

# TWM

TISSUE WORLD MAGAZINE

The independent news  
provider for the global  
tissue business

## SOUTH KOREA

Giftability: tissue culture "rolls out" a good life

Boosts to e-commerce's growth momentum

Major demographic trends driving consumer choices



Plus:

### SPECIAL REPORT: DÜSSELDORF 2023

Tissue World welcomes the community in Europe  
VUCA – volatility, uncertainty, complexity,  
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Star Tissue UK – sustainability underpinning  
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South Korean tissue leader MSS Group is driving a new era of tissue and towel production through its Ssangyong and Monalisa brands. TWM interviews Monalisa Chief Executive and MSS Group Chief Financial Officer Joo Kwang-Ok and Ssangyong C&B Chief Executive and MSS Group Chief Marketing Officer Jeong Chang-Seok to get the latest on a new growth direction.

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**Cover:** Image representing South Korea's tissue gifting culture - when people move home, gifting toilet paper embodies the wish that their lives would "roll out" as easily as the toilet paper unravels from the roll - which has been a notable driver of e-commerce's growth momentum in the country. Image by Stefano Vuga, Founder, PURPLEPRINT Creative, Spain/Italy, [www.purpleprint.eu](http://www.purpleprint.eu)



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# THE SOUTH KOREAN MARKET IS CHANGING RAPIDLY... MORE SINGLE PERSON HOUSEHOLDS, FEWER MARRIAGES, TO THE INTERNET 'WAREHOUSE' AND BULK BUYING, AND ROLLING OUT TISSUE GIFTS

Helen Morris

Senior Editor, Tissue World Magazine

**T**WM was welcomed in South Korea in 2012 to report on its successes... brilliant electronics, exported at the right price, an internet speed of 16Mbps at home (the US was 5.8Mbps at the time), and its developing tissue sector.

Economic growth of 3.6% was driven by a robust 10% growth in progressive and cutting-edge exports. But the economy had only recently emerged from the ripple effects of the Korean War and remained in many ways short of the advancement suggested by its international reputation. Per capita income levels were low against other developed markets.

Today, South Korea is an export-driven industrial powerhouse with one of the most developed economies in Asia. The emergence continues, but is beset by the recent challenges familiar to all. High inflation hitting logistics, labour, oil, and energy. The Korean Won touched its lowest rate in 13 years against the US dollar. For tissue, major companies' product prices rose by as little as 7%. A healthy 5.2% nominal retail value growth resulted (including inflation effect) in 2022, with retail tissue a resilient volume year-on-year growth of 4%. Un-met consumption capacity is described as "ample." The sector is a rare exception to the national export performance – a net importer. With inflation and the jobs market impacted less than in most developed economies, there is little obstruction to consumption growth.

Producers concentrate more on innovation and technical capability than on expansion, particularly in quality hygiene. Companies are considering relinquishing more production volumes to lower cost neighbours. Consumers want quality, and demographic and cultural changes are inspiring new ways to buy. E-commerce has seen bulk buying increase by 50% as a hedge against price pressure.

The rise in single-person households, a decline in marriages, the online 'warehouse' of products linked to next-day-delivery shopping malls are driving a new era for tissue companies specialising in small-volume production. TWM's coverage comprises Fisher International, Euromonitor International, and South Korean tissue manufacturer's Monalisa Chief Executive and MSS Group Chief Financial Officer Joo Kwang-Ok and Ssangyong C&B Chief Executive and MSS Group Chief Marketing Officer Jeong Chang-Seok.

### Tissue gifting culture ... such a good idea it should be 'rolled out' everywhere

When South Koreans move jobs or move home, toilet paper is often given as a gift by friends and new colleagues and neighbours. It symbolises the wish that their lives will "roll out" in the new place as easily as toilet paper unravels from the roll. How brilliant an idea is that? This charming – and potentially lucrative idea should it take on elsewhere – is explained by Chloe Bang and Ana Tique of Euromonitor, and Joo Kwang-Ok and Jeong Chang-Seok at MSS Group which through its Korean brand Ssangyong which has launched a 'Tissue gift set' on KakaoTalk, Korea's biggest messenger app. A shopping function features a dedicated category for housewarming gifts, in which tissue makes up the bulk of listed gifts. Not surprising then that the country's gifting culture has been another notable driver of e-commerce's growth momentum with bulk buying also booming. Intrigued, TWM looked further, and we have to thank Prof Min Byoung-chul, a leading computer and information technology educator, and author of the book 'Land of Squid Game' – for more info.

Koreans bring toilet paper or laundry detergent, the two most common gifts at jipdeuri... housewarming parties. The bubbles in the detergent symbolise prosperity, wealth and stability, and the tissue roll continued success.

### Quotes of the Edition

Among the many key points made by Urban Lundberg, Senior Consultant at Fisher International, in his address at Tissue World Düsseldorf: How can we best handle all this uncertainty?

- We are still learning and discovering about the different aspects of sustainability
  - No one has all the answers yet
  - Understand the full picture and various perspectives based on data and insights
  - Be willing to challenge yourself and always stay prepared to alter and revise your business model
  - Avoid a 'black-and-white' mind-set. Sustainability may come in a multitude of colours and shades.
- There is more than one sustainable business model.



# SPECIAL REPORT: TISSUE WORLD DÜSSELDORF 2023

Tissue World returned in Europe for the first time in four years with an impressive event that hosted thousands of tissue colleagues for the first time in Düsseldorf. Here, TWM summarizes the exhibition and key themes from our AEO Excellence Awards-shortlisted conference



A nighttime photograph of a modern city skyline. In the foreground, a body of water reflects the lights from the buildings and the moon. Several modern buildings with large glass facades are illuminated from within, showing interior lights. A full moon is visible in the dark blue sky. The overall scene is a vibrant urban nightscape.

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Tissue World Düsseldorf 2023 has successfully welcomed back 2,200 tissue colleagues to the world's largest tissue industry exhibition and conference – our first European in-person event to be held since the 2019 exhibition in Milan.

Making its much-anticipated debut in Germany, attendees visited from across an impressive 91 countries worldwide.

Some 29% of people were from Germany, 9% from Italy, 6% from the UK, 5% from Türkiye, 5% from Poland, and 5% from Spain.

Several exhibitors also showcased brand new products, including but not limited to:

- Futura – Together 2.0, created by Futura and Plusline to integrate converting and packaging;
- Infinity Machine & Engineering Corp. – launching the Optic M1 poly bundler;
- United Converting Tissue – launching UNICO365 Industrial Logsaw;
- SABA Automation – showcasing its ZEUS P Series and Layer Series automatic robotic end-of-line systems;
- Enerquin – displaying tissue drying technologies and ventilation solutions;
- Microline (D52) – launching Eco Wrap 1050, a multi-pack bundler for folded products and rolls.

Our three-day conference – which

### Re-join the European tissue industry in 2025!

Event organisers Informa Markets has announced Tissue World 2025 will be held again at the Messe Düsseldorf!

As the leading global event series serving the tissue industry worldwide since 1993, we can't wait to welcome you back in 2025 for three days of trading, networking and learning.

was shortlisted for Best International Conference at the Association of Event Organisers Excellence Awards 2023 – discussed how the European tissue industry is at the core of the market's transformation, and what the future holds.

With a theme of *The Roadmap, the Riskmap: Plotting a Course for Tissue in Uncertain Times*, the conference included talks by leading executives from tissue mills and machinery manufacturers and panel discussions and Q&A sessions with speakers and visitors.

WEPA Group's Chief Executive Martin Krengel kickstarted the conference sessions and gave the keynote address: Navigating a European family business in the VUCA world – 2023 as an important year for resilience and sustainable success.

Essity's President Global Supply Chain Donato Giorgio also spoke, exploring how the supply chain is a competitive advantage in a VUCA world.

Across the technical sessions, the latest technological innovations, operational efficiency, the green energy transition, and future fibres were discussed, including talks from:

- Massimo Bertuccio, Sales Director, Tissue and Robotic Division, E80 Group;
- Bud Chase, Vice President, Tissue, EDT;
- Claudio Muñoz, Sr. Director, Global Strategic Marketing, Körber;
- Matteo Giardini, Business Development Director Plusline, Futura Converting;
- Alberto Colombo, Project and Key Account Manager, OMET;
- Enrico Ruglioni, European Sales Director, Maxima Tissue;
- Luca Linari, Managing Director, Andritz Novimpianti.

Post-pandemic consumer trends and brand marketing were also key topics.

Below, TWM summarises a selection of the key talks.



# CHALLENGES AND UNCERTAINTIES AHEAD

Urban Lundberg, Senior Consultant Strategy, Fisher International

## How is the tissue industry doing post-Covid and the ongoing Russian-Ukrainian war?

Surprisingly, we are still functioning and flourishing. The industry is still growing – although at a slower pace. We swiftly adjusted production to meet the extreme shifts in demand, specifically with the Consumer and AfH markets during the first year of Covid-19.

We managed to overcome the energy crisis and subsequent price volatility. And we have been able to find a new equilibrium after supply chain turbulences, hefty costs and price increases.

## Are we moving towards over-capacity in Europe?

New tissue machines in Europe have increased in size over the last few years.

There are plenty of challenges and uncertainties ahead and it is increasingly challenging to optimise a sustainable business model

Proximity to market vs sustainability footprint

- Energy price and availability
- Carbon emissions
- Water availability

Fibre supply

- EU initiatives for biodiversity, forest strategy, etc., could eventually lead to reduced wood fibre supply
- Future availability of PFR – will there be enough?
- Strong growth of Eucalyptus pulp. But how sustainable is it really?
- Non-wood fibres such as straw. Marginal or large scale?

There's a 'tug-of-war' for opinion leadership between legislators, producers, traders and consumers.

Sustainability issues which were already

prominent have been accelerated by Covid. Following the money – 71% of global fund managers representing \$12.9 trillion in assets believe Covid-10 will lead to increase in actions designed to tackle climate change and bio-diversity losses.

Major brands with significant zero carbon initiatives and year of target:

- Apple – 2030
- Amazon – 2040
- Unilever – 2039
- Starbucks – 2050
- Nike – 2050.

Carbon and energy: there are wide differences in carbon emissions amongst European tissue mills – and up to 7x as much GHG emissions for highest emission mills. Nordic mills have a cost-carbon advantage.

71% of the earth's surface is covered by water but water availability is a growing risk for the European tissue industry, especially in the South. And it is getting worse...

News reports of droughts have dominated headlines, for example in France as it prepares for water restrictions as 2023 drought continues and Spain as it enters long-term drought after another abnormally warm winter.

## What does water risk mean?

Risks related to too little or too much water:

- Water depletion
- Interannual and seasonal variability
- Groundwater table decline
- River line flood risk
- Coastal flood risk
- Drought risk.

Risks related to water unfit for use:

- Untreated connected wastewater
- Overfertilisation.

Risks related to uncertainties in

regulatory change as well as conflicts with the public regarding water issues.

Half of production is in countries with high water risk. Italy, Turkey, Spain, France and Portugal and Greece are all at high risk. Mills in high-risk countries tend to use less water per ton of tissue.

Water risk mitigation options

- Process improvements
- Incremental changes will not likely be enough
- Close loop water systems
- Not feasible for white tissue
- Very capital intensive
- Use of ocean water
- Requires lots of energy
- Not sustainable
- Dry paper process
- Disruptive.

If none of these actions are taken, there is an increased risk for mill closure and relocations.

## How can we best handle all this uncertainty?

A few observations from our work with successful companies across the world:

- We are still learning and discovering about the different aspects of sustainability
- No one has all the answers yet
- You need to understand the full picture and various perspectives based on data and insights
- Be willing to challenge yourself and always stay prepared to alter and revise your business model
- Avoid a 'black-and-white' mindset. Sustainability may come in a multitude of colours and shades. There is more than one sustainable business model.



# THE GEOECONOMIC CHALLENGES FOR 2023: TRENDS THAT WILL DEFINE THE COMING YEARS

Antonia Colibășanu, Chief Operating Officer and Senior Geopolitical Analyst, Geopolitical Futures

Looking at things through the VUCA (volatility, uncertainty, complexity, and ambiguity) lens, we see events in terms of what causes them and what results from them. In light of this framework, action is what determines the future of our business. However, in order to take action and correct potential negative consequences, events must first be comprehended and accepted.

From a geopolitical standpoint, there are two major events that have shaped our reality during the last year. The first and most important was the war in Ukraine, the first military conflict on the European continent that we have seen in decades. Russia's invasion of Ukraine will likely be remembered as the start of a new era in geoeconomics. The global economic war has begun to shape the world's economic structure, the uncertainty and tit-for-tat measures kicked off an energy crisis and drastically reduced natural gas exports to Europe.

The second event was the Covid-19 pandemic, which we thought was over but wasn't. In 2022 we were still seeing China locked down and experiencing ongoing problems with supply chains. China's Covid zero policy continued to put pressure on global supply chains during the last year and the Chinese economic problems will likely continue to be problematic for 2023.

Yet for years before Covid-19, China, Russia, Iran and North Korea challenged the economic, financial, security and/or geopolitical order that the United States and

its allies created after World War II. The era of relentless globalisation had already started to slow or even reverse. The pandemic simply kicked things into overdrive, accelerating reshoring and so-called friendshoring, and depriving developing economies of foreign investment. The global economic war, which began when Russia invaded Ukraine and closed its ports to global trade routes, is further reshaping the world's trade and investment, as well as the post-Cold War economic system.

## Protectionism and global realignment

The war has renewed focus on the growing divide between the West and a nascent revisionist bloc led by Russia and China. It is difficult to see a path back to the status quo antebellum, but several major trends that will define the next decade have become clear.

Crucially for the business world, it also presents the questions of – where does China stand, and what does that mean for us? In the financial markets, the turmoil is not necessarily something we didn't see coming these past three and a half years.

To show why the financial turmoil isn't such a surprising event, we need to look at the first event that challenged us. In 2022, it was the major event of Ukraine and Russia. If we look at a map from Russia's perspective, we can see where Russia's imperatives come from: its challenging constraints. In the business world, we always consider business risks

first – they are stemming from the fears we have regarding our business' internal challenges, its environment, and its market. That is where we find and learn about our business constraints. In doing so, we map out our business world, considering all things in the "geography" that may change, to the point of threatening our profit margins and our existence.

The map shows that, from its own perspective, Russia was at the point where it was losing ground to the West, to the point of losing influence on its buffer states, and, at the same time, having a complex reality internally, considering the effects of the Covid-19 pandemic. The potential for political turmoil within Russia was therefore high, while the very shaky demographics that Russia has dealt with since the 90s brought no optimism for the Kremlin. All this made the beginning of 2020s very similar to the early 2000s, when Putin came to power. He has since known he's had to rush if he were to secure himself and Russia some stability. This is why he chose to develop the energy sector and make certain to get Europe dependent on Russian gas – that ensured him of the necessary money to keep Russian internal economics stable while, in theory, Europe would have been obliged to stay engaged with Moscow.

However, Moscow can't only rely on European energy-related payments for its budget funding – it needs to trade with the world. On the map, while Russia is protected down south by central Asia,



**Russian perspective:** recent events are further reshaping the world's trade and investment corridors. Map by Geopolitical Futures



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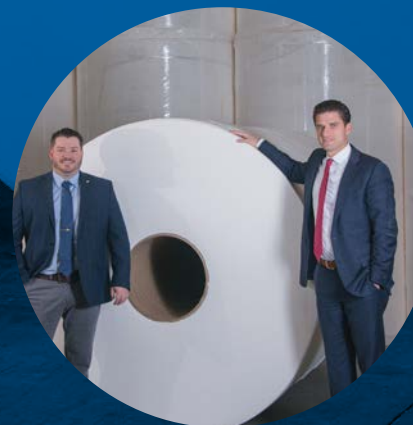


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the area isn't supporting much of Russian trade and there's no easy opening to the world's oceans. Instead, it is the Southwest of Russia – notably the Black Sea, that provides a key opening to the world's trade routes. This is why Russia needs to keep its influence in the Black Sea. This is why Crimea and Ukraine are essential for Russia – and why fears of losing influence over their territory quickly transform into major risks, constraints Moscow needs to eliminate. At the same time, because the Black Sea is essential to Russia, its relationship with Turkey is also crucial.

The financial crisis during the last decade and the pandemic have both weakened Russian socio-economics. The West, embodied by the US, NATO and the European Union looked more appealing to states in Russia's buffer zone, considering their better economic performance than Russia's translated into better lifestyle for their population, while Russia kept losing influence. So, the Kremlin had to rush to do something to make sure it kept its gateway to the Black Sea and Ukraine under its sphere of influence. All of this provides an explanation for why Russia decided to invade Crimea in 2014 and why it invaded Ukraine in 2022 – just as the pandemic ended and the post-pandemic effects could have brought more pain to the Russians, causing internal instability in the country.

### New alignment

The consequences of the war in Ukraine extend far beyond the Black Sea region, with its economic aftereffects hurting both developed and developing economies. Non-aligned emerging countries need to make a choice between Russia and the West – all while trying to make a profit by hedging one against the other while trading with both in an unpredictable, sanctions-affected business environment. In 2022, most of them have put off making a choice between the West and Russia, hoping for a resolution to the conflict that would ease their economic pains. In Europe, a case in point is Hungary, which depends on Russian energy and other commodities to sustain its (fragile) economy and thus is wary of breaking ties with Moscow. It has avoided adopting anti-Russia sanctions and has called for exceptions until it can get alternative sources of energy. Outside Europe, most emerging countries have avoided adopting anti-Russia sanctions altogether.

For most, the conflict between Russia and the West has shaken public and corporate confidence about the near future. In the West, it made it nearly impossible to do business with Russian entities. However, while the mindset about doing business with Russia is changing in the West (and while in Russia it is certainly changing about doing business with the West), neutrality

has been the norm for most of the world's nation-states in 2022. China and India in particular have been taking a very cautious balancing act between the West and Russia, especially in regard to economics.

### China: another “geopolitical known”

This gets us from the Black Sea into the South China sea: another “geopolitical known”. China, the main contender and the main partner for the US, holds a key role in the economic conflict between the West and Russia. To understand its reasoning, it is, again, important to check the map. The rising power of the East is not only a continental power (like Russia), but it is also aspiring to become a global maritime power. However, growing its power is certainly not simple for China – it first needs to make sure it stays stable internally, and after the pandemic, China is facing many internal problems.

As important as developments in Europe are, China and its internal stability may be the more consequential economic challenge in 2023. Facing growing protests late in 2022, the Chinese government abandoned its zero-Covid policy with no apparent plan B. It all seemed to work fine, yet media or social media tales of regional economic issues persist.

Enduring weakness of the real estate sector has outweighed positive impulses in other economic areas, and fear of a financial crisis is weighing on private investment. Increasing youth unemployment adds a dangerous element to the mix. Beijing has taken steps recently to solve the real estate sector's liquidity crisis, but it needs political stability for the measures to be effective. All of this will likely to be a fragile economic recovery for China in 2023.

This is certainly not good news for the world economy. As much as the West would prefer to be sheltered from Chinese events, Europe and the US continue to rely on Chinese industry for critical inputs. Chinese lockdowns hampered supply chains, and the country's political and economic uncertainty might exacerbate them. Consumption and industrial activity are already declining in the United States and Europe, and there is no end in sight to the energy problem. A crisis in China would exacerbate the situation.

China cannot lose the main market it has, which is the Western world, and in particular the USA. It can't shift towards Russia because it knows it will have a problem with the US and Europe both. China is in a position where it knows it needs to do something, but it can't take the risk of going toward Russia because Russia cannot provide a market for its goods. In taking a move, China would want to be on the winning side: if nothing else, it understands that the reconstruction of Ukraine gives it the opportunity of

growing its market. All it has to do is make sure it calculates its balancing act carefully, in taking small steps to accommodate hedging Russia against the West and vice-versa. In short, all Beijing can do is wait – until waiting becomes impossible.

### India: a very special place in the world economy

India is not as intertwined with the globalised world as China, and it has not developed the types of dependencies that the West and China have. India was this developing market that never quite developed into an economic power: it can't negotiate its place in the global economic system like China or other European countries can. However, it possesses distinct characteristics that allow it to profit from the current global economic war and eventually (finally) emerge into a significant world power.

Geographically, it is located in a very interesting place in South Asia, and it has an advantage considering its human resource. Over time, it has built a reliance on Asia Pacific while simultaneously strengthening ties with Russia. In many ways, India's objective was to understand coalitions and find the appropriate partner at the appropriate time. Its strategy is a literal translation of realignment.

What does that mean for the business world? We are talking logistics, corridors, and while we are familiar with the current trading corridor routes from Asia to Europe and Asia to the Americas, most going between the world's West and East, we are less knowledgeable about potential new corridors between the world's North and South. To win the war, Russia is looking to develop new corridors – linking the North to the South. In the build-up of such new trade and investment routes, India holds a special place within Russian strategy. However, India is also important for the West – and notably, for the US in pursuing its Asia strategy.

While military and economic agreements are being signed by both the West and Russia (the North) with its partners in the South, businesses need to adapt to the new reality being shaped by the global economic war. With new corridors comes “decoupling”, “reshoring” and “friendshoring”, all of which translate into a whole new business mindset for planning strategy. Businesses (re)learn the geography of the world, as new trade routes appear and as sanctions set off new (invisible) borders between markets.

Using these new corridors, there is potential for countries in Africa to grow its posture beyond a resource-rich continent. Places like Cuba or Venezuela in Latin America, the Fiji Islands in the Pacific are



taking new roles, considering both the Western and the Russian perspectives. And each of them, just like India (although less than India) seek their own window of opportunity to negotiate their position, their strategy towards opening for new business opportunities. All these places are where Russia is using tactics to unnerve the West, but also seeking to build up its own alternative logistical supply chain to the existing ones. Something that the West resists – and, on the contrary, helps building its own new alternative trade and investment route.

### Regaining trust while restructuring the economy

Apart from the grand strategies of the main global powers of the day, what really moves the world of politics and economics comes down to the masses. Changing societies. After the end of the Cold War, we – the individuals, have come to have a different vision to our lives, and this doesn't necessarily pair with the way politics works (we are disenchanted by our political leadership, no matter the political regime we're living in). Apart from uncertainty – or fueling uncertainty, individuals hold a lot of distrust into the way their lives are managed, even if they agree with the principles of the way the war is waged. This is true for both West and East, North and South.

This is key to understanding the future. We no longer have usual class-based systems: we the elites, the middle, and lower classes are not "what they used to be". Instead, due to digitization, we have a more global society with its own layers (instead of classes). Some share the sustainability language and this makes us very urban at the top but also very isolated and very "not-aware" of what is going on with the other layers. Not because we wish to ignore, but because we can't understand the pains and the fears of the non-urban person everyday life. The nomad settlements in Central Asia and the Middle East, the villages in Africa are far away and disenchanted by our sustainable policies and honest will to better the world we live in. While polarization is growing within all states, it is also growing globally.

The current global economic war will only accelerate this trend. And with it, others will follow. The first is energy transformation. This is very much about raw materials and supply chains, which are very sensitive to the global realignment underway. With increasing polarization, there will be growing regionalization and protectionism. Which essentially means raw materials becoming more expensive. If you don't have an agreement to get the raw materials you need, you'll probably have a problem maintaining your industry growing,



let alone getting greener faster. Achieving sustainable goals is dependent on our ability to talk to the other – while the other is becoming more of a stranger. In business language, as we begin learning the new geography of the world, building bridges will be key – building trust will be a must for getting things done long-term.

### The challenges ahead

If, on the short term, we manage to escape the negative effects of inflation for our businesses. For the first time since the 1970s the world is simultaneously facing high inflation. The drivers of this bout of inflation include excessively loose monetary and fiscal policies that were kept in place for too long, the restructuring of global trade caused by the pandemic, and the sharp spike in the cost of energy, industrial metals, fertilisers and food as a result of Russia's invasion of Ukraine. Angered by the unequal distribution of the gains of globalisation, voters demanded more government support for workers and those left behind.

However well-intentioned, such policies risk an inflationary spiral as wages and prices struggle to keep pace with one another. Rising protectionism also restricts trade and impedes the movement of capital, limiting improvements on the supply side.

To the extent that the energy crisis is causing high inflation, investment in renewables will mitigate inflationary pressure. Renewable capacity will take time to develop, however, and in the meantime, there is underinvestment in fossil fuel capacity. The latter will take priority.

All that means that we're likely not going to have to deal with inflation only, but also with growing... "greenflation." The green transition will require the development of new supply chains for certain metals and will increase the cost of energy generally, creating what's been termed greenflation. This started in 2019, 2020, with investment not making the mark in terms of green technology. Back then, investors weren't happy to get into new projects as they feared recession. Now, with an ongoing war, savings

become more popular than investment. While companies adapt and prepare for the worst in uncertain times, investing in new green technologies is not a priority.

All this coincides with a rapidly aging population not only in developed countries but also in China and some other emerging economies. Young people tend to produce more, while older people spend their savings and consume more services. And due to the market uncertainty caused by the pandemic and the war in Ukraine, young people are producing less and are reluctant to invest, which translates into a general economic slowdown. Therefore, just as the global economy will continue fragmenting into 2023, so will inflation and greenflation persist.

### Major trends and solutions beyond 2023

The major trends in geoeconomics for 2023 and beyond are interconnected. The challenges they pose will require a systematic, coherent approach, but the political leadership in countries around the world is struggling to keep up. The speed of the change requires a different toolset than governments are used to, leaving them trying, and sometimes failing, to adapt to new realities. Cooperation is increasingly difficult, but it has actually grown stronger in some limited areas, like the West's economic war against Russia following the Ukraine invasion.

Thus, even as deglobalisation (or regionalisation) gains momentum, interdependency isn't going away completely. Restructuring itself will be a global process. There's just no avoiding the fact that the world today is interconnected in ways never seen before. Different perspectives will need to be reconciled, and people's place in society beyond their economic value as consumers and political value as voters will have to be acknowledged. Human behaviour, and therefore state behaviour, is driven by everything from politics and economics to culture and psychology and even technology. This complexity will drive the challenges, and potential solutions, of tomorrow.

# THE OUTLOOK FOR MARKET PULP: TISSUE GROWING IN ALL REGIONS, AND IS MOSTLY NON-INTEGRATED

Hawkins Wright

## World paper and board production:

- 022: – 1% (-3Mt) 2013-2022:
- P&W – 4% pa (-42Mt)
- Tissue +3% pa (+8Mt)
- Packaging +2% pa (+30Mt)
- Specialties +2% pa (+2Mt) TOTAL P&B: 0% pa (-1Mt)
- P&W's share of total production has fallen from 33% in 2013 to 22% in 2022.

## World fibre demand by grade:

- Market pulp demand is remarkably resilient
- Tissue is growing in all regions, and is mostly non-integrated
- Virgin fibre displacing RCF at the margin
- Paper production falls in integrated regions (mature markets) and grows in non – integrated regions (EM)
- Consumer restocking during market downturns.

Tissue was the main driver of growth, increasing its share of shipments to 42%. Market pulp shipments growth by grade. Most of the growth has been in BEKP deliveries, symptomatic of the huge investment in low cost, plantation-based pulp mills in Latin America. Most of the growth in market pulp demand has been generated by the tissue industry, which last year accounted for 42% of all deliveries, up from 33% in 2013. We expect tissue to generate an additional 5Mt of shipments by 2027.

## Market pulp shipments growth by market

As a fibre scarce country, China has been the main driver of growth in market pulp demand, accounting for 81% of the increase in global shipments since 2013. China now accounts for approximately 36% of the global market.

## Chinese pulp projects, 2022-2025

Multiple integrated pulp projects are planned, supported by:

- Government plans to eliminate plastic packaging
- A growing fibre deficit as imports of wastepaper have been eliminated
- Government stimulus
- A revived national quest for self – sufficiency in technology, energy, food and certain raw materials.

## Total chemical (BHKP, UKP, DWP) – 5,550Mt

Total HYP (BCTMP/APMP) – 5,130Mt  
Total UKP/Semi-chem – 2,400Mt  
Total – 13,080Mt  
13Mt of pulp capacity planned over the next four years, consuming an estimated 22m BDMT of chips. BHKP, UKP, semi-chem and high yield. Partly replacing OCC (rather than market BHKP). Where will these chips come from?

## Chinese pulp production vs. chip imports

China already has a significant dependence upon imported chips, with deliveries totalling 18.5Mt last year, comprising 17.6m BDMT of hardwood and 0.9m BDMT of softwood. 95%+ of these chip imports were used in the manufacture of pulp. Where will China find the wood? Around five million ha of plantations, mostly in the south of China. Only 15% owned by private enterprise.

## Battle for fibre in SE Asia

Asian HW chip supply: only Vietnam has grown since 2016. Much of these new pulp lines will be integrated. 10Mt/y of new P&B capacity will start up in 2023 and 2024, compared to an average of +5Mt/y in 2017-2022.

Meanwhile China faces many structural headwinds

- Demographics
- Urbanisation also slowing
- Debt (property)
- Environment
- Geo-politics.

## Bleached pulp capacity changes, 2010-2027

Confirmed major projects:

Q1-2023. MAPA 1.5Mt/y BEKP

Q1-2023. UPM Paso De Los Toros

2.1Mt/y BEKP

Q2-2023. Metsa Kemi, 0.8Mt/y NBSK and 0.1Mt/yr birch (net)

Q3-2024. Suzano Cerrado 2.55Mt/y BEKP

(Supply growth to be supplemented by reallocation of integrated supply to the market this year)

Unconfirmed projects: Paracel (1.8Mt BEKP), Eldorado 2 (2.2Mt BEKP), Arauco Sucuriu (2.5Mt BEKP), amongst others. But more closures to come!

## Growing challenges in global fibre baskets

News reports have reported on topics such as Indonesian weather agency predictions of a dry 2023, and warnings of forest fire risks, B.C. Pulp and paper sector is in crisis, Portugal's forest fires burn a third more area than last decade's average, Brazilian pulp and paper producer Suzano has reported changes in climate conditions which have constrained productivity growth, while Chile wildfires impact pulp production at Arauco and CMPC, trade of logs and lumber in Europe will change dramatically as timber harvests in Central Europe decline and imports from Russia come to a halt....

Access to sustainably sourced, low-cost fibre dictates the competitiveness of a pulp mill.

- Fibre availability is increasingly vulnerable to the effects of climate change
- Increased incidence of fire, pest, disease, droughts, and flooding.  
= costs inflation.





# GLOBAL TISSUE: POST-PANDEMIC AND BEYOND, THE CHANGING FACE OF EUROPEAN TISSUE CONSUMERS

Ana Tique, **Consultant, Euromonitor international**

Geopolitical conflict and inflation exert pressure on demand growth:

- 1% volume growth in 2022, flattening from 2% in 2021.
- 3% - 2022-2027 CAGR value growth to reach USD 103bn in 2027 at constant 2022 prices.

Toilet paper remains dominant, but facial tissues lead the growth. From a subcategory level, each tissue type has a distinct growth pattern moving forward.

## Highlights

Home seclusion in 2020 brought strong volume growth globally in toilet paper and paper towels. A natural decline followed it in 2021, as consumers' home-based cleaning needs decreased considerably when life slowly returned to normal.

Toilet paper remains the largest consumer tissue subcategory. Most of its future growth will come from developing Asia Pacific markets, largely due to growing incomes and a shift to a more urban lifestyle. Despite its size, toilet paper should have a flat, below 2% average value growth over the next five years.

Facial Tissues, on the other hand, are a much smaller category. Many of the gains came from Asia Pacific, too, as boxed facial tissues continued to penetrate low-tier cities and rural markets and are gradually replacing toilet paper, commonly used as a substitute. China plays a central role in facial tissues' rising regional profile, as local consumers increasingly recognise their health necessity and versatility. This is further manifested in brands' growing use of functional ingredients and diverse pack sizes that expand indoor and outdoor usage scenarios.

Paper tableware, the smallest tissue category, saw only marginal growth in 2022, with gains attributed almost evenly to low-penetration Latin America, Asia Pacific, Middle East and Africa. Developed regions continued shifting from paper tableware to more cost-efficient, sustainable alternatives such as washable cloths.

## World Retail Tissue in 2022

Paper towels remain much stronger in Western Europe and North America, compared with other regions, due to their more common use in home kitchens, consumer awareness and product accessibility. However, both regions reduced paper towel volume consumption in 2022 due to consumer price sensitivity and trade-out.

Facial tissues, on the other hand, find a much stronger market in regions like the Asia Pacific due to increased penetration in low-tier cities and rural markets in place of toilet paper, which has been commonly used for facial cleaning, as well as the staying habit of carrying them out on outings.

Global pressures on consumer tissue demand manifest differently across countries and categories. Amid a backdrop of consumer pricing sensitivity due to inflation and simplified routines, consumers may further reduce non-discretionary spending over the forecast period and sharpen the divide between those seeking value-added attributes and those prioritising low prices. Financially vulnerable consumers will feel most compelled to reduce consumption of products such as facial tissues, typically priced higher and that can be easily substituted with toilet paper, for instance.

This, however, does not suggest the end of premiumisation. In fact, manufacturers will take a divided approach to pursue opportunities in both affordable and ultra-premium segments to address price sensitivity from inflation in the near term and maximise value generation in the longer term.

## Digital strategies help companies forge closer customer relationships.

The ongoing promotions and special discounts provided by online retailers have been driving this preference and the convenience of home delivery and ordering from anywhere at any time. Closely followed is the ability to buy products from a larger variety of brands, comparing their features and prices. Another rapidly evolving digital business model in consumer tissue is subscription service, which was already gaining attraction before the pandemic.

## Convenience and novelty drive subscription adoption

Convenience, novelty, and personalisation were among the top attractions to get a subscription, which remains the case. In one of Euromonitor's latest consumer lifestyle surveys, convenience was ranked by 42% of global consumers as the top motivation for choosing a subscription.

The pandemic has fastened the adoption of subscription service, mainly because it offers more stability and predictability during supply chain hiccups.

## Sustainable consumerism drives more focused thinking across the product lifecycle

Looking at the industry trends through Euromonitor's Voice of the Industry Surveys, respondents largely align themselves with the importance of reducing the negative impact of the business on the environment. Companies are aligning with SDGs and other sustainability actions as part of their strategies, bringing better health and wellness components to their teams.

And despite cost pressures, most five-year sustainability plans include the development of sustainable products, sustainable sourcing, and waste management.

## The European tissue market: where do we stand?

Price pressure by war and inflation continue to affect demand. Similarly to the rest of the world, the war in Ukraine and record-breaking inflation rates have affected tissue consumption in Western Europe. Consumer confidence reached unprecedented lows in 2022, and despite some early signs of recovery this year, businesses and consumers are still cautious. Although the times are unpredictable, a gradual market recovery can be expected.

## Cost of living crisis especially apparent in Western Europe

Very high inflation rates were felt by consumers in 2022 across countries in Western Europe, which reached up to 10% in some cases. In 2023, inflation rates are anticipated to remain high. High prices of food and utilities and a more home-centric life than before the pandemic force consumers to cut out indispensables and trade down where possible in products they still need to purchase.

## Private label continues to grow in Western Europe.

The shift to private labels is a viable alternative as consumers seek more affordable options. Private label products' growing offers and quality are meeting consumers' expectations, and as a result, this category has been growing strongly in value and volume.

Western Europe makes up the largest share of top green claims combined.

Western Europe led in claims related to ethical sourcing, such as FSC. "Biodegradable" and "environmentally friendly" claims are also important for the

Western European consumer. North America led in more origin-related ingredient claims, such as “from recycled materials”. And Asia Pacific, interestingly, appeared more attuned to clean ingredients such as Natural and No Bleach.

### E-commerce gains traction as a tissue sales channel

Similarly to the global trend, e-commerce continues gaining traction in Western Europe as a sales channel. The pandemic years brought the need to develop online shopping platforms on the one hand, and on the other hand, the opportunity for more consumers to integrate this way of shopping into their daily life. Gradually, we could observe how retail e-commerce grew by 2% over the period of 2019 to 2022.

The return to normalcy brought an expected return to brick-and-mortar shopping. Still, over the forecast, the continued growth of e-commerce is expected, motivated by a younger, more digitally inclined client base and more user-friendly platforms, besides advantages such as online discounts and delivery convenience.

As we look forward, three key themes that will be shaping the European consumer tissue industry have been identified that are deeply tied to the consumers' evolving priorities:

1. The cost-of-living crisis is expected to stay for a while – at least as long as the conflict in Ukraine remains. The continued need to be conservative in spending will, in turn, keep consumers' motivation to try and become loyal to private-label products, especially if they deliver quality and function for a lower cost. In a nutshell, consumers expect product quality and value for money.

2. An acceleration of e-commerce is expected as businesses shift to digital-based models. More innovation and development of retailers' online shopping platforms can only keep consumers loyal, and there is less of a need for them to order products from online retail giants.
3. Sustainability aspirations are only growing. Despite the current cost of living prices forcing consumers to wait and see before they spend more for a product that is a better choice for the planet, once the economies and consumer confidence recover, we can expect these concerns to drive the way they shop.

The need to become more responsible and take a more active approach to sustainability has been gaining strength among consumers in the last few years, and the pandemic only made that need more urgent. Companies that act green and communicate transparently can expect loyalty from a growingly environmentally-conscious client base.

### Ssangyong C&B launched 'Tissue gift set' on KakaoTalk gifts, Korea's biggest messenger app.

An excellent example of how digital marketing, giftability and online shopping can become drivers of growth in challenging times, such as during the pandemic: Korean brand Ssangyong launched a Tissue gift set on Korea's biggest messenger app. There is a tradition of gifting tissues at housewarming parties in South Korea to wish things to “roll well”, like a toilet paper roll. But as Covid-19 intensified over the last years, people have gathered less and less in person.

Through Kakaotalks, people can trade gifts – anything from snacks to luxury goods. This started as an opportunity during seclusion times, but it rapidly became a norm and is likely to be here to stay.

In Euromonitor's voice of the consumer surveys, the number of consumers that integrate technology into their daily lives was found to keep growing, and they value personalised products.

### Pirkka Siivospaperi by Kesko Oyj in Paper Towels in Finland

Finally, a good example of a private label building on a few products claims that consumers find valuable: Pirkka is a Finnish private label that launched a 3-ply paper towel claiming to be strong, durable, and able to handle scrubbing without piling. It is also FSC-certified and comes at an affordable price point. Innovation, quality, eco-friendliness, and value-for-money align with values that consumers aspire to have and are willing to pay more for.

### Conclusion

We are navigating challenging times, and the tissue industry is no exception. Walking into the future, it's essential to identify high-growth opportunities to focus on. Delivering innovative solutions and value for money is imperative as the consumer becomes more informed and demanding, and the competition tightens with more options in the market.

Finally, transparency and communication are valuable tools in keeping the consumers' loyalty, providing them with options to be active agents in the global efforts to tackle climate change.





# GLOBAL NEWS UPDATE

A roundup of news from across the global tissue industry. To get the very latest news go to [www.tissueworldmagazine.com](http://www.tissueworldmagazine.com)



**Above:** "The ramp-up of our bathroom tissue line exceeded expectations in the first quarter," Dino Bianco, KP Tissue Chief Executive

## NORTH AMERICA

### Kruger Products reports improved Q1 revenue of \$451m

Canadian tissue manufacturer Kruger Products has reported a "strong performance" driving revenue and adjusted EBITDA growth in its Q1 results.

Revenue in the quarter increased 13.1% year-on-year to \$451m, while adjusted EBITDA increased 71.9% to \$50m.

However, a net loss of \$49.3m in Q1 was also reported; this compared to net income of \$1.4m in Q1 2022, a decrease of \$50.7m.

The company said the decrease was primarily due to higher income tax expenses.

Dino Bianco, Chief Executive of KP Tissue, which holds a 13.5% interest in Kruger Products, said: "We are pleased that our multi-faceted strategy to counter inflation is gaining traction as reflected by our strong first-quarter performance in 2023.

"The results were achieved mainly due to higher selling prices across all segments and regions, favourable sales mix, cost management initiatives implemented companywide, as well as ongoing productivity gains and our Memphis plant cost recovery.

"Although we are still coping with volatile pulp prices and a weakened Canadian dollar, profitable growth remains our goal for 2023 and beyond."

He added that as the business strengthens, it intends to reinvest in its brands to drive share gains and "take advantage of incremental manufacturing capacity" from its Sherbrooke expansion project.

"The ramp-up of our bathroom tissue line exceeded expectations in the first quarter, while the start-up of our facial tissue and paper machine lines are scheduled for the fourth quarter of 2023 and end of 2024, respectively.

"As a result, we are steadily progressing along the road to recovery, while investing for the long-term."

He added that whilst the company believes inflationary pressure has stabilised and operating efficiency continues to improve, Kruger Products will be reinvesting in the business to drive long-term value.

Adjusted EBITDA in Q2 2023 is expected to be in the range of Q1 2023.

### Cascades to close underperforming tissue plants

Cascades has announced a repositioning of its tissue papers operating platform that will see it close its tissue plants in Barnwell, South Carolina, and Scappoose, Oregon.

The company said it will "concentrate the majority of its tissue product operating activities at core, geographically well-positioned sites that offer opportunities for future development".

It added that these changes will "reduce costs, create synergies, and significantly improve the tissue group's financial, operational and environmental performance."

Beginning in July 2023, Cascades will progressively close its plants in Barnwell, South Carolina, in Scappoose, Oregon, as well as its virgin paper tissue machine at its St. Helens plant, also in Oregon.

It is currently working with its 300 affected employees.

The equipment slated for closure will have a combined total annual rated capacity of 92,000 short tons of tissue paper and 10 million cases of converted product.

Cascades said they have been operating below capacity producing 56,000 short tons of tissue paper and five million cases of converted product in 2022, mostly on the West coast.

A portion of this production will be absorbed by open capacity at the company's other facilities and by the increase in productivity at its sites, particularly in the United States.

Cascades President and Chief Executive Mario Plourde, said: "With fewer sites, better resource allocation, and a strong business strategy, we believe this decision will position Cascades to create more value for its shareholders and customers.

"I'm convinced that the steps taken today will allow us to achieve our objectives for improving tissue group's performance."

President and Chief Operating Officer of the Tissue Group, Jean-David Tardif added: "Today's announcement lays the groundwork for a simplified and sustainable production model that will better meet both our customers' and Cascades' long-term growth aspirations.

"This was not an easy decision to make, but it's the right one for the company's future."



**Above:** "We had a solid first quarter," Mario Plourde, President and Chief Executive

### **Cascades reports "solid first quarter" as tissue sales expected to improve sequentially; announces plans to close underperforming tissue plants**

Cascades has reported sales of \$1,134m in Q1 – up \$96m from the \$1,038m recorded in Q1 2022 – and said it expects results in its tissue papers segment to continue to improve sequentially.

The company said the increase was due to a net benefit of \$76m that was driven by higher selling prices in all business segments, and partially offset by a slightly negative consolidated sales mix impact.

It added that the Canadian dollar - US dollar exchange rate was favourable for all businesses, contributing \$47m to total sales levels.

However, this was partially offset by a \$19m impact related to lower volumes in the tissue papers and specialty products business segments.

An operating Q1 loss of \$(80)m compared with \$(20)m in Q4 2022 and \$(4)m in Q1 2022, whilst first quarter EBITDA (A) increased \$76m year-on-year to \$134m.

Mario Plourde, President and Chief Executive, said: "We had a solid first quarter. All three businesses contributed to topline growth year-over-year, as benefits from higher selling prices and an advantageous exchange rate more than offset the impacts of a less favourable mix in containerboard and lower volumes in tissue papers and specialty products.

"Higher sales, notably in tissue, and lower raw material costs in our packaging businesses drove higher consolidated profitability levels."

He added that sequentially, "sales were stable", with stronger volumes in all businesses counterbalancing the impacts of less favourable sales mixes in containerboard and tissue and lower selling prices in its packaging businesses.

At the end of April, Cascades announced a repositioning of its tissue papers operating platform that will see it close its tissue plants in Barnwell, South Carolina, and Scappoose, Oregon.

Plourde said the decision was "the culmination of an in-depth evaluation of the long-term positioning, competitiveness and performance potential of our tissue operations following disappointing results in recent years".

"Market conditions in this business have changed significantly, and the closure of these underperforming assets will strengthen not only the operational performance of this business, but its financial and environmental performance as well."

He added that the 2024 revenue target of approximately \$5bn remains unchanged, while the company's EBITDA (A) and free cash flow objectives have been slightly modified to reflect the announced changes to its business.

Plourde said: "On a consolidated basis, we are expecting slightly lower results in the second quarter, with lower results in our packaging businesses to offset forecasted stronger results in our tissue papers business.

"We expect results in our tissue papers segment to improve sequentially driven by the additional benefits from profitability initiatives, higher selling prices, lower raw material costs and stable demand."

### **GP boosts retail consumer towel business with \$50m investment**

Georgia-Pacific (GP) is making investments worth \$50m at its Port Hudson mill in Zachary, Louisiana, to grow its retail consumer towel business. Investments will include upgrading to increase capacity, improving capability of existing converting equipment, and enhancing internal infrastructure. Construction has begun on the project with start-up of the lines scheduled for some time in mid-2023. The investment will allow for the expansion of GP's own premium paper towel offerings, as well as supporting the growth of customers' premium private label brands.

Vivek Joshi, President of the retail tissue, towel and napkin business for GP, said: "This investment allows us to further leverage the many advantages we have, including our breadth of offerings, excellence in manufacturing operations, commitment to quality and focus on research and development to create products that consumers value."

The Port Hudson mill currently operates two paper machines and several converting operations to make bath tissue and paper towels.

### **Irving's Royale tissue brand certified carbon neutral**

Irving Consumer Products has announced that its Canadian household consumer tissue products brand Royale has been certified carbon neutral by the Carbon Trust.

Royale tissue products are manufactured by Irving Consumer Products, an affiliate of J.D. Irving.

The company also said that forests managed by J.D. Irving and its affiliates "remove more carbon per year than is emitted in the life cycle of Royale tissue products manufactured in the year."

It added that each year, J.D. Irving and its affiliates harvest less than 2% of the forest it manages, ensuring that the company grows more wood than it harvests annually.

**GEORGIA-PACIFIC (GP) IS MAKING INVESTMENTS WORTH \$50M AT ITS PORT HUDSON MILL IN ZACHARY, LOUISIANA, TO GROW ITS RETAIL CONSUMER TOWEL BUSINESS. INVESTMENTS WILL INCLUDE UPGRADING TO INCREASE CAPACITY, IMPROVING CAPABILITY OF EXISTING CONVERTING EQUIPMENT, AND ENHANCING INTERNAL INFRASTRUCTURE.**





*Infinity's Optic M1 Bundler: the technology has been designed with the needs of the international market in mind*

## GLOBAL

### Infinity targets global tissue bundler market with Optic M1 launch

Infinity Machine & Engineering Corp. has responded to its global customers' requests for packaging versatility and speed by launching its latest innovation, the Optic M1 Bundler. The company said the technology has been designed from the ground up with the needs of the international market in mind and can produce a range of bundle configurations and reach speeds of over 20 bundles per minute.

Other defining features are its small footprint, robust steel frame, auto splice poly unwind, active vacuum lance, quick change knife and modular capability. Gregory Sense, Marketing Coordinator, Infinity, said: "The Optic M1 Bundler has the versatility and speed to disrupt the tissue bundler market.

"At the Infeed of the machine, the Optic M1 features an integrated two-stage choke belt diverter, with hand wheel adjustment for pack width. It also shares a common infeed with Infinity casepackers, creating the added benefit of common parts and common machine knowledge for maintenance technicians."

He added the line features Flight Bars which are synchronised with the indexer, enabling maximum take over speed. The additional flight bar is the perfect tool for stacked, "core up" roll configurations, and according to the supplier allows for maximum versatility as the second flight bar can be removed and an upender can be swapped in.

The upender then enables the machine to bundle rolls stacked on ends, allowing for the Optic M1 to bundle an array of

configurations between the two roll stack orientations.

Sense added: "Infinity engineers have prioritised reducing the time and cost of machine maintenance in the design of the Optic M1, resulting in a machine with very few wear parts and many automatic adjustment features."

### Essity reports "strong start" to the year in Q1 results; mulls selling Vinda stake and Consumer Tissue Private Label Europe business

Essity has reported a net sales increase of 25.1% in its Q1 results as it initiates a strategic review of its ownership in Asian hygiene company Vinda and the Consumer Tissue Private Label Europe business.

Between 1 January – 31 March 2023 the Swedish business reported net sales of SEK42,926m and an operating profit before EBITA increase to SEK4,445m. Profit for the period increased to SEK2,703m.

Magnus Groth, President and Chief Executive, said: "Essity's sales and profitability performed positively in the first quarter, primarily due to attractive customer offerings and higher sales prices to compensate for the cost increase.

"Essity's sales growth amounted to just over 17% for the first quarter of 2023, compared with the corresponding period of 2022. Sales prices were higher and the product mix better in all business areas. Volumes declined somewhat on account of the company's prioritisation of higher profitability ahead of volume.

"Furthermore, volumes were negatively impacted by ongoing efforts to exit the Russian market and the discontinuation of the baby diaper business in Latin America."

In the Consumer Tissue segment, organic sales growth for the quarter amounted to 19.7%, which the company said was "mainly as a result of significantly higher prices in addition to a better mix."

Volumes were lower on account of the prioritisation of higher profitability ahead of volume. Sales growth was high in all regions including Europe, Latin America and Asia. For the Consumer Tissue Private Label Europe division, organic sales growth amounted to 35.8%, which was mainly related to higher prices.

Last Wednesday, Essity said it had initiated a strategic review of its stake in China-based Vinda and its Consumer Tissue Private Label Europe business.

Groth added the potential move aimed to reduce Consumer Tissue's share of the company's total sales. The strategic review "includes exploring different options and may result in divestments, although no such decisions have yet been taken."

Essity's net sales for 2022 amounted to approximately SEK156bn, of which Vinda accounted for approximately 16% and the Consumer Tissue Private Label Europe business approximately 6%. Vinda and the Consumer Tissue Private Label Europe business accounted for approximately 34% of the business area Consumer Goods net sales 2022 and approximately 45% of the Consumer Tissue category net sales in 2022.

Essity is the majority shareholder in Hong Kong-based Vinda with a 51.59% stake.

Vinda's net sales in 2022 amounted to approximately SEK25.1bn and EBITA amounted to approximately SEK1.1bn.

Of Vinda's net sales, 83% were related to tissue and 17% were related to personal care. Net sales for the Consumer Tissue

Private Label Europe business amounted to approximately SEK9.8bn in 2022, corresponding to about 15% of net sales in the Consumer Tissue category. The business encompasses seven production facilities in Belgium, France, Germany and Italy.

## PORTUGAL

### Navigator reports "best performance ever" in Q1 results; pursues tissue and packaging investment plan

The Navigator Company has recorded its highest-ever turnover against what it described as a backdrop of "unprecedented" global contraction in demand across most segments. Turnover in the quarter was €501m while it reported EBITA of €130.7m and net results of €71.7m. Paper sales accounted for 64% of turnover, pulp sales 13%, tissue sales 10%, energy sales 10% and packaging 3%.

The company said that after a year of "strong supply shortages", the first quarter of 2023 was marked by the accumulation of a high stock volume in the whole distribution chain, significantly affecting demand in all paper and packaging segments, except the tissue segment. It also said the first quarter witnessed "a significant reduction" in pulp prices coming from historical highs.

"The benchmark index for short fibre pulp (hardwood) in Europe – PIX BHKP in dollars – reached historical highs in 2022 (1,380 USD/ton) – and figures did readjust in the first quarter, standing at the end of March at 1,280 USD/ton, a 7% drop compared to the beginning of the year, dropping further since then (1,101 USD/ton on May 9). The benchmark index in China for hardwood pulp also fell by 12% compared to the beginning of the year, standing at the end of the quarter at 709 USD/ton and falling further since then (500 USD/ton on May 9)."

However, Navigator added that despite the major geopolitical and economic unpredictability, and fluctuating pulp markets, it was continuing to pursue its investment plan in tissue and packaging.

It said its tissue segment has continued to strengthen its customer base and reported that tissue demand in the first quarter of 2023 "proved to be extraordinarily resilient globally".

Navigator said this ensured "a good performance as regards the sale of finished products amidst a scenario of favourable prices, and witnessed a 27% growth year-on-year."

On 31 March 2023, the company

announced it had completed the acquisition of all shares representing the share capital of Spain's Gomà-Camps Consumer and French company Gomà-Camps France (now GC Consumer). The integration of the new plant is understood to have added 35,000 tons of tissue paper production capacity, reaching a total of 165,000 tons, and increasing the converting capacity by 60,000 tons to 180,000 tons. The Gomà-Camps company now operates under the name Navigator Tissue Ejea. Navigator added that it will continue along its diversification, product development and investment route, especially in the tissue and packaging segments.

## GREECE

### Sofidel signs PPA to supply 100% renewable energy to Katerini plant

Italian tissue giant Sofidel has signed a 10-year Power Purchase Agreement (PPA) to supply 100% renewable energy to its plant in Katerini, Greece. Energy providers RWE Renewables Europe & Australia and PPC Renewables through joint venture company Meton Energy will provide Sofidel with around 21 gigawatt hours of green electricity per year. RWE and Greek electricity producer and supplier Public Power Corporation will build a solar farm in the Western Macedonia region in northern Greece to supply the power. The plant is to be fully operational by the end of Q1 2024.

Riccardo Balducci, Sofidel Group Sustainability Director, said: "Signing the PPA is another major step on our journey towards our goal of increasing the use of energy derived from renewable sources.

"The agreement is part of our multi-

option energy procurement policy for promoting a low-carbon economy and helping the introduction of additional renewable capacity on the market."

Due to the agreement, Sofidel is expecting to save around 12,500 tonnes of CO2 emissions per year (based on "Greenhouse gas emission intensity of electricity generation" data for 2021, as published by the European Environmental Agency).

## SAUDI ARABIA

### SPG boosts high quality production with TM start-up

Saudi Paper Group (SPG) has started up a Toscotec-supplied AHEAD 2.2 tissue machine and OPTIMA slitter rewinder at its Dammam mill in Saudi Arabia.

PM2 is producing high quality tissue and the line has a sheet trim width of 2.8m, a maximum operating speed of 2,100m/min, and an annual production capacity of over 30,000 tons. It is equipped with Toscotec's upgraded shoe press design TT NextPress, a third-generation TT SYD Steel Yankee Dryer with patented deckle head insulation and TT Hood. SPG placed the order for the full-on turnkey supply of a new tissue line including an AHEAD 2.2L machine (PM5) and two OPTIMA 2600L slitter rewinders.

The project is slated to add 65,000 tons to the group's annual capacity in 2024.

Mohamed Abdelghaffar, SPG Group Operations Director, said: "We expect to quickly achieve excellent performances on PM2 both for tissue quality and production efficiency. "SPG's project team is already working with Toscotec on the engineering phase of PM5, our new, double-width AHEAD tissue line."

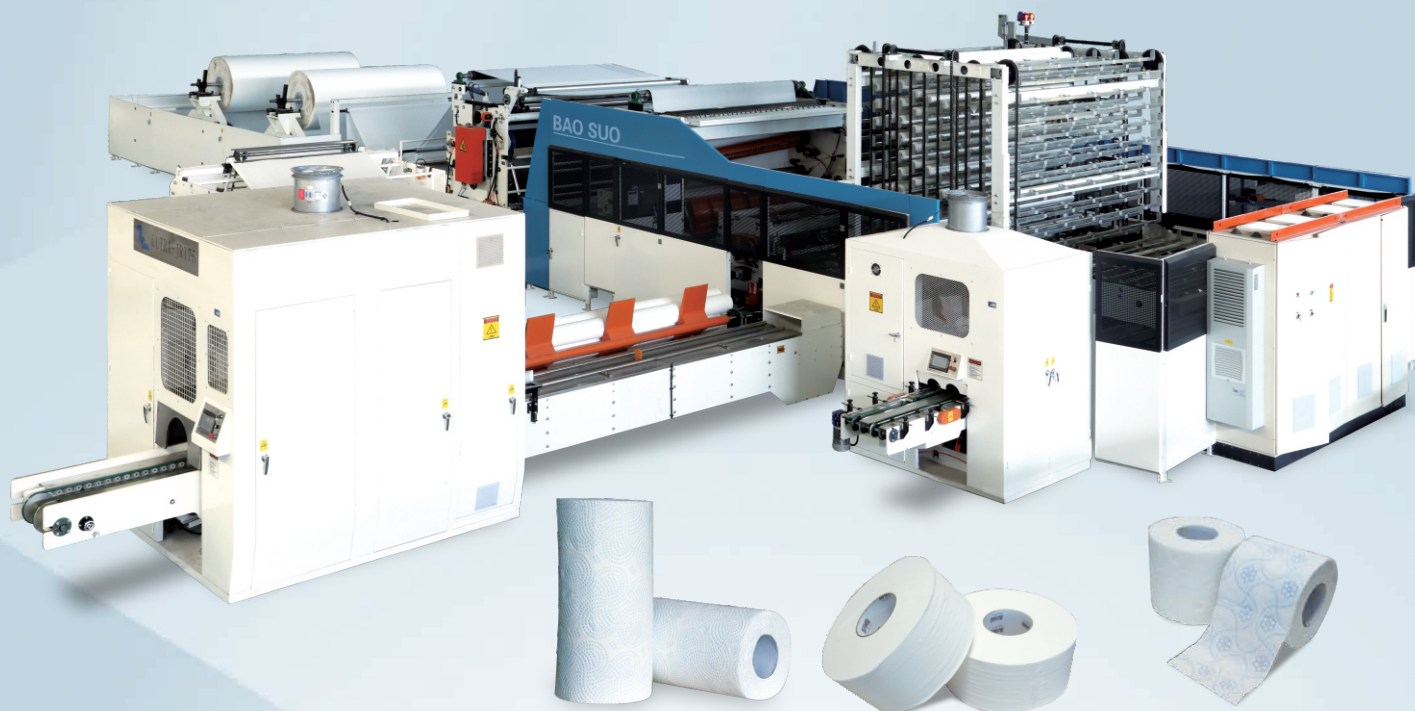


Above: Saudi Paper Group starts up its Toscotec-supplied AHEAD 2.2 tissue machine at its mill in Dammam





## YD-PL450SE Non-Stop Rewinding Line



**Toilet roll, Kitchen towel, Maxi roll  
ALL IN ONE LINE**

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# SOUTH KOREA'S TISSUE BUSINESS MAY RELINQUISH MORE PRODUCTION VOLUMES TO ITS LOWER COST NEIGHBOURS

In the export-driven powerhouse, the tissue sector is a rare exception — a net importer. But with unemployment and inflation impacting less than in most developed economies, there is little obstruction to consumption growth, and producers are concentrating on technical capability opposed to expansion.

South Korea is an export-driven industrial powerhouse with one of the most developed economies in Asia. Its pulp and paper market is expected to grow at a CAGR of 5.20% between 2023 and 2028. A major critical factor in this market growth is the growing consumer awareness regarding eco-friendly products and packaging. In 2020, around 11.63 million tons of paper were produced in South Korea.

As an export-driven economy, South Korea was most definitely affected by Covid-19 closures and the Ukraine war. Figure 1 shows the trend of GDP per person adjusted for purchasing power parity as the blue bars and population as the yellow line. The economy contracted slightly in 2020 (-0.71%) but resumed a 4.15% growth in 2021. The population trend shows a slight dip during the Covid-19 pandemic, possibly due to migrant workers returning home. At 51,966,948 population estimated in 2023, the growth rate is expected to slow to 0.23% in 2023. The aging population will

begin to look like other highly developed countries, with deaths exceeding births in 2023. Nevertheless, the observed population growth continues due to net positive migration. The slowing growth or static population is a drag on further tissue consumption growth, but the positive GDP growth will continue to support additional tissue consumption per person.

Inflation and unemployment are negative factors in consumer or commercial tissue consumption expansion. Figure 2 illustrates these trends with inflation represented as the blue line and unemployment as the yellow bars. Like many developed economies, South Korean inflation dropped until the Covid-19 pandemic, and then jumped back up with the global disruptions. However, unemployment and inflation appear to be less impacted compared to most developed economies, resulting in little obstruction for tissue consumption growth.

South Korea's economy is primarily based on exporting industrial goods.



**Bruce Janda**  
Senior Consultant, Fisher International

However, tissue imports tend to exceed exports by more than two to one. Figure 3 shows tissue import trends and critical suppliers – and as we can see, Indonesia has grown to be South Korea's largest tissue supplier. Indonesian tissue exports to South Korea reportedly spiked during the pandemic-induced mill closures. The 2022 tissue import rate continues at a rate that could stress the demand for domestically produced tissue.

South Korea's tissue export trend is shown in Figure 4. As illustrated, it appears that their export customer base is more diverse than their import suppliers (Indonesia). South Korea continues to be a net importer of tissue. The net import rate in 2022 suggests that it would take two more modern tissue machines in South Korea to balance trade.

With growing tissue imports, South Korea's producers tend to be conservative in adding new capacity. Figure 5 shows the trend in the number of tissue machines operating. The net result is slight production growth as new machines installed in the past 5-10 years are more productive than the tissue machines replaced. More slow capacity is expected from process debottlenecking on the existing machines.

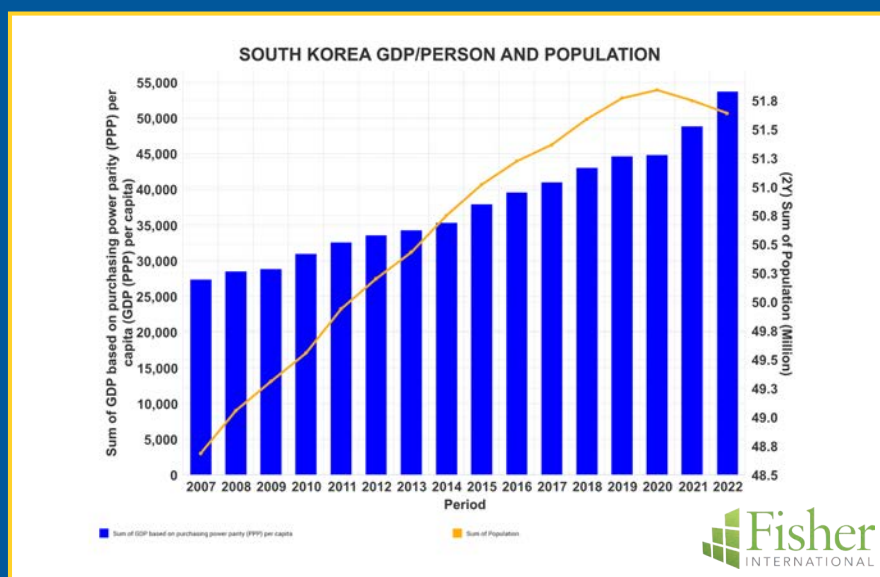


Figure 1: South Korea GDP/Person and Population Trend



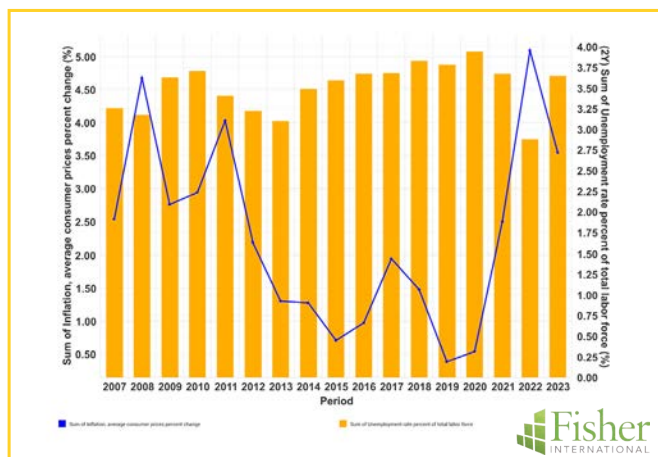


Figure 2: South Korea's Inflation and Unemployment

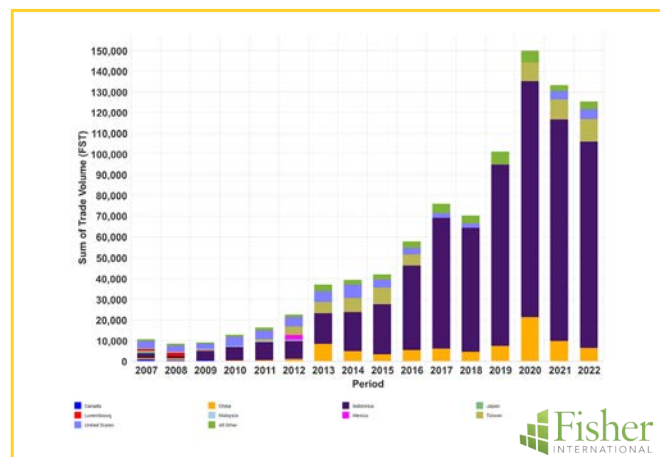


Figure 3: South Korea Tissue Imports

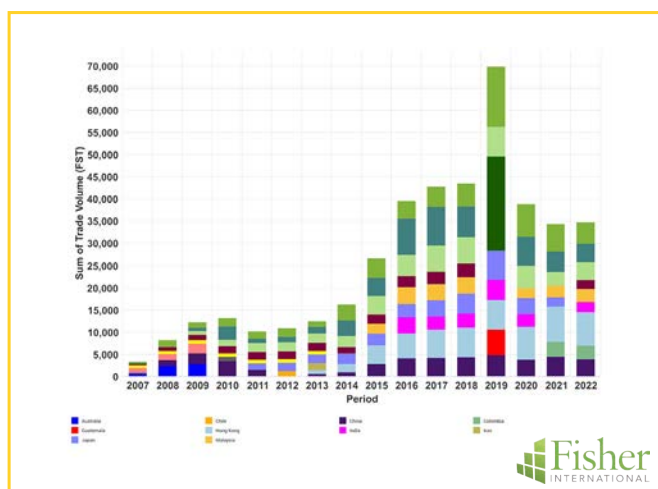


Figure 4: South Korea Tissue Exports

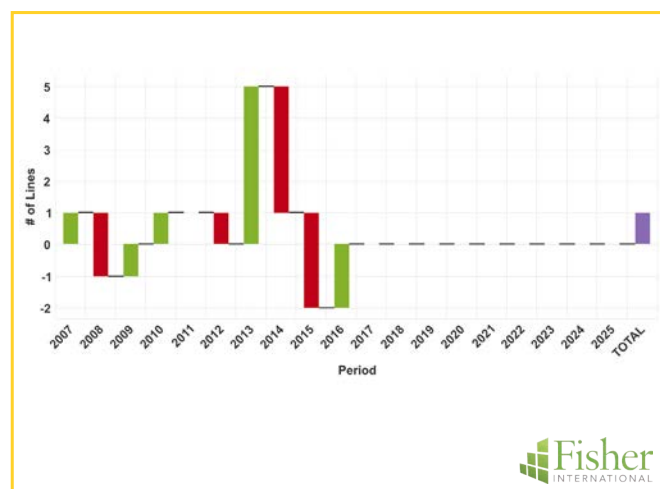


Figure 5: South Korea Tissue Machine Count Changes

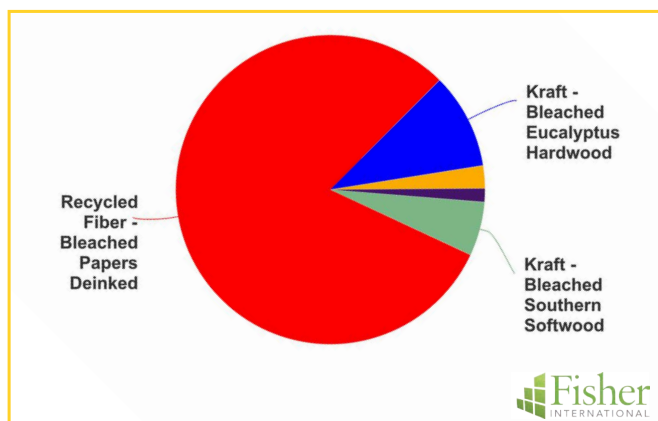


Figure 6: South Korea Tissue Fibre Sources

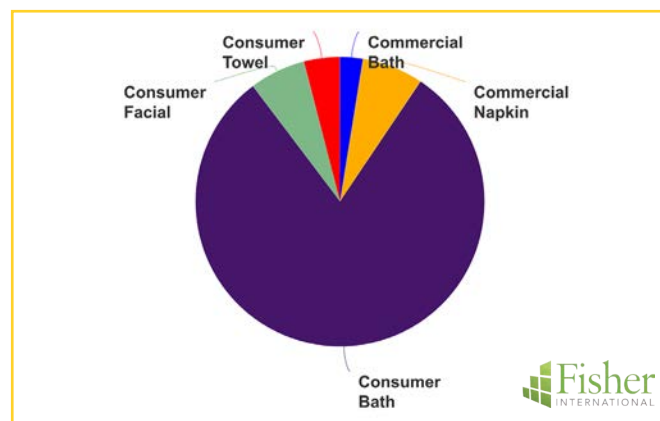


Figure 7: South Korea Finished Tissue Products

Recovered fibre from recycled waste is the primary source of tissue fibre for South Korea. Every tissue mill site is partially or fully integrated with on-site fibre recovery and deinking. This potentially reduces production costs and relative risk. Figure 6 shows that smaller amounts of eucalyptus and southern softwood pulp are imported.

Consumer bath tissue comprises most of South Korea's tissue production, as seen in Figure 7. Production of commercial napkins and bath tissue are almost equal to consumer facial and consumer towels.

**SOUTH KOREA'S ECONOMY IS PRIMARILY BASED ON EXPORTING INDUSTRIAL GOODS. HOWEVER, TISSUE IMPORTS TEND TO EXCEED EXPORTS BY MORE THAN TWO TO ONE. FIGURE 3 SHOWS TISSUE IMPORT TRENDS AND CRITICAL SUPPLIERS — AND AS WE CAN SEE, INDONESIA HAS GROWN TO BE SOUTH KOREA'S LARGEST TISSUE SUPPLIER. INDONESIAN TISSUE EXPORTS TO SOUTH KOREA REPORTEDLY SPIKED DURING THE PANDEMIC-INDUCED MILL CLOSURES. THE 2022 TISSUE IMPORT RATE CONTINUES AT A RATE THAT COULD STRESS THE DEMAND FOR DOMESTICALLY PRODUCED TISSUE.**

CHINA IS THE LARGEST PRODUCER USING THE NEWEST AND PRESUMABLY UP-TO-DATE TISSUE MACHINES. INDONESIA'S PRODUCTION IS MUCH SMALLER, BUT IT IS ALSO USING UP-TO-DATE MACHINES THAT ARE SOMEWHAT WIDER. SOUTH KOREAN TISSUE MACHINES ARE MIDDLE-AGED, LIKE AUSTRALIA OR MALAYSIA. JAPAN, CANADA, AND THE UNITED STATES HAVE THE OLDEST MACHINES. NOTE THE DIFFERENCE IN AVERAGE SIZE FOR TISSUE MACHINES IN THE UNITED STATES.

This suggests that away-from-home handwashing does not typically include drying hands with paper towels. Cloth roll towels and electric hand dryers must be the norm.

South Korea does have some advanced tissue process capability, but it represents a tiny fraction of the total tissue production. Figure 8 provides a sense of this proportion.

After checking the tissue import and export trends again in Figures 3 and 4, a tissue producer comparison set of nine countries was chosen. These include nearby China, Japan, Indonesia, Malaysia, and Taiwan, Republic of China. Australia and North America were also selected for the comparison set. Figure 9 plots each country's tissue production as the relative size of the bubble. The average tissue machine technical age is plotted on the X-axis and against the average trim size as an indicator of the health of each country's tissue machine fleet.

China is the largest producer using the newest and presumably up-to-date tissue machines. Indonesia's production is much smaller, but it is also using up-to-date machines that are somewhat wider. South Korean tissue machines are middle-aged, like Australia or Malaysia. Japan, Canada, and the United States have the oldest machines. Note the difference in average size for tissue machines in the United States.

The estimated average cash costs per ton for tissue production for each country in the South Korean comparison set is plotted in Figure 10. The width of each country's bar represents the total production by country. The relative height of each bar represents the average cash cost of tissue production. South Korea has the third-lowest costs after Indonesia and Malaysia. It is also comparable with China's overall cost – although the cost components are quite different. Korea's raw material fibre cost bar for recovered fibre reduces the need for expensive baled pulp seen in China's costs. China is very restrictive in the use of recovered fibre for tissue production. Labour costs in Australia, Canada, and the United States are much higher per ton. South Korean tissue production could potentially be threatened from low-cost producer Indonesia.

The FisherSolve viability analysis of the same set is shown in Figure 11. The bar width shows the relative production for each country, while the bar height shows the relative viability risk over the next five years. This viability risk rating takes average cash costs and adds other factors such as the future capital required and technological age. Again, South Korea shifts from medium cost to high viability risk along with Japan and Taiwan, Republic of China. Indonesia again has the preferred low-risk spot, followed by China and the United States.

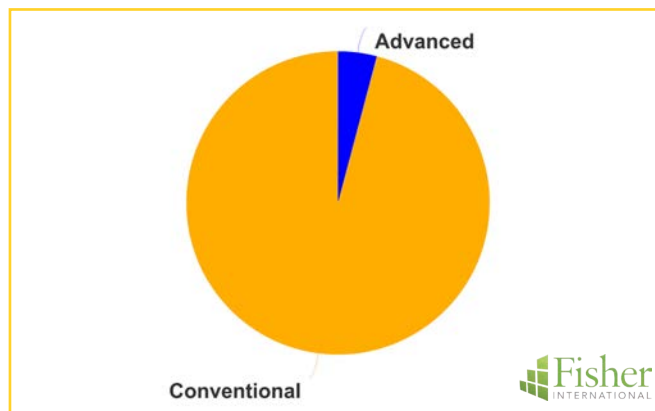


Figure 8: South Korea Advanced Tissue Process

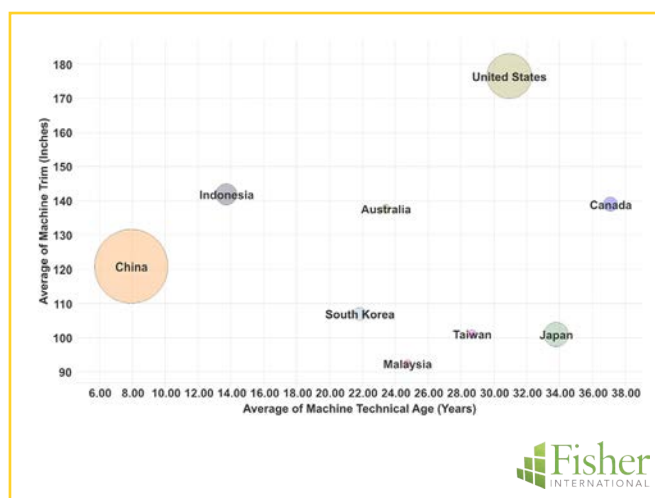


Figure 9: South Korea Tissue Machine Quality

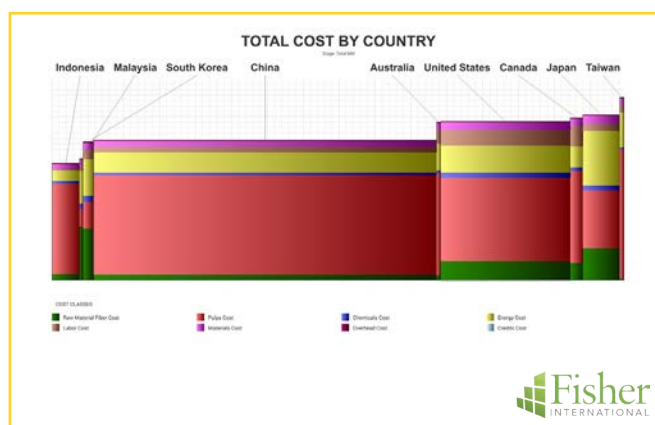


Figure 10: South Korea Tissue Production Cash Cost

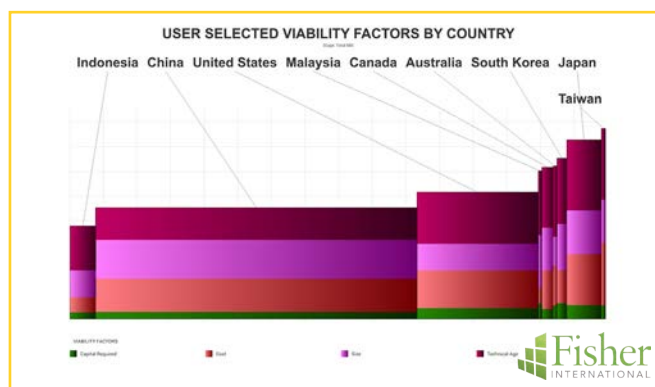


Figure 11: South Korea Tissue Machine Viability



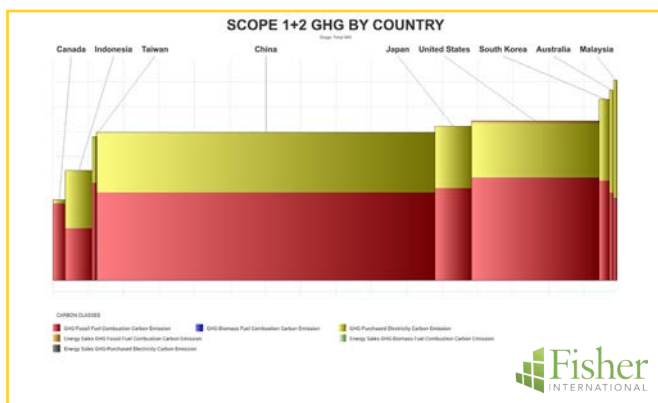


Figure 12: South Korea Tissue Machine Carbon Emissions

Figure 12 is the final chart showing each country's Scope 1 & 2 carbon dioxide emissions per ton. Again, the width of each bar represents the total production by country, and each bar's height is the average emission per ton of tissue produced. Scope 1 & 2 carbon emissions in tissue mainly come from the grid electricity and fuel burned onsite for power and steam. Canada leads here with very low-carbon electricity, primarily due to hydropower dams. Indonesia is also a lower carbon emitter per ton. China, Japan, and the United States are all very similar as they sit in the middle of the pack. South Korea, Australia, and Malaysia have relatively high carbon emissions per ton.

South Korea's tissue business is not an export dynamo like its other industrial sectors. South Korea is a net tissue importer with growing volumes from low-cost Indonesia. The population is expected to become greyer and grow slowly – if at all. After a building spree five to ten years ago, tissue producers now appear to concentrate on maintaining technical capability opposed to expansion. South Korea's integrated and lower cost recovered fibre provides some competitive advantage.

This analysis comes as the world is experiencing high inflation and disruption of energy supplies following the pandemic and the Ukraine war. The viability and carbon analysis provides a way to look beyond immediate costs for competitive advantages. The viability risk of South Korea's tissue production is relatively high, along with its carbon emissions too.

This analysis is based on averages of cost and production, but it assumes that every ton of tissue is fungible and equally valued

## Korea: a country sharing the early origins of making paper

With records of the Choson Kingdom going back as far as circa 2300 BC. – it's remarkable just how long Korean civilisation has been around.

Papermaking in Korea started not long after it originated in China under the Han Dynasty in AD 105. The origin of Korean paper – or hanji – is believed to fall somewhere between 109BC and 313AD during the Lelang period.

Hanji is made from the inner bark of the colloquially named paper mulberry, a tree native to Korea. The formation aid crucial to making hanji is the mucilage that oozes from the roots of Hibiscus manihot, which helps suspend the individual fibres in water.

Traditional hanji is made in laminated sheets using the web bal method (a sheet formation technique), which allows for multi-directional grain. The process of creating hanji also employs dochim, a method of pounding finished sheets to compact fibres and lessen ink bleed.

Korea was in either a rivalry or alliance with China for most of its history until Japan and Russia began to compete for influence in the mid-19th century. Korea was liberated in 1945 and then divided into North and South Korea after the war in 1950-1953, with the stark differences in economic development between the North and South as we know today.

by customers. We know that this is not reality, as tissue quality or performance expectations vary widely between the countries in the comparison set selected. For example, consumers' expectations in Australia, Canada, Japan, South Korea, and the United States are somewhat higher than in China and Indonesia, so comparing costs or production rates of substitution products can be disingenuous.

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

**0.23%**

RATE THE POPULATION GROWTH IS EXPECTED TO SLOW IN 2023

**5.2%**

PULP AND PAPER MARKET'S EXPECTED CAGR BETWEEN 2023-2028

**-0.71%**

ECONOMIC CONTRACTION IN 2020

**11.63m**

TONS OF PAPER PRODUCED IN 2020

**4.15%**

ECONOMIC GROWTH IN 2021

# BULK BUYING UP BY AS MUCH AS 50% COUNTERS INFLATION LED PRESSURES

South Korean retail tissue registered resilient volume year-on-year rise of 4% in 2022. Longer term growth likely through product launches targeting unmet per capita consumption. Report by Chloe Bang, Research Analyst, Euromonitor International



**Chloe Bang**  
Research Analyst,  
Euromonitor International

**H**igh inflation rates as manifested in various increased costs encompassing logistics, labour, oil, and energy, as well as the weakened Korean Won currency to its lowest over 13 years against the US dollar in the latter half of 2022, have led to price increases around tissue products by major tissue companies at least once in 2022 by as little as 7%. This is supporting a healthy 5.2% nominal value growth (including inflation effect) in South Korea's retail tissue in 2022.

Despite the inflation pressure, retail tissue's volume consumption remained

**IN THE LONGER TERM, RETAIL TISSUE DEMAND IS EXPECTED TO NORMALISE TO NEAR-PANDEMIC PATTERNS DESPITE MID-TERM LINGERING INFLATION PRESSURE, CONTINUING TO GROW WITH A NOMINAL AND FIXED RATE CAGR OF 3.46%, AS CONSUMERS AND BUSINESSES INCREASINGLY RECOGNISE THE IMPORTANCE OF HEALTH AND HYGIENE.**

resilient due in large to shoppers' bulk purchases in 2022 in fear of further escalation of inflation and future pricing uncertainty. As such, retail tissue registered a resilient volume year-on-year growth of 4% in 2022. Bulk-sized tissue products in particular have increased in sales lately, benefitting from consumers seeking value and their often-associated discounts and promotions. Indeed, sales of bulk-packaged toilet paper products under Yuhan Kimberly Co.'s Kleenex brand grew about 50% in 2022 compared to the same period last year, according to an Asia Economy Daily article published in October 2022.

In the longer term, retail tissue demand is expected to normalise to near-pandemic patterns despite mid-term lingering inflation pressure, continuing to grow with a nominal and fixed rate CAGR of 3.46%, as consumers and businesses increasingly

recognise the importance of health and hygiene.

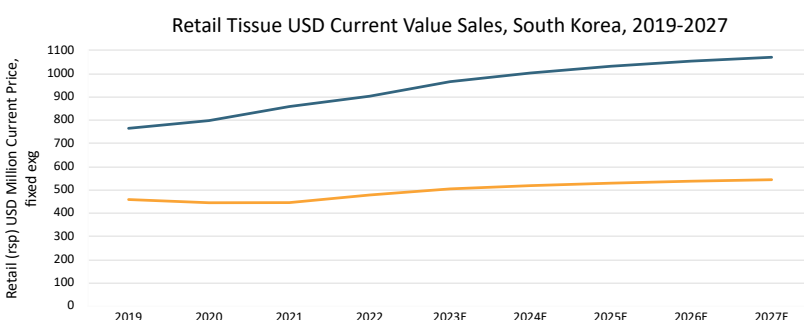
Ample unmet per capita consumption is also expected to lend retail tissue favour in South Korea. South Koreans use on average around 5.04kg of retail tissue volume per person a year, which is significantly less than some other countries in Asia with similar lifestyle and GDP per capita such as Japan and Taiwan, China, suggesting further momentum to grow according to Euromonitor International.

Meanwhile, businesses-led product launches catering to various consumer needs and lifestyles is also expected to support retail tissue category's long-term growth. For example, Mirae Well Life Co.'s slim fit version of its "Well Thriving Home" toilet paper comes in a small volume and slim packaging, including 15 rolls at a reasonable price to target the increased single and two-person households in South Korea. CU, one of the main convenience stores in South Korea, launched its private label toilet tissues named 'Lucky Bargain' in June 2022, extending its private label line beyond food to daily necessities and featuring tissue products at a better price than many branded peers by minimising the marketing and promotion costs.

## E-commerce's strength contributes to category growth

E-commerce has been a key contributor to retail tissue's - particularly toilet paper's - growth in South Korea due to its convenience and cost advantage. In 2022, the e-commerce channel accounted for

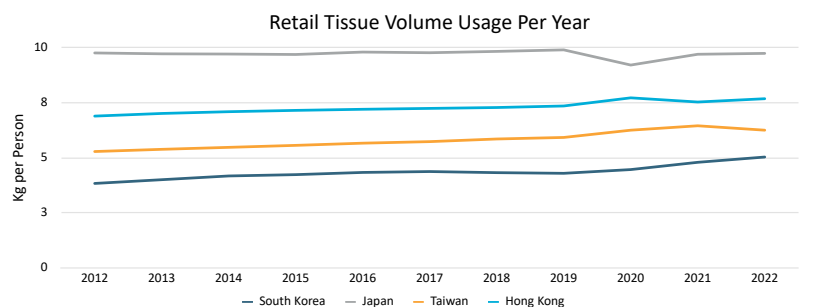
South Korea Retail tissue value sales



Data source: Euromonitor International's Passport tissue and hygiene research data, updated February 2023

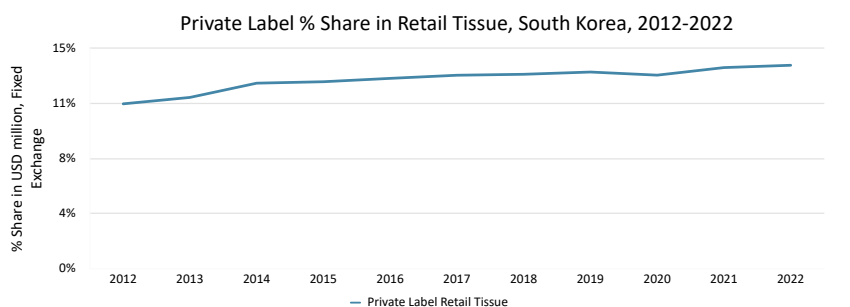


## Retail Tissue Volume Usage Per Year



Data source: Euromonitor International's Passport tissue and hygiene research data, updated February 2023

## Private Label in Retail Tissue



Data source: Euromonitor International's Passport tissue and hygiene research data, updated February 2023

**WITH HIGH INFLATION RATES AND THE PRESSURE OF INCREASING LIVING COSTS, CONSUMERS HAVE STARTED TO LOOK FOR MORE AFFORDABLE OPTIONS WHEN IT COMES TO DAILY NECESSITIES. PRIVATE LABEL RETAIL TISSUE PRODUCTS HAVE BEEN GAINING TRACTION OVER THE LAST FEW YEARS,**

23% of total retail tissue sales in South Korea, with toilet paper and paper towels combined online sales representing 25% of the overall sales.

Besides convenience and cost benefits, South Korea's tissue gifting culture has been another notable driver of e-commerce's growth momentum in the country. For example, when people move from one place to another, toilet paper often embodies the wish that their lives would "roll out" well at the new place as easily as the toilet paper unravels from the roll. KakaoTalk, the biggest messenger application in South Korea, has a shopping function featuring a dedicated category for housewarming gifts, with tissues making up the bulk of listed gifts.

### Private label to further gain market foothold with targeted product launch and pricing strategy

With high inflation rates and the pressure of increasing living costs, consumers have started to look for more affordable options when it comes to daily necessities. Private label retail tissue products have been gaining traction over the last few years for their reliable quality and cheaper price than brands. It is expected that private label players will take more proactive measures to expand their shares in retail tissue.

Retail giants such as E-Mart, Homeplus, and Coupang, are widening their private label lines from food to daily necessities such as tissue products. Their shares in retail tissue have been gradually increasing

since their launch. Convenience stores have also started to launch their own private label lines in retail tissue, targeting single- and two-person households, which have been increasing in number in South Korea.

GS25, one of the main convenience stores in South Korea, launched its private label line Real Price that includes paper towels, boxed facial tissues and toilet paper. It collaborates with small manufacturers to reduce the unit price and sell products at a cheaper rate. It also plans to expand its private label lines and collaborate with its supermarkets channel, GS The Fresh, to expand its channels. Private label will be one of the players that challenges brands, consolidating its positive performance in the category.

### Eco-friendly products to become a main driver of long-term growth

Sustainability is not a priority for South Korean consumers when purchasing tissues like many other products, but its importance is gaining recognition especially among the younger generation who are more eco-conscious and value environmentally-friendly purchases.

As such, manufacturers and brands are making consistent efforts to produce more sustainable production, packaging, and marketing. Yuhan Kimberly Co Ltd, a leading player with more than 30% of the retail tissue market share, announced that it will achieve 95% of its sales from sustainable products by 2030 through different measure like using sustainable raw materials like FSC-certified natural pulp, reduction of toilet paper pipes and packaging usage as well as applying alternative plastic packaging for vinyl products.

Ingredient sourcing remains a key sustainability angle. For instance, Kleannara Co launched a "kitchen clean tissue," an upcycled product that uses lemon peels from Jeju Island farms as raw materials and the cap made with 50% of recycled plastic. Paper and pulp product company Samjung Pulp Co. recently launched its "Eco Foret" toilet paper product that is FSC-certified and uses cardboard as its main material without cutting down trees. It plans to recycle 950 tons of cardboard each year as a raw material for tissues.

With research and development actively carried out by both large and small players, more tissue products made from recycled materials are likely to be seen in the forecast period.





**The MSS Group's Jochiwon plant:** the company installed Infinity's Eclipse T4 multipack poly wrapper at the site in 2022



An aerial photograph of a large industrial facility, likely a paper mill or chemical plant. The facility features several large, circular tanks with mechanical scrapers inside, surrounded by a network of pipes and walkways. Large industrial buildings with blue and grey roofs are visible, along with a tall smokestack emitting a plume of white steam. The facility is bordered by a dense line of green trees on the right side.

# DEMOGRAPHIC TRENDS DRIVE MAJOR CHANGES IN TISSUE SHOPPING PATTERNS

Single-person households, a drop in marriages, the online warehouse and next-day-delivery malls are driving a new era of small-volume production. TWM interviews Monalisa Chief Executive and MSS Group Chief Financial Officer Joo Kwang-Ok and Ssangyong C&B Chief Executive and MSS Group Chief Marketing Officer Jeong Chang-Seok.





**(Left-right):** Monalisa Chief Executive and MSS Group Chief Financial Officer Joo Kwang-Ok, and Ssang young C&B Chief Executive and MSS Group CMO Jeong Chang-Seok



**MSS Group's Nonsan plant:**  
the Monalisa production site covers 64,629m<sup>2</sup>



The MSS Group in South Korea has three manufacturing plants producing its Ssangyong C&B and Monalisa brands: a 312,318m<sup>2</sup> plant in Jochiwon, a 33,243m<sup>2</sup> plant in Jeonju and a 64,629m<sup>2</sup> plant in Nonsan.

Most recently Ssangyong adapted to changing trends in tissue packaging by investing in an Infinity Machine & Engineering Corp.-supplied packaging line for its Jochiwon plant. Installed at the end of July 2022, the line features Infinity's Eclipse T4 multipack poly wrapper, conveyor with multiple product manipulation devices and an EPXL poly bundler, which allows for wide format packs - essential for the Ssangyong brand.

#### TWM/1: Could you detail the MSS Group's position in the Korean market and any recent investments you have made?

"Through Ssangyong C&B (representative brand: CODI) and Monalisa (representative brand: Monalisa), over the past 45 years the MSS Group has introduced high-quality, environmentally conscious products which are consistently loved by consumers. The MSS

Group's products can be sourced through various online and offline channels, including large supermarket chains, neighborhood convenience stores, and major e-commerce platforms. "In addition, the MSS Group captures a solid share in the Korean tissue market, and as a household brand, it is characterized by responding quickly to consumer needs and designing a competitive product range. Recently, it has invested in developing eco-friendly products and introducing sustainable packaging materials. "The MSS Group also actively invests in production facilities. It has three production sites for the manufacturing/processing of tissue fabric and the production of health masks, wet tissues and pull-up diapers."

#### TWM/2: How have the events of the past few years changed your growth strategy?

"Over the past three years, we have experienced multiple challenges such as economic recession and COVID-19 related

**"WE HAVE MADE A BOLD INVESTMENT AND COMPLETED THE INSTALLATION OF TWO TISSUE PROCESSING/PACKAGING FACILITIES, HEALTH MASK PRODUCTION FACILITIES, AND WET TISSUE PRODUCTION FACILITIES. AS A RESULT, THE MSS GROUP PROVIDES HIGH QUALITY, RELIABLE PRODUCTS THAT ALL FAMILY MEMBERS USE EVERY DAY. WE HAVE LAID THE GROUNDWORK FOR COMPREHENSIVELY PROVIDING SANITARY PRODUCTS."**

cost increases. Despite this, we are maintaining continuous growth, actively responding to the market and conserving quality management in line with our reputation as a 'life hygiene professional group'. We have developed a strategy to stay one step ahead of the competition. "In particular, we have made a bold investment and completed the installation of two tissue processing/packaging facilities, health mask production facilities, and wet tissue production facilities. As a result, the MSS Group provides high quality, reliable products that all family members use every day. We have laid the groundwork for comprehensively providing sanitary products."

#### TWM/3: What are your plans for future sustainable growth?

"The MSS Group plans to fulfil its responsibilities as a social enterprise by continuously practicing ESG management, incorporating eco-friendly elements into new and existing products, and developing sustainable items that appeal to environmentally conscious consumers."

#### TWM/4: What is the MSS Group's position and growth trends in specific markets?

"In the Korean market, changes in consumption patterns are accelerating due to changes in household types, such as an increase in single-person households



**MSS Group's Monalisa brand:** products can be found through online and offline channels, including large marts, neighbourhood convenience stores, and Korea's representative e-commerce platforms

and lower marriage rates. As a result, sales of small-volume products, online consumption, and dependence on next-day delivery malls are all increasing. In addition, the live commerce market is outgrowing e-commerce, and changes in the online market are continuing, such as an increase in malls that expand delivery competitiveness and paid membership benefits.

"Accordingly, the MSS Group is leading the market by establishing an operation system that can grow sustainably in line with the rapidly changing online market. As part of that effort, it has acquired the capability to produce small-volume products through investment in tissue facilities, completed the expansion of an online warehouse, and has a direct-to-consumer delivery system to rapidly respond to changes in consumption trends and distribution environments."

#### TWM/5: What business changes due to sustainability management have you made?

"The MSS Group has established the ESG Committee to manage and efficiently carry

out ESG management activities in each of its sectors at the enterprise level, also to promote advancement and substantiality of ESG management activities.

"We are establishing and practicing mid- to long-term plans for environmental management such as air/water, quality control, and waste. Typical examples include application of eco-friendly packaging boxes certified by FSC to all products, and the production of recycled wastepaper and sterilization packs.

"In addition, by strengthening the function of the existing audit committee, we are focusing more on internal management and continuing our donations to the community. The details of MSS Group's sustainability management will be disclosed in more detail through the Sustainability Report scheduled to be published in June 2023."

#### TWM/6: What are the key challenges and opportunities for you in 2023?

"In 2023, high inflation, high exchange rates, and high interest rates are causing a vicious cycle of slowing consumption,

which leads to lower sales and higher costs. To combat this, the MSS Group is making efforts to overcome these difficulties together through strengthened partnerships with companies that transact with the MSS Group, such as distributors and partners. Furthermore, the MSS Group plans to put more effort into sustainable management and continue to invest in innovation for the future."



**Packaging boost:** an Infinity Machine & Engineering Corp.-supplied packaging line has increased the company's capabilities



# GPAM: IS IT THE NEXT GENERATION ALTERNATIVE FOR WET STRENGTH TOWEL GRADES?

Downsides of PAE resins include process inefficiencies, difficulties with wet strength broke repulpability, and increased regulatory scrutiny due to harmful chloro-organic byproducts. The market has been on the lookout for an effective and cleaner alternative. Here, in a study of the American market, Kemira Chemicals' Lucyna Pawlowska, Principal Specialist, Paper & Tissue Excellence, Harold Goldsberry, Senior Manager, and Principal Scientists Junhua Chen and Chen Lu discuss the possibility of GPAM – glyoxalated polyacrylamide – as a replacement. A TWM report.



**Lucyna Pawlowska**  
Principal Specialist, Paper & Tissue  
Excellence, Kemira Chemicals

WE HAVE DEVELOPED A NEW GPAM-BASED PROGRAMME PROVIDING WET STRENGTH PERMANENCY, WHICH IS CLOSE TO THAT ACHIEVED WITH PAE RESINS AND WITH ADDITIONAL BENEFITS SUCH AS DRY STRENGTH, IMPROVED REPULPABILITY AND NO CHLORO-ORGANIC IMPURITIES. IN THIS ARTICLE, WE WILL USE LABORATORY DATA AND INDUSTRIAL CASE STUDIES TO DEMONSTRATE THE POTENTIAL OF PARTIAL OR COMPLETE REPLACEMENT OF PAE RESIN AND ADVANTAGES OF THIS ALTERNATIVE PROGRAMME FOR GENERATING PERMANENT WET STRENGTH.

**P**olyamidoamine epichlorohydrin (PAE) resins have been the predominant chemistry used for generating wet strength in towel grades for the last 50 years. PAE resins are highly efficient in generating wet strength in towel with low wet strength decay when the towel is exposed to water. However, there are several downsides coming from PAE resins. These include process inefficiencies due to excessive foam or felt-filling, difficulties with wet strength broke repulpability, as well as increased regulatory scrutiny due to harmful chloro-organic byproducts present in PAE resins. Therefore, the tissue market has been looking for effective and cleaner alternatives. One such alternative is glyoxalated polyacrylamide (GPAM).

GPAM resins are known to generate temporary wet strength, providing high initial wet tensile strength that decays relatively fast in water. The rate of decay can be controlled by the GPAM design, yet so far no GPAM product has been available in the market that can match the wet strength permanency of PAE resins required for towel grades. We have developed a new GPAM-based programme

providing wet strength permanency, which is close to that achieved with PAE resins and with additional benefits such as dry strength, improved repulpability and no chloro-organic impurities.

In this article, we will use laboratory data and industrial case studies to demonstrate the potential of partial or complete replacement of PAE resin and advantages of this alternative programme for generating permanent wet strength.

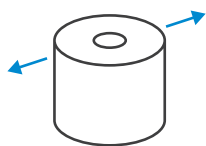
Permanent wet strength resins based on polyamidoamine epichlorohydrin resin (PAE) are predominantly used to develop wet strength in towel grades. PAE resin provides very high level of wet strength permanency as the towel is exposed to water. After soaking the towel in water for 30 min, the strength of the towel is only reduced by 10%-15%. A high level of wet strength permanency is highly desirable in towel grades used at home (AH), as users sometimes reuse the same towel sheet multiple times after wetting or use it over a relatively long duration. AfH towel grades do not require as high a wet strength permanency because these towel products are only used for a few seconds before they are discarded.

The use of PAE resins is quite efficient due to high solids of the resin (20% - 30 %) and high wet strength permanency, but there are also negative effects associated with the application of this resin. The PAE resin is highly cationic, and if not retained in the sheet, it can cause excessive foaming at the wet-end, leading to a higher use of defoamers and machine runnability problems. The unretained PAE resin will deposit in the felt, causing felt filling and reduced sheet dewatering. Broke treated with PAE resin is difficult to repulp when using only water, so towel producers must use sodium hypochlorite or persulfate salts of ammonia, sodium or potassium under high alkaline condition and very high temperature.

There are regulatory concerns associated with the application of PAE wet strength resins. These resins contain harmful chloro-organic impurities that are included in the California Proposition 65 Listed Substances. Chloro-organic impurities are derivatives of epichlorohydrin, and they are generated during the synthesis of PAE resins. The level of chloro-organic impurities in the first PAE generation resins is approximately



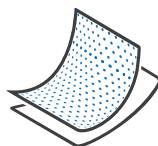
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10,000 ppm, depending on the solids of the particular PAE product. The first generation PAE is the most used resin in North America. Generation 2 PAE wet strength resin has the level of chloro-organic impurities reduced to below 1,000 ppm. However, the second-generation resins have lower active solids and are slightly less efficient than the first-generation resins.

### GPAM resins as an alternative for wet strength development

The conventional GPAM resins also generate wet strength in towel, but they do not provide the level of permanency as achieved with PAE resins due to the nature of the chemical bond that imparts wet strength. After soaking the towel treated only with GPAM resins in water for 30 min, the wet strength reduction (decay) typically ranges from 45% - 65%, but can be as high as 80%. Conventional GPAM resins can partially replace PAE resins in typical towel grades or completely replace PAE resin in towel grades that are designed to be highly dispersible in water [Figure 1].

The application of GPAM resins provides additional benefits that improve efficiency of the towel production process. These resins generate dry strength in the sheet by increasing the hydrogen bonding between cellulose fibres. The strength generated by GPAM can be used to increase the dry tensile targets, reduce towel basis weight, reduce the content of softwood fibre or to reduce the fibre refining [Figure 2]. The reduction of fibre refining will lead to faster drainage, higher fibre retention, higher sheet bulk and absorbency rate, and it will

THE APPLICATION OF GPAM RESINS PROVIDES ADDITIONAL BENEFITS THAT IMPROVE EFFICIENCY OF THE TOWEL PRODUCTION PROCESS. THESE RESINS GENERATE DRY STRENGTH IN THE SHEET BY INCREASING THE HYDROGEN BONDING BETWEEN CELLULOSE FIBRES. THE STRENGTH GENERATED BY GPAM CAN BE USED TO INCREASE THE DRY TENSILE TARGETS, REDUCE TOWEL BASIS WEIGHT, REDUCE THE CONTENT OF SOFTWOOD FIBRE OR TO REDUCE THE FIBRE REFINING [FIGURE 2]. THE REDUCTION OF FIBRE REFINING WILL LEAD TO FASTER DRAINAGE, HIGHER FIBRE RETENTION, HIGHER SHEET BULK AND ABSORBENCY RATE, AND IT WILL MINIMISE THE DUST FORMATION DURING THE CREPING PROCESS [FIGURE 3].

minimise the dust formation during the creping process [Figure 3].

Bonds formed by GPAM resins are easily hydrolyzed by water. Therefore, these resins will not plug the felts to such high degree as PAE resins, and the broke treated with GPAM can be easily repulped without using additional repulping agents or excessively high temperatures.

There are less regulatory concerns associated with GPAM resins than with PAE resins. These resins do not contain harmful chloro-organic impurities. The content of acrylamide residual, substance listed on California Proposition 65, is at the very low level (0-40 ppm).

### GPAM-based programme that provides high wet strength permanency

Kemira has developed a unique GPAM and anionic Functional Promoter (FP) application that allows for complete or

partial PAE resin replacement in the towel production. The new GPAM and Functional Promoter system is unique because it provides a similar level of wet strength permanency as PAE resin. The Functional Promoter can interact with fibre and GPAM resin to build a larger network and improve ability of GPAM resin to provide higher wet strength permanency.

Laboratory studies showed that new GPAM is less affected by alkaline pH than conventional GPAM resin. In one study this resin provided 16% higher permanent wet strength and 11% higher dry strength than the conventional GPAM resin at alkaline pH. In this study the programme based on new GPAM and Functional Promoter provides wet tensile decay in the range from 14 - 21%, while the programme based on conventional GPAM resin and Functional Promoter application resulted in wet tensile decay in the range from 23% to 30%.

## CASE STUDY 1: PARTIAL REPLACEMENT OF PAE WITH CONVENTIONAL HIGH SOLIDS, HIGH CHARGED GPAM RESIN

A producer of AfH towel made with 100% OCC furnish and 6 lb/ton of PAE resins expressed the interest in improving the production efficiency. This producer doesn't have a separate pulping system for the wet strength broke, therefore no chemical treatment can be applied to PAE treated broke. As the result, the final towel product contained a lot of fibre dense spots (tags).

A trial was run to replace part of the PAE resin with a high solids, high charged, long shelf life GPAM resin. GPAM resin was introduced at the dose ranging from 2lb/ton to 5lb/ton, as the PAE dose was reduced from 6lb/ton to 3lb/ton. With the partial replacement of PAE resin, the number of tags in the final sheet was significantly reduced, indicating easier repulpability of broke.

After the initial evaluation of a broad range of GPAM doses, the trial was run for an extended period at the GPAM dose of 2 lb/ton.

At these conditions the following benefits were obtained:

- PAE resin dose was reduced by 2lb/ton.
- Defoamer dose was reduced by 30%.
- Fibre refining was reduced by 37%.
- Production was increased by 3%.
- Wet and dry strength was maintained.
- Machine ran significantly cleaner (less deposits on the transfer rolls, less frequent felt cleaning, lower Uhle Box vacuums).
- The broke was easier repulped, which resulted in a smaller number of fibre dense spots (tags) in the towel.

This GPAM/PAE combined wet strength programme delivered documented benefits greater than the additional wet strength resin costs. A positive return on the mill's chemical investment was clearly demonstrated with this alternative programme.

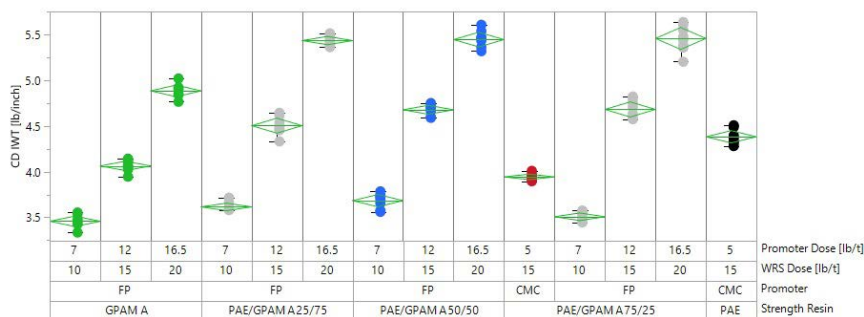
## CASE STUDY 2: EVALUATION OF NEW GPAM RESIN AND PARTIAL REPLACEMENT OF PAE

Performed in the laboratory, it describes the application of the wet strength programmes based on:

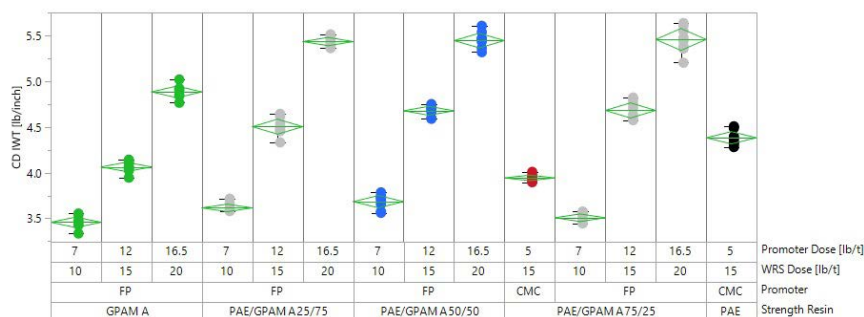
- New, unique GPAM Resin (GPAM A) applied with Functional Promoter (FP)
- PAE wet strength resin applied with carboxyl methyl cellulose (CMC)
- PAE and GPAM A applied together at a ratio of 25/75, 50/50 and 75/25. These resins were applied with FP or with CMC.

The wet strength agents described above were applied during the handsheets making process. The 80 g/m<sup>2</sup> handsheets were made using the Dynamic Sheet Former. The fibre composition used in this study was a 50/50 blend of eucalyptus and bleached Kraft softwood fibre. The handsheets were made at pH of 7.5. The following tests were performed on the handsheets: immediate wet tensile, dry tensile and permanent wet tensile (wet tensile after soaking the sheets in water for 30 min). The results are presented in the charts below (Figures 1, 2, 3 and 4).

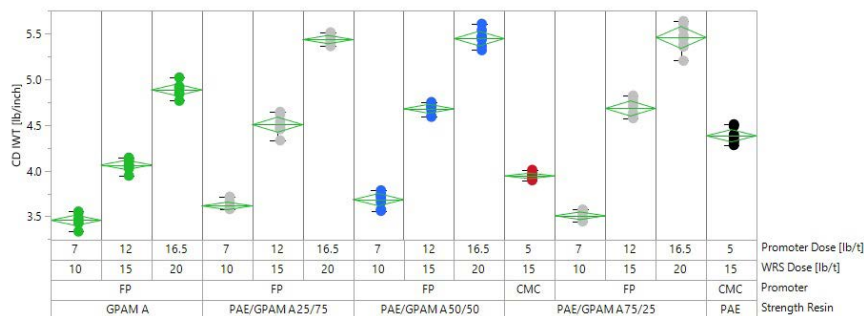
The second case study demonstrated possibility of total or partial replacement of PAE resin with the new GPAM A resin. The programmes that included GPAM A, PAE resin and FP provided higher immediate and permanent wet tensile than GPAM A/FP or PAE/CMC programmes, indicating synergistic effect of PAE and GPAM resins. The higher content of PAE in the PAE/GPAM A programmes (50% and 75%) allowed to reduce the wet tensile decay to below 10%. GPAM A resin applied only with the FP provided similar permanent wet tensile than PAE resin applied with CMC but at a higher total chemical dose. The higher GPAM A/FP programme dose could translate to a higher programme cost, however the advantages of GPAM A application due to its ability to develop a high dry tensile and improve the towel making process and machine productivity can cover the additional cost. GPAM A resin had major effect on the sheet dry strength. The dry tensile was increased as the content of GPAM A resin in the PAE/GPAM A programme was raised.



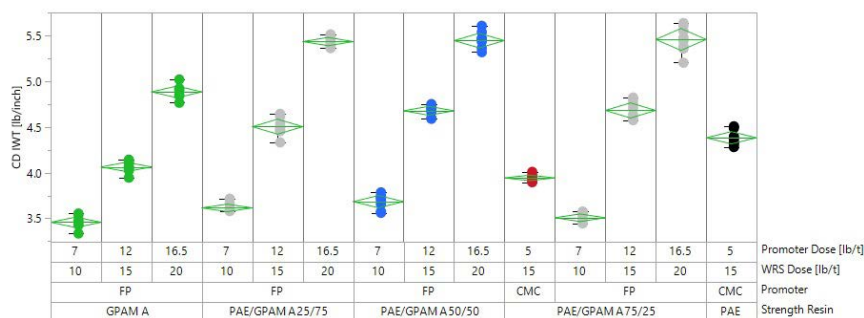
**Figure 1:** Cross machine direction immediate wet tensile (CD IWT). At the same total WSR dose all programmes based on GPAM A and PAE applied with the FP achieved higher IWT than PAE/CMC or GPAM A/FP programmes. The programme based on 20lb/ton of GPAM A and 16.5lb/ton of FP provided 9% higher immediate wet strength than programme based on 15lb/ton of PAE and 5lb/ton of CMC.



**Figure 2:** Cross machine direction permanent wet tensile (CD PWT). The test was performed after soaking the sheets for 30 min in water. The PAE/GPAM A programmes comprising 25%, 50%, and 75% of PAE applied with FP provided the highest permanent wet tensile. The programme based on 20lb/ton of GPAM A and 16.5lb/ton of FP provided the same permanent wet strength than programme based on 15lb/ton of PAE and 5lb/ton of CMC.



**Figure 3:** Wet tensile decay after soaking sheets for 30 min in water. As the content of PAE in the PAE/GPAM A programme was increased, the wet tensile decay was decreased. The 50/50 and 75/25 PAE/GPAM A programmes applied with FP provided wet tensile decay below 10%. The application of GPAM A and FP resulted in wet tensile decay in the range from 12% to 17.5%.



**Figure 4:** Cross machine direction dry tensile (CD DT). The highest dry tensile was obtained with the GPAM A/FP programme. Dry tensile values were increased as the content of GPAM A resin in the PAE/GPAM A programme was raised.



# CASE STUDY 3: REPULPABILITY OF BROKE TREATED WITH NEW GPAM RESIN

Repulpability of handsheet made with 9lb/ton of new GPAM resin and 3lb/ton of FP was compared to the repulpability of handsheets made with 9lb/ton of PAE resin and 3lb/ton of FP. Both sets of handsheets were made using a 70/30 bleached HWK/SWK fibre blend. To optimise the efficiency of both wet strength programmes, the handsheets with new GPAM resin were made with the furnish of pH 5.5, while handsheets with PAE resin were made with the furnish of pH 7.0. Both sets of handsheets were separately repulped at 2%

consistency for 60 min using an overhead stirrer at ambient room temperature without pH adjustment. Repulped handsheets were screened through a 12- mesh sieve (1.68 mm openings). The larger than 1.68mm pieces of paper stayed on the screen. As it is shown on the picture below, only several small pieces of paper made with new GPAM are left on the screen (Figure 5), which indicates very good repulpability. Paper made with PAE resin repulped very poorly, leaving a lot of large pieces of paper on the screen (Figure 6).



**Figure 5:** Picture of the sieve after screening the repulped handsheets made with new GPAM resin.



**Figure 6:** Picture of the sieve after screening the repulped handsheets made with PAE resin.

## CONCLUSIONS

The newly developed GPAM resin applied together with the unique FP can completely or partially replace PAE resin during the production of towel grades. The wet strength program that is based on the new GPAM resin and the FP develops permanent wet tensile, which is equivalent to wet tensile developed with PAE resin. This new programme works well under acidic ..... or eliminate fibre refining that further leads to increased drainage and fibre retention, faster sheet drying, increased machine speed and the reduction of dust formation during the creping process. High dry strength developed with the new technology enables the development of new towel grades, helps reduce towel basis weight or substitute a stronger, more expensive fibre for a weaker fibre. The application of this new technology will further improve the operational efficiency of towel machines by reducing felt filling and potentially extending the felt life. The broke generated during towel production that uses the new technology will be much easier to repulp than broke generated while using PAE resin. Finally, the programme based on the newly developed GPAM resin is more regulatory and environmentally-friendly than the programme based on PAE resins.

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*This article was written for TWM by Kemira Chemicals' Lucyna Pawlowska, Principal Specialist, Paper & Tissue Excellence, Harold Goldsberry, Senior Manager, Applications & Marketing, and Principal Scientists Junhua Chen and Chen Lu.*

# THE SAFE EDGE – THE ONLINE COLOUR COMPLIANCE GUIDE FOR MANUFACTURERS FACING EVER-CHANGING REGULATIONS

As the European Union's list of 'high concern' chemicals increases, Simon Boyd, Business Development Manager Colorants at Switzerland-headquartered Archroma – a global provider of specialty chemicals serving the branded and performance textiles, packaging and paper, and coatings, adhesives, and sealants markets – explains its up-to-the-minute data resource. A TWM report.



**Simon Boyd**  
Business Development Manager  
(Colorants),  
Archroma

Compliance standards for chemicals in the tissue and towel markets have become even more stringent over the past few years. This is reflected in a variety of aspects such as the advancement of analytical test methods that have increased sensitivity, enabling detection at increasingly lower levels. Additionally, the criteria for ecolabels for paper-based products has become stricter in recent years, particularly concerning authorised hazard classifications for components, permissible types of dyes, and the presence of impurities.

The list of substances of very high concern, as determined by the European Union, has been expanding. The data requirements for REACH (Registration, Evaluation, Authorisation, and Restriction of Chemicals) have also increased.

In addition to regulatory changes, new standards, and market requirements, have emerged, emphasising areas such as certified compostability, ecolabeling, sustainability standards, and transparency. These developments reflect the growing expectations and demands of consumers and stakeholders.

At Archroma, we always try to anticipate shifts in compliance standards and

**THE EVOLUTION FROM A COMPLIANCE-BASED APPROACH TO A BEYOND-COMPLIANCE ONE HAS TRANSFORMED THE TISSUE INDUSTRY, WITH MANUFACTURERS AND BRANDS NOW EMPHASISING SUSTAINABILITY AND RECYCLABILITY. WE HAVE BEEN ADVOCATING FOR THIS SHIFT FOR YEARS AND ACTIVELY COLLABORATED WITH CUSTOMERS TO MAKE PRODUCTS MORE SUSTAINABLE.**

respond to these changes by proactively reformulating our existing products and developing new ones to stay ahead. For example, Archroma has developed alternatives to Direct Violet 35 and Direct Violet 51 used in our Cartasol F range to anticipate the planned classification of these shades as reprotoxic under REACH.

To ensure that our customers have access to the latest product information at all times, we have developed an innovative online platform called The Safe Edge. This tool serves as a comprehensive product stewardship resource, providing our customers with instant access to up-to-date information about product specifications, compliance details, and other relevant information, enabling them to make well-informed decisions.

The evolution from a compliance-based approach to a beyond-compliance one has transformed the tissue industry, with manufacturers and brands now emphasising sustainability and recyclability.

We have been advocating for this shift for years and actively collaborated with customers to make products more sustainable. Our focus extends beyond compliance with current regulations to anticipate future requirements.

This includes reducing energy requirements and optimising efficiency throughout the production process. We also strive to develop cleaner effluents, ensuring that water discharged meets strict environmental standards. For

instance, we have developed a system called SMART COLORATION for the deep coloration of napkins allowing clear backwater, and CLEAN MACHINE, a system for deposit control, reduced downtime, and the ability to use lower quality raw materials without compromising on the quality of the finished tissue.

A key aspect is enabling recycling and reuse. We have invested in research and development to enhance the recyclability of our products, supporting the circular economy. Additionally, we are exploring compostable solutions as part of sustainable waste management practices.

A few years ago in 2016, we had launched our latest food contact approved colourants specifically designed for deep dyed napkins. At the time, this move showed the direction in which we believed the tissue and paper industries are increasingly heading, i.e. in the long term, only those able to adapt quickly to customer requirements and changes in legislation will be successful. Food contact compliance and the need to stay ahead of legislation continues to be paramount for Archroma and our customers, and the trends identified in 2016 hold true still today.

We recognise that ensuring the safety of food contact materials is of utmost importance, both from a regulatory standpoint and as a customer expectation. We have remained proactive in our approach to product development and compliance. We have continued to



reformulate and expand our range of dyes to meet evolving customer requirements and comply with changing regulations. This ongoing commitment reflects our belief that adaptability is key to long-term success in the tissue and paper industries.

In addition to food contact compliance, we have observed a notable shift towards prioritising sustainability across the supply chains in the tissue and towel markets. Year after year, sustainability is gaining increasing importance as a key trend within the industry. This reflects the growing awareness and concern for environmental impact among consumers, brands, and regulatory bodies.

Alongside compliance requirements, there is now a stronger demand for chemicals with low effluent loading. Tissue manufacturers are striving to minimise their environmental footprint by reducing the discharge of pollutants into water systems.

Furthermore, an emerging trend we have witnessed is the demand for dyes that are compostable. Many customers now seek colorants that align with the composting capabilities of the final paper. This highlights the industry's evolving focus on circular economy principles and environmentally friendly practices.

With all these developing trends in mind, Archroma has recently launched several colour and chemical innovations in the tissue and towel industry to specifically address these needs. For instance, Cartasol Yellow 3GSFC Liquid was introduced as a replacement for Yellow 3GSFN, modifying the formulation to eliminate triethanolamine and ensuring long-term adherence to EU food contact regulations specified in BfR XXXVI.



**Above:** Archroma's new data resource will assess napkin colour options

Another example is Cartaspers PSM, a biodegradable deposit control agent that enables the use of lower-grade recycled pulp without compromising the strength of the final product. These product launches are driven by the industry trends we observe. Ensuring food contact compliance is a crucial requirement, and we continually strive to develop solutions that meet the highest standards in this regard.

As a business, we subject many of our products to independent recognised test bodies for food contact and other compliance testing, aiming to obtain certifications from entities like BfR and ISEGA. We are actively involved in research and innovation projects to develop safer alternatives to replace classified products even before they are officially classified. Our focus extends to bio-sourced products, including barrier products and dyes, which contribute to a more sustainable value chain.

One of the key technical challenges we face in these areas is ensuring

that sustainable innovations deliver performance comparable to current industry standards. Bio-sourced products, for example, may require additional development to meet the same level of performance as their conventional counterparts. Striking the balance between sustainability and performance is a priority for us.

However, there are also significant technical opportunities in these areas. The increasing importance of sustainability to both Archroma, our customers, and end consumers drives innovation and opens doors for the development of new and improved solutions. By leveraging our research capabilities and expertise, we can seize these opportunities to advance sustainable practices in the tissue and towel industry.

*This article was written for TWM by Simon Boyd, Business Development Manager Colorants, Archroma.*



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# BAROMETER ISSUE: SPECIAL FEATURE

In 2022, TWM interviewed tissue mill executives in Italy, France, Türkiye, Thailand, Mexico, and Poland and Romania for the magazine's Country Reports. Here, we revisit a selection of the leading companies to see what has changed.



*"In the last few years following the increasing levels of paper production capacity in Türkiye, searching for new markets in exports has begun."*  
**Factory Director Ziya Karadeniz**

## AKTÜL KAGIT

**Private label key growth, drive for exports, high-quality product capacity up by 50%**

When TWM interviewed Aktül Kagit Factory Director Ziya Karadeniz in October 2022 for the magazine's Türkiye Country Report, the company had announced investment plans that aimed to boost production capacity to 210,000tpy and converting capacity to 160,000tpy.

Private label products were a key growth sector for the company as Türkiye's consumers move more and more into the market. "We are seeing a steady and substantial demand for private label products locally," he said at the time.

The growth of the tissue paper market following the outbreak of Covid-19 had "continued to regress to pre-pandemic levels with price increases in 2022". "Private label products have increased their share in the total market. In a period of high price increase, households are repeatedly preferring to market brand products in every category," he adds.

Now in June 2023, all the investments have been started up and are in full operating capacity.

TM3 – a 70,000tpy, Valmet-supplied 5.6m-wide Advantage DCT 200 line which was planned to start-up at the company's Pamukova, Sakarya Province in Q4 2022 – is now successfully up and running. The move has boosted the company's production capacity of high-quality facial, handkerchief, toilet, and towel grades by 50%.

The new converting lines have also been successfully commissioned and started up.

Export potential – which at the time of the initial interview was a key reason behind the investment – is now even more vital, as Türkiye's tissue market experiences overcapacity.

In 2022, the company had invested in a new converting facility in the Mersin Tarsus Industrial Zone to help boost production for overseas markets. Karadeniz says the location continues to be "a crucial area" for international trade: "East, West, South, North axis Asia-Europe, or the Africa-Europe-Asia line, meaning the area is one of Türkiye's most important gateways to business."

Now in 2023, he notes that "in this period when competition is very tough, many manufacturers are trying to find more space in the market with lower cost products. As a result of this, excess capacity is tried to be elevated as export."

He adds: "Rising inflation and a weakening of the lira has been driving up the average unit price of many essential products in the market. This had forced consumers to priorities their expenditure resulting in declining demand for several tissue products."

"In the last few years following the increasing levels of paper production capacity in Türkiye, searching for new markets in exports has begun."



**Bülent Can, Converting Manager:** "Regional sales managers have come on board ... we have started to grow in the market with a professional sales team."

## ESSEL CELLULOSE AND PAPER INDUSTRY

### Six napkin machines start-up to meet increased demand

Essel Cellulose and Paper Industry has been very busy since our last interview. Speaking from his office in Izmit, Türkiye, Bülent Can, Converting Manager, details how plans have evolved and mean the business is now primed to install six napkin machines at its facility in Çaycuma, Zonguldak. Starting up in the next week or two, the investment is a result of increased consumer demand for the company's napkin products. A 4,000m<sup>2</sup> closed warehouse is also being built at the site.

"As Essel, with the awareness of our responsibility towards the environment and society, we pay attention to sustainability in our production and business processes, to protect nature and to create value for people," he explains. "We act with the aim of being socially, economically and environmentally-sustainable, and providing quality tissue products to Türkiye and the global market."

He says the company sources 100% pure cellulose, which it uses as raw material from sustainably managed, FSC-certified industrial forests, in order to contribute to the protection of nature: "But we also support sustainability through our new investments in our most advanced and high-tech factories in Türkiye. In this context, since our last meeting, we have commissioned our treatment plant and state-of-the-art recycling (deinking) station that supports zero waste production in our Çaycuma facility. This is Türkiye's newest

and highest quality deinking system."

The deinking system uses 100% recycled paper for zero-touch production, and it is then taken directly to the consumer. "Our treatment plant performs both organic and chemical treatment and is the first and largest treatment facility in the Çaycuma Organized Industrial Zone. This is a treatment plant to ensure that the water from our deinking system is discharged in accordance with the regulations of the Ministry of Environment. We designed it to reuse more than 60% of water and have made an investment of around €1.5m for this treatment system alone."

As for tissue consumption in Türkiye's market, Essel is increasing its contracts with chain stores in the local market so that it can reach out to more consumers. "We will thus reach national and various other channels through this strategy. In addition, there has been a new organisational restructuring related to sales at the company and we have begun to establish regional dealerships. Regional

sales managers have come onboard, and this move has accelerated sales. We have started to grow in the market with a professional sales team."

Although he believes that market conditions "do not look very promising at the moment due to difficulties such as inflation, high energy prices and costs, increases in container prices and foreign exchange", he says that from the perspective of Essel, the company is seeing "significant opportunities" with its state-of-the-art production facilities.

"We have a strong ability to reach customers under all market conditions through our new investments including our deinking stations, our product innovations, the logistical advantages of our investment regions, and the increase in consumer awareness orienting them towards quality products as well as the overall increase in our sales."

**HE SAYS THE COMPANY SOURCES 100% PURE CELLULOSE, WHICH IT USES AS RAW MATERIAL FROM SUSTAINABLY MANAGED, FSC-CERTIFIED INDUSTRIAL FORESTS, IN ORDER TO CONTRIBUTE TO THE PROTECTION OF NATURE: "BUT WE ALSO SUPPORT SUSTAINABILITY THROUGH OUR NEW INVESTMENTS IN OUR MOST ADVANCED AND HIGH-TECH FACTORIES IN TÜRKİYE."**





# PULP & PAPER

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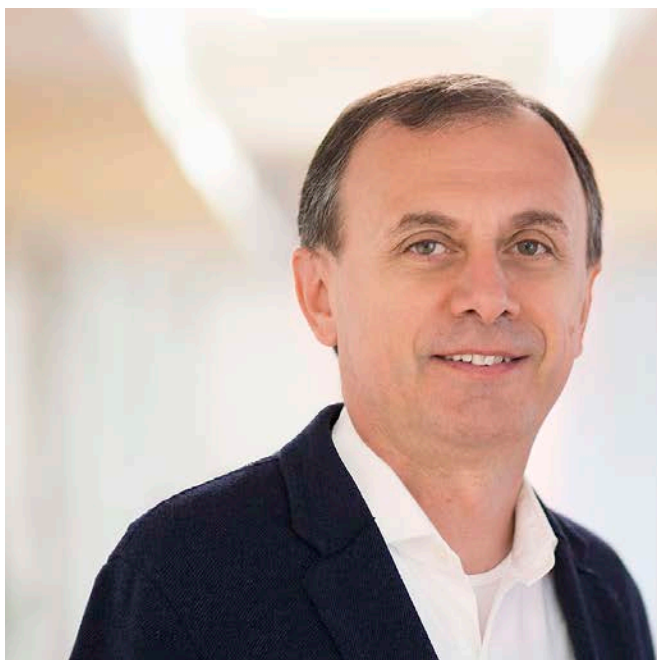


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**General Manager Gabriel Stanciu:** "We are looking at developing new markets segments such as AfH and expanding our operations internationally."

## PEHART GROUP

**Plans for investment in factories, converting lines, technologies... and an entry into AfH**

At the time of last year's interview, Transylvania, Romania-based Pehart Group's extensive investment programme was targeting home growth – the Romanian market was "clearly growing in both volume and value" – as well as international expansion.

General Manager Gabriel Stanciu had elaborated on the company's twofold business strategy; to increase production capacity in the local market by strengthening its high-quality brands, and expanding its presence abroad. Plans to continue investing had been announced along with machinery investments, green energy, and diversifying its product portfolio, investing in more production lines.

Now in 2023, he says that over the course of the past year, the company has continued its investment plans, focusing on energy-efficient equipment, green energy solutions and the development of production capacity as well as portfolio diversification.

Its strategy is to invest over €20m this year in a new converting line for AfH products and also in modernising its tissue machines in order to reduce energy consumption and thus increase energy efficiency. It will also strengthen its efforts to optimise all its production machinery to reduce energy consumption, and at the same time the company intends to develop its production capacities, allowing it to increase export volumes.

In the local market, during the last two years there have been several challenges as a result of the region's political context, and the current macro-economic environment that is bringing a lot of volatility to the market.

He says the war in Ukraine and high cost increases for energy, gas and raw materials have been partially transferred in the product prices on shelf. Last year's spike in inflation had "a direct effect on raw material costs. As a result, we are very attentive to the optimisation of energy consumption and to finding effective solutions in the supply of raw materials," he says.

On the other hand, in terms of consumer behaviour, Romanian customers are being more careful with their daily expenses, trying to find the best offer and the best price-quality products. The business is seeing a shift towards private label products and promotional offers. "Still, the Romanian consumers are appreciating the quality of branded products, and this is the most important differentiator for the company's brands," Stanciu adds.

The towel and toilet paper markets are increasing in value, but less in volume, yet they are still by far the biggest two segments in the tissue market in Romania. Last year the company launched the Pufina wet paper products. "This is a niche segment in the local market, but it is growing, and people are appreciating

the products, as for better cleaning and hygiene."

There are also plans for further growth. The business has plans to invest further in its factories, with new converting lines, new technologies for reducing energy consumption and increasing sustainability. But for now, it is in discussion for next year when it hopes to get the green light.

Importantly, for 2023 the business intends to enter the AfH market, to continue investments in energy efficiencies, and to increase export volumes.

As for the rest of the year and 2024, the most important challenge is the political situation in the region, which Stanciu says may continue to impact the energy and raw material costs.

"As for opportunities, we are looking at developing new markets segments such as AfH and expanding our operations internationally, by promoting our brand in the neighbouring countries. We have already started to sell Pufina in Serbia, Moldova, Albania and Bulgaria, and we have ambitious plans for export."





## VELVET CARE

The Polish market leader targets 2025 turnover to reach PLN2bn

In June 2022, Polish tissue manufacturer Velvet Care had highlighted "dynamic post-pandemic growth" when it was interviewed for TWM's Poland and Romania special report. The company had achieved a series of firsts in production capacity, workforce levels, turnover, quality, and its Eco Agenda 2025. From the company's Klucze-based tissue plant. Production and Technical Director Wanda Ciesielczuk had discussed the start-up of TM8, as well as the "balancing of converting and manufacturing capacity."

In 2022, she said the plan was to grow organically, especially in the converting area, and in the second half of 2022 the company was busy starting up new lines for rolled and folded products.

The continuous investment and expansion are reflective of the company's ever-evolving 125 historic years of production. TWM first visited the company in Klucze, located an hour's drive north-west from Kraków, in 2019. At that time, Ciesielczuk had recently overseen the start-up of the company's 5.56m Valmet-supplied TM in March 2018, and now latterly the start-up of TM8, the site's second Valmet-supplied Advantage DCT line. TM8 added more than 60% production capacity boosting total capacity to 150,000tpy at an operating speed of 2,200m/min. It also has a converting capacity of 160,000tpy, producing high-quality tissue on 17 converting lines (eight rolled lines and nine folded lines).

Annual growth figures in 2019 were at 20%, and still in 2023 she says the company is the "indisputable leader" in the Polish tissue market. A further investment was on the cards in January

2023. Velvet Care announced it had signed a preliminary agreement to purchase 100% of shares in family-owned Polish tissue converting company Almus. Almus manufactures toilet paper, paper towel and professional products at its plant in Słomniki, Małopolska Province, where it houses five processing lines with a capacity of 60,000tpy. It also supplies products sold under private labels by commercial brands in Poland and abroad and is a manufacturer of paper products under the Almusso brand. Velvet Care is awaiting approval of the acquisition from Poland's competition regulator.

Artur Pielak, President of Velvet Care, says the move was consistent with Velvet Care's business development plans. "The acquisition of Almus is a strategic decision that will reinforce our position as a leader in the paper industry in the Central Europe region," he says. "Following the historic moment in 2022 – namely when the threshold of PLN1bn turnover was exceeded, once we have incorporated Almus into the structure of the Velvet CARE Group – the management board is ready to designate new ambitious goals."

The company has also announced another milestone that it plans to accomplish by 2025 – to reach a turnover



**Wanda Ciesielczuk, Production and Technical Director:** In the June 2022 interview, Ciesielczuk had discussed the start-up of TM8, and the "balancing of converting and manufacturing capacity."

on the level of PLN2bn. Procuring new clients in Poland and abroad was a way to reach the target.

After finalisation and merger of the companies, the Velvet Care Group – which currently consists of Velvet Care and the Czech company Moracell – will increase its processing capacity by almost 40% to 250,000tpy. It will then have 23 processing lines, three paper machines and five warehouses located in three production plants in Klucze, Słomniki and Žabčice (Czech Republic). In the future, the company said it is planning to further develop its business at the markets in its region and continue to work on strategic acquisitions.

**THE COMPANY HAS ALSO ANNOUNCED ANOTHER MILESTONE THAT IT PLANS TO ACCOMPLISH BY 2025 – TO REACH A TURNOVER ON THE LEVEL OF PLN2BN. PROCURING NEW CLIENTS IN POLAND AND ABROAD WAS A WAY TO REACH THE TARGET.**

# FÁBRICA DE PAPEL SAN FRANCISCO

Adding tissue and AfH capacity with demand "much higher than we expected."

From his base in Mexicali, the capital city of the Mexican state of Baja California, Fábrica de Papel San Francisco's (PSF) Sales & Marketing Director Juan José Mubarak Helú Villavicencio laid out an impressive growth strategy in his 2022 interview for TWM's Mexico Country Report.

Controlled capacity to meet demand, growing through a substantial move into private label and a returning tourist sector were the key opportunities for sales growth – which at the time he forecast at 5% or more in tonnage sales.

A time of caution and restraint brought about by the pandemic had created impact – because of the pandemic, the business had had to be conservative about its growth rate, especially in the AfH market. "During 2020, the AfH market decreased around 3.8%. But in 2021, this market has grown back by around 13.7%," he said in April 2022.

Private label was also growing: "Generally, we are seeing the private label sector growing faster than regular brands in Mexico, mainly because the trend to offer products with the brand of the retailer generates synergies in cost distribution, price point and exhibitions that contribute to the preference of the consumer."

Now in 2023 for our Barometer interview, he explains that the company has added tissue and AfH capacity at its plant in Monterrey, Nuevo León, northeast Mexico. The aim of the investment is to supply an increase in demand for these products in the region, which is "much higher than we expected."

At its El Salto (Guadalajara) plant, a Multifold Towel machine for the central part of Mexico's AfH market has recently started up. Most substantially, the business is building TM9, a 30,000tpy Advantage DCT 100TS tissue machine at the Mexicali site. It is the sixth Valmet-supplied tissue line to be started up PSF. Operations will start up in the summer of 2024 and once up and running will fulfil the company's need for new capacity for standard tissue products.

As for tissue growth in the local market,

the retail market is experiencing slow growth at below 2%, but the AfH market "is in good shape right now." He adds that the AfH market is getting a lot of new business as US plants are relocated from Asia to Mexico.

For 2023 and 2024, one of the biggest challenges for PSF is in logistics/distribution. This he says is because of the fast growth in the northeast part of Mexico, where currently the transportation cost is getting higher because the growing demand and the company's margins have been affected more than it had expected.

PSF is focused to continue its growth in the southern part of México, as that area is the geographic area where it has its lowest market share. Export to America is an important part of its main opportunities for 2024.

**TWM FIRST VISITED THE COMPANY IN KLUCZE, LOCATED AN HOUR'S DRIVE NORTH-WEST FROM KRAKÓW, IN 2019. AT THAT TIME, CIESIELCZUK HAD RECENTLY OVERSEEN THE START-UP OF THE COMPANY'S 5.56M VALMET-SUPPLIED TM IN MARCH 2018, AND NOW LATTERLY THE START-UP OF TM8, THE SITE'S SECOND VALMET-SUPPLIED ADVANTAGE DCT LINE.**

## MP HYGIÈNE

Pioneering high speed TM to be operation Q2 2024

In the last Country Report of 2022, Marc Miribel, President and Chief Executive of French AfH leader MP hygiène, discussed at length how the start-up of the company's new AHEAD 2.2 tissue machine will mean its CO2 footprint will be one of the lowest in the world.

Now, he says the business is still aligned with the investment plan. The site is currently under construction and getting ready to welcome both the stock preparation unit and the second mill. The end products, on-site warehousing facility has been completely stopped and moved to the company's new logistics site with a capacity of more than 13,000 m2.

He says that in France, when compared with 2022, the paper wiping market has been tightening a little due to a drop in demand, particularly in the consumer market. This trend does not impact the

company directly since it does not sell to consumers, but Miribel says the company remains attentive to it. Before starting any further new projects, the business is looking forward to the new machine start-up that will be operational Q2 2024. "This project represents a total investment of more than €60m and requires large-scale work by all the MP hygiene's teams as well as the external companies that accompany us," he says.

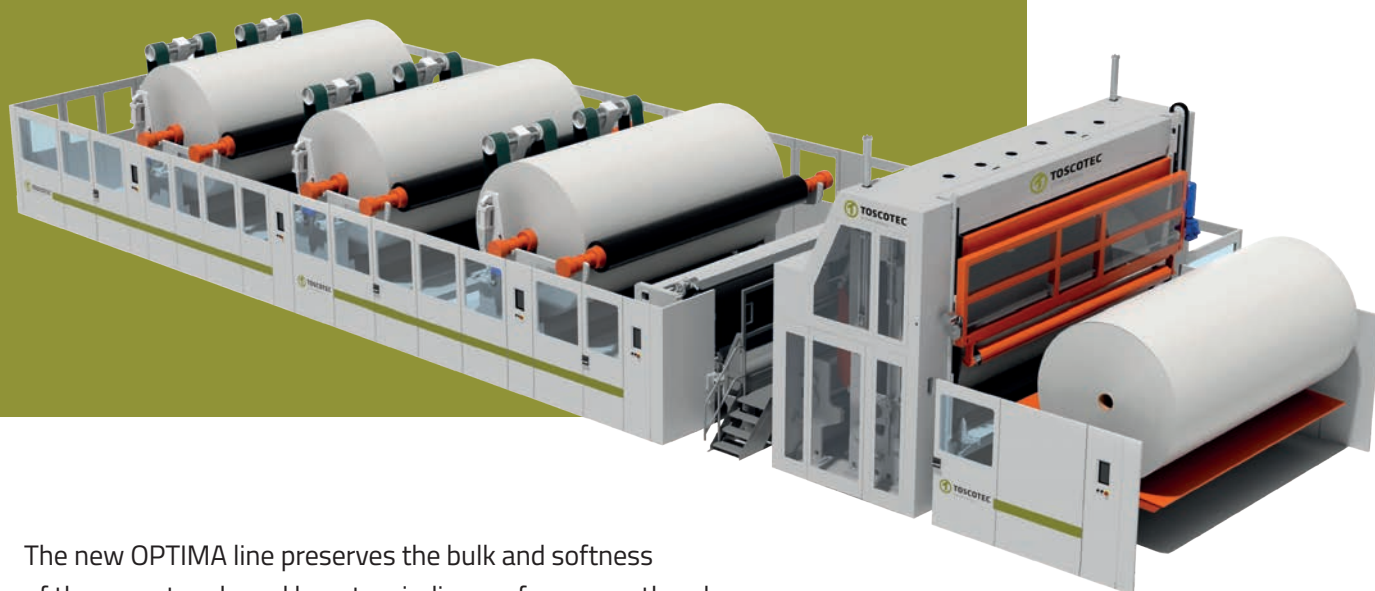
"For the rest of 2023 and 2024, the paper industries and in particular the tissue industry will have to face new regulations pushing us to adapt in order to avoid "penalties" on our products in the future. Once again, the issues of sustainable development and ecology must be an integral part of our strategy in order to adapt to both the law and market trends."

**IN FRANCE, WHEN COMPARED WITH 2022, THE PAPER WIPING MARKET HAS BEEN TIGHTENING A LITTLE DUE TO A DROP IN DEMAND, PARTICULARLY IN THE CONSUMER MARKET. THIS TREND DOES NOT IMPACT THE COMPANY DIRECTLY SINCE IT DOES NOT SELL TO CONSUMERS, BUT MIRIBEL SAYS THE COMPANY REMAINS ATTENTIVE TO IT.**



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# MARKET LEADERSHIP IN SUSTAINABLE HYGIENE, AND 20% OF THE AFH SECTOR — STAR TISSUE UK'S THREE-YEAR TARGET

TWM interviewed Managing Director Khalid Saifullah when Star Tissue UK was named in the London Stock Exchange Group's top 1,000 companies to inspire the UK in 2016 and then Europe in 2017. At the Tissue World Düsseldorf exhibition in March, he expanded on his three strands of sustainability underpinning impressive growth figures.

**PICTURE PANEL:** Photographs show interior views of the Blackburn, UK, mill, Managing Director Khalid Saifullah with one of the company's awards, and Star Tissue UK products

## TWM/1: What were the key topics from your Düsseldorf talk?

"We are witnessing a growing demand for environmentally-friendly and sustainable products in the professional hygiene paper market, and this was very much a key theme at the Düsseldorf conference.

"Customers are increasingly seeking products that are made from recycled materials that have reduced carbon footprints, and do not cause biodiversity loss. Market players are now focusing on product innovation to meet the evolving needs of customers whilst minimising the impact on the environment. This includes the development of new paper products with enhanced features such as no core, improved absorption, durability, and paper made with sustainable fibres.

"The industry is adopting digitalisation and

automation to improve operational efficiency and reduce costs. This includes automated production processes, inventory management systems, and the use of data analytics to optimise supply chains and enhance customer experiences.

"During the conference we discussed the need to understand all three dimensions of sustainability. These are:

"Environmental sustainability: This refers to the impact that Star Tissue has on the natural environment. It includes efforts to reduce carbon emissions, minimise waste and pollution, conserve natural resources, and promote biodiversity. Star Tissue achieves environmental sustainability through practices such as using renewable energy sources, implementing eco-friendly production processes, and minimising waste through recycling and responsible disposal.

"Social sustainability: This focuses on the impact that Star Tissue has on its employees, customers, and the broader community. It includes efforts to promote social justice, fair labour practices, and human rights. We achieve social sustainability by treating our employees fairly, engaging in ethical business practices, and giving back to our local communities through philanthropic activities. We provide local leadership in building social value by promoting civic pride and creating healthy prosperous communities.

"Economic sustainability: This refers to the financial viability of Star Tissue over the long term. It includes efforts to maintain profitability, manage resources efficiently, and create value for shareholders and employees.

"We achieve economic sustainability









**"WE HAVE GROWN IN REVENUE BY 50% OVER THE PAST YEAR AND ARE CONSTANTLY MANAGING GROWTH TO KEEP UP WITH DEMAND. WE HAVE ADDED NEARLY 60,000 SQ FEET OF NEW PRODUCTION AND WAREHOUSE SPACE IN THE LAST YEAR ALONE."**



through responsible financial management, strategic planning, and investment in research and development to improve our products and services by gaining valuable feedback from our customers."

**TWM/2: What are the growth plans at Star Tissue UK, and how will they be achieved?**

"We have grown in revenue by 50% over the past year and are constantly managing growth to keep up with demand. We have added nearly 60,000 sq feet of new production and warehouse space in the last year alone.

"We predominantly service the AfH market, although some of our products trickle down to the consumer market through some wholesalers and distributors. We have grown our branded sales to 65% of our turnover from 56% in FY2020. This has been led by the success of our Sirius and Bliss brands.

"We now have the capability to produce 30,000 tonnes (depending on product mix) with our three production lines.

"We have also agreed our new growth plan which should add another production site giving us wider coverage of the UK market, increase our product range and introduce new sustainable products.

"We are confident that by 2026 we will have doubled our market share to 20% of





the AfH market and be a market leader in sustainable hygiene products."

**TWM/3: What changes in people's use of hygiene products have you seen during the past few years, and what opportunities has it presented you?**

"The last few years of the pandemic has shown that increasing awareness of hygiene and cleanliness are key for our future growth, particularly in sectors such as healthcare, foodservice, and hospitality. This presents significant growth opportunities for the professional hygiene paper market.

"We recognise that we are operating in a highly competitive market, with numerous players vying for market share. This is why we are constantly investing and exploring new ways to differentiate ourselves through product quality, innovation, sustainability, and strong customer relationships."

**TWM/4: Following the drop in AfH demand during Covid-19, has this market now fully re-bounded in the UK and Ireland?**

"The past few years have been incredibly challenging, and we have faced every possible challenge to business. This experience has made us a much more

resilient company as we have the team, the culture, and the flexibility to adapt to change instantly. The downtime created by the lockdowns gave us time to rethink and reset our processes, focus on training, improve the work environment, build for growth and be ready for the post-Covid world.

"The energy crisis focused our minds on energy efficiency, lean manufacturing, waste reduction and process innovation."

**TWM/5: What actions are you taking in terms of producing environmentally friendly products?**

"We are not only working towards becoming a net zero manufacturer, but also currently working with our partner mills and partner machine manufacturers to enhance the range of our ECOROLL brand. This is fast becoming a priority for our customers and end users consequently becoming a priority for us to deliver on the customers' expectations."

**TWM/6: How did being chosen as one of the London Stock Exchange Group's top 1,000 companies to 'inspire Europe' in 2017 change the company?**

"Winning the Top 1,000 companies to inspire the UK in 2016 and then Europe in 2017 was a very proud moment for the team as it recognised the great work of the Star

team in its vision to become a world class manufacturer of hygiene paper products. It put us on a world stage among our peers and the positive PR generated through this achievement significantly enhanced our reputation in the tissue paper industry.

"Since then, we have gone on to win many awards – last year we won the Manufacturing Excellence Award."

**TWM/7: Are you seeing increases in demand in the UK T&T market, and why is that?**

"Yes, we are seeing significant increases in demand. This is due to two key factors, one being a much greater focus on hygiene since the pandemic, and the second is an increase in staycations due to the cost-of-living increases."

**TWM/8: What changes has Brexit made to the business?**

"Our main market is UK and Ireland and so Brexit has been an issue as it has made it difficult to trade with Europe and caused some labour shortages.

"However, now we are a few years into Brexit we have also found it has presented us with opportunities due to the fact that businesses are reviewing their supply chains and ensuring they retain some local suppliers."

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