tissue formation and the development of free fibre ends at the tissue surface. Yet, at this point, only about 12% of the total Brazilian tissue capacity is produced at integrated virgin pulp sites to take advantage of energy and cost savings from not drying the market pulp for shipment. Figure 6 shows the breakdown of the country's tissue capacity by site type. Surprisingly, 58% of Brazil's tissue capacity is located on recycled integrated fibre sites that accrue the same cost savings.

Consumer bath tissue is the most significant product produced by Brazil's tissue mills. This indicates a lot of room to grow tissue consumption with improved consumer spending power, leading to increased use of disposable napkins and towels in the home. Figure 7 shows each finished product category's average use of fibre types. Very little softwood is produced or used in tissue by Brazil. This could be a tissue quality or performance issue for competitive tissue exports from the country, as softwood is a crucial ingredient for strength and bulk. However, the newer tissue machines located at the eucalyptus-integrated fibre sites appear more focused on exports.

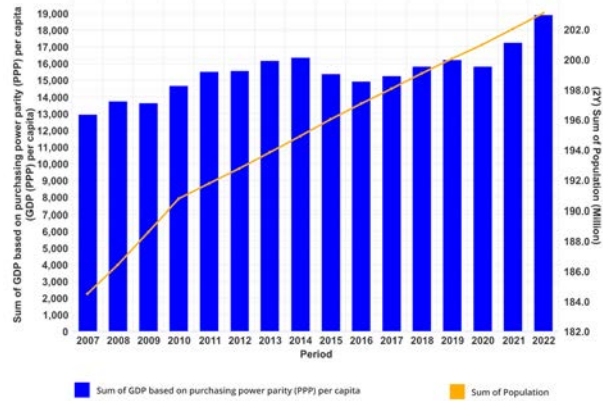


Figure1: Brazil GDP Person and Population

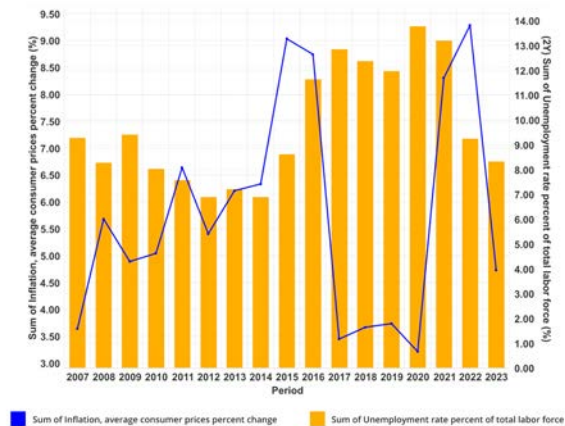


Figure 2: Brazil Inflation and Unemployment

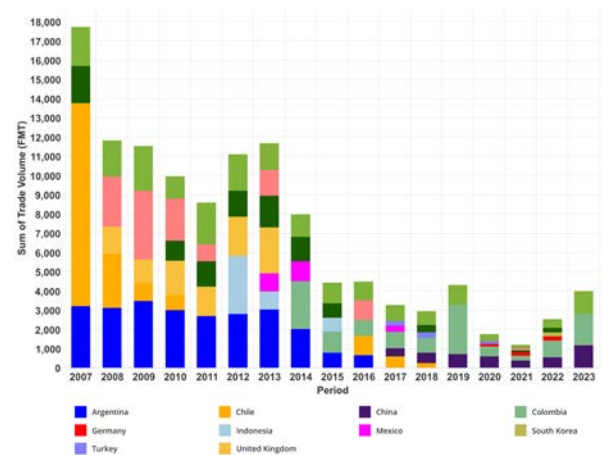


Figure 3: Brazil Tissue Import Trend

Figure 8 shows the same finished product fibre makeup as Figure 7 but includes only the eucalyptus virgin fibre integrated sites with some of the newest tissue machines. This guides global tissue makers importing eucalyptus market pulp towards the best use of the fibre in different tissue finished products. For example, commercial napkins and towels contain 100% eucalyptus hardwood fibre. Commercial bath tissue also has eucalyptus fibre, produced as BCTMP, and a trace of softwood pulp. The retail bath uses 18% softwood pulp and 16% BCTMP, presumably for bulk and strength.

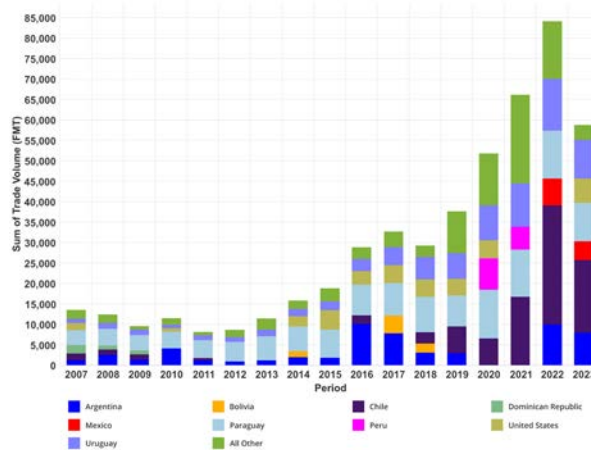


Figure 4: Brazil Tissue Exports Trend



Figure 5: Brazil Tissue Machine Count Changes

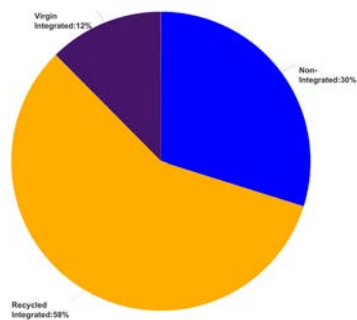


Figure 6: Brazil Tissue Machine Capacity by Site Type

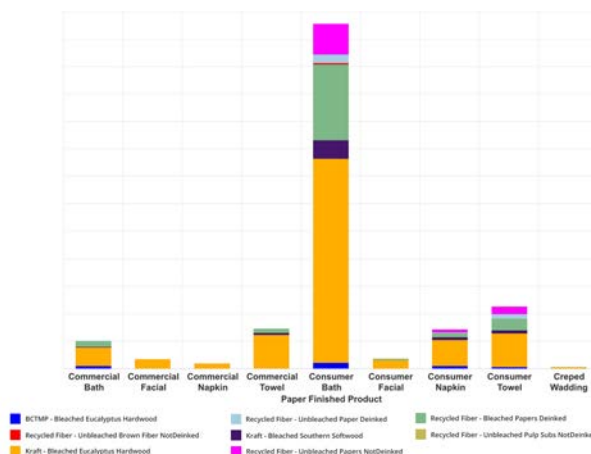


Figure 7: Brazil Tissue Furnish by Finished Product Type

Consumer napkins and towelling have even higher percentages of BCTMP and some softwood. However, 100% eucalyptus may be cheaper. Still, it is worth using tactical amounts of other fibres to maximise tissue properties in exported products, which can increase profit despite the increased costs.

A comparison set of countries' tissue machine fleets was chosen based on the regional customers of Brazilian exports, including Argentina, Columbia, and Uruguay. Tissue exporters such as Mexico, Turkey, China, and the United States were also included for comparison. The bubble chart in Figure 9 shows the average quality of the comparison set and Brazil. The size of the bubbles on the graph represents the total tissue capacity for each country. The X-axis represents each country's average machine technical age, and the Y-axis represents the average machine width. Brazil's tissue machines are of average technological age while also being narrow. Compared to Indonesia, they average 5-6 years older and almost 100 cm narrower. However, Brazil is updating its tissue machine fleet faster than most countries on the chart, and we should expect continued improvement in these metrics.

The relative average cost of making a finished ton of tissue for the countries in the comparison set is shown in Figure 10. The height of each country's bar represents the cash cost of production, and the width of each bar is the relative tissue capacity. The coloured bands for each bar represent the costs of raw fibre material, market pulp, chemicals, energy, labour, materials, overhead, and credits. Brazil is in the lowest cost set with Indonesia and Argentina. Mexico and the United States have much higher average costs. Mexico's energy costs appear very high, and labour in the United States is much higher as well. It's important to note that these are average costs, and individual machine costs will diverge considerably.

A snapshot of the average tissue machine and mill viability is shown in Figure 11. In this case, the bar height is detailed by viability factors, including:

- Capital required
- Cost
- Grade risk
- Internal company risk
- Competitiveness
- Size
- Technical age
- Tons per unit trim

Brazil's tissue production does well in this comparison, as it's positioned on the lower end of the benchmark. However, Columbia and Uruguay are in the high-risk group with lower viability, two countries that have started to import Brazilian tissue.

Carbon emissions per finished metric ton are shown in Figure 12. These are the emissions of the tissue machines only on a site and do not include pulp production on an integrated site. Scope 1 and

2 emissions were chosen as the most likely to be included in a carbon analysis by potential consumers. The colours stacked in each bar represent the source of each emission. The two key areas are fossil fuel consumption on site for power and heat for tissue drying and the fossil fuel content of the electricity grid production. Uruguay and Brazil contain the best results in this chart. China and the United States are positioned as the worst in this set. Carbon emissions depend not only on the choice of electric grid power or mill heat source, ranging from coal to natural gas, but also on the energy efficiency of each machine used to produce the same ton of tissue.

Brazil continues progressing from tissue importer to tissue exporter, focusing on tissue sales to Latin American neighbours, where it enjoys some competitive advantages. Domestically, Brazil's economy continues to support further consumer tissue consumption development. Additional new tissue capacity coming on stream will further these trends. The country makes good use of its recycled integrated tissue sites but has a lot of room for further expansion at its eucalyptus pulp-producing sites to capture synergies and cost savings for premium exportable products. These existing eucalyptus fibre integrated machines have optimized the furnish of critical grades by including BCTMP for bulk and cost savings. They also use small amounts of softwood for strength and bulk. Significant fibre synergy exists between Argentina and Uruguay as they produce southern softwood pulps that improve the results of high eucalyptus tissue furnishes.

Analysis of competitive position requires specifics on tissue producers and individual machines. This article presents a static summary of Brazil's tissue industry today. Fibre prices, exchange rates, and environmental regulations will change, providing some participants with advantages and other new challenges. In addition, Brazil's tissue mills will continue to change hands and consolidate, and neighbouring countries may invest in tissue-making capacity, affecting Brazil's imports and exports.

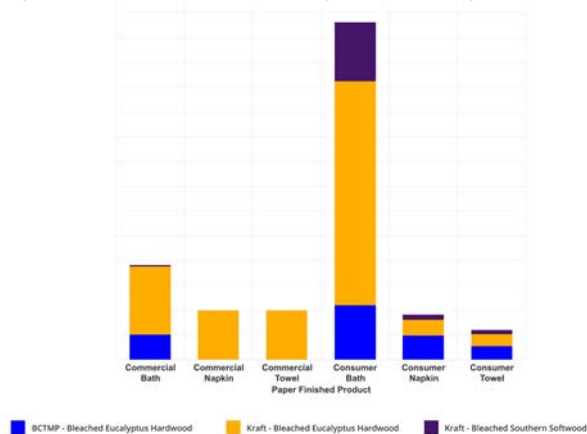


Figure 8: Brazil Tissue Furnish by Finished Product Type for Virgin Integrated Fibre Sites Only

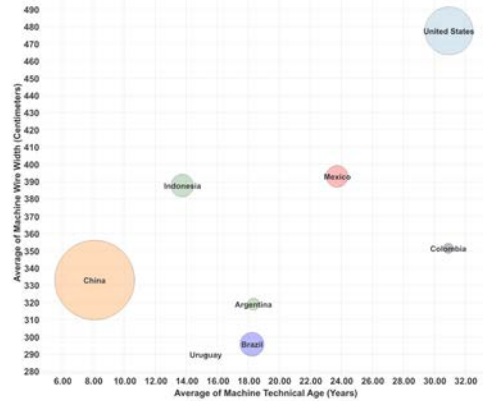


Figure 9: Brazil Tissue Machine Quality Comparison

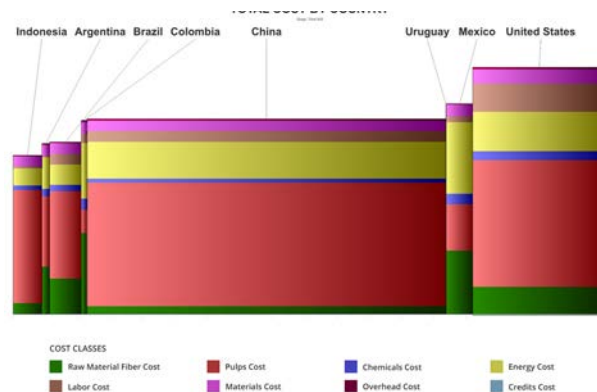


Figure 10: Brazil's relative tissue production cost versus export partners

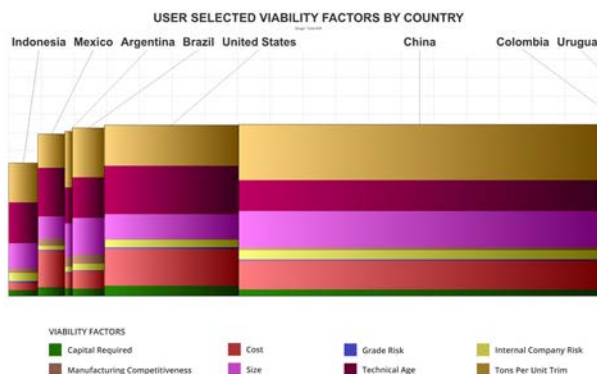


Figure 11: Brazil Tissue Machine Viability versus comparison partners

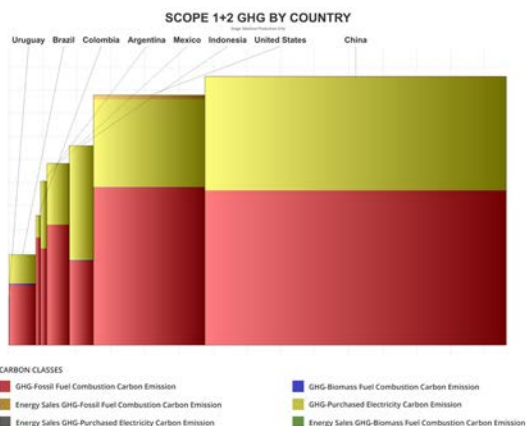
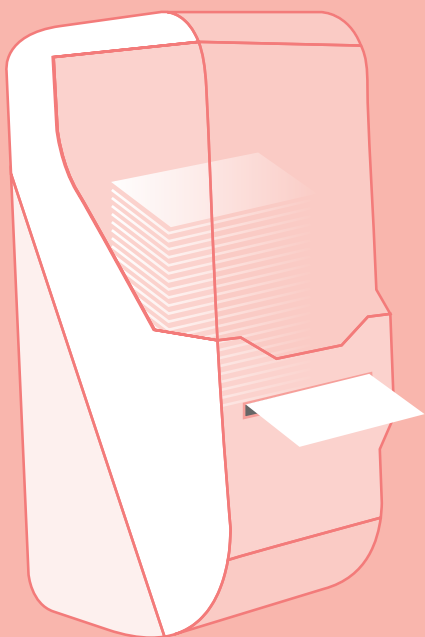


Figure 12: Brazil Carbon Emissions per FMT, Scope 1&2. Paper Machines Only

Dawn system. For a cleaner tomorrow.



The tissue industry is changing.
A revolution that will see the emergence
of new intelligent, sustainable, and more
hygienic systems and products.
Get ready for the revolution.
It will arrive with the Dawn.

BRAZIL'S LONGER TERM TISSUE RECOVERY 'PROMISING,' BUT UNCERTAINTY REMAINS OVER ECONOMIC AND CULTURAL CHANGES



Lower birth rate and shift away from tradition families towards single or two-people households without children will affect future market.

By Paula Ferolla, São Paulo-based Consumer Insights Consultant, Euromonitor International.

In recent years, inflation was the top theme across many channels and categories in Brazil, including tissue. The recent post-pandemic supply chain disruptions, additionally affected by the Russian-Ukrainian war, have unbalanced the cellulose supply and demand relation. Consequently, manufacturers have increased average prices in Brazil or compensated cost pressure through shrinkflation, especially on toilet paper and paper towels. Packaging diversification has also been a retailing strategy across tissue brands, whereas a wider portfolio can account for different buying power fitting to a diverse set of consumer's budgets between two ends of polarization – between value and premium.

As such, the tissue industry in Brazil has seen negative volume performance in 2022, while inflation boosted a slow but positive retail value growth. As the controlled inflation ceiling has recently remained above that observed in many developed

countries, Brazilian consumers continuously need to accommodate their household budget among grocery categories. Within social classes stratification, economically disadvantaged consumers from classes D and E account for more than 75% of the population, according to Euromonitor's data based on national statistics. Overall, consumers struggle to maintain their purchasing behaviours in turbulent socio-economic scenarios, while the national minimum wage hasn't increased accordingly to inflation, often choosing private label options or more affordable brands as an alternative, especially on napkins and toilet paper.

Increasing price-sensitivity and inflation have led Brazilian consumers to spread out their grocery shopping throughout the month and explore different purchasing channels. This has had a direct effect on warehouse clubs' growth since 2020, as low and medium-income consumers are eager to find affordable prices and buy in bulks, as a better cost-benefit decision. Some chains' expansion



Source: Euromonitor International Tissue and Hygiene research, published February 2023

strategy was based on advantageous locations with higher populational density and diverse socio-economic profiles. In 2023, several warehouse club chains continue on expansion, including Assaí, Atacadão and Fort Atacadista, along with the increase of brand and product availability and customer service improvements.

Interestingly, this scenario has not deterred launches targeting premiumisation, such as Santher's 3-ply toilet paper, which highlights natural fibres and sustainable attributes as well as product claims such as comfort, resistance and softness. The regional player Copapa introduced the toilet paper brand Carinho Ecológico in 2022, with a packaging 100% paper-based, and quality standards supported by green labels such as EuReciclo and SOS Mata Atlântica. Such premium offers are directly targeted to more affluent consumers. In fact, about 8.4% of Brazilians still fall into the social class A category.

Looking ahead, retail tissue should perform on 2.4% CAGR in retail volume in the forecast period (2022-2027), whereas demand is influenced by improvements in economic drivers and ongoing societal shifts that consequently lead to different purchase behaviours. For instance, according to IBGE (Instituto Brasileiro de Geografia e Estatística), lower birth rates and fertility rates in recent years are indicative of a demographic shift in

Brazil, resulting in changes in family composition in favour of single or two-people households without children, which may lead to purchases of smaller packs of tissue goods.

This scenario has not deterred launches targeting premiumisation, such as Santher's 3-ply toilet paper, which highlights natural fibres and sustainable attributes as well as product claims such as comfort, resistance and softness.





Source: Euromonitor International Tissue and Hygiene research, published February 2023

TRAVEL AND FOODSERVICE RECOVERY SUPPORTS AFH TISSUE DEMAND DESPITE SHIFTING WORKING PRACTICE

The pandemic disruptions have severely hindered the demand for AfH tissue products, which showed more definitive signs of recovery in 2022 and 2023 from 2020. Currently, AfH sales represent slightly more than 18% of total tissue market in Brazil, with more than half of consumption derived from HoReCa channel, including hotels, foodservices providers such as restaurants and catering establishments. The channel performance has shown positive signs, with travel and business activities gradually recovering.

As pandemic-related restrictions further eased, tourists were encouraged to resume travel plans. Despite that, unfavourable exchange rates, inflationary economic pressure, and skyrocketing airline tickets in 2022 have negatively affected overall spending, hindering a robust recovery. In 2023, the AfH market has been positively impacted by the travel's industry growth of 18.4% in constant retail value (on fixed exchange rate), as a result of a strong flow of inbound arrivals and outbound departures. The positive recovery also impacted sales especially on wipers, napkins, and toilet paper.

Additionally, the revival of business activities will also apply to the AfH tissue market landscape as many employees returned to workplaces. According to Euromonitor's Lifestyle Survey, in 2023 some 35%

of Brazilians against 38% in 2022 are weekly working from home. While the results show that a part of the population still live the remote work reality, gradual return to the office should support tissue usage through foodservices.

In the forecast period, 2022-2027, AfH tissue should grow 3% CAGR in volume, surpassing the 2019 level and benefitting from Brazil's preponderance as the largest consumer foodservice market in Latin America, a positive tourism performance, a consistent demand from the public healthcare system and the growth of private healthcare institutions in Brazil.

Vertically integrated consolidation bodes well for Brazil's long-term tissue performance

The opportunities in the Brazilian consumer tissue market – its population size and consumption potential – are already well known, with the country seen not only as a large tissue consumer market but also a key global cellulose supplier. With the States of Mato Grosso do Sul, Bahia e São Paulo collectively contributing the most significant share to the Brazilian cellulose production, and local pulp and paper producer Suzano Papel e Celulose marking the world's largest cellulose producer, and the country's overall resilience as a consumer tissue market is expected to contribute to long-term growth.

Overall, the outlook for Brazil's tissue is promising as indicated in a slew of high-profile consolidations backed by supply chain optimisation in recent years.

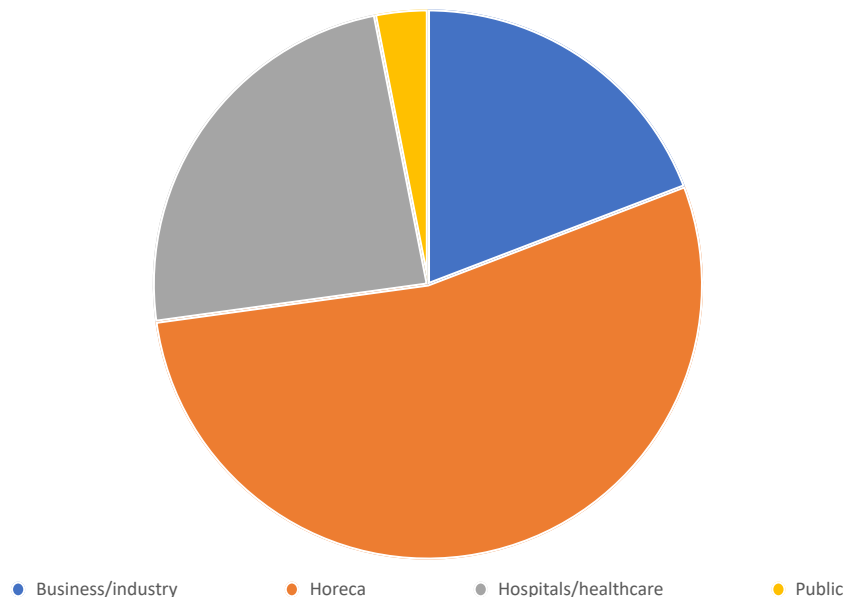
In 2023, Suzano further built its local prowess by acquiring Kimberly Clark's local tissue assets, including manufacturing site in Mogi das Cruzes, São Paulo, and the licensing rights of the brands Kleenex, Neve, Scott and K-C professional line. In 2020, Japanese player Daio Paper acquired Santher - Fábrica de Papel Santa Therezinha, a local company with important brands in the portfolio such as Personal, Snob and Kiss. The subsequent year saw CMPC acquiring Carta Fabril, the owner of several brands, such as Cotton, Deluxe, Coquetel, GranFinale, Leblon Soft Blanc, Looping, Klass and Looney Tunes. Besides, in the first semester, Brascell has concluded the acquisition process of OL Papéis, a tissue and hygiene manufacturer focused on the Northeast of the country, with brands across paper towel, toilet paper and diapers.

These examples highlight a key underpinning strategy shaping the Brazilian tissue production: verticalisation, which allows the centralisation of all the processes in the production chain, from the raw materials manufacturing to the distribution of the final product, enabling tissue producers to achieve greater production efficiency, stock control on cellulose and paper production, as well as independence from external stakeholders.

Overall, the outlook for Brazil's tissue is promising as indicated in a slew of high-profile consolidations backed by supply chain optimisation in recent years.



Away-from-home MSP Value Share in 2022



Source: Euromonitor International Tissue and Hygiene research, published February 2023

ENVIRONMENT TECHNICAL THEME: TURNING 60% OF ALL FRANCE'S RECYCLED FOOD AND BEVERAGE PACKAGING INTO A TISSUE RESOURCE



Essity's drive towards a "truly circular society" has opened up another stream of raw material resource linking circularity and proximity. Donato Giorgio, President, Global Supply Chain, Essity, talks to Tissue World Magazine Senior Editor Helen Morris about his vision.

Wheat straw, food and beverage cartons, banana plantation residue, miscanthus or bagasse, waterless production ... recycled paper cups from fast-food restaurants. A variety of raw materials are now being used or piloted to manufacture tissue products on a worldwide scale, suggesting a turning point for the ambitions of the global T&T industry that can now increasingly seek out native and locally sourced materials that surround existing tissue plants.

One company leading such innovation stakes is Essity, which just over two years ago started up its Mannheim, Germany-based plant, where it takes native fibre (wheat straw) from agricultural by-products surrounding the mill to make tissue products. At the time, Donato Giorgio, President, Global Supply Chain, Essity, detailed to TWM how the raw material was "a sustainable alternative pulp", and that the process was expected to reduce the use of water, energy, and chemicals, with the by-product of the integrated pulping process refined and used as a substitute for oil-based chemicals.

The final tissue product is now marketed in Germany under Essity's Zewa brand, encapsulating Giorgio's vision of using "local and native" raw materials from the doorstep of production facilities. "A truly circular society", he adds. At the time of the interview, what gave the process wider significance was the potential for rolling the model out elsewhere. Other native by-products located

close to production sites around the world could be involved.

Now in 2023, and Giorgio's vision for a circular society is stronger still. In October, Essity announced another world first - this time in France, where it had inaugurated its Hondouville facility. The site takes over 60% of all of France's collected, sorted, and recycled food and beverage cartons and turns it into tissue products that are sold under the Tork brand. "The production of Professional Hygiene tissue products where the raw material is used food and milk packaging is a world first," he says. "We have made something very beautiful."

The facility currently recycles 25,000tpy, and its expansion into recycling food and beverage cartons has increased its recycling capacity by 40%, as well as enabling the recycling of almost all packaging materials - including plastic and aluminium.

"We are very proud of how we have evolved the Hondouville production plant into the end-to-end circular economy we have today," he says. "Initially, we implemented the Toyota total employee involvement concept at the site, which adapts the core Toyota principle of kaizen - constant improvement. The concept of food carton box recycling was interesting for us, and we wanted to see how we could evolve and improve its use in our industry. We then invested substantial resources and R&D, technology, engineering, as well as manufacturing an eco-system which involves our suppliers across the supply chain in order to magnify and leverage full potential. As a result, Hondouville



The Hondouville factory: Leading sustainability in Professional Hygiene

is now one of the world leading factories for sustainability in Professional Hygiene. It has become one of the best performing factories, and here we are with this great product."

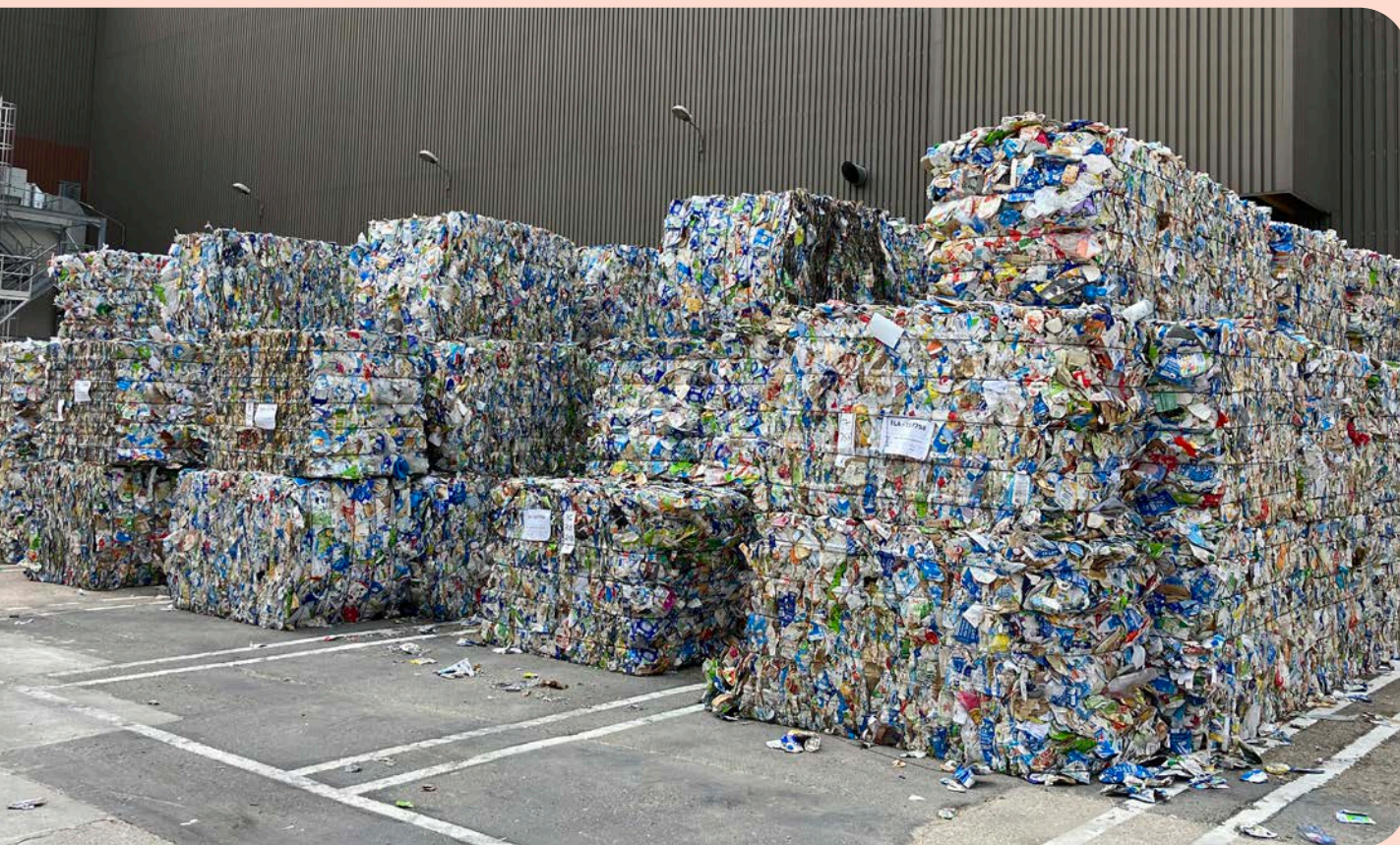
Giorgio says the site is "truly unique, because it is the full eco system". Yet across Essity, he adds the business prioritises innovation. The company now has similar recycling initiatives in Germany, the Netherlands, and most recently in Ecuador, where the business is collaborating with McDonald's and ReciVeci – an initiative that helps promote inclusive recycling and the circular economy across Latin America - to recycle paper cups from fast-food restaurants. Essity also became the first in the industry to produce tissue in a CO2 emission-free production process by using renewable hydrogen at its production facility in Mainz-Kostheim, Germany. The plant uses hydrogen as a final building block to replace natural gas in the hood dryer of the process. And its Lilla Edet mill in Sweden, again with the Tork brand, is "the first fossil-free tissue mill."

"Innovation is a constant element for us across the business", he says. "And if we look upstream in the process, a few months ago we announced substantial investments with our partnership with Voith to develop a waterless process for

the future. We are progressing very well here; it is a breakthrough for the world. In the end, we are making access hygiene more available, more accessible. We are making it cheaper, better, and available to a larger part of the population in line with our purpose to remove the barrier to wellbeing. It makes us unique in the world."

Back at Hondouville, Giorgio emphasises that what makes the plant truly unique is that it "encapsulates the full eco system". He says: "There are other companies that are recycling with Tetra Pack carton packages, but what we are doing is maximising the capacity across the whole chain. We are recycling close to 100% full fibre, and we are the only one in the world using Professional Hygiene for strategical products. So it is the full mix in the end that makes it unique."

Is the French market especially particular to this type of product? He says this French plant is "the first and only in the Professional Hygiene world with fibres from food carton. It was important the Tork brand position itself here for a circular economy, for advantages in sustainability whilst also bringing the advantage of the product. There is huge demand for these types of activities."



Next step recycling: Food and beverage cartons from across France at the Hondouville plant

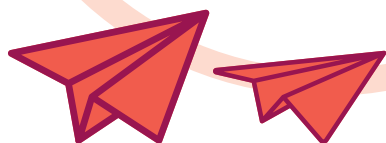
He likens the innovation to Tesla, the American multinational automotive and clean energy company which designs and manufactures electric vehicles: "I see Essity as being better than Tesla in contributing

to the world because of what we are doing to work towards circularity, CO2 reduction, for removing the barrier to wellbeing – which really means moving the barrier to hygiene products. It's unique."

At Hondouville, 25,000tpy are currently recycled, which is 60% of all the collected, sorted recycled food and beverage cartons in France. The site's capacity is up to 60,000tpy, so more capacity can be added in the future. "It could be an option to increase, from a technological point of view we can. We have to study if there is a possibility to have the material, because we need an equilibrium between the CO2 and the circularity of getting the material and recycling it, or if you generate more CO2 in transporting it."

In line with this, he adds that another unique element for the worldwide Professional Hygiene market is the company's Tork PaperCycle, which it has rolled out at its Lilla Edet and Mainz-Kostheim plants. Tork PaperCircle, he says, is a world first recycling service for paper hand towels and means a business can go circular by collecting and recycling used paper hand towels which are then created into new tissue products. "It's turning waste into a resource, and it is something that we continue to invest in. It's the best of the best, you don't have any fibre going to waste."

Tork PaperCircle is a world first for paper hand towels and means a business can go circular by collecting and recycling used paper hand towels which are then created into new tissue products.



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**LESS
FIBERS
MORE
STRENGTH**

- ✦ Same diameter
- ✦ Same firmness
- ✦ Same paper length



**LESS
FIBERS
MORE
VOLUME**

- ✦ Same strength
- ✦ Same firmness
- ✦ Same paper length

Boost your tissue products with AirMill. Save on raw material and choose whether to preserve strength or increase volume.



SCAN

and get involved in
AirMill technology

A holistic assessment of all the issues is the key to circularity: "When people ask me which is the most sustainable, it depends on the type of customer and consumer you are selling to, and where you are located and what kind of material is available nearby. The winning concept is that of circularity and proximity. It's about creating a balance between recycling with a food carton, recycled with Tork paper, recycling your own product, or using virgin paper when it makes sense, or using normal recycled fibre when it makes sense."

He cites the Mannheim plant as a good example, a prototype of what he hopes will be "the first of many such facilities that will change the future of tissue."

Close resource proximity is vital: "Today we are seeing geographical areas that may have supply chain disruption because of Covid, because of wars. So the closer proximity you have to reduce the impact of the natural resources, the better it is. This is our concept, and we try to have it for all our products and all future Essity sites. That serves customer and consumer in a better way. And what I believe strongly – and this is why I say Essity compares with Tesla – is that by serving

the consumer and the customer with something that is truly circular, that reduces the footprint on the planet, and at the same time gives a more affordable and better product. This is the key for the future economy."

He reiterates the aim of removing the barrier to wellbeing around the world: "We are the hygiene product. The biggest motivation we have is that only 45% of the world's population has access to hygiene products. That means 55% does not have access, because you cannot currently produce in proximity in every region of the world because this industry is too heavily capital intense, because our supply chain is using raw material that comes only from some specific parts of the world. We are working to fix this problem."

His dream, one day, is for Africa: "I want to have a facility, with solar panels, using all kinds of available raw materials local to the production site, making hygiene products for the local population. The tissue industry needs to become smaller, more local, and cheaper. In this way, you have a better footprint, and you remove the barrier to wellbeing around the world. But if we remove the barrier to



From waste cartons to tissue: The end product ready to go out again



Spelling out the strategy: Donato Giorgio, President, Global Supply Chain, Essity

well-being and sell something that costs double, even 10% more, we are not removing that barrier."

In many parts of the world, eliminating water from the tissue manufacturing process will be vital to "disrupting the paper making process". In March, Essity disclosed its pilot R&D machine in partnership with Voith, which aims to develop a new tissue making process that will reduce energy and CO₂ emissions while cutting water consumption by up to 95%. "I can't disclose too much at this time, just that we are looking at developing a new process without water," he says. The new concept will "revolutionise and rethink tissue manufacturing," and a pilot phase will be launched later this year before being implemented industrially. Compared to conventional paper making processes, this process could enable CO₂-neutral tissue production, reduce freshwater consumption by 95%, and lower energy consumption by up to 40%.

"We are currently creating paper how the Egyptians were doing so 3,000 years ago, in exactly the same way," Giorgio adds. "Forming the sheet with water. We don't yet know a different way of doing it and we need to think of a different way to make the fibre. This is a unique thing in a constellation of big activities that will change the world. If you take the iPhone, one of the biggest inventions of the world, the iPhone is putting together a lot of things that existed before in a different way. This is our ambition, to look at doing what we do in a different way."

All of which are impressive steps towards the company's aim of achieving net zero emissions by 2050. Hondouville offers a blueprint for circularity that will be rolled out further afield and assimilated into the local environment: "We are the number one in Latin America, for example, and in central America we have intense use of recycled fibre. So this could be a very interesting application for there."

While at Mannheim, the "beauty of it is the agricultural waste available that is close to the plant, which makes it one of the most successful circular economies." He adds: "Out of that wheat straw, we then have a unique local process that sends the pulp directly to the paper machine, and 50% of the yield makes our innovative product. And from that bio-based material we have already produced bio-packaging. So the beauty of the concept is that wherever you are, you see what kind of aquicultural available waste product is available locally, so it's not competing with the food industry, and then you can use miscanthus, or bagasse, or in central America you can use the residues of banana plantations."

"You can have a facility where you place one ton of agricultural waste, locally taken, and then with half of it you make the hygiene product, and with the other half you make the packaging and all the other things you need to sell it. A truly circular society."

SPECIAL FEATURE: ANNUAL REVIEW 2023

As 2023 draws to a close, TWM asks figures from across tissue's global supply chain for their retrospectives on the year ... and predictions for 2024.

Solving South Africa's energy crisis will have a massive impact on the local economy

**Jonathan Sher, Managing Director,
Universal Paper & Plastics,
South Africa**

In the past year, there has been quite a lot of activity in South Africa with some paper mills putting in new machines. These have started to come online in the fourth quarter, and we are yet to see the impact on the market of this extra capacity. Right now the parent roll pricing in South Africa is similar to imported parent rolls, so it would definitely be nice to see the local capacity being discounted to be more competitive with imports.

Pulp prices are always top of mind for us and all producers, as this is our main input cost. We are both fortunate to have a local supplier manufacturing pulp for the tissue market in South Africa, however this supplier bases their pricing on the European PIX index and the Rand/Dollar exchange rate. So in most cases when pulp prices start to rise, we get a double whammy of an increase as the dollar price for pulp goes up, and our local currency devalues against the dollar. Our immediate concern is whether the pulp pricing will remain constant and we are hopeful our government will put in the right measures to improve the state of the economy in South Africa.

We as Universal Paper have taken proactive steps in reducing our carbon footprint as well as reducing our reliance on the already strained electricity grid, by putting in 3 Mw of solar panels which has reduced our total electricity consumption from the grid by 25%.

Generally across the tissue market here, we are expecting to see oversupply in the local market in 2024, and producers fighting for shelf space leading to more price cuts on finished products in the market. As always, we are looking to innovation



"We are expecting to see oversupply in the local market in 2024, and producers fighting for shelf space"

Jonathan Sher

and new products to bring to the market, to differentiate ourselves from our competitors. This year alone we have introduced two new products to the market that have never been made before. The first being a 3ply household towel product, and the second being a 4ply bathroom tissue product. Both offer customers an even more luxurious and premium experience with tissue products.

Of course, our market is still growing well, and we foresee double digit growth in the retail market. This bodes well for us as we are a big player in the retail sector and are looking to increase our market share in the years to come.

Another hot topic in the South African market is energy. It has been a talking point for some years now but exacerbated in the last three years as we

have seen a massive spike in load shedding, caused by strains on the ailing electricity infrastructure. This has a substantial impact on all manufacturers, and we are all trying our best to survive and come up with innovative ways to keep operating at the best levels we can. The rising costs are also playing a big part, and this is where we have been proactive by installing large scale solar panels to reduce our electricity costs.

For the immediate future, as always pulp pricing is our largest concern and second to that would be the energy crises in South Africa. If we can combat the energy crises and the state utility can improve the uptime of the generation plants, we are confident this will have a massive impact on the local economy and allow for much better growth rates. This in turn will strengthen our local currency which will then help us combat pulp pricing increases.

New capacity is likely to outpace demand growth and will force rationalisation of the manufacturing base


Mark Christopher, Sr. Market Development Manager, Technology and Marketing, Buckman

The first part of the year saw a lot of requests from our global customer base looking for ways to help them deal with high pulp costs. As such, many of our 2023 projects were focused on maintaining quality while substituting less expensive pulp sources or reducing basis weights while maintaining caliper.

The most common approaches taken have been optimisation of the creping process and the application of enzyme technology to modify the fibre surface characteristics. It's been a very rewarding year with customers banking millions of dollars in savings in this respect despite pulp prices having retraced over the course of the year. As 2023 ends, it looks like the slide in pulp prices may be over as we see price increases of \$50 a ton announced for both North America and EMENA last month.

In terms of the main tissue trends expected for 2024, the trend towards digitisation will continue. Most tissue producers still have poor data integration with their key suppliers, and even between their own internal systems at times. As quality, process and operational data streams become integrated and secure data sharing protocols are adopted, they will be able to leverage new unique operational insights and benefits not available to them otherwise. We are working through some of these challenges with both the OEMs and tissue makers.

Growth of tissue production capacity is slated to continue in Latin America, North America, and EMENA. I think the area where this new capacity is going to have the greatest impact is in North America, since the announced capacity is likely going to outpace demand growth and will force rationalisation of the manufacturing base.

A circular portrait of Mark Christopher, a man with dark hair and a goatee, wearing a light-colored shirt. The portrait is set against a soft, out-of-focus background. Below the portrait, there are two stylized red paper airplane icons pointing towards the right.

"We face similar challenges on the inflation side as our customers do with respect to inflation"

Mark Christopher

The machines in the old-and-slow quadrant are going to be placed under even greater cost pressures as these newer assets come online. Many customers are driving cost and efficiency initiatives to prepare for the expected market pressure, and these align very well with our technological offerings, so we know that the next few years are going to place a lot of demand for our field support teams.

Inflation is another hot topic. We face similar challenges on the inflation side as our customers do with respect to inflation. Significant resources and capital have been allocated internally towards improving our own efficiencies and cost position to ensure we can maintain our competitiveness. Looking outside, our Maximize fibre modification technology has become hugely popular across Europe given the asymmetric energy costs they suffer. A tissue refiner can be the single largest draw of electricity on a tissue machine and brings

with it many undesirable side effects. Tissue makers want to minimise refining intensities to avoid the high cost of power and negative side effects on quality and operations, and we continue to invest in product development in this area.

For a supplier to the industry such as Buckman, cost of service is a big part of our spend. Given the complexity of the tissue process and its variability in nature across each asset, there is often no way around sending a subject matter expert to the site to assist with troubleshooting and continuous improvement. But as technology evolves within the monitoring and control space, it is becoming increasingly clear that tremendous insights can be garnered from afar with the right data. Buckman is investing in cutting edge technology for crepe

process monitoring, microbial control, boiler and cooling tower management and asset protection. We have a PhD scientist and engineer staffed lab monitoring our online digital systems 24/7. They are looking for specific anomalies and alarms from our digital systems at customer locations, and they alert our field reps in real time. This approach allows productive, real-time discussions with customers remotely. This can allow quicker action by the customer before the arrival of the subject matter expert (SME) or, in some cases, negating the need for the SME to travel to the site. As these approaches are adopted, they will reduce the cost of service to our customers and improve both the speed and quality of service.


Solutions are hard to find, so bring on AI and quantum computing

Dr Phillip Lawrence, Department of Government and International Relations, University of Sydney

World, are you ready? Get ready to blast off. That will be the catchphrase for the next few years as the world stands on the precipice of either one of the most creative periods of humanity or the end of us on earth. According to the developers of the new wave of artificial intelligence, AI may become ultimately destructive unless we can put urgent controls on it. On the other hand, in the recent Foreign Affairs journal, an article by James Manyika and Michael Spence claims it harbours an economic revolution, adding trillions of dollars to the global economy. AI already plays a significant part in our life, and most of us would hardly recognise it. That is the insidious part of AI. One minute, you hear about it; next, you cannot do without it.


BING, the Microsoft search engine, has surpassed Google Search. It has elevated searching the internet to the next level, and there is no doubt Google will soon have something much better.

Following up close behind AI is Quantum computing. Only a few years ago, most of us believed quantum computers were still decades away. Now, it is perhaps months or weeks. Imagine a single computer that is a trillion times faster than the world's fastest supercomputer. (That was NOT a typographic error; BTW, a trillion times faster). The world's leading technology firms are hell bent on releasing their version first: Google, Amazon, Apple, Microsoft, etc. They all have quantum computers now in development. Imagine modelling the most complex scientific, medical, environmental, political, and business problems in

A circular portrait of Dr Phillip Lawrence, a middle-aged man with light brown hair, wearing a dark suit, a patterned shirt, and a red tie. He is smiling slightly. The portrait is set against a dark background within a circular frame.

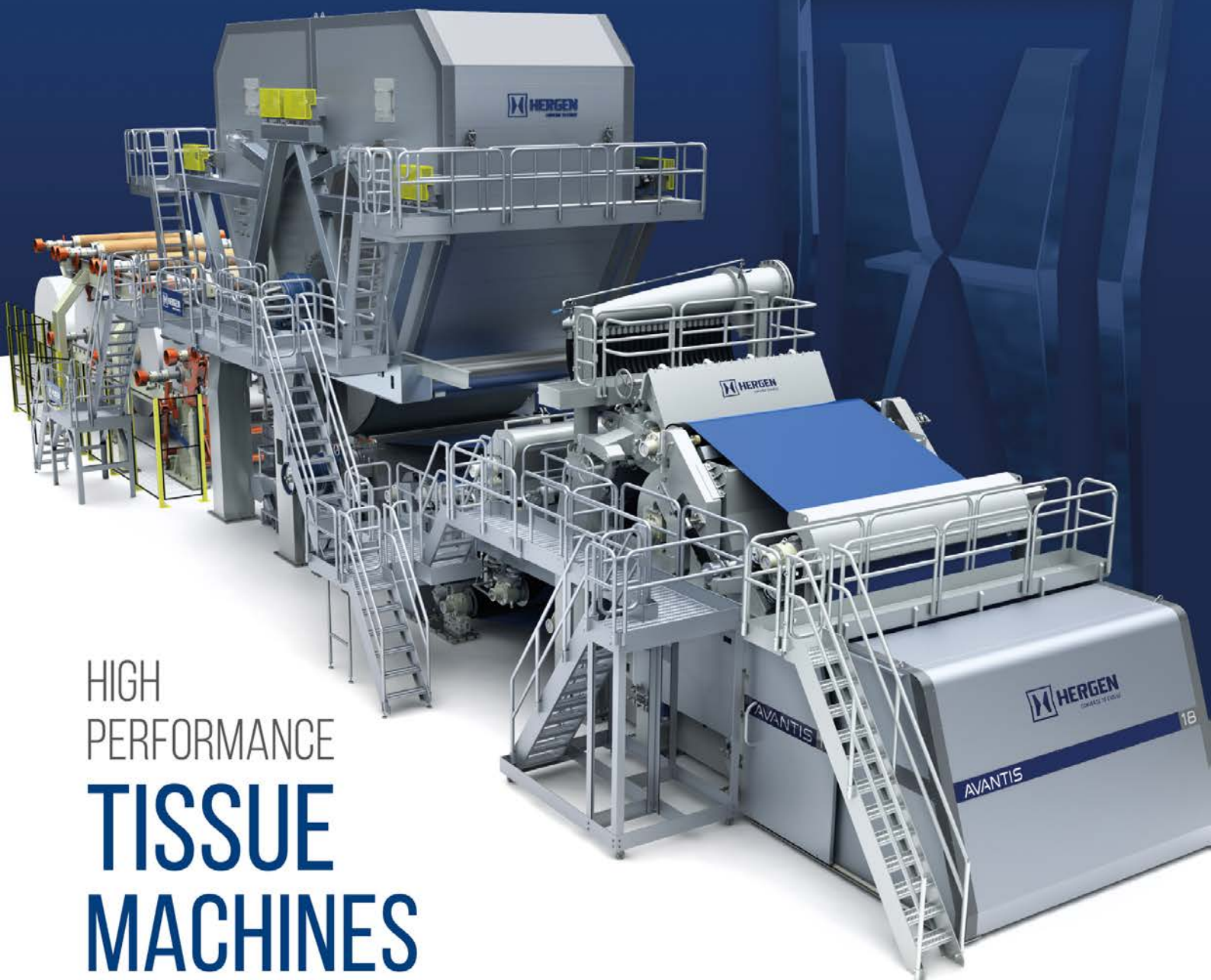
"Only a few years ago, most of us believed quantum computers were still decades away. Now, it is perhaps months or weeks."

Dr Phillip Lawrence

Two red paper airplanes, one slightly behind and to the right of the other, pointing towards the top right.

a fraction of a second. Intractable, diabolical, and wicked problems with no solution can be solved in less than a second.

Modelling solutions to disputed state territories, negotiating international relations between states, developing new drugs for the next pandemic (it will happen), new manufacturing techniques and opening new markets. At the end of every decade,



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Awards and Honours 2023

- ★ ABTCP 2023 - Tissue Paper Machine Manufacturers
- ★ Tissue Online 2023 - Machinery and Equipment for Paper Manufacturing
- ★ Latin America Papermakers Conference 2023 - Latampaper Achievement Awards



Awards and recognition received from Paper Associations and Specialized Media.



HERGEN
CONVERGE TO EVOLVE

90% of jobs did not exist at the start of the decade. We just need to last a decade to see it.

The geopolitical situation is just as perplexing. Some years ago, American political scientist Francis Fukuyama called the fall of the Berlin Wall the 'end of history'; he meant the international system of capitalism had won the ideological war for our hearts and souls (actually, dollars, pounds, and Euros). Perhaps nobody told Putin and Xi Jinping. China is now technically the world's biggest economy and the largest polluter, but remarkably, it is still classed as a developing country. China is legitimate; that's a lot more than can be said about Russia.

Perhaps Fukuyama meant that the world has entered a new history, one characterised by what economists now call 'The Great Acceleration'. From around the mid-1970s, but more likely early 1990s, with the wide release of the internet, globalisation boomed, inviting into the college of capitalist states countries like China and Russia, arch enemies of capitalist ideology. But now it is all about money. At the same time, the US is in decline; that is what Trump based his campaign on. It's a country in decline, and I alone can fix it, (I paraphrase Donald here.) So, the next few years will see the intensity of the economic tussle between China and the US. But they are both too aware of the consequences of true conflict. Many smart people behind the scenes will not let things get out of hand. It's the rogue

states we all need to worry about. They are left out of globalisation, (The Great Acceleration) and all the benefits of investment, and knowledge sharing. They have nothing to lose.

What will become more interesting is that for 2024, the best book to read will be one written by a 17-year-old woman 206 years ago – Frankenstein or The Modern Prometheus. Concepts in Mary Shelley's iconic work has come to fruition in almost every conceivable interpretation that has been discussed since it was originally published. In the story, when Dr. Frankenstein sees his creature come to life, he runs out of his laboratory, goes to his bedroom, and paces up and down, panicking about what he has created. A group of AI developers fronted the US Senate in 2023 to say: "...the risks of AI should be a global priority alongside other societal scale risks such as pandemics and nuclear war", or rather, 'oh no, what have we done?' Mary Shelley's book offers some hope for dealing with AI. The creature wanted to be loved and useful, but society only focused on his negatives.

Embracing AI appropriately might add trillions to the global economy and benefit many people worldwide. AI could be used to solve intractable problems such as climate change, pandemics, and nuclear war.

Private label – both in AfH and Retail – continues to grow, accelerated by a consolidation in distribution, a direct result of M&A within the industry

Nishant Grover, Chief Executive Tissues International, Asia Pulp & Paper

While our business was largely resilient due to our local presence in core markets, we came out stronger from the prevailing adversities. We are set to post strong double-digit growth for our global tissue business in 2023. During times of turbulence, we maintained razor-sharp focus on four core areas, which was made possible by our committed workforce: –

1. Investing and optimising production – our latest state-of-the-art production facility in Indonesia – OKI became operational. We took initiatives to right size and modernise our operations in Australia. We have a brand-new facility coming up in New Zealand. While we have three strategically located manufacturing sites in the USA, our plants in Asia provide very efficient back-up support.

"Another major challenge is the inflation of raw materials. The prices have just started to stabilise in the middle of 2023."

Nishant Grover



2. Strengthening our product offering – we developed the first carbon-neutral tissue, which has just hit the shelves in New Zealand. Several other premium products were also launched, improving the overall category, like micro capsulated facial tissue, 4-ply toilet rolls in many markets, TAD toilet rolls in Australia, and kitchen wipes, etc.
3. Enhancing customer and consumer engagement – we optimised our route to market in many markets in order to bring our superior products most efficiently to the consumer. We increased our branding activity in several markets like Singapore. We believe that we are closer than ever to our strategic partners in key markets, while we continue developing new ones. This dual approach of consolidation and expansion has not only helped secure our position in the market but also contributed to the growth and resilience of our operations.

There is a wide spectrum of trends across the world but we can point out some common ones for the near term. Private label in both AfH and Retail continue to grow. In some markets like the USA, this trend is being accelerated by consolidation in distribution, a direct result of mergers and acquisitions within the industry. In other mature markets like Singapore, private label leads the industry, including innovation.

Sustainable tissue products are growing in demand. This trend is not just a passing phase but a fundamental shift in consumer behaviour. Retailers are now adopting a holistic approach to sustainability, encompassing everything from sourcing to the total carbon impact and lifecycle assessments of products, from production to end-of-life. This comprehensive view underlines the growing importance of environmental considerations in consumer choices.

Finally, regional and global legislation regarding plastic use is set to have a significant impact. An example of this is the mandate by the Australian government that by 2025 all wrapping must be non-plastic, recyclable, or compostable.

The local tissue market continues to exhibit growth potential, presenting us with several opportunities. The AfH tissue market, in particular, has been consistent since the Covid-19 pandemic. While office occupancy rates have been slow to increase, other sectors such as hospitality, healthcare, and manufacturing have mostly rebounded to pre-pandemic levels. This rebound signifies a recovery in significant portions of the market and presents an opportunity for targeted growth strategies.

North America still offers considerable opportunities. Our understanding of these markets' dynamics allows us to identify and capitalise on specific growth areas. We see Mexico as a promising opportunity. The evolving demographics of the Mexican consumer base present a unique landscape for growth. As consumer preferences and demands

shift, there is potential to introduce new products that resonate with the changing demographic profile. Our global manufacturing footprint enables us to navigate through issues like labour and energy. We maintain the supply resilience of our products to customers through more than one manufacturing unit.

This is coupled with our ability to adapt, innovate, and collaborate. It ensures that we remain a reliable and competitive player in the ever-evolving tissue industry, capable of navigating through challenging economic conditions while still delivering quality and value to our customers.

As we approach the end of 2023, we see a number of disruptions like supply chain, energy costs, inflation of commodities etc ease out. However, macroeconomic factors remain a major challenge. World tissue market growth in 2023 has slowed over 2022 and several parts of the world remain in high inflation/ economic distress. This environment generates a lot of headwinds for growth.

Another major challenge to the business is the inflation of raw materials. The prices have just started to stabilise in the middle of 2023 and any spikes pose a significant risk. In response to these challenges, we have become more proactive and agile in our approach to competing for market share. Staying closely connected with our customers is imperative as we navigate the uncertain terrain of the tissue market. Understanding and responding to their evolving needs and preferences is crucial.

Our ability to proactively address these issues, maintain a close rapport with customers, and adapt to evolving market dynamics will be key in charting a successful course in the years to come.

By embracing these challenges as opportunities for innovation and growth, we are positioning ourselves to not only overcome current obstacles but also to capitalise on new prospects in the tissue market.

25%

Reduction in electricity consumption from the grid at South Africa's Universal Paper after installing 3 Mw of solar panels.



More new tissue paper mills will result in more competitive pricing in India

Sumit Khanna, Chief Executive of New Delhi-based Beeta Tissues, India

Rising pulp costs in the past year have had the most impact on our industry. In India, virgin tissue paper grade is priced more in comparison to recycled tissue paper, so there was a shift in the preference of usage by the institution consumer – and the household consumer too!

The main tissue trend in our industry that I foresee in 2024 is that exports may decrease as China has opened up very aggressively with good discounts in almost every industry. Worldwide, there are low sentiments among consumers due to war and war-like situations everywhere.

The rise in inflation around the world has also substantially impacted our business as the prices of raw materials have gone up too significantly resulting in the high price of finished goods resulting in low sales. It has created a shift in the preference of paper from virgin to recycled.

The main challenges for the immediate future that I see for the Indian tissue market is that our tissue paper prices are much higher compared to prices globally. The other challenges are E-commerce competition, and sustainability issues.

However, there are also many opportunities to take advantage of and create. One of the main opportunities we have is to increase the number of new tissue paper mills making recycled paper and using virgin paper. This will result in more competitive pricing in India, resulting in more sales and consequently increasing the tissue paper market size.



"The main issue that I foresee is exports may decrease as China has opened up with good discounts in almost every industry."

Sumit Khanna

2025

Australian government's mandate for all wrapping to be non-plastic, recyclable, or compostable.

\$50

Per ton pulp price increases announced in November 2023 for North America and EMENA.

IS MAKING ADJUSTMENTS TO YOUR YANKEE COATING WORTH THE RISK?



In many mills, the Yankee coating is a legacy application that hasn't been significantly changed in years. It's viewed as too risky to mess with—particularly with market demand and internal pressures pushing you to make more tons more efficiently. As such, mills often eschew upgrading the Yankee coating in favor of wet end or converting changes. Even with these approaches adding value, by avoiding a potential short-term disruption of a Yankee coating trial, you may have locked in sub-optimal Yankee coating conditions for the long term.

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“AND THOSE TISSUE BOXES! I GO FOR THE BEST-DESIGNED BOX THAT FITS THE DÉCOR OF MY BUSY HOME WHERE I STORE THEM IN A SAFE CLOSET SO THEY’LL BE IN GOOD SHAPE WHEN COMPANY ARRIVES.”



Creative designer Katie Stern was working in fabrics when she discovered Swedish dishcloths – 70% wood cellulose, 30% cotton, and 100% compostable. Based in Wisconsin, US, her business and home life now put the environment first.

Over the years, living in our small town in Wisconsin’s Northwoods – with nearby Wisconsin’s Green Bay itself a mecca in the global tissue industry – have encouraged me to become as environmentally-aware as I’d ever been, and be aware of the products I use in my business and also at home.

I have been a cake decorator, a critical care nurse (think heart transplant and emergency room settings), an insurance health care adjuster, and finally a creative and a professor who tackled Photoshop before my small town of 8,000 people had even heard the term. But when I retired from teaching computer graphics, I looked at designs from an environmental standpoint, and a whole new world emerged.

I became a surface pattern designer and watched how many designers print their designs onto plastic this, plastic that ... always often plastic. They were fun to see, but not great for the environment to print and sell. It didn’t take long before I was looking for eco-friendly products to use in my own business. One day I came across Swedish dish cloths, which contain 70% wood cellulose, 30% cotton, and are 100% compostable. They are also very absorbent, highly efficient, long-lasting, and strong enough to tackle a wide variety of jobs.

Now, my favourite printing medium is the Swedish dish cloth. My eco-friendly nature loves that it is compostable, and that these approximate 6.5” x 8” rectangles are stiff when dry but turn into spongy cloths when wet. Ironically, before I found Swedish dishcloths, I had spent very little time thinking about which tissue products to buy at home and at work. My interest is now sparked!

I love the perforated paper towels that give me half a towel each. If they could be torn into quarter-sized towels, I’d be even happier. I’m constantly trying to estimate how much paper towel I need for a job and tearing off just enough for that job. I internally shudder when I’ve taken more than what’s needed.

And I’ll let you into a secret. My favourite paper towel brand is Bounty, with its select-a-size option. I’ve also seen Seventh Generation on our shelves. Other than that, the words on the packaging are totally confusing. What’s a double plus roll? A double roll? A reliable giant roll? An ultra roll? Triple rolls? It’s tricky to choose one over another. But you know what hear on TV? Bounty. The quicker picker-upper. It’s in my brain and won’t let go. And that’s why I buy Bounty.

I also love a Kleenex-type tissue, and consider it to be an extravagant treat. A square or two of toilet paper works just as well and seems less wasteful

(I've never calculated that, though). But a Kleenex tissue is soft, absorbent, almost creamy. And those boxes! I'll definitely go for the best-designed box that fits the décor of my busy home. At home I store those boxes in a safe closet where they'll be in good shape when company arrives. It is literally saved for special occasions in this house.

We had the typical shortage of paper towels and toilet paper during Covid. My husband and I are both over 65 with health issues, so we quarantined ourselves in our home and didn't leave. I ordered my groceries and home supplies online. I was stunned when I saw the long list of "unavailable" tissue products online. Suddenly our old cotton dish cloth was used for many more jobs that had previously been delegated to paper towels.

When the shortage subsided somewhat, I saw a shift from small (one or two) packages of rolls to megarolls. The more, the better. They take up an enormous amount of shelf space, sticking out into the aisles as if ready to jump into my cart. So I bought a big six-roll paper towel package. I think we're set for at least six months. Same for toilet paper.

Now that the Covid crisis is settling down, I'm seeing more paper towels with post-consumer

recycled materials, which I really like. The 100% recycled products intrigue me, but scarcity comes into my mind. If I get them once in a small quantity to try them out, what happens when I run low? In today's world, small quantities in the house are the exact definition of scarcity. And do I have any reason to buy a small 100% recycled package and our mega-rolls available here and now? That feels like gluttony. Trying something new doesn't fit my new parameters, despite my attention to the environment.

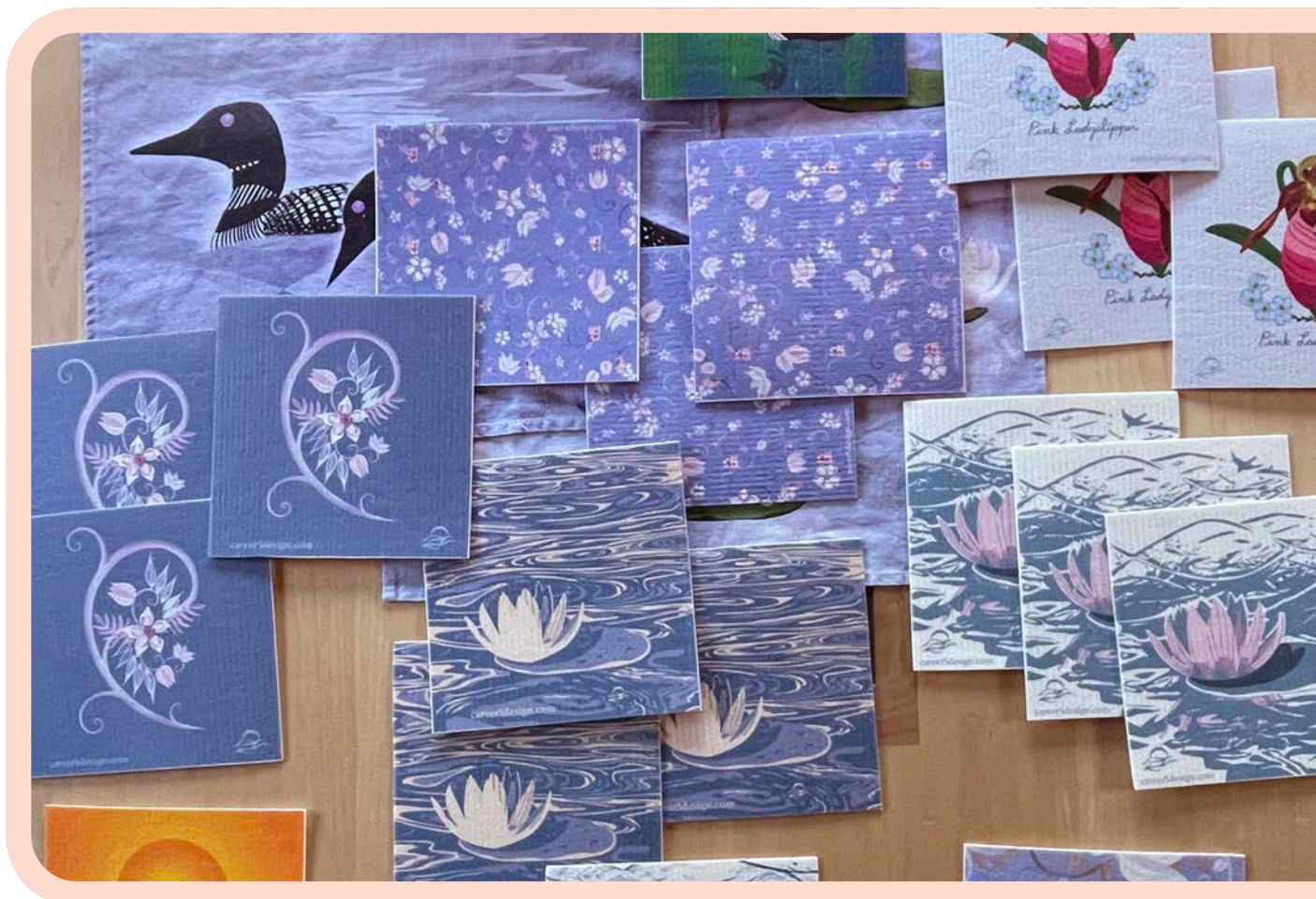
Because of Covid, I haven't had any recent experiences with travelling. Our boring lifestyle served us well until my husband ventured out for a weekend out of state. He tested positive the day before Thanksgiving. All parties were cancelled. Sad, but I had stocked up on all our tissue needs in case guests needed them. He is improving and has all the tissue supplies he needs. And I still have those beautiful boxes!

Because of Covid, I have stocked up on all our tissue needs in case we or guests need them. And I still have those beautiful boxes

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Katie Stern was working in fabrics when she discovered Swedish dishcloths – 70% wood cellulose, 30% cotton, and 100% compostable

THE PACE OF EXPANSION AT MARKET LEADER VELVET CARE IS GEARING UP AGAIN

Capacity increases in converting and tissue machine output are being boosted by further investment as the company plans to “create a market” and then build the processing capacity to meet it, says Wanda Ciesielczuk, Vice President, Production & Technical Director. Report by TWM Senior Editor Helen Morris.



The recent pace of growth at Polish consumer tissue manufacturer Velvet Care has been little short of dynamic. A planned third paper machine in five years is part of a PLN364m investment. It means annual capacity will increase by about 40% to 210,000 tonnes. That is on the back of more than 60% production capacity increase to the business following the start-up of TM8, the plant's second Valmet-supplied Advantage DCT line, in June 2022.

The company currently has two production facilities, its headquarters in Klucze, Poland, and its Moracell unit in Zabcice, Czechia. The acquisition of a third facility, family-owned Polish tissue converting company Almus, was announced in January and is awaiting approval from the country's competition regulator. Before adding Almus, the business today has three tissue machines based in Klucze and 18 converting lines: 16 at Velvet Care's headquarters, and two in the Czech Republic. The company's expansion in recent years also included the 2020 acquisition of Moracell, the largest manufacturer of paper hygiene products in Czechia.

TWM put the question to Vice President, Production & Technical Director Wanda Ciesielczuk – what is

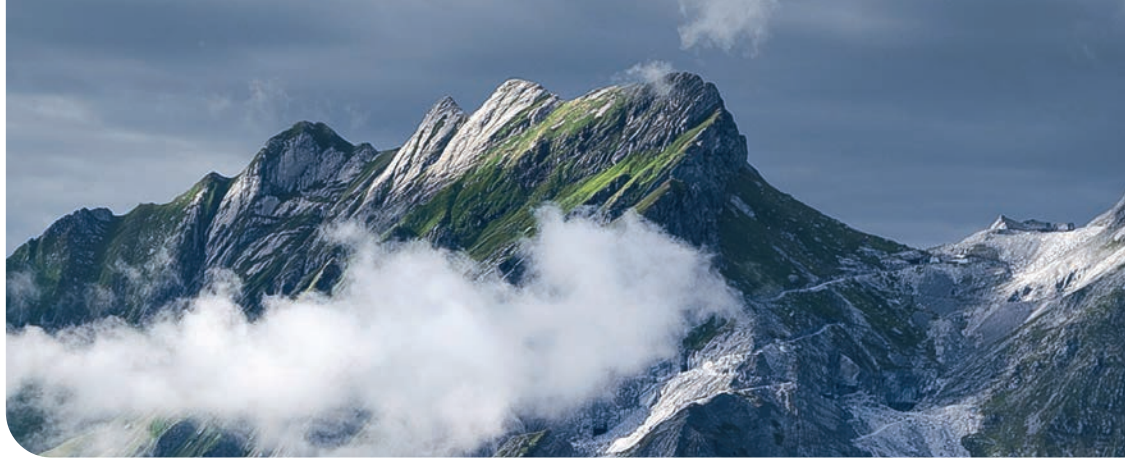
the strategy behind such volume expansion? “Our business strategy is to create a market and then build the converting capacity using outside supplies of tissue. We then build our own paper machine to ensure we have regular supplies of the highest-quality raw materials.

“We'll also need a new source of raw materials for Almus once the deal goes through. We've signed an agreement with the Kraków Technology Park, which is part of Poland's scheme of special economic zones for investors. We'll receive tax incentives for this investment, TM9, which will be our fourth operational paper machine.

“Since 2017, our converting capacity has increased from 88,000tpy to 184,000tpy in 2023, whilst our tissue machine capacity has increased from 36,000tpy in 2017 to 94,000tpy in 2021 and then to 154,000tpy in 2023.”

Fundamental to the business is diversification. There is no focus on any one category or sales channel: “We're developing and growing in all three areas: our Velvet brand – which is Poland's most popular in the hygiene paper category – as well as private label, and also AfH products.

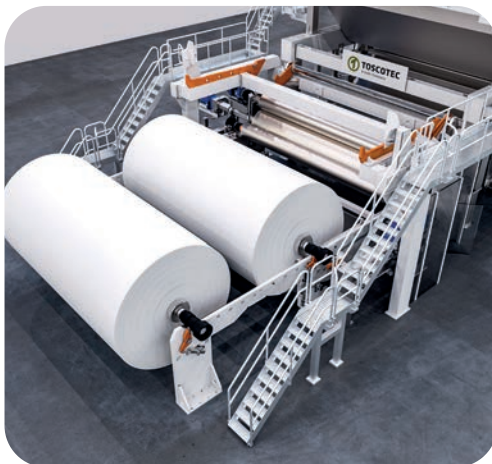
“The pandemic offered us a very clear lesson of the dangers of orienting the company to just a single area. When restaurants and hotels were all shutting



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The Klucze site in Poland: "There are further ambitious plans for growth, acquisitions, and a possible TM10."

down, AfH producers found themselves in a nightmare scenario. By contrast, we were able to shift resources to meet demand from consumers who suddenly were now spending more time at home. That's why diversification is important to us: if we run into difficulties in one sales channel, we can make up for it in the others."

Given the stable branded product market and growth in private label in Poland, which streams does she see providing growth opportunity?

"We're not seeing the kind of shift away from branded products that's happening in Germany, where private label currently dominates by around 85%.

"We continue to assume that our three pillars of branded products, private label, and AfH, will keep on supporting our business, delivering success over the long haul."

And emerging trends among consumers?

"Purchasing habits and trends in the region remain unchanged. Toilet paper is the main category in the drugstore shopping basket. The structure of sales of other products in the hygiene category remains the same: first toilet roll, then paper towels and finally paper handkerchiefs.

"The Covid-19 pandemic caused a shift in that last category away from pocket packs to facial tissue in boxes. But this category remains the smallest of the three.

"In the future we expect steady growth of the entire market, spread quite evenly across all three categories."

Ciesielczuk believes the post-Covid recovery of AfH will be maintained, and that Velvet Care is well positioned to respond to the major consumer trend which is emerging across many markets, including in Europe and the US ... the shift towards premium products.

There are further ambitious plans for growth, acquisitions, and a possible TM10: "With our purchase of Moracell in Czechia in 2020, by tripling the unit's revenue since the transaction we have proved we can carry out a successful acquisition, integrating the target company into our operations.

"But our investment plans are also organic to our existing facilities. Our heat and power plant project will allow us to supply our own electricity needs using natural gas, cutting our carbon footprint by half. And we're also looking at investments in our logistics infrastructure, including an automated high bay warehouse."

That organic response is geared to fostering a mutual understanding of the new market realities between company and clients. Inflation in particular is a central reason why diversification is the key to strategy.

"This applies to product categories and sales channels and also to raw materials and clients. We have to react to significant increases in the prices of electricity, gas and cellulose, and that is reflected in the prices of our products. Here again diversification means that if one client isn't ready to accept these

changes, we can work with others as we wait to build a mutual understanding.

"However, our response to inflation isn't just about our relationships with suppliers and clients. We're also constantly working to make our production and logistics more efficient. Every optimisation and efficiency gain can mean a lot.

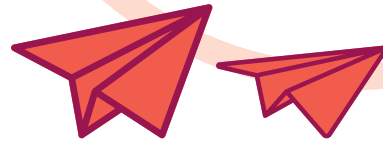
"We do expect that the challenges we're currently facing will largely remain the same for the coming years: electricity and gas prices will continue to be an issue, as well as the price of our main raw material, cellulose. The availability of labour, including specialists, is also a challenge."

Recent challenges to trading conditions across the region – the aftermath of the 2008 crash, Covid-19, military conflicts - have been formidable. How has the market been affected?

"During the Covid-19 pandemic we noted higher growth in the paper towels category, as well as a shift of consumers from hygiene tissues in plastic pocket-sized packets toward boxed facial tissues. The initial period of the pandemic drove significant growth in hygiene products – we found ourselves among the strategic producers. We all still remember the images of empty shop shelves, where toilet paper, rice and flour were sold out.

"But those huge supply-chain blockages from the start of the pandemic ended up reducing

Our response to inflation isn't just about our relationships with suppliers and clients. We're constantly working to make our production and logistics more efficient. Every optimisation and efficiency gain can mean a lot.



demand over the longer term, which is only natural – the amount of product a consumer uses over the course of the year is quite stable.

"The pandemic did have a significant negative effect on AfH products: restaurants were shut down, hotels



Production boost: TM8 - the company's second Valmet-supplied Advantage DCT line - was started up at the Klucze plant in June 2022.



TM8 at Klucze: Velvet Care's total tissue machine capacity has increased from 36,000tpy to 94,000tpy in 2021, and then to 154,000tpy in 2023.

reduced their orders. But thanks to our strategy of diversification, this didn't affect us negatively."

And the market since the start of the conflict in Ukraine early last year?

"The power and gas markets have stabilised, and cellulose prices have come down. The tissue market is fortunate in that our products are basic necessities, and there will be demand for them no matter what the macroeconomic situation is.

"During difficult times we do see price pressures, and consumers begin searching for bargain products. But we also see greater awareness among consumers that it doesn't always make economic sense to buy a small-volume product with a higher unit cost, rather than a larger package that works out to be less expensive per sheet. This change is also being driven by increasing environmental consciousness among consumers, who are seeking to reduce plastic packaging waste and becoming aware of the reduction in CO2 emissions that comes from more efficient logistics."

The risks of overcapacity have been prominent in planning development.

"In the Polish market, in addition to the big players such as ICT and Sofidel, smaller producers are still present, and these aren't necessarily companies with integrated production facilities. At a time of high volatility in the prices of energy inputs and raw materials, they're the most affected.

"In the case of the big players, we stand out because of our newer machine park: the average age of our

"The pandemic did have a significant negative effect on AfH products: restaurants were shut down, hotels reduced their orders. But thanks to our strategy of diversification, this didn't affect us negatively."



equipment is just six years. Cutting-edge technologies allow us to improve efficiency, significantly reducing electricity and heat usage, and saving both water and raw materials. Our recent investments in automation are also helping us to improve our efficiency."

ESG planning is an integral part of strategy, she confirms. A first ESG report has been published with reference to the Global Reporting Initiative Standard. CO2 emissions and water usage per tonne of output have been cut by half since 2013 while tissue production has risen four times.

While coal is still dominant in Polish electricity production, Velvet Care plans to produce its own electricity from gas, reducing external purchases. Cogeneration is projected to cut carbon footprint by half.

Ciesielczuk adds: "We've been ISO 50001-certified for many years. In this area we work not only with our equipment suppliers but also internally: within our organisation we motivate our employees through a system of awards for ideas for improving energy efficiency. We also continue to implement our Eco Agenda 2025/2030 programme, whose goals include reducing the usage of plastic, other packaging materials and water.

"Most recently, in October we reached an impressive milestone after becoming B Corp-certified. Velvet Care is now the first Eastern European tissue company

to gain B Corp-certification, and one of the first across the whole of the EU. The B Corp standards serve as a strategic compass for us, and we have incorporated extra measures across our business including areas such as energy efficiency, water consumption and recycling."

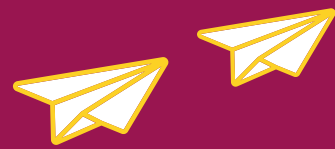
"We will continue to prioritise ESG reporting, and aim to be carbon-neutral. A key factor in achieving this will include a gas-fired heat and power plant, which the company has won a grant from Poland's National Fund for Environmental Protection and Water Management. When it's complete, the plant will slash our Scope 1 and 2 emissions by 46% from the 2022 level."

Steady growth in the entire hygiene paper sector is scheduled in the near-term. No sudden leaps. As the entire market develops, growth is expected across all current categories - toilet paper the largest, paper towels, and paper handkerchiefs expected to maintain their position. AfH to continue its rebuild, more environmentally-friendly products with less plastic content, more product per package or per pallet: "In Poland, per capita usage of hygiene products by weight remains lower than in Western Europe, including Germany. So we also expect premium products, which remain less popular on the Polish market, to increase in significance, with consumers purchasing them more and more often."



The Velvet brand: the company is developing and growing its branded products, as well as private label and AfH products.

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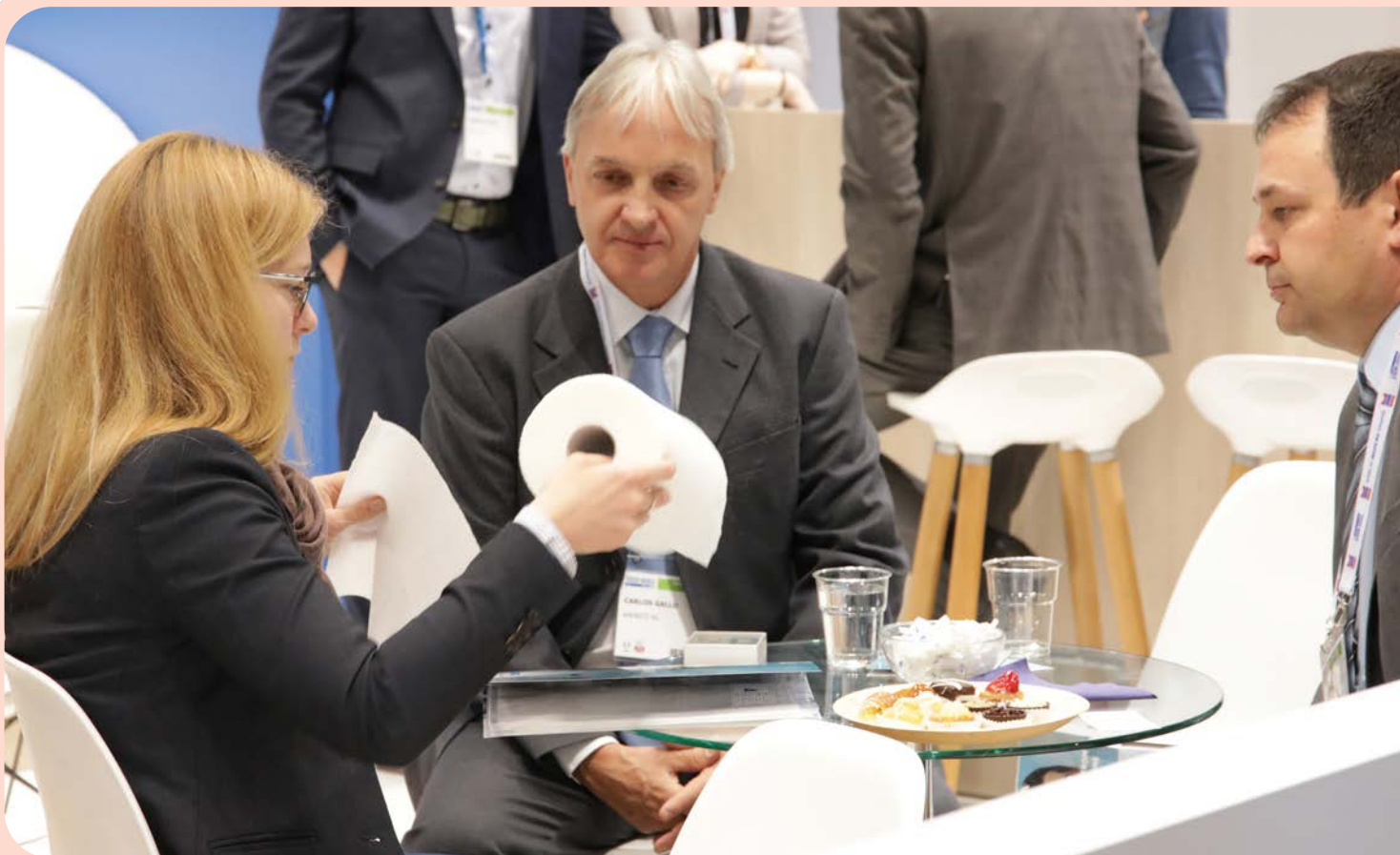
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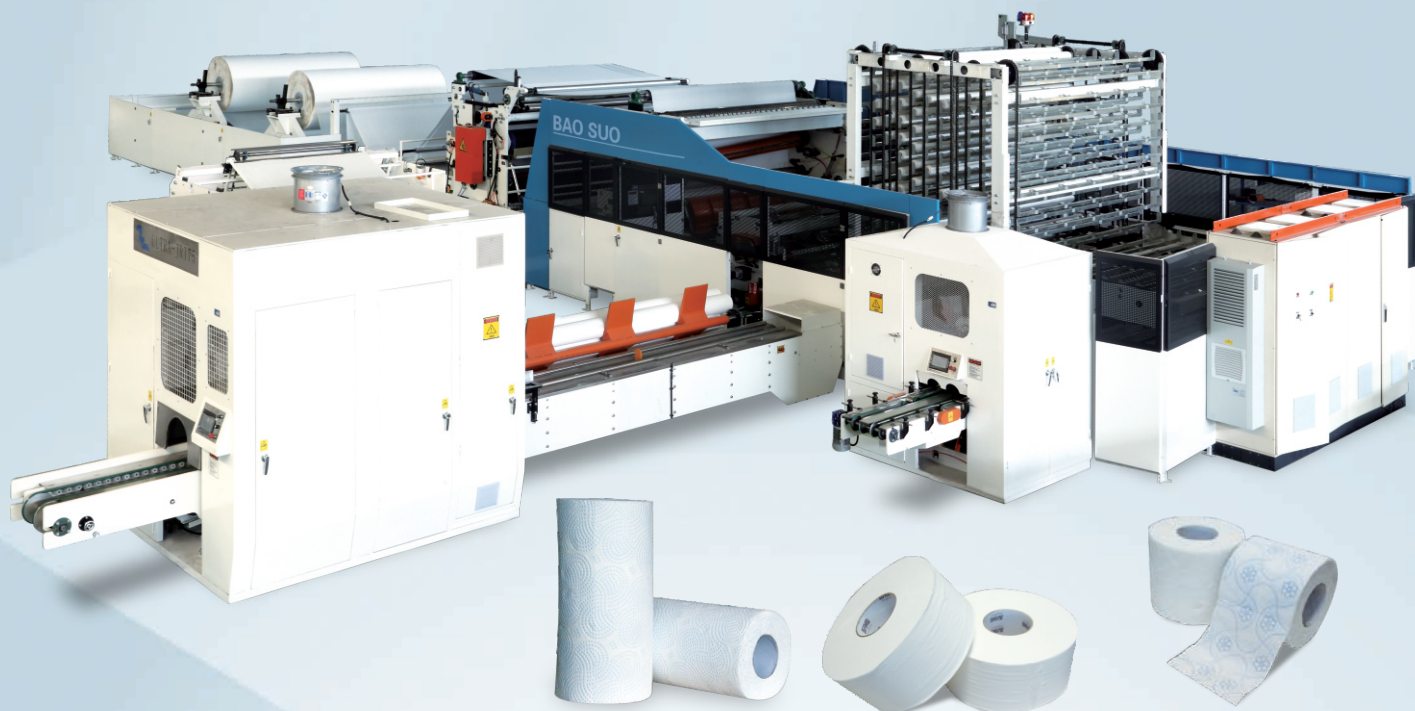
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