PITA ANNUAL REVIEW

2018-2019

Valmet
FORWARD

Paper Industry Technical Association
5 Frecheville Court,
Bury, Lancashire
BL9 0UF

Annual Review
2018-2019

Compiled by the PITA Office

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Paper Industry Technical Association

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Chairman's Message

Since I last stood before you as your newly elected Chairman, over twelve months ago, your Association has continued to face numerous challenges as we reorganise to meet the changing needs of the papermaking sector as it moves closer to a low carbon, low manpower industry. The PITA Office Staff continue to work extremely hard and diligently to contain financial stress whilst continuing to maintain the First Class Service that members have come to expect from PITA. We console ourselves in knowing that, at least one person has a tougher job than the one we face, but more of Theresa May and Brexit later!

Your Association has been active in Europe for many years and it is our intention to continue to represent the UK in Europe wherever we can, post-Brexit, participating in committees and contributing to Conferences. We are seeing the development of exciting new opportunities in developing parts of Europe and our goal is to ensure that Paper Technology International is read in each and every one of these new markets.

The referendum vote has encouraged us to look at opportunities outside of the EU and we have found many other organizations facing similar challenges to ourselves. We believe very strongly that by sharing resources and, to some extent financial burdens, we can ensure the longevity of the Technical Association role both at home and overseas.

Much like our colleagues in industry, the finances of the Association remain under pressure. Selling advertising across PITA's Media Portfolio is increasingly challenging, whilst production costs are NOT falling. Paper Technology International continues to generate a surplus that is invested in the Association and changes in the way we sell advertising should cast our net further and into deeper waters allowing us to continue to produce a highly respected and valuable technical publication.

Despite being Papermakers at heart, we cannot afford to ignore the opportunities offered by digital publications and the fantastic new prospects these open up. Out tablet optimized PAPERmaking! e-magazine has been well received and continues to grow, providing a vehicle for features and content that might not make it into a hard copy publication (what's a few electrons between friends) and has allowed PITA almost instant access to distant markets.

The PAPERmatters! Conference was deemed a resounding success by all in attendance, with Lancaster University providing a high quality, cost-effective venue for suppliers to air a plethora of excellent technical presentations covering nearly every aspect of the modern paper mill, including some which have yet to be adopted within the UK. The Social Evening, complete with 'Casino Papeterie', was an immensely successful networking event as delegates tucked into succulent Plumgarths Burgers produced locally (less than a mile from James Cropper's Burneside Mill and considerably more tasty than a ream of coloured card). Thanks must go to Jim Patterson and Zoe from Two Rivers Paper for showing the big mills the real way to make paper (by hand), though not everybody's sheet met the necessary quality standards.

Despite being one of the best-attended events of the past few years, we would have still liked to see even more members of the UK Papermaking Family there and will be working closely with mills and suppliers as we move towards the next PAPERmatters Conference in 2020, which also marks the centennial year for PITA. The team is already making special plans for this momentous occasion and please consider this as an early invitation to join us in this celebration of papermaking.

Reflecting the changes in the way the PITA Office operates, we have liberated two floors of office space in Frecheville Court and, after some renovation (after all, PITA had been there for over twenty years) we have been able to let some of the offices on a commercial basis generating valuable income for the Association. Whilst issues with aged Central Heating Plumbing did cause some issues, everyone is settled into the new workspace and it's very much business as usual, if not better!

In 2018, our target was to offer at least one training course per non-vacation month and our aim is to start increasing that in 2019. PITA courses provide much needed specialized and vital education to support the Paper Industry both at home and overseas. We do not just look to the industry to support these courses; we work closely with our mill based members to identify and develop new courses to fill gaps and raise the level of Papermaking expertise in the UK.

PITA devotes much time to supporting our other organizations within our industry, helping them to better serve our members. Be that working closely with our colleagues in the CPI on projects such as the 2050 Roadmap and Industrial Strategy or with BSI in monitoring and filtering news related to the development of new standards, we freely share our expertise as we strengthen relationships for the benefit of mills and suppliers. The sharing and distribution of non-competitive technical expertise are central to PITA's raison d'etre and we very much aim to practice what we preach.

In time-honored tradition, it only remains for me to close this address by thanking the various parties that have made it possible for me to stand here, in front of you, today. Thanks must go to the PITA Office Team for their efforts and contribution over the past twelve months in keeping the Association alive, vibrant and a positive asset to the industry. I would like to thank my fellow Directors for giving of their time so freely and supporting the PITA Office Team through what has not been the easiest of years. I would like to thank our hosts, Smurfit Kappa Townsend Hook, for throwing open their doors and inviting us to witness what they have achieved over the past few years, especially Kevin Bussey who had to explain to his Boss that we were coming today. Most of all though I would like to thank all of you, the 'rank and file' members, for joining us here today and for continuing to support PITA. Stood here today surrounded by like-minded individuals with a keen technical interest in all things paper makes the journey down and back up the M6 almost bearable (note that I did say 'almost').

John Kirby

PITA Board

2018-2019

John Kirby	*National Chairman*
Graham Moore	*Immediate Past Chairman*
Stephen Hutt	*Financial Director*
Helen Dolan	*Company Secretary*
Martin Wroe	
Tim Klemz	

2017-2018

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Stephen Hutt	*Financial Director*
Helen Dolan	*Company Secretary*
Tim Klemz	

PITA Office/Paper Technology

Barry Read
Chief Executive
PITA Office

Helen Dolan
Company Secretary
PITA Office

Daven Chamberlain
Editor
Paper Technology

Graham Sutton
UK Representative
Paper Technology

Nicolas Pelletier
European Representative
Paper Technology

Hawkins Wright Symposium Nov. 2018 (LONDON)

Daven Chamberlain
Editor, Paper Technology International

The Hawkins Wright Symposium rolled into town during London Pulp Week; a successful formula that continues to pull in the majority of market pulp producers and merchants, along with their main customers. This symposium was the last to be held before Brexit becomes a reality, so it is interesting to note that numbers were slightly down this year compared to last, with a registered attendance of 322 (against 340) representing 35 countries (against 37 last year). That said, it is still easily the largest meeting of this sector on UK soil, and numbers of Chinese representatives were in particular noticeably absent (almost certainly due to the introduction of Shanghai Pulp Week a few of years ago). Nevertheless, London is still a global city with immense pulling power, and it is expected to continue attracting the brightest and best in our sector going forward.

Every year I make a feature of listing the sponsors, since they are so vital to the event's success. Last year there were nineteen; the same number were present this year, although there were three changes. The current list is: **Altri**; **Cenibra**; **CMPC Pulp**; **Ekman**; **Eldorado Brasil**; **Fibre United** (**UPM & Canfor**); **Fibria**; **G2 Ocean**; **Ilim**; **Itochu**; **Klabin**; **Mercer Pulp**; **Metsä**; **Nouryon**; **Omya**; **Södra**; **Stora Enso**; **Suzano** and **Valmet**. (**April** and **Aruaco** dropped out this year, being replaced by Klabin and Suzano; in addition Akzo Nobel has been renamed Nouryon following the sale of **AkzoNobel Specialty Chemicals** to **The Carlyle Group** and **GIC**.)

Liam Halligan (economist, author and broadcaster)

Liam opened the event with the now customary overview of *The global economic outlook.* Since around two-thirds of the pulp price is governed by macro-economics, where geopolitics has a major effect, Liam outlined what were to him the six most important themes likely to effect the world in the foreseeable future: (1) Quantitative Easing; (2) Trade Wars; (3) Oil Price; (4) Eurozone Stability; (5) Emerging Market Stability; and (6) Brexit.

Starting with QE, although this has ceased in the US and UK, it is still continuing in other areas, notably Japan and the EU (where it is termed 'Target 2'). In the EU it is due to stop in late 2019, although that is not definite; in addition, in the US the economy is starting to take off, and the Federal Reserve is already increasing interest rates to stifle inflationary pressures. An argument is ongoing between the Fed. and President, the result of which will indicate whether the bank is able to retain its independence; in turn this may have repercussions elsewhere for other central banks, such as the ECB and Bank of England.

The trade war between USA and China relates to an attempt to get the Chinese to open their market and respect Intellectual Property rights. However, the US has huge debts, and the Chinese are major buyers of US Treasury Bonds, so they have leverage. Overall the Chinese know that the US cannot remain strong on this issue indefinitely, as too many US jobs depend upon steel and other commodities supplied by China; so this is political posturing at best.

The oil price last year ranged from US$50-80/barrel. Two major producers, Russia and Saudi Arabia, have very different requirements: Russia budgets on US$38/barrel, so anything above that is a bonus; meanwhile the Saudis need a higher price, especially as they are trying to float **Saudi Aramco**. Russia and the Saudis appear to be cooperating, so a new level of US$70-75 is likely to become the norm.

Currently, Liam sees the Eurozone crisis as the greatest source of disharmony in the world economy. Germany has benefitted widely from the Euro; Italy and others have not. The migrant crisis of 2016 caused further destabilisation. Overall, fiscal union, that great plan of the Eurocrats, now looks less likely than ever, and there is still talk of forming a 'two tier Europe'.

With the recent devaluation of currency in China, Turkey and Argentina, Emerging Markets are looking in a stronger position that ever. Furthermore, the dominance of the US as the world's largest trading nation is looking less safe, such that some commodities are moving away from the US dollar as the preferred currency. (For example, Russia and China already trade oil in a different currency.)

Finally, Brexit still looms on the horizon. Although it tends to dominate the thinking of UK politicians, in terms of the world economy it is a more minor disturbance. Nevertheless, it will still have an effect, the magnitude and direction of which is yet to be determined.

Markus Mannström (Stora Enso)

Markus Mannström spoke next, and started by giving a potted history of Stora Enso (which can be applied to any number of other paper companies): (1) their main business model involved building and running paper machines; (2) they restructured, taking out uneconomic capacity; (3) they looked to the East, notably China, especially for packaging; (4) currently they are investigating new markets for biomaterials & biochemicals.

Their current mantra is that everything made from fossil fuels today can be made from a tree tomorrow.

In terms of pulp manufacture, they are still manufacturing traditional paper-quality grades, but are looking to expand their fluff and dissolving output going forwards. In addition they have dipped a toe in the water with regard to biocomposites, by producing a wood fibre / plastic granulate which can be heat and pressure formed into furniture and other products. The 15,000tpy plant at the Hylte Mill is a proof of concept, and going forwards the plan involves substitution of plastic derived from fossil fuel with that produced from lignocellulose raw materials.

Another area in which they operate is production of microfibrillar cellulose (MFC). This can be used as a general strength enhancer, for producing speciality grades (including wet-laid nonwovens), as well as a rheology modifier and barrier film material. Currently its use allows Stora Enso to reduce packaging board weight by 4-8%, but retain strength properties; hence it allows better material efficiency. In addition it is fully repulpable and recyclable.

Lignin production (*Lineo* ™) is another area in which Stora Enso has ventured. The plant at their Sunilla Mill has capacity for 40,000tpy, and current uses include adhesives, production of carbon fibre, and as a component in batteries (where carbonised lignin forms the anode material).

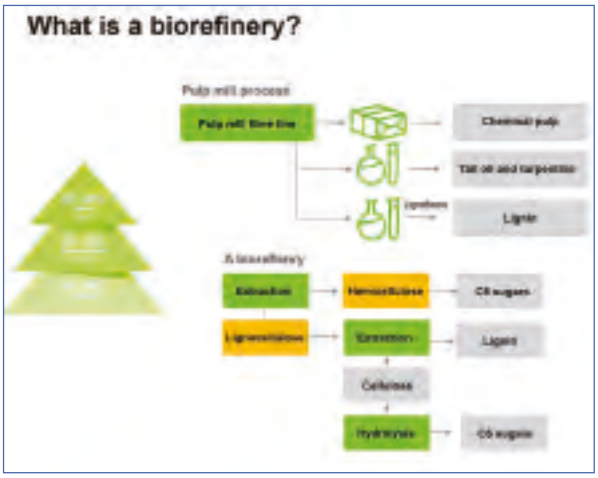


Figure 1. Graphic showing the principal differences between a traditional pulp mill and a biorefinery.

The final area discussed was dissolving pulp production for sustainable textiles. Big brand owners wish to increase the use of cellulosic fibres in textiles. Stora Enso are investing to debottleneck existing DWP mills, and are researching to expand their DWP portfolio to include nanocellulose and other speciality grades (not necessarily those produced by the traditional viscose process).

The pulp mill of today has the main output as paper-grade pulp, with a few minor side-streams such as tall oil, turpentine and lignin. The modem biorefinery concept will continue to produce these, along with C5 sugars from hemicellulose, and C6 sugars from cellulose, and a host of other minor extractives will also become available (*Figure 1*).

Nina Elmersson (Ekman)

The end of Markus' talk segued nicely into the last of the initial session, where Nina Elmersson discussed creation of the *Challenge The Fabric (CTF) AWARD 2018.* Ekman are one of a number of pulp suppliers (including **Altri**, **Arauco**, **Sanyou Group** and **Södra**) looking to highlight the environmental benefits to be gained from using viscose derived from wood over raw cotton as a textile fibre. However, initial discussions with those in the fashion industry highlighted that using trees as a raw material generally held negative connotations in the minds of the populous. Hence, in order to promote the sustainable nature of products derived from trees, they had to get buy-in from the fashion industry in general, including those in education.

The result was to create a new award that was launched at London Fashion Week, backed by a significant prize (€30,000). This resulted in the major fashion departments throughout Europe sending their best students (*Figure 2*). Furthermore, rather than just relying upon traditional jour-

Figure 2. Fashion students and models at the CTF Award 2018 Fashion Show. (Photo by Shaun Cox Photography)

nalists to cover the story in print media, they invited bloggers and ‘influencers’ to the event. This approach not only saved money, but to date has meant the message has reached an estimated 29 million people.

Interestingly, in discussion during the interval with Nina, it emerged that all of this was done without any collaboration with **PEFC**, who are also working in this area. Maybe one day our sector will present a unified front to the outside world ...

Paul Foulkes-Arellano (Precipice Design and A Plastic Planet)

This first talk after the break was entitled *Opportunities for the paper industry in a plastic free world.* The premise was simple: replace plastic by alternative sustainable materials. The approach was zealous: composites, where plastic derived from fossil raw materials plays a functional role alongside paper, are also wholly unacceptable. Nothing short of complete cessation of plastics derived from fossil sources would be acceptable in order to stop the annihilation of wildlife.

Currently 40% of the world plastic is used for packaging, half of which is used for food and drink, much of it in the form of composites (so-called ‘hidden plastic’). Paul’s focus is purely upon the food and drink sector, and his stated belief is that none of this is necessary. Therefore, his aim is for design agencies to think what can be achieved without plastic in their armoury.

Current interests are to use corn waste (husks / cobs), rice waste, food waste, cotton waste and grass waste as raw materials. [Grass is already being used by **Huhtamaki** in The Netherlands for food packaging; also it is being used as a part pulp replacement by **Schuefelen** and **Zanders** for P&W grades in Germany.] Similarly, cultivated bamboo, forestry and seaweed are possible raw materials. Already in the UK compressed rice waste is being trialled as a raw material. Also, in Scotland, seaweed is already being cultivated for food and medicinal use, but not as yet for packaging.

There is no doubt that plastic does cause problems in the environment – from basic litter, to its slow degradation in the natural environment, right through to the potential issues caused by micro-plastics to the endocrine system of various animals. Recycling is not considered an option, even if the infrastructure was there, because during all recycling operations there is degradation of raw material quality. Also, use of plastic ‘waste’ ultimately as a combustion fuel is deemed unacceptable, despite the fact that only 4% of oil globally is used to make plastic – 96% is used for transport, mainly as fuel. The view being pushed is that materials which can degrade with time, are based upon natural resources and that are sustainable, are what should be progressed. However, the sustainability of trees as raw materials was considered equivocal, with Paul having stated categorically that several well-known organisations (such as **Greenpeace, WWF, Friends the Earth**) are not in favour of their use. Where this leaves the global paper industry, which relies heavily upon the packaging sector for capacity, is uncertain.

Ultimately, what came over from this talk is that PR is key. Phrase the question correctly, and get ‘neutral’ or ‘trusted’ groups on your side, and the answers ‘demanded’ by the public flow. Overall, a very interesting discussion, with some exciting propositions as regards possible future directions, but blinkered as to any benefits bestowed by plastic and disappointingly equivocal as to the paper and pulp industry sustainability credentials.

Marco Eikelenboom (Sappi Europe)

The penultimate talk was entitled *The come-back of Graphic Paper: making print media relevant again.* This was a fascinating presentation that seemed to buck ‘received wisdom’. The crux was this: although the publication sector has taken a hammering in the last decade, Sappi consider it has about plateaued. Therefore, there is still a significant amount of tonnage to pursue, and Sappi see this as worthwhile, providing it can be achieved with optimum cost control to maximise revenue.

So the focus of Sappi is to invest in the sector, mainly in cost leadership, and where possible to integrate pulp production (because pulp is the single largest cost component of paper, and when purchased from external suppliers is subject to significant cyclic price variation, hence integration offers the most efficient use of assets). That said, of the 175MT of virgin fibre used in annual paper production, only 111MT is integrated, and of the remaining 64MT of market pulp, graphical paper still remains the number two market (29%), behind Tissue (37%).

Using EBITDA (Earnings Before Interest, Tax, Depreciation and Amortization) as a measure of operating performance, Sappi as a paper producer is being squeezed between the pulp producers (with EDITDA of around 25%) and the FANG (Facebook, Apple, Netflix and Google) digital media companies (EDITDA 30%). They, and printers, merchants and paper publishers are managing EBITDA of 5-10% only. So, since 2012, Sappi has invested over £500M to improve cost competitiveness in order to retain their market share. Furthermore, they consider that digital media is near saturated as regards advertising, and that print will regain some market share as advertisers seek to spread their material across platforms. To this effect, Sappi anticipate that by 2022-2024 the print market should have stabilised (*Figure 3*), albeit with half of the volume (compared with 2008) having disappeared.

Tom Wright (Hawkins Wright)

The final talk was the traditional tour de force from the ranks of Hawkins Wright, given this year by Tom, titled as ever: *The outlook for market pulp.* He started by stating that, for the first time in 15 years (since the start of these Symposia?) that we are approaching a state where investment in

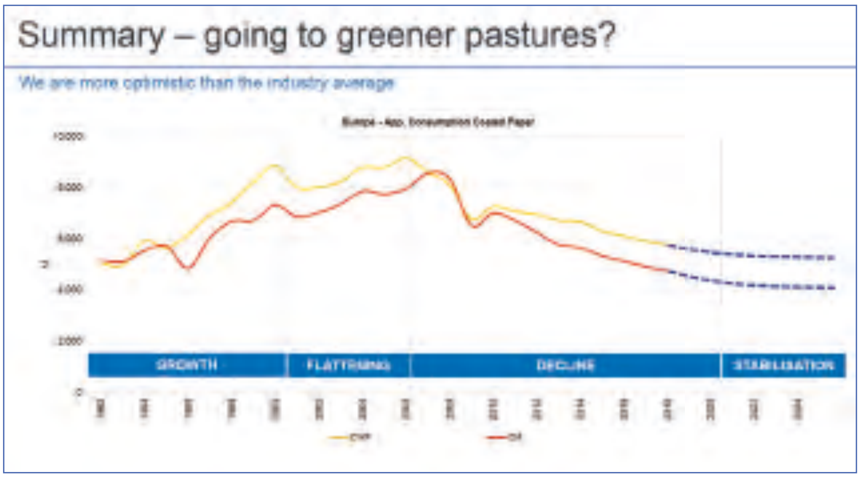


Figure 3. European consumption of coated paper, forecast to the mid-2020s.

new capacity is behind the demand 'trend'. Invariably, investment tends to exceed the underlying demand; not now. Therefore, with the prospect of pulp remaining to be scarce unless some redundant capacity is brought back online, pulp prices are likely to remain high for the next 2-3 years.

It is difficult to see the supply-side responding given the widespread pulpwood shortages; ageing asset base; extreme weather events, climate change; and the current hiatus in the investment cycle (probably until 2021). Alongside this, commodity prices remain high in general, and there is the potential for price sensitivity affecting demand, with paper producers possibly having to select lower grade fibres if they are unable to achieve price rises going forwards.

That said, the global forecast 2017-2022 suggests growth of an extra 5.5Mt, driven mainly by tissue. However, a certain amount of new tissue capacity is integrated. That said, hygiene (tissue and fluff) currently accounts for around 47% of market pulp demand. Also, this does not take into account India, which is a major emerging market especially for the hygiene sector, but also for fibre in general given its current rate of expansion.

Main risks to pulp forecast relate to affordability. Despite rising prices, margin pressure is evident in P&W and speciality sectors, and tissue margins are also being squeezed. Non-integrated assets are most vulnerable, since they are subject to external pressures buffeting the worldwide commodity market. Renewable credentials of paper packaging may be over-looked if paper becomes too expensive. Meanwhile, tissue demand is more resilient, but qualities may change.

Whenever discussing the market pulp outlook it is necessary to mention China, which today accounts for 34% of global pulp demand (up from 14% a decade ago). Pulp demands very much depend upon China, but remain hard to predict. Chinese buying patterns remain unpredictable, and although shipments in 2018 have been slowing, they remain healthy. Meanwhile, paper prices in China are stagnating, and currently are back to where they were in 2016. Also, the restrictions imposed by China in 2017 on importation of low grade recovered fibre did not stimulate an increase in virgin fibre imports, as had been expected. Instead, there has been an increase in importation of finished product (notably recycled grades such as newsprint and fluting) into China in this period. What the Chinese companies have been doing in recent years has been to invest in pulp production assets at source, notably in USA, Canada, Finland and around Asia.

One other change that has been more prevalent in the last 2-3 years has been the change of graphic assets into packaging production, so removing graphical tonnage from the market pulp sector. In Europe this amounts to 3MT (2014-2019), and in USA 4.1MT (2016-2021).

In conclusion, since 2017, where supply-side disruptions have dominated, capacity assumptions have consistently been revised lower, due to project delays, mill conversions or integrations, and existing capacity has failed to operate efficiently due to various disruptions. We now assume the supply-demand balance of 90-91%. Global BCP capacity increases are due to be +2MT in 2018, +0.5MT in 2019, and zero in 2020 (subject to DWP conversions). Going forward, Arauco MAPA is due online in 2021, then very possibly RGE/Lwarcel, UPM Uruguay, Suzano/Fibria, several projects are mooted in Russia and Finland ... but none before 2021-22. In conclusion, we have never seen such a structurally strong industry, and scarce fibre should ensure that inflationary forces will persist for the foreseeable future.

VALMET BREAKFAST SEMINAR November 2018 (LONDON)

Daven Chamberlain

Editor, Paper Technology International

This annual meeting, held during London Pulp Week and just prior to the Hawkins Wright event, consisted of two presentations outlining Valmet's contribution to the Äänekoski Bioproduct Mill and their latest approach to process optimisation.

Teemu Toivo commenced the meeting with a presentation entitled *New innovations in use at the Äänekoski Bioproduct mill*. This site encompasses Europe's largest ever forest product investment. From commencement of construction it took 18 months before production started, and just a year later it had produced its first millionth tonne. Valmet's contribution was Millwide Automation, the Recovery Boiler, the Lime Kiln with Biomass Drier, the Sulphuric Acid Plant, and the Pulp Drying Line including Robo-Baling. The *Recox* boiler (*Figure 1*) produces 2.4 times the energy required by the mill, thanks in part to the innovative heat recovery system, which

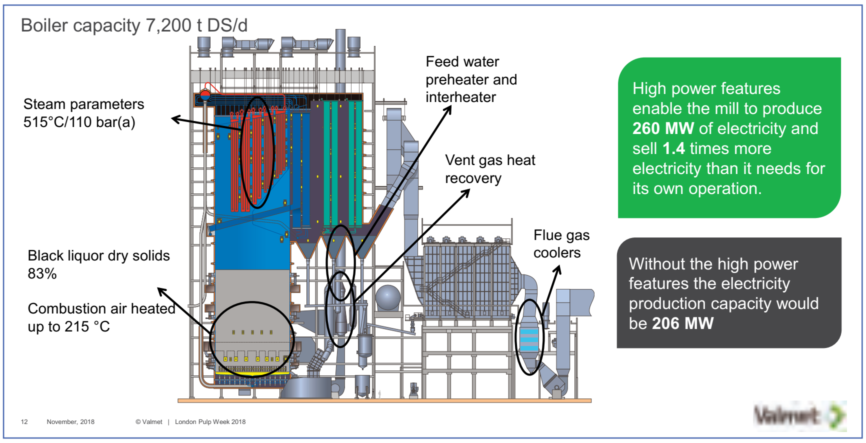


Figure 1. The High Power RECOX boiler.

adds around 30MW to the total 260MW output (representing, incidentally, around 2.5% of all electricity production in Finland). One interesting safety feature of the set-up is the smelt sprout cleaning robot, which minimises interactions between humans and this dangerous part of the recovery boiler. The biomass-fuelled Lime Kiln produces a saving of around €100k/day (compared to use of natural gas), is CO2 neutral, and gives high efficiency without the need for cooling towers. The acid plant is a joint development between Valmet and Metsä, and uses sulphur in odorous gases as a raw material; the quality is sufficiently high that purchase of external product has ceased; furthermore, the output can be ramped up should Metsä decide to instigate lignin production. Finally, the new pulp drying line allows for more even quality of production going forwards, and the close-control has reduced moisture variability from up to +/-12%, to +/- 1%, meaning that customers should receive a more reproducible quantity of fibre in each bale.

The other presentation was by Manfred Eberhardt on *Mill-wide optimization – taking your mill profitability to the next level*. This was a talk about Valmet's current approach to control and planning software applications. Historically they have produced programs to control over the period of seconds (PID controllers) or minutes / hours (typically APC applications) (*Figure 2*). Now they are targeting process coordination and optimisation over the timescale of hours and days, looking at whole processes not just individual applications – processing that is usually undertaken using multiple spreadsheets. The Valmet approach looks for how upstream operations affect downstream processes; for example, how bleaching is better controlled by improving washing, which itself is improved by controlling the digester – an example of a cascade forward approach (*Figure 3*). A case study was given for a European Printing Paper Mill (360,000tpy) which wanted to reduce costs. Analysis found that production of higher strength product, by over-refining stock, increased costs significantly. By controlling stock preparation accurately, and operating consistently at the lower end of 'satisfactory' final strength, gave a €4M/y saving.

Although the first presentation set out to highlight their contribution to a major European installation, the second gave an example of what Valmet can do for any mill site, large or small. In particular, regarding automation and software optimization tools, major technology providers such as Valmet have tools that can benefit all sizes and types of mills, and events such as this are a prime way they can get the message across to a wider audience.

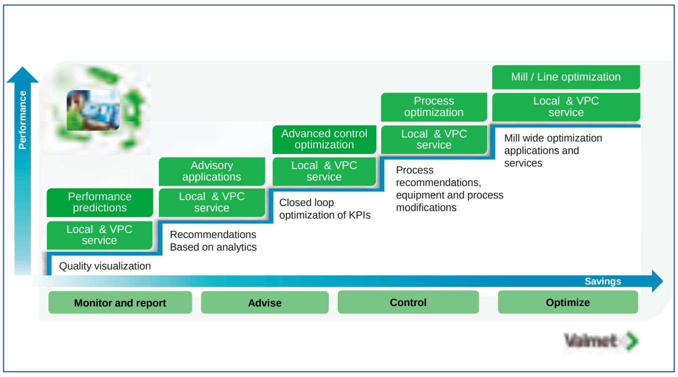


Figure 2. Valmet as a performance provider. Facilitated by Industrial Internet.

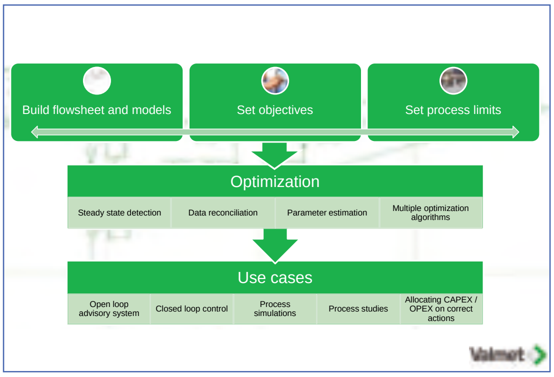


Figure 3. Valmet Mill Wide Optimization. How it works and how it can be utilized.

Energy Review 2018

Steve Freeman

Director of Environmental & Energy Affairs,

CPI

With Brexit dominating political and news agendas, energy didn't draw much attention during the year once the 'almost' gas crisis early in the year was forgotten. Yet long-term prices ticked up relentlessly.

For energy security, the perfect storm of gas supply issues in early March (peaking demand due to bad weather (the Beast from the East) plus an unrelated set of varied connector pipeline problems) highlighted the lack of UK strategic storage following the closure of the key facility at Rough. Gas prices on the spot market briefly reached 275p/therm, with a related spike in power prices.These prices, together with the balancing service methodology operated by National Grid, pushed down demand and no enforced cuts were required. However the issue did raise concerns that the lack of UK controlled strategic storage is a huge and unrecognised risk. After intensive lobbying, BEIS and their Parliamentary Select Committee (with CPI supported input) are currently considering the issue and if action is needed.

Elsewhere on gas issues, the Committee on Climate Change drew attention to a lack of progress with reducing emissions of fossil carbon dioxide associated with heating and of course the first instinct of Treasury is to push up prices to reduce demand. Already an increase in CCL rates has been announced. Decarbonising heat is likely to be a priority for BEIS during 2019 and a joint CPI/PITA working group has already flagged the importance of gas to UK papermaking and highlighted the current lack of viable and cost effective alternatives.

For electricity, the key issue is the unrelenting increase in non-commodity costs and a continued change to the fundamental generating mix. The varied non-commodity costs now make up around 60% of a typical bill. Many of these costs are related to the switch to low-carbon generation and the closure of old-coal fired sets. Making coal uncompetitive is a deliberate policy, largely delivered through high carbon costs, with the budget confirming CPS taxation staying at £18t/CO2 plus a major increase in EU ETS costs as a result of the forthcoming reduction in the availability of EU ETS emission allowances through the market stability reserve. Certainly the political will is that higher carbon costs are here to stay.

Replacement low-carbon generation obviously needs to cover its capital costs and varied policies deliver the reassurance required by investors. The Renewable Obligation continues to increase (even though now closed to new entrants), as does the Feed-in-Tariff and the new Capacity Market. The most recent result of Capacity Market auctions does suggest that prices are being driven down (especially for offshore wind) but the costs from existing contracts are built into the system for up to 20 years – indeed if the new nuclear plant at Hinkley is built, then it's guaranteed inflation linked income for 35 years at roughly double the current market price.

With this new generation capacity being in different places (often offshore) to that being replaced, major structural changes to the power grid are underway with huge associated cost. These are also filtering through to bills with increases to system and distribution network operation charges well above inflation. Ofgem is also in the midst of reviewing the way many of these costs are shared between different classes of customer. Strong lobbying by CPI has obviated the worst impact of some of these proposals on mills, but debates are ongoing.

Fortunately some of these costs are reduced for many mills thanks to the varied discounts and compensation schemes, though a recent report from the steel sector reminded Government that Energy Intensive installations pay hugely more for grid supplied electricity than competitors in France and Germany.

Of course these cost increases reinforce once again the importance of energy efficiency, with PITA and CPI continuing to work with BEIS to deliver the varied actions itemised in the sector 2050 Decarbonisation Roadmap. BEIS is now delivering on some of their policy promises with fiscal support programmes agreed to bring forward new technology and recover heat from currently waste heat. Hopefully 2019 will see a number of paper mills winning support through these programmes.

Retuning to Brexit (where else could we end!) the UK energy market is in an odd place. While Brexit planning is requiring regulatory links to be unpicked, the commercial reality is that investment in new interconnectors (for both power and gas) will bring the operation of UK and continental energy markets closer together – increasingly important as systems struggle with the more intermittent nature of renewable energy; indeed expectations are that around 20% of UK electricity could be imported.

For Climate Change policies, the UK has already confirmed that Brexit will have no impact on the national strategy to decarbonise the economy. EU ETS prices have bounced around as the implications of Brexit play on the market with no clarity on the situation after March – in a hard-Brexit, the UK is out straight away (with a replacement carbon tax), if a negotiated deal, the time to the end of December 2020 will allow a decision on UK participation in the longer-term.

Whatever happens, the fight for competitively priced energy will continue against the context of policies to reduce UK emissions. If energy efficiency isn't high up your list of priorities for 2019 it should be!

RECENT AND UPCOMING BOOKS

Nanocellulose: Fundamentals towards the Development of Materials
Jin Huang and Ning Lin
Wiley (ISBN-13: 978-3527342693)

Paper-based Diagnostics: Current Status and Future Applications
Kevin J. Land
Springer (ISBN-13: 978-3319968681)

The Pharaoh`s Treasure – The Origin of Paper and the Rise of Western Civilization
John Gaudet
(Amberley Publishing (ISBN-13: 978-1445689944)

Biotechnology for Pulp and Paper Processing
Pratima Bajpai
Springer (ISBN-13: 978-9811078521)

Physical Testing of Paper
Roman E. Popil
(ISBN-13: 978-1910242926)

"Paper Mills" Extracted from the Simmons Collection
Herbert Edward Sydney Simmons
BAPH (ISBN: 978-0-9525757-5-7)

Environment Review 2018: Challenges & Opportunities

Debbie Stringer
Environment Manager,
CPI

Environment Review 2018: Challenges & Opportunities

Well, here we are two years on from the "Brexit Decision" but, at the time of writing, little clearer on the outcome and implications, for environmental matters at least. The only certainty, that the outcome and implications will continue to dominate the challenges and, indeed, the opportunities into 2019, and quite possibly beyond!

Other than the ifs, buts and maybes of Brexit, 2018 saw progress in a number of key areas…..

BAT/BAT AELS

The compliance deadline for working to Best Available Techniques (BAT) and the associated BAT Associated Emission Levels (BAT AELs) passed at the end of September. These requirements are now written into mill permits with the first reporting deadline for BAT AELs being end of January 2019. This reporting period is for October to December 2018 and is, therefore, only an **indicative** BAT AEL as the AELs themselves are **annual** loads. They will, however, be a good indicator of any necessary improvement to achieve the BAT AELs by the next reporting period of January 2020 which takes in the full twelve months of 2019. Compliance with the BAT AELs based on this, 2019 data **is required.**

Abstraction Reform

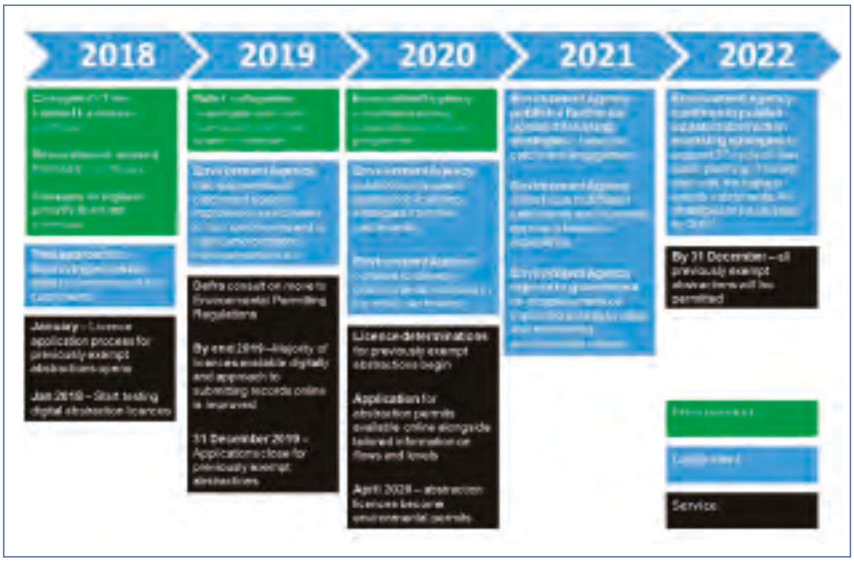
Following several years wrangling with the problem of reforming the regulation of freshwater abstraction, to make the link between abstraction and availability of water, a simplified proposal making use of existing regulation was announced with the ***Abstraction Plan.*** The plan has three strands, Licencing, Catchment approach to solutions and Infrastructure.

With regard to licencing there are elements around revoking unused licences and licencing previously exempt abstraction activities. The most important facet of this strand, however, is moving all abstraction licencing into EPR Permitting. For mills with existing EPR permits, this will involve a variation to bring in abstraction volumes and conditions.

The catchment focus will look at how to assess water availability in a catchment and bring stakeholders together to work on solutions within the catchment, based on the premise that issues, and therefore potential solutions are different for each catchment. Priority catchments are being identified with four in 2018 followed by a further six in 2019, to pilot the development of catchment licencing strategies. The selection of the catchments will be on the basis of priority /water stress. Defra and the EA have formed two working groups. One is looking at how to move from licencing to EPR and the other at indicators for assessing flows and availability within a catchment. CPI is involved, representing the paper sector, in both these working groups. As each priority catchment is identified a catchment stakeholder group will be established to look at water management within that catchment. It will be important, at this stage, for any paper mill within a Priority Catchment to get involved with their catchment group. The EA has published a Timetable for these changes with licencing moving into permits by 2020 and the abstraction licencing strategies to be published in 2020 and 2022 for the ten identified priority catchments. The principles could then be rolled out to other catchments on the basis of need.

The third strand of the plan, involving the infrastructure, includes the development of flow monitoring and digital licencing, allowing online access to licences and data.

Given the importance of water as a resource for the Paper Industry it is vital to be involved at all stages in the development and implementations of the Abstraction Plan.



Performance Based Regulation

The EA began the process of streamlining its assessment and scoring of permit compliance in 2018, replacing the Operation Risk Appraisal (OPRA) score with performance Based Regulation (PBR) over a "five-year strategic programme". The OPRA system classes sites based on their risk, scale of emissions and complexity, combined with a rating of compliance with permit conditions, whilst PBR which combines new and existing approaches to regulation into four strands:

- information-based regulation
- permit compliance
- incentive-based regulation
- behavioural interventions

PBR will focus more on abiding with permit conditions, with the most compliant installations subject to fewer inspections and lower fees, according to the EA. There are opportunities here, to gain and to benefit from recognition for good performing mills. The challenge will be in responding to EA consultations and other interaction with the regulator to ensure appropriate criteria for assessment.

Each of these key areas present challenges and opportunities in their own right, going forward into 2019, with the added challenge and, indeed, opportunity if whatever the outcome and implications of Brexit may bring in 2019 … and beyond!

Tissue Review 2018

Pirkko Petäjä
Principal Consultant,
Pöyry Management Consulting

High pulp prices is the focal topic

The market pulp prices have continuously risen since late 2016 and are currently on a record high. In the tissue industry this is today the main topic everywhere; the ability to transfer the raw material prices to the product prices determines the feasibility of the industry even more than the market growth and the competitive situation.

The continuing economic growth has reflected in high pulp prices but also in good tissue demand growth in many locations, though political turmoil, low oil prices etc. have weakened the market in for instance Latin America and the Middle East.

Tissue demand is not very sensitive to cyclical variations in the economy; certain demand sustains and grows regardless of economic cycle depending on fundaments like basic consumption per capita, penetration of usage and population growth. However, the economic growth strengthens tissue consumption. Especially sensitive is the AfH segment through high employment rate, increasing tourism and eating out etc. In an economic boom also the quality requirements increase and boost consumption in terms of higher number of layers, new products etc.

Europe

The Western European tissue demand is forecast to continue to grow some 1.6%/a over the next couple of years. The Eastern European (excluding Russia) market has experienced some growth variations in the recent years, but has still growth potential; the market is forecast to grow 3.5% per annum until 2025. Total European growth is estimated at 1.9%/a.

Capacity increases have been brisk especially in some European regions making the situation locally even tighter than it already is due to the high pulp raw material prices.

Americas

In North America the market growth rate for total market is estimated at 1.8%/a, but the growth is focused on retail Private Label and Away from Home segments. These growth segments show in the next years some 3.0% annual growth rate. The PL penetration maintains an upward trend as major tissue retailers continue to expand and invest in their PL programs. The growth is especially good in high quality PL products as producers must compete successfully with the branded products. Many PL players have invested in premium base paper technologies such as NTT and TAD.

The Latin American longer term tissue market growth is estimated at some 3%/a. Brazil and Mexico together account for most of the market. The consumption of tissue in Brazil has been practically stable due to the unfavourable economic situation, but will grow again as the economy improves. The annual growth rate is conservatively estimated at 2.7% in the long term (below the regional average). Mexico has had a more stable growth, and many of the smaller Latin American economies have significant potential due to the currently very low consumption per capita.

Middle East and North Africa

For the past decade the Middle East and North Africa have been among the fastest growing regions. However, recent years especially in the Middle East have shown slower growth rates due to e.g. decreasing private spending, devaluation of currencies, sanctions (Iran) and political instability or turbulence.

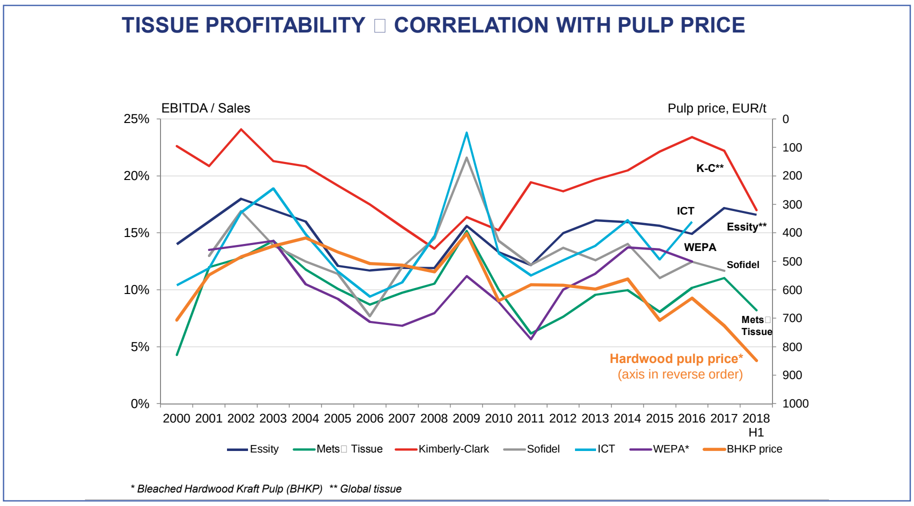
The MENA area (excluding Turkey and Israel) is forecast to grow some 5.4%/a in the next couple of years. Tissue demand growth in Saudi Arabia and the UAE is forecast to be slow as a result of the sluggish economies and introduction of 5% VAT, but forecast to pick up in 2019-21. Consumption in Turkey continues on steady growth track, but so do also the capacity expansions. Also due to the devaluation of the currency the export of especially jumbo reels continues strong.

China and other Asia

The global tissue growth continues to be led by the growth in Asia, particularly China where the growth continues at 5-6%/a rate. China and Indonesia impact the global market also as exporters of tissue. China has a significant impact in the fibre markets as well; the recovered fibre ban has increased virgin fibre consumption and contributed to the high pulp prices globally. Also European and American recovered fibre balance has had an impact.

How do the high pulp prices impact?

The current pulp prices account for some 70% of virgin tissue jumbo reel costs and about 50% of the converted product costs. It is clear that pulp price is the single most important driver for the tissue business profitability. The fibre integrated players have had a major advantage since last year. This has further increased the interest in the integrated concept.




COMPONENTS
SYSTEMS
SERVICES

European Containerboard and Corrugated Board Review 2018

Outi Juntti,
Jay Partners

Market continues on growth path

As the past has shown containerboard and corrugated board market reacts quickly on movements in macroeconomics, particularly those of industrial production, and often on even slight chances in near future projections. This was very visible in 2018; during the first two quarters industrial production was growing briskly at some 2.5-3% but decreased to some 1% in the third quartile (the final quartile data being unavailable as yet). The European containerboard and corrugated board market followed the same pattern and until May the market grew by over 4% in Western Europe and over 5% in Central and Eastern Europe. However, slight signs of softening of the demand started to emerge during the fourth quartile and prices in e.g. Germany, Poland and Italy started to decline. However, the fundamentals supporting corrugated packaging remain unchanged and further boost deriving from e-commerce growth and increasingly negative perception of plastic packaging can be expected.

New investment announcements keep rolling in

The favourable market development has continued now for several years, good future prospects as well as companies' desire to keep up with the competition and technology development have been driving investment activity since recession. At some point financiers and industry experts have raised concerns of oversupply and market unbalance and certain projects have been postponed or even cancelled. However, year 2018 turned out to be more active in investment front than any year so far.

In recycled containerboard five new machines, IP Madrid, Pro-Gest Mantova, Burgo Avezzano, Leipa Schwedt and Schumacher in Poland, started up bringing nearly 2MT of new capacity. Furthermore, several new investment decisions were announced including giant Propapier PM3 in Germany with annual capacity of 750,000 tonnes and Burgo's Verzuolo conversion. Plans under consideration were published as well as eg. DS Smith, Blue Paper and Palm revealed that they are investigating new recycled containerboard machine projects. Robust market development in kraftliner is also inducing capacity expansions. During the summer Stora Enso, SCA and Ilim Group all revealed that they are investigating kraftliner investments in Finland, Sweden and Russia. As for Mondi, the company decided to go ahead with the Ruzomberok kraft top white liner machine in Ruzomberok Slovakia. When taking into account Kipas's plans in Turkey and few smaller projects in Germany and Italy, the decided and planned expansions total over 6MT. Without significant closures of older machines, the market will need nearly a decade with the average demand growth to absorb this volume should all the projects materialise.

Two giants leading the consolidation

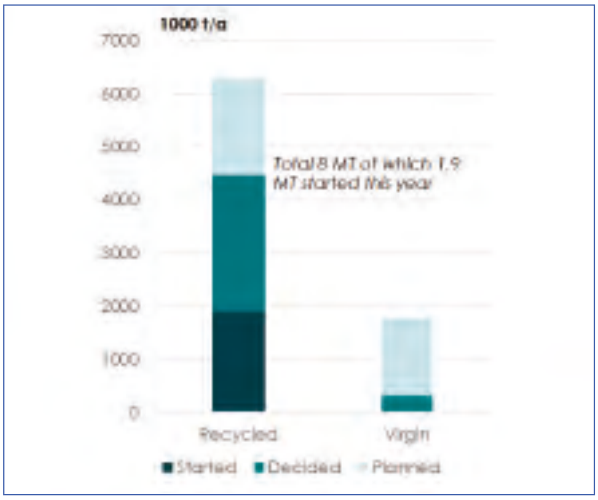
The two largest companies in both containerboard and corrugated board production, Smurfit Kappa Group (SKG) and DS Smith, have been leading the industry consolidation. In this respect 2018 was no exception, but others like SAICA and Mondi were-active on acquisition front as well.

In June DS Smith's bid on Spanish Europac became public and in November European Commission (EC) approved the acquisition on condition of divesting one Europac corrugated plant in Portugal and two of its own plants in France. The Europac acquisition provides several benefits for DS Smith; it strengthens the company's position in Iberia and France, which together account for well over 20% of the European corrugated box demand. Furthermore it gives a significant boost to the containerboard capacity; 1.1MT and extensive product portfolio consisting of white-top grades and kraftliner, where DS Smith has been lacking own production. The deal will strengthen the company's position as the second largest player in Europe.

The largest company, Smurfit Kappa, did not stay idle either, but made again few rational moves. In May it took over Parenco, a Dutch containerboard and recycling company, which improved the group's paper integration by over 400,000 tonnes and created access to additional 700,000 tonnes of recovered fibre. In October SKG expanded its presence in South Eastern Europe by signing an agreement with Kappa Star Group for the acquisition of recycled containerboard producer Fabrika Hartije Beograd and corrugated packaging company Avala Ada in Serbia. Smurfit Kappa benefitted also from the DS Smith Europac deal and in December it purchased the two French DS Smith corrugated plants that EC requested to divest. Furthermore, SKG took over Papcart, a French FMCG and luxury cartonboard and corrugated board manufacturer.

First news on SAICA's plans to take over the French Emin Leydier were published already in July 2017 and the deal was sealed by the competition authorities on March 1, 2018. Emin Leydier's two mills in France increased SAICA's containerboard capacity to 3.3MT and the eight corrugated plants made the company as the third largest in France after SKG and DS Smith. Mondi's acquisition of Finnish semichemical fluting (NSSC) producer Powerfute was also initiated in 2017 and approved by EC in May. The deal will fortify Mondi's position as one of the leading virgin containerboard producers in Europe and expands its product portfolio with the highest quality NSSC grade.

All these deals described above can be considered as very reasonable strategic moves which will hopefully not only improve the operations of the companies in question but also enhance the overall position of corrugated board packaging in the eyes of brand owners and retailers. Large companies will be able to serve them better due to economies of scale and pan-European presence whilst smaller players can provide more advanced value proposition in their selected geographies or products.



Containerboard capacity expansions in 2018

Newsprint Review 2018

Gustav Ek
Consultant
Pöyry Management Consulting

2018 has again been an interesting year for the newsprint market with the uncertainties surrounding Brexit continuing to dominate the agenda. In 2017 the pound reached its lowest level against the Euro since 2009 and although it recovered marginally towards the latter half of 2017 and the start of 2018 it has remained very weak throughout the last twelve months.

Domestic UK newsprint producers have benefited to some extent from the weak pound as higher import prices has meant an increase in demand from the home market. They have also benefited from the weak pound by exploiting the export opportunities this creates. *Figure 1* shows how the UK balance of trade has shifted. Net imports of newsprint have been falling for the last few years and this continued in 2018 with quantities in July and August falling below 20,000 tonnes per month. This can be attributed to the weakened pound against the Euro.

A positive thing for newsprint producers is that newsprint prices have increased over the last twelve months and at the same time over the same period RCP prices have remained fairly stable (as shown in *Figure 2*). This means clearly improved margin potential for the mills. However, with advertising spend continuing to decline and moved to other media platforms and circulation figures continuing to fall it has resulted in increasingly worrying times for publishers with titles being forced to be discontinued or moved increasingly to online platforms. The RCP prices are also showing recovering trends although uncertainties in the RCP market continue. The latter half of 2017 and beginning of 2018 saw news & pams prices in Germany and UK decreasing after significant increases for the previous eighteen months. However, as *Figure 2* illustrates prices have recovered during 2018 and are once again on the up creating challenging times for newsprint producers whose production costs are dominated by recovered paper prices. With increasing demand for recovered paper coming from the tissue manufacturers the price of recovered paper is likely to continue to increase in 2019.

In 2017 China announced that from the start of 2018 it would impose much tighter controls on waste paper coming into the country, banning the import of OCC and mixed waste paper and tightening the quality standard of waste it receives by introducing maximum contamination levels permitted. As *Figure 3* illustrates the export of news and pams from the UK to China has been in decline since 2015 but stabilised for 2016 and 2017. Although the controls imposed by China do not extend to news & pams, 2018 nevertheless has seen a decrease in exports from UK to China, whereas the export to the Rest of the World has increased substantially from the previous two years in which there was significant decline.

Newsprint demand continues to fall in Europe. 2016 - 2017 saw a decline in the region of 5-6%. Capacity in Europe fell in 2018 by nearly 450,000 tonnes mainly due to the conversion of Leipa PM 5 and the shutdown of Papierfabrik Utzenstorf AG PM's 1 and 2. There are currently no further planned capacity reductions for 2019

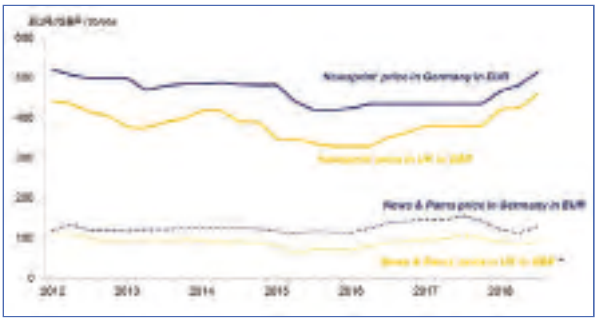


Figure 2: UK and German newsprint price v price for news & pams

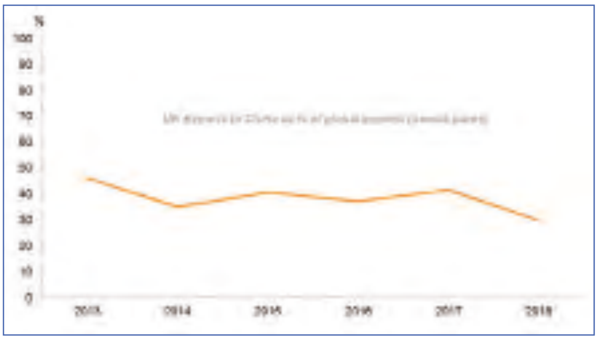


Figure 3: UK news and pams exports to China

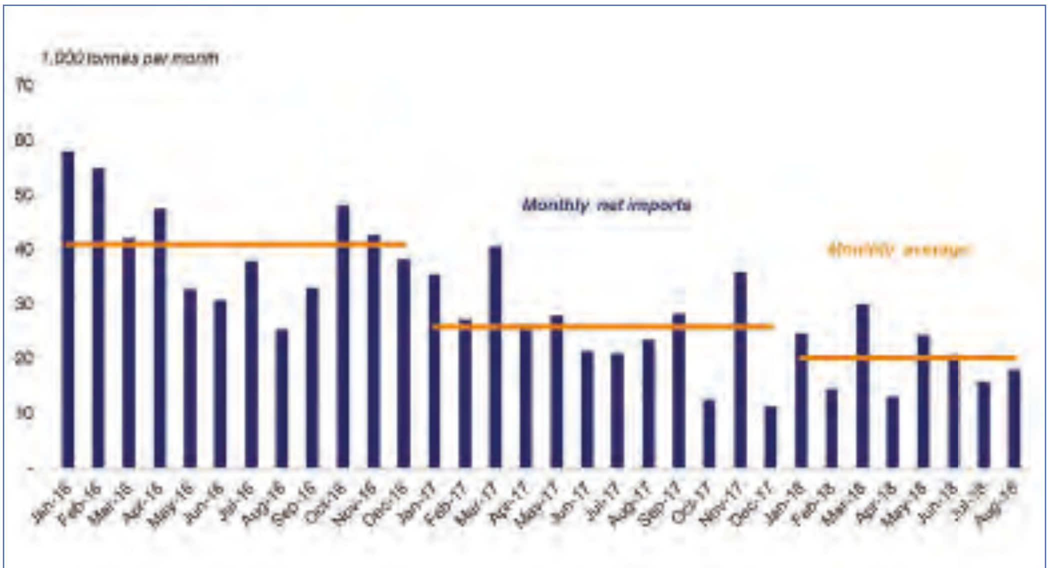


Figure 1: The UK newsprint monthly Net Trade (Net Imports)

Wood-Based Panels Industry Review 2018

Orifjon Abidov
Economic Adviser,
European Panel Federation

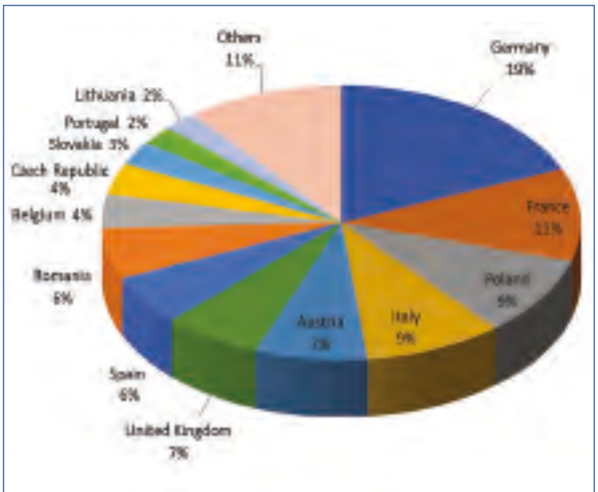
Summary

According to the figures drawn from the EPF Annual Report published in July 2017 - an extensive compilation of industry statistics collected by the federation - the total production of European wood-based panels increased by 3%, reaching a total of 57.6 million m³. Particleboard production increased by 2.7% to 31.2 million m³. Medium Density Fibreboard (MDF) also grew, recording an increase of 1.5% to a total of 12.3 million m³. Oriented Strand Board (OSB), the third largest panel type by volume, rose by 3.3% to 5.6 million m³. Regarding Softboard, its production increased by 6.9% to reach 4.9 million m³. Plywood production in Europe developed very positively with an impressive growth of 7.8% to 3.2 million m³. The only panel type that did not increase in production terms during 2017 was Hardboard which dropped by 3% to 0.5 million m³.

Development by sector

Following an upturn in 2015 and 2016, the European **particleboard** production in the EPF member countries increased further by 2.7% in 2017, exceeding the expectations. Output amounted to nearly 31.2 million m³. Germany remained the largest particleboard producing country in Europe with 5.8 million m3 in 2017, accounting for just under one fifth of the EU-EFTA production volume (19%).

The expectations for 2018 are quite positive with a rise in production in the whole EU-EFTA area, estimated at +2.5%. The overall European particleboard production capacity increased slightly by 0.4% in 2017 or 130,000 m³, amounting to 36.5 million m³. The only addition of capacity took place in Switzerland. The overall European particleboard production capacity is foreseen to increase by maximum 4.6% in 2018 to reach almost 38.2 million m³. New capacity will be added in Poland and there is a capacity expansion project in Spain. At the same time, there are two projects to restart existing plants in Italy and Slovenia in 2018, although it depends on when these investments will come on stream.



Breakdown of particleboard production by country in 2017

MDF production in Europe grew further by 1.5% in 2017 reaching 12.3 million m³, excluding Turkish and Russian production. With a growing output (+7%) of about 3.8 million m³, Germany is still the largest European MDF producer in 2017 followed by Poland, France, the United Kingdom and Spain in decreasing order of importance. The European production capacity of MDF increased very slightly by 130,000 m³ to 15 million m³ in 2017, mainly as a result of the extension in one plant in Italy.

The European production of **OSB** rose by 3.3% in 2017 to 5.6 million m³. Germany and Romania have the largest European OSB production capacities. Following an expansion in 2017, Poland and the United Kingdom now complete the Top 4 of OSB production countries measured by capacity, followed by the Czech Republic, Ireland and Latvia. The European production capacity of OSB increased significantly in 2017 by 6.5% to 6.9 million m³. In 2018, new capacity is expected only in Luxembourg, which will take the European OSB production capacity to 7.1 million m³.

In 2017, the production of **hardboard** in Europe excluding Russia continued to decrease by 3% compared to 2016, down to a total of 526,000 m³. Total EU 28 and EFTA installed production capacity for hardboard amounted to 707,000 m³ in 2017, a drop from 742,000 m³ the previous year. This followed a closure in France where a plant was closed at the end of 2016. Russia is by far the main European producer, followed by the EU leaders Poland and Bulgaria. When taking into account Russia, Belarus, Ukraine and Serbia, the total European production capacity reached 1,424,000 m³ which is a decrease of 2.4% compared to 2016.

For the sixth year in a row, the European production of **softboard** increased. In 2017, output rose by 6.9% compared to 2016, reaching nearly 4.9 million m³. Rigid softboard accounted for 62% (63% in 2016) of the output and flex softboard for 38% (37% in 2016). The installed production capacity for rigid softboard remained stable at 3.5 million m³ in 2017. The production capacity for flex softboards also remained stable at 2.2 million m³. For both softboard types, Poland, France and Germany are the main producers in Europe. Poland has the highest capacity for rigid softboards, whereas Germany is the leader in flexible softboards. Switzerland too has a significant production capacity for rigid softboard, albeit at a reduced level from 2014.

In 2017, the EU28 **plywood** production amounted to 3.2 million m³, representing an increase of 7.8% compared to 2016. This important increase is unequally shared by the different countries. The highest increase is recorded for Spain with a more than 15% growth, as a consequence of the development of new capacity. Finland and the Baltic States also show significant increases: 9% and 7% respectively. The overall European output increased by 2.6%. Despite a slight decrease of its output, Russia remains by far the largest producer in Europe representing more than half of the total European production, followed by Finland, Spain, the Baltic States, Italy and France. In 2018, production is expected to increase by around 3% in the EU28 as well as in Russia.

Exhibitions for 2019

28 – 30 January
Paper One Show, Beirut
https://paperoneshow.net

4 – 7 February
Paperweek Canada
www.paperweekcanada.ca

25 – 27 March
Tissue World Europe, Italy
www.tissueworld.com

5 – 8 May
PaperCon 2019, USA
http://papercon.org

25 – 27 June
Zellcheming, Germany
www.zellcheming.de

18 – 20 September
Paper ME / Tissue ME, Egypt
www.papermideast.com

9 – 11 October
MIAC, Italy
www.miac.info

3 – 6 December
Paperex 2019, India
http://india.paperex-expo.com

For those receiving this publication by surface mail, please note the change to a biopolymer wrapper; part of PITA's support for the Bioeconomy.

PITA TRAINING COURSES - Q1/Q2 2019

PITA Energy Optimisation *(26th/27th February)*

PITA 'An Introduction to Tissue Manufacture' *(12th/14th March)*

PITA Pump Efficiency *(30th April)*

PITA Paper Appreciation *(14th/15th May)*

Fundamentals of Waste Water Treatment *(11th/12th June)*

See PITA website for updates and further details

The Paper Industry Gold Medal

Call for Nominations

From time to time there are a few outstanding people who work to further the interests of their industry, over and above their duties to any individual company. The Paper Industry, like any other, owes its success to the commitment, effort and skill of these ambassadors. For over forty years the UK paper industry has sought to reward this commitment in the form of a prestigious annual award

A Brief Background:

The **Gold Medal Award** was established in 1966 by "*The World's Paper Trade Review*" magazine which was published by Benn Brothers and edited by Eric Haylock. The magazine later became known as "*Paper*" and its publishers continued to sponsor the Medal until 1993.

In 1982 Mr George Mandl, himself the Gold Medal winner in 1981, launched the **Paper Industry Gold Medallists' Association** with the support of all concerned and since 2005, a newly formed independent **'Gold Medal Association'** has undertaken this responsibility and representatives from other supporting Paper Industry Organisations have been invited to serve on its Award Committee. All Gold Medal winners are automatically members of the **Gold Medal Association** and thus it is probably one of the most exclusive associations in the UK Paper Industry.

The Future of the Medal:

Since the Medal was launched the UK Paper Industry has changed a great deal. Accordingly the number and type of businesses, industries and organisations associated with it have increased too. To reflect these changes, the Committee wishes to broaden the scope of the award to encourage more support from associations / organisations and to enable nominees from a wide variety of backgrounds across the Fibre, Paper and Board Value Chain to be considered.

This is your opportunity to be involved by nominating a potential recipient.

How to Nominate Someone:

Nominations are accepted from associations and other organisations associated with the industry, or from individuals or companies through their respective organisations.

The nominees must be within a pulp or paper related industry and the nomination must include supporting material which demonstrates the individual's personal contribution to the Industry as a whole, not just to their company.

Nominations are invited Annually. The Committee must receive all nominations by the end of January in order that the Gold Medal can be presented at an appropriate industry function; indeed, it is usual to make the presentation at the Charter Dinner of the Worshipful Company of Stationers and Newspaper Makers, which usually takes place around May.

If you would like to nominate someone, please write to the address below giving as much information about your nominee as possible and in particular provide specific examples of your nominee's achievements on behalf of the industry and why you consider him (or her) to be a suitable recipient of the medal.

All nominations MUST be received at the address below by the end of February.

What about the Winner of the Gold Medal?

Winning the **Gold Medal Award** is a prestigious achievement and as such brings the recipient well-earned publicity and recognition. The winner automatically becomes a member of the **Gold Medal Association** and is invited to write a paper on their topic of expertise which will be offered for publication in the UK's leading Trade Journal, ***Paper Technology***.

For Further Information:

Contact the **Honorary Secretary** (Barry Read) via:

The Paper Industry Technical Association ¦ 5 Frecheville Court ¦ Bury ¦ Lancashire ¦ BL9 0UF
T: 0300 3020 150 ¦ F: 0300 3020 160 ¦ E: info@papergoldmedal.org.uk ¦ www.papergoldmedal.org.uk

Industry Statistics 2017

Information supplied courtesy of CPI, CEPI and HM Revenue and Customs

2017 – Summary

As reported last year, 2016 was remarkably quiet, and 2017 followed a very similar vein. The reopening of Tawd Mill by Essity was a highlight, but the closure of PM2 at Stubbins meant that the year ended with very little change in total installed capacity.

That said, the pie chart displayed overleaf describing the destinations of recovered fibre makes interesting reading, especially when compared to recent years. Exports of PfR to China had been on the rise for a decade, until their instigation of the National Sword regulations which banned imports of low grade waste. Exports to China dropped by 8% in 2017; data shows this slack to have been taken up by indigenous UK manufacturers (which is to be welcomed), India, Indonesia, Vietnam and the EU.

2018 – Preliminary Assessment

No new capacity came on stream during 2018, although Ahlstrom Churnside did commence laying down a second-hand Voith machine obtained from China, due to start in 2019-2020. Both Palm and Smurfit Kappa Townsend Hook added new power plant which will significantly cut their carbon footprint. Iggesund Workington announced updating of their coating kitchen and finishing area to improve quality and efficiency. Finally, as regards manufacturing, 2018 saw the welcome return of an old name (Portals) to the industry, as De La Rue divested its papermaking arm.

On the converting side of the industry, a reasonable amount of investment occurred. There was consolidation involving Solidus Solutions Board buying Northern Paper Board Ltd; Logson acquiring the Cardboard Box Company; Duni purchased 75% of Biopac UK Ltd; and VPK Packaging Group increased their holding of CorrBoard UK. Next there was investment, notably Rigid Containers extending their premises at Limerick; the Greaseproof Printing Company commencing operations in Wales; Progroup AG stated plans to build new plant in the UK; and two paper straw manufacturers were formed following the announcement by the UK Government of plans to ban plastic straws by 2019-2020: London Paper Straws Ltd is based in East London and The Paper Straw Company in situated in Manchester.

Finally, it is worth a quick note about fibre sources. Following sustained pressure from environmentalists and celebrities, extra work has been performed by UK companies to investigate recycling of single use beverage cups. James Cropper has made a success of the work for several years, Costa Coffee is putting money into schemes and now DS Smith has come on-board.

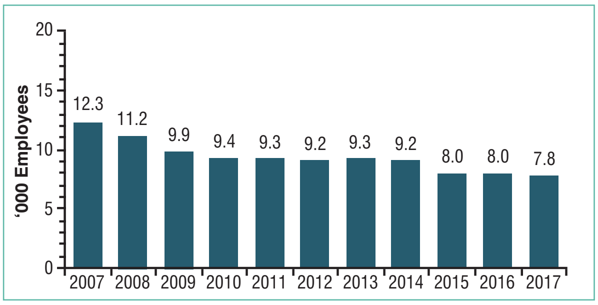
2019 – Preview

Going forward there is still a single overarching topic that continues to hang over the whole country – Brexit. It had been assumed that things would have become clearer in 2018, but that has not been the case. The implications to our industry, which both imports raw materials and exports finished goods, are potentially serious yet as I write this in early December it is now unclear whether Brexit will even occur. We await clarification.

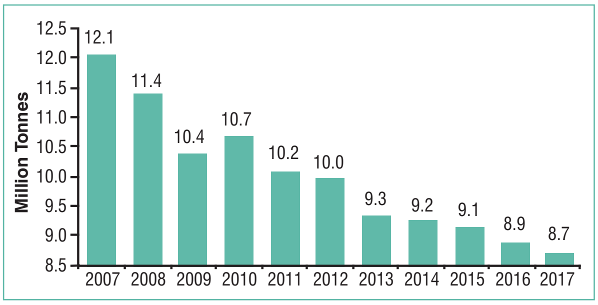
Daven Chamberlain, Editor, Paper Technology

UK Data (CPI/HM Revenue & Customs)

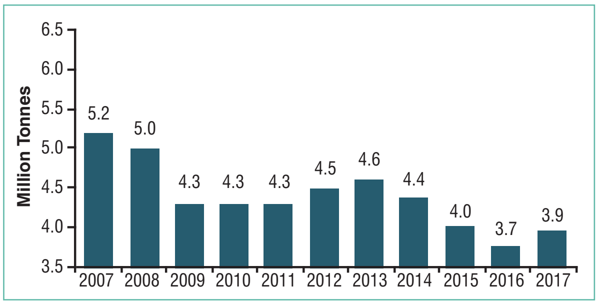
Numbers Employed in the Paper Industry 2007-2017



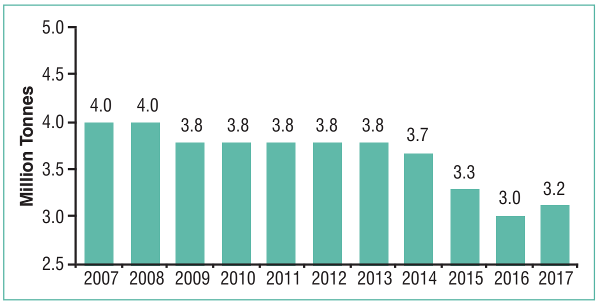
UK Consumption of Paper and Board 2007-2017



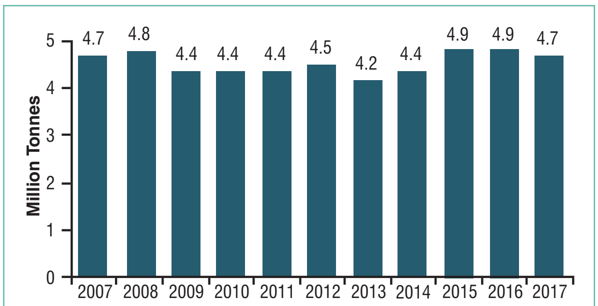
UK Production of Paper and Board 2007-2017



Recovered Paper Usage in UK Papermaking 2007-2017

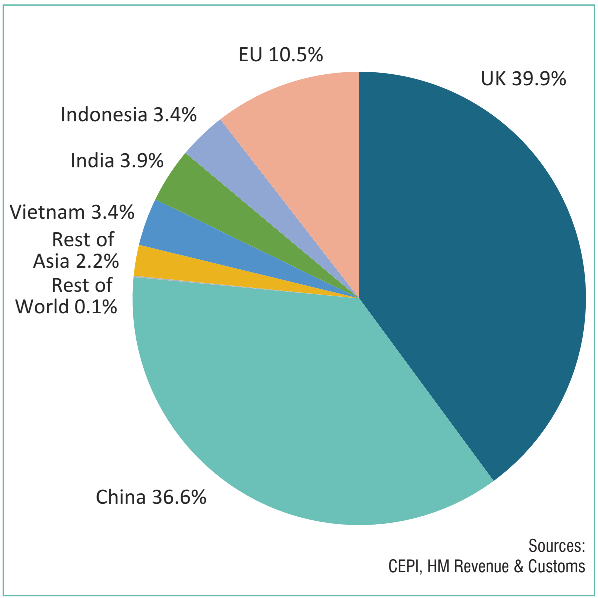


Recovered Paper Exports 2007-2017



Source: HM Revenue & Customs

Recovered Paper Markets 2017



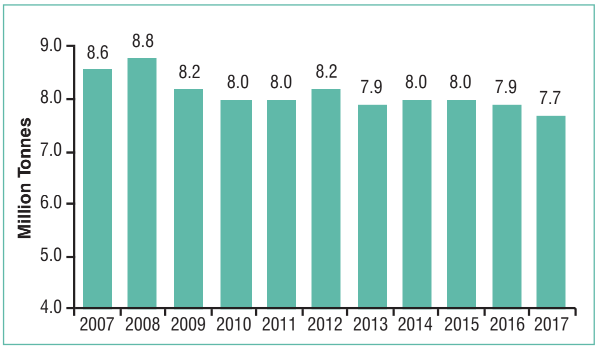
UK Paper and Board Facts & Figures 2017

KEY FIGURES OF THE UK'S PAPER-BASED INDUSTRIES

56,000	*56,000 people are employed in the UK manufacturing paper and paper products*	Jobs
1,497	*1,497 UK enterprises are engaged in the manufacture of paper products*	Companies
£11.5 billion	*UK companies manufacturing paper have a turnover of £11,532 million*	Turnover
£4 billion	*UK manufacture of paper has a Gross Value Added of £4,078 million*	GVA

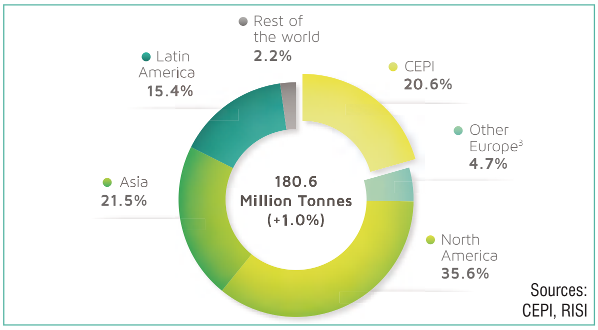
Source: ONS, Annual Business Survey 2017, SIC 17

Recovered Paper Collection 2007-2017

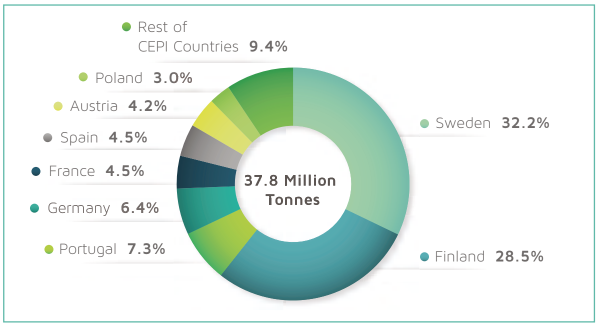


European Data (CEPI)
Pulp – Global View

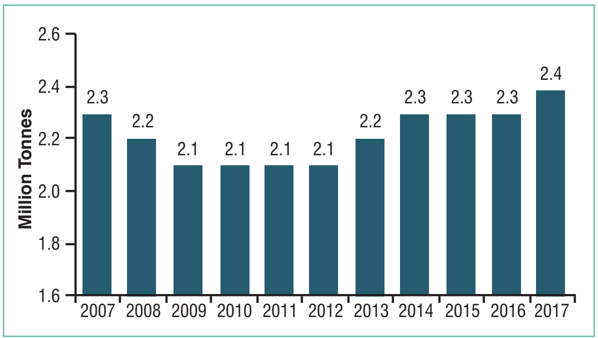
Pulp Production by Region in 2016



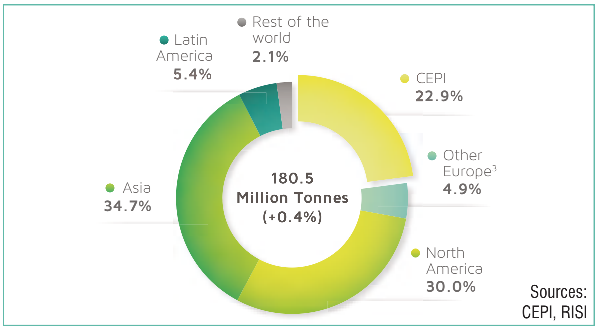
Pulp Production by CEPI Country in 2017



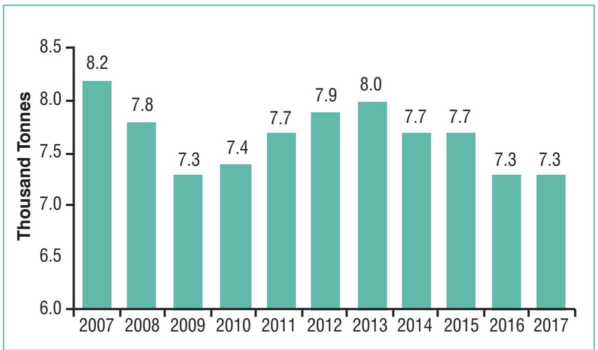
Consumption of Paper by Corrugators 2007-2017



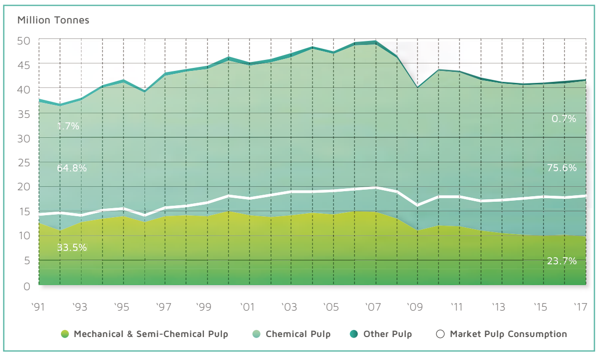
Pulp Consumption by Region in 2016



Production of Tissue Parent Reels 2007-2017



Pulp Consumption by Grade CEPI Countries in 1991-2017



Pulp

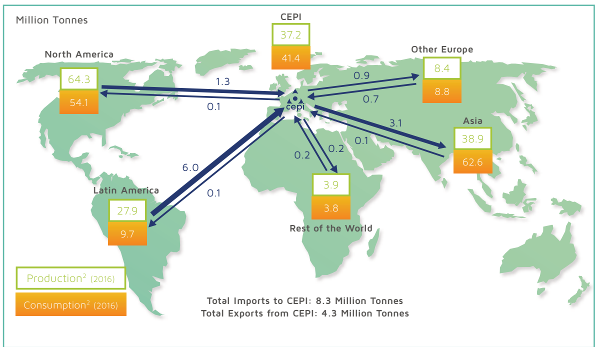
CEPI Exports of Pulp to Other Regions 2000-2017

000 Tonnes	2000	2005	2010	2016	2017	% Share of Total	% Change 2017/2016
Other Europe	724	674	719	878	**911**	21.0	3.7
North America	104	187	62	53	**45**	1.0	-14.6
Latin America	6	20	49	64	**51**	1.2	-20.4
Asia	412	1,076	1,595	2,630	**3,083**	71.2	17.2
Rest of the World	86	114	142	231	**240**	5.5	3.8
Total	**1,332**	**2,071**	**2,567**	**3,857**	**4,330**	**100.0**	**12.3**

CEPI Imports of Pulp from Other Regions 2000-2017

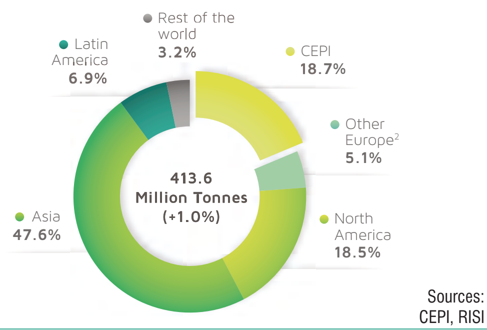
000 Tonnes	2000	2005	2010	2016	2017	% Share of Total	% Change 2017/2016
Other Europe	657	615	480	718	**713**	8.6	-0.7
North America	4,623	3,891	2,292	1,348	**1,310**	15.9	-2.8
Latin America	1,916	2,825	4,733	5,728	**6,019**	72.8	5.1
Asia	272	197	134	141	**72**	0.9	-49.0
Rest of the World	456	433	81	142	**153**	1.8	7.7
Total	**7,924**	**7,961**	**7,721**	**8,077**	**8,2679**	**100.0**	**2.3**

Trade Flows of Pulp to and from CEPI Countries in 2017



Paper & Board Production and Consumption in CEPI Countries 1991-2017

Paper & Board Consumption by Region in 2016



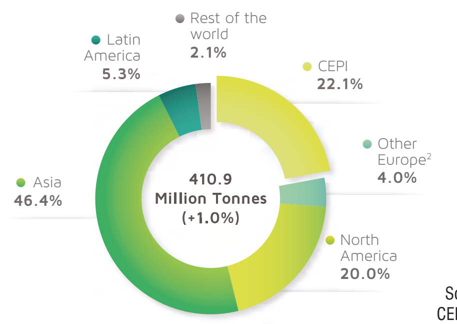
Sources: CEPI, RISI

CEPI Exports of Paper & Board to Other Regions 2000-2017

000 Tonnes	2000	2005	2010	2016	2017	% Share of Total	% Change 2017/2016
Other Europe	6,090	6,825	7,349	7,253	**7,503**	37.3	3.4
North America	2,283	2,802	2,055	2,246	**2,306**	11.5	2.7
Latin America	874	1,194	1,879	1,608	**1,842**	9.1	14.5
Asia	2,933	4,742	5,099	4,972	**5,518**	27.4	11.0
Rest of the World	1,707	2,229	2,783	3,061	**2,958**	14.7	-3.4
Total	**13,887**	**17,793**	**19,164**	**19,139**	**20,127**	**100.0**	**5.2**

Paper – Global View

Paper & Board Production by Region in 2016

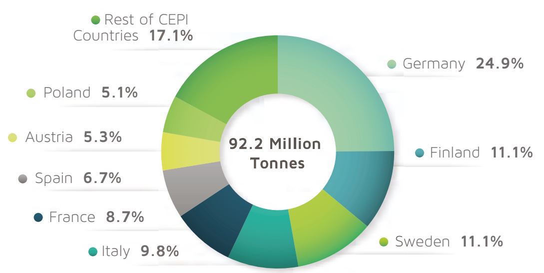


Sources: CEPI, RISI

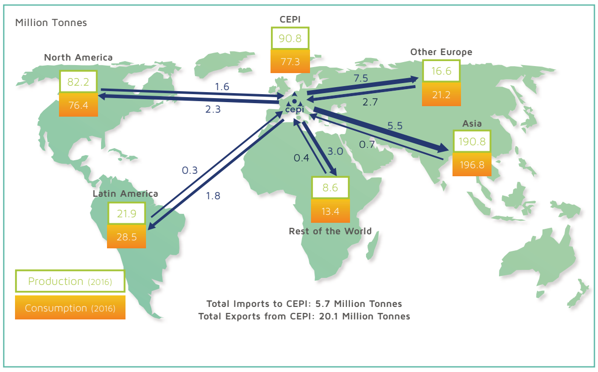
CEPI Imports of Paper & Board from Other Regions 2000-2017

000 Tonnes	2000	2005	2010	2016	2017	% Share of Total	% Change 2017/2016
Other Europe	3,318	2,727	2,525	2,650	**2,714**	47.9	2.4
North America	2,191	1,915	1,829	1,648	**1,623**	28.6	-1.5
Latin America	198	498	498	347	**314**	5.5	-9.5
Asia	332	394	625	675	**666**	11.8	-1.3
Rest of the World	344	369	307	368	**351**	6.2	-4.6
Total	**6,383**	**5,903**	**5,783**	**5,688**	**5,668**	**100.0**	**-0.4**

Paper & Board Production by CEPI Country in 2017



Trade Flows of Paper & Board to and from CEPI Countries in 2017



European Liaison Committee for Pulp and Paper

General Secretariat: Virginie Batais (France), c/o ATIP, 23 Rue d'Aumale F-75009 Paris, France.
Tel: +33 1 45 62 11 91. Fax: +33 1 45 63 53 09.

The General Secretariat remains in Paris primarily for legal reasons as EUCEPA is a French registered body. In practical terms the operation of EUCEPA is hosted on a six month rotation by the member Associations.

***NB** to dial any European telephone number from the UK, replace (+) by (00);*
to dial the UK from Europe prefix UK by (00) with the exception of Spain which is (07) and Sweden (009)

Austria
ÖZEPA
The Austrian Association of Pulp and Paper Chemists and Technicians,
A-1060 Wien, Gumpendorferstraße 6, Vienna, Austria.
Tel: +43-1-588-86-234.
e.mail: Theresa.bernhart@austropapier.at
Web: www.austropapier.at
Year of Foundation: 1912
President: Kurt Maier
Manager: Gabriele Herzog & Katherin Höfferer

Czech/Slovak Republics
SPPC
Czech Paper Technical Association
Novotného lávka 5, CZ 116 68 Praha 1, Czech Republic.
Tel: +42 0777 313 897.
Web: www.sppc.cz
e.mail: l.belicova@seznam.cz
Year of Foundation: 1969
Chairman: Jan Gojný
Secretary: Ludmila Belicová

Finland
Forest Products Engineers
Spektri Business Park, Metsänneidonkuja 4, 02130 Espoo, Finland.
Tel: +358-40-132-6688.
e.mail: antti.lindqvist@puunjalostusinsinoorit.fi
Web: www.puunjalostusinsinoorit.fi
Year and Place of Foundation: 1914, Helsinki
Chairman: Riikku Joukio
Managing Director: Antti Lindqvist

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ATIP
Technical Association of the French Paper Industry
23 Rue d'Aumale, 75009 Paris, France
Tel: +33-1-45-62-11-91.
e.mail: contact@atip.fr
Web: www.atip.asso.fr
Year and Place of Foundation: 1947, Paris
Managing Director: Isabelle Margain
Président: Stéphane Marquerie

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Carl-Zeiss-Str. 3, D-64331 Weiterstadt, Germany
Tel: +49 6150 5 44 84 04.
e.mail: zellcheming@zellcheming.de
Web: www.zellcheming.de
Year and Place of Foundation: 1905 Berlin
Chairman: Erich Kollmar
Managing Director: Petra Hanke

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5 Frecheville Court, Bury, Lancashire BL9 0UF
Tel: +44-300-3020-150.
e.mail:info@pita.co.uk
Web: www.pita.org.uk
Year of Foundation: 1920
Chairman: John Kirby
Chief Executive: Barry Read

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1135 Budapest, Tahi út 53-59
Tel: +36-1-783-0347.
e.mail: pnyme@pnyme.hu
Web: https://pnyme.hu
Year and Place of Foundation: 1948, Budapest
Executive Director: Sándor Pesti
Chairman: Endre Fábián

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Bastioni di Porta Volta 7, 20121 Milano, M1, Italy.
Tel: +39-02-62 91-13-08.
e.mail: segreteria@aticelca.it
Web: www.aticelca.it
Year of Foundation: 1967
General Secretary: Massimo Ramunni
President: Flavio Stragliotto

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PTF
The Technical Association of the Norwegian Pulp and Paper Industry
P.O. Box 13, Blindern, NO-0313, Oslo, Norway.
Tel: +47-90-93-87-13.
e.mail: irene.skjefstad.ptf@treteknisk.no
Web: www.ptf.no
Year of Foundation: 1914
Chairman: Rolf Hauge
Administrative Secretary: Irene Skjefstad

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SPP
Technical Association of the Polish Paper Industry
P.O. Box 200, Pl. Komuny Paryskiej 5A, 90-007 Lodz
Tel: +48-42-630-0117.
e.mail: info@spp.pl
Web: www.spp.pl
Year of Foundation: 1946
Chairman: Maciej Kunda
General Director: Janusz Turski

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Tel: +351-249-324-858.
e.mail: info@tecnicelpa.com
Web: www.technicelpa.com
Year and Place of Foundation: 1980, Tomar
General Assembly President: Carlos Fernando Pedro dos Santos
Directive Board President: Pedro Miguel Costa Matos Silva

Slovenia
DITP
Association of Pulp and Paper Engineers and Technicians of Slovenia
SI-1000 Ljubljana, Bogisiceva 8, Slovenia
Tel: +386-1-200-2832.
e.mail: ditp@icp-lj.si
Web: www.gzs.si
Year and Place of Foundation: 1971, Ljubljana
President: Marko Jagodič
Secretary: Tea Kapun

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SPCI
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SPCI Secretariat, Box 5515, S-11485, Stockholm, Sweden
Tel: +46-8-783-8400.
e.mail: info@spci.se
Web: www.spci.se
Year of Foundation: 1908
Chairman: Kristina Enander
Executive Director: Marina Asp

World Paper Industry Technical Associations

Argentina
AFCP
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Tel: +54-(011)-4931-0051.
e.mail: afcparg@afcparg.org.ar
Web: www.afcparg.org.ar
Chief Executive Office: Néstor Nisnik

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Fax: +61-3-9467-9778.
Web: http://appita.com
Year of Foundation: 1946
President: Stephen Parkinson
Executive Director: Adele Elice-Invaso

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ABTCP
Associação Brasileira Técnica de Celulose e Papel
Rua Zequinha de Abreu 27, Pacaembu, São Paolo,
SP CEP 01250-050.
Tel: +55-11-3874-2700.
e.mail: enlace@abtcp.org.br
Web: www.abtcp.org.br
Year of Foundation: 1967
Executive Director: Darcio Berni

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PAPTAC
6300 Ave Auteuil, suite 440, Brossard, Québec, J4Z 3P2, Canada.
Tel: +1-514-392-0265. Fax: +1-514-392-0369.
e.mail: ghay@paptac.ca
Web: www.paptac.ca
Year of Foundation: 1915
Executive Director: Greg Hay
Chairman: Eric Ashby

Chile
ATCP
Asociación Técnica de la Celulosa y el Papel
Yungay 1033, Pedro de Valdivia, Concepción, Chile.
Tel: +56-41-2-88-81-30.
e.mail: atcpchile@atcp.cl
Web: www.atcp.cl
Year of Foundation: 1972
President: Álvaro Oñat
General Secretary: Handel Tapia

China
CTAPI
China Technical Association of Paper Industry
Sinolight Plaza, 4 Qiyang Road, Chaoyang District, Beijing, China
Tel: +86-010-647-78761 Fax: +86-010-647-78769
Web: www.ctapi.org.cn
e.mail: service@ctapi.org.cn
Year of Foundation: 1964
President: Chen Xuezhong
Secretary General: Cao Chunyu

Columbia
ACOTEPAC
Asociación Colombiana de Técnicos de la Industria de Pulpa, Papel y Cartón, Carrera 28, No.92-10, Pereira, Risaralda, Columbia
Tel: +57-6-3200-392
e.mail: acotepac@etp.net.co
Web: www.acotepacolombia.com
Executive Director: Isabel Cristina Cardona Ruiz
President: Nelson Hernando Quiñones Hurtado

India
IPPTA
C.P.P.R.I. Campus, Paper Mill Road, Near Himmat Nagar, Saharanpur - 247001, India
Tel: +91-132-271-4081.
Web: www.ippta.co
e.mail: info@ippta.co
Year of Foundation: 1964
President: Shri Pawan Agarwal
Chief Operating Officer: Neehar Aggarwal

Japan
Japan TAPPI
Kami Pulp Kaikan Building, 9-11, Ginza, 3-Chome, Chuo-Ku, Tokyo 104-8139, Japan.
Tel: +81-3-3248-4841. Fax: +81-3-3248-4843.
e.mail: info@japantappi.org
Web: www.japantappi.org/e/
Year of Foundation: 1947
President: Kazufumi Yamasaki
Executive Director: Dr. Takanori Miyanishi

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Korean Technical Association of the Pulp and Paper Industry
Suite 701, Chungmu Bidg., 7, Yeouidaebang-ro 69(yuksipgu)-gil, Yeongdeungpo-gu, Seoul, 07333, South Korea
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e.mail: ktappi@ktappi.or.kr
Web: www.ktappi.or.kr
Year of Foundation: 1967
President: Hak Lae Lee

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No.60, Nanhai Road, Taipei City,, Republic of China.
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e.mail: twntappi@ms31.hinet.net
Secretary General: Zhang Qingbia

United States of America
TAPPI
15 Technology Parkway South, Suite 115, Peachtree Corners, GA 30092, USA.
Tel: +1-770-446-1400. Fax: +1-770-446-6947.
Web: www.tappi.org
Year of Foundation: 1915
President: Larry Montague
Chairman: Paul R. Durocher

Venezuela
APROPACA
La Asociación Venezolana de productores de Pulpa, Papel y Cartón
Avenida Romulo Gallegos, Edif. Johnson & Johnson-piso 2 Oficina 2B, Los Dos Caminos, Caracas, Venezuela.
Tel: +58-234-31-30. Fax: +58-234-65-42
Web: www.apropaca.com.ve
e.mail: apropaca@apropaca.com.ve
Year of Foundation: around 1985
President: Enrique Larrazábal

Corporate Members

A

ABB LTD
Process Industries
Hareness Road, Aberdeen, AB12 3LE
Website: www.abb.com
Contact: Paul Clark

AIKAWA FIBER TECHNOLOGIES
Wear parts and new equipment to optimize screening, refining, stock prep and machine approach operations
PL 241, Kiertotie 27, 78201 Varkaus, Finland
Tel: +358 207 429 200, Fax: +358 207 429 280
Email: sales@aikawagroup.com
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Contact: Outi Jappinen

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Chemical Sales
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Email: david.puddiphatt@archroma.com
Website: www.archroma.com
Contact: David Puddiphatt

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Chineham, Basingstoke, Hants RG24 8QY
Tel: 01256 728996 Fax: 01256 728983
Website: www.arjowiggins.com
Contact: John Cooper

ARJOWIGGINS CHARTHAM LTD
Paper Manufacturer
Station Road, Chartham, Canterbury, Kent, CT4 7JA
Tel: 01227 813532 Fax: 01227 813510
Website: www.arjowiggins.tracingpapers.com
Contact: Mark Hobday

ARJOWIGGINS FINE PAPERS LTD
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Stoneywood Mill, Bucksburn, Aberdeen, Scotland, AB21 9AB
Tel: 01224 802220 Fax: 01224 802373
Website: www.arjowiggins.com
Contact: Angus MacSween

AXCHEM UK
Chemicals for the Paper Industry
Axchem House, Unit 3, Commercial Road, Tower Business Park, Darwen, BB3 0FJ
Tel: 0845 301 6710
Email: info@axchem.co.uk
Website: www.axchem.co.uk
Contact: Stuart Thomas

B

BILLERUDKORSNÄS BEETHAM LTD
Paper Manufacturer
Waterhouse Mills, Beetham,
Milnthorpe, Cumbria, LA7 7AR
Tel: 015395 65000 Fax: 015395 65033
Website: www.billerudkorsnas.com
Contact: Ying Sou

BIM UNITED KINGDOM LTD
Chemical Supplier
Prince Street, Bolton, Lancashire, BL1 2NP
Tel: 01204 366997 Fax: 01204 366998
Website: www.bimkemi.com
Contact: Julian Wood

BLACKBURN CHEMICALS LTD
Manufacturers of Antifoams and Crepe-Control Chemicals
Whitebirk Industrial Estate, Blackburn, Lancashire, BB1 5SX
Tel: 01254 52222 Fax: 01254 664224
Email: info@bbchem.co.uk
Website: www.bbchem.co.uk
Contact: Martin Wroe

BPMSA EXECUTIVE
Promoting the British Paper Machinery Suppliers
11 Kentmere Close, Church Meadows, Unsworth,
Bury, Lancashire, BL9 8EY
Tel: 0161 767 8479
Email: a.pope2@btinternet.com
Website: www.picon.com
Contact: Tony Pope

BUCKMAN (Europe, Middle East, North Africa)
Chemical manufacturer and supplier
Wondelgemkaai 157, 9000 Gent, Belgium
Tel: +32 9 257 92 11 (Office) Fax: +32 9 253 62 95
Website: http://buckman.com
UK Contact: Sean Sunley
Belgian Contact: Mark Conyngham
Email: europe@buckman.com

C

CARLSON FILTRATION LTD
Butts Mill, Barnoldswick,
Lancashire, BB18 5HP
Tel: 01282 811000
Contact: Paul Hirst

CRISTAL PIGMENTS (UK) LTD
Titanium dioxide pigment manufacture
PO Box 26, Grimsby, NE Lincs, DN41 8DP
Tel: 01469 553241 Fax: 01469-553310
Email: mike.denman@cristal.com
Website: www.cristal.com
Contact: Michael Denman

D

DS SMITH PAPER LTD
Paper Manufacturer
Head Office, Kemsley Mill, Sittingbourne, Kent, ME10 2TD
Tel: 01628 518900
Website: www.dssmith.com

Divisional, Technical Engineering Services Department
Kemsley Paper Mill, Sittingbourne, Kent, ME10 2TD
Tel: 01795 5189 Fax: 01795 414212
Website: www.dssmith.com
Contact: Guy Lacey

E

ECOL STUDIO S.P.A
Laboratory & Consultancy Services
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Tel: +39 0583 40011 Fax: +39 0583 400300
Email: info@ecolstudio.com
Website: www.ecolstudio.com

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Industry Regulation
Radioactive Substances and Industrial Regulation Unit
Manley House, Kestrel Way, Sowton Industrial Estate,
Exeter, Devon, EX2 7LQ
Website: www.environment-agency.gov.uk
Contact: Spence Seaman

ENVIROSYSTEMS (UK) LTD
Recyclers of Paper Mill Crumb for Agriculture
Bartle Cross Park, Barton, Preston, Lancashire, PR3 5AX
Tel: 01772 860085
Email: henry@envirosystems.co.uk
Website: www.envirosystems.co.uk
Contact: Henry Russell

F

FOURSTONES PAPER MILL CO LTD
Papermaking and converting of creped and absorbent papers
South Tyne Mill, Fourstones,
Hexham, Northumberland, NE46 3SD
Tel: 01434 602444 Fax: 01434 607046
Website: www.fourstonespapermill.co.uk
Contact: Peter Duxbury

G

G.B.C. (SPECIALITY CHEMICALS) LTD
Recyclable Barrier Chemicals
3 High Street, Ascott-Under-Wychwood,
Chipping Norton, Oxfordshire, OX7 6AW
Tel: 01993 832551
Email: info@gbcspecs.co.uk
Website: www.luminova.co.uk
Contact: Adrian Iley

GLV
GLV designs and markets equipment used in various stages of pulp and paper production, from pulp preparation to sheet forming and finishing. GLV serves the global market with spare parts, rebuilds, upgrades and optimization services for new and existing equipment. Our group is focused on innovation and provides technologies that generate energy and cost savings for our customers.
Box 47100, 100 74 Stockholm, Sweden
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Email: info@Sweden@glv.com
Website: www.glvpulppaper.com
Contact: Paul Spencer

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Tel: 01594 842235
Website: www.glatfelter.com
Contact: David Carscadden

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Contact: Catherine Cooper

J

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Website: www.petrofer.co.uk
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Website: www.pilz.co.uk
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Contact: John Williams

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Contact: Mark Ransom

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Website: www.raumasterpaper.fi
Contact: Kaarlo Talvinen

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Contact: Nigel Pontin

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www.matryx-hygiene.com
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British Paper Machinery Suppliers Association (BPMSA)	https://picon.com
British Printing Industries Federation – Cartons (BPIF Cartons)	www.bpifcartons.org.uk
British Wood Pulp Association (BWPA)	www.bwpa.org.uk
Confederation of Paper Industries (CPI)	https://paper.org.uk
Forest Stewardship Council (FSC) UK	www.fsc-uk.org
Packaging Federation	www.packagingfedn.co.uk
Paper and Board Association (P&BA)	http://paperandboard.org.uk
The Paper Industry Gold Medal Association	http://papergoldmedal.org.uk
Programme for the Endorsement of Forest Certification (PEFC) UK	www.pefc.co.uk
Recycling Association	www.therecyclingassociation.com
Rubber and Plastic Research Association (RAPRA)	www.rapra.org
Sheet Plant Association (SPA)	www.sheetplantassociation.com
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LUXEMBURG

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Z.I. Gadderscheier, B.P. 109, L - 4902 Sanem
Tel: +35 (0)25 - 90 31 11
www.kronospan-worldwide.com

THE NETHERLANDS

CROWN VAN GELDER B.V.
Postbus 30, 1950 AA Velsen-Noord
Tel: +31 (0)251 - 26 22 33
www.cvg.nl

DE SCHOOLMEESTER PAPIERMOLEN
Guispad 3, NL-1551 SX Westzaan
Tel: +31 (0)75 - 621 44 65
https://zaanschemolen.nl

DS SMITH PACKAGING NETHERLANDS B.V.
De Hoop Mill, Harderwijkerweg 41, 6961 GH Eerbeek
Tel: +31 (0)313 - 67 79 22
www.dssmith.com

ENKEV B.V.
De Toek 2, P.O. Box 3, 1130 AA Volendam
Tel: +31 (0)299 - 36 43 55
www.enkev.com

ESKA B.V.
Noorderstraat 394, 9611 AW Sappemeer
Tel.: +31 (0)598 - 31 89 11
www.eska.com

ESKA B.V.
M. Veningastraat 114-116, 9601 KJ Hoogezand
Tel: +31 (0)598 - 31 89 11
www.eska.com

ESSITY CUIJ
Lange Linden 22, 5433 NC Katwijk NB
Tel: +31 (0)485 - 33 93 39
www.essity.nl

ESSITY SUAMEER (NONWOVENS)
Solcamastraat 24, 9262 ND Suameer
Tel: +31 (0)511 - 46 66 66
www.essity.nl

HUHTAMAKI NEDERLAND B.V.
Zuidelijke Industrieweg 3-7, 8801 JB Franeker,
Tel: +31 (0)517 - 39 93 99
www.huhtamaki.com

MAYR-MELNHOF EERBEEK B.V.
Coldenhovenseweg 12, 6961 ED Eerbeek
Tel: +31 (0)313 - 67 51 11
www.mm-karton.com

MEERSSEN PAPIER B.V.
Weert 78, 6231 SB Meerssen
Tel: +31 (0)433 - 66 35 00
www.meerssen-papier.com

NEDERLANDS OPENLUCHTMUSEUM
(The Netherlands Open Air Museum)
Hoeferlaan 4, 6816 SG Arnhem
Tel: +31 (0)263 - 57 61 11
www.openluchtmuseum.nl

NEENAH COLDENHOVE
D.W. van Vreeswijklaan 9
6961 LG Eerbeek
Tel: +31 (0)313 - 67 06 70
www.coldenhove.com

PAPERFOAM NETHERLANDS
Hermesweg 22, 3771 ND Barneveld
Tel: +31 (0)342 - 40 16 67
www.paperfoam.com

PAPIERFABRIEK DE MIDDELSTE MOLEN
Kanaal Zuid 497, 7371 GL Loenen (Veluwe)
Tel: +31 (0)55 - 505 29 11
www.demiddelstemolen.nl

PAPIERFABRIEK DOETINCHEM B.V.
Terborgseweg 52, 7005 BB Doetinchem
Tel: +31 (0)314 - 34 79 11
www.papierfabriekdoetinchem.nl

PRESSWOOD INTERNATIONAL B.V. (particle)
Lokhorstweg 13a-27, 3851 SE Ermelo
Tel: +31 (0)341 - 55 33 79
www.presswood.nl

SAPPI MAASTRICHT B.V.
Biesenweg 16, 6211 AA Maastricht
Tel: +31 (0)433 82 22 22
www.sappi.com

SCHUT PAPIER
Kabeljauw 2, 6866 NE Heelsum
Tel: +31 (0)317 - 31 91 10
www.schutpapier.nl

SMURFIT KAPPA PARENCO
Papiermolenweg 1, 6871 AV Renkum
Tel: +31 (0)317 - 36 19 11
www.smurfitkappa.com

SMURFIT KAPPA ROERMOND PAPIER B.V.
Mijnheerkensweg 18, 6041 TA Roermond
Tel: +31 (0)475 - 38 44 44
www.smurfitkappa.com

SOLIDUS SOLUTIONS BOARD B.V.
Hoofdstraat 34, 9693 ZG Bad Nieuweschans
Tel: +31 (0)50 - 30 33 000
https://solidus-solutions.com

SOLIDUS SOLUTIONS BOARD B.V.
Robertweg 2, 7741 KX Coevorden
Tel: +31 (0)50 - 30 33 000
https://solidus-solutions.com

SOLIDUS SOLUTIONS BOARD B.V.
Halmstraat 1-3, 9745 BC Groningen-Hoogkerk
Tel: +31 (0)50 - 30 33 000
https://solidus-solutions.com

SOLIDUS SOLUTIONS BOARD B.V.
W.H. Bosgrastraat 82, 9665 PH Oude-Pekela
Tel: +31 (0)50 - 30 33 000
https://solidus-solutions.com

SOLIDPACK B.V.
Voorsterweg 38, 7371 GC Loenen
Tel: +31 (0)55 - 505 82 22
www.smart-packaging-solutions.com

TRESPA INTERNATIONAL B.V. (MDF)
Wetering 20, 6002 SM Weert
Tel: +31 (0)495 - 45 83 58
www.trespa.com

UNILIN (MDF)
Zone Industrielle, F-08140 Bazeilles
Tel: +33 324 - 22 70 70
www.unilinpanels.com

UNILIN (MDF)
Rue de la Forêt 2, 6690 Vielsalm
Tel: +32 (0)80 - 29 27 10
www.unilinpanels.com

VHP SECURITY PAPER
Wezenweg 2, 7339 GS Ugchelen
Tel: +31 (0)55 - 533 21 32
www.vhpsp.com

WEPA NEDERLAND B.V.
Boutestraat 125, 6071 JR Swalmen
Tel: +31 (0)88 0183 000
www.wepa.nl

CONTACT DETAILS FOR SELECTED EUROPEAN GROUPS / ASSOCIATIONS

Alliance for Beverage Cartons and the Environment (ACE)	www.ace.be
Association of the Belgian Pulp, Paper and Board Producers (COBELPA)	www.cobelpa.be
Bureau of International Recycling (BIR)	www.bir.org
Confederation of European Paper Industries (CEPI)	www.cepi.org
European Carton Makers Association (ECMA)	www.ecma.org
European Federation of Corrugated Board Manufacturers (FEFCO)	www.fefco.org
European Liaison Committee for Pulp & Paper (EUCEPA)	www.eucepa.eu
European Paper Recycling Council (EPRC)	www.paperrecovery.org
European Recovered Paper Association (ERPA)	www.euric-aisbl.eu
European Tissue Symposium (ETS)	https://europeantissue.com
International Association of the Deinking Industry (INGEDE)	www.ingede.org
Royal Dutch Timber Trade Association (VVNH)	www.vvnh.nl
Royal Netherlands' Paper and Board Association (VNP)	https://vnp.nl
Waste Paper Trade C.V. (WPT)	www.wpt-nl.com

Mills in the Middle East Region

BAHRAIN

OLAYAN KIMBERLY-CLARK (OKC)
Askar, Ti
http://olayan.com

IRAN

ARIAN CELLULOSE SANAT
Alborz, Hy, Ti
www.golrang.com

ARIAN SINA INC.
Sari, MDF
www.ariansina.com

ARTA DECOR & ARTA PAN
Ardebil, De / HDF / MDF
www.artagroup.com

AZERBAIJAN NARMEH PAPER INDUSTRIES
Tabriz, Ti

CHOUKA IRAN WOOD & PAPER INDUSTRIES INC.
Gilan, Pa
www.chouka.com

GOLPOUNE PARS INDUSTRIAL
Tehran, Ti
www.pskcompany.com

HARIR KHUZESTAN CO.
Haft Tappeh Industrial City, Ti
www.harirpaperco.com

IRAN OSB
Tehran, OSB
www.iranosb.com

IRAN PAPYRUS CO. LTD.
Saveh, Bo

ISOFAM
Tehran, MDF/ PB
www.isofam.ir

KPM KAHRIZAK PAPER MILLS
Tehrán, Pa
www.kpmpaper.com

LATIF PAPER CO.
Hashtgerd Industrial City, Ti
www.latifpaper.ir

MAZANDARAN WOOD AND PAPER INDUSTRIES
Sair, Ne / P&W / Pa
http://en.mazpaper.com

NOGHTEH COMPANY
Semnan Province, MDF
http://noghteh-co.com

PARS HAYAT PRODUCTION CO.
Zenjan, Hy, Ti
http://parshayat.ir

PARS NEOPAN
Nashtaroud, MDF / PB
http://parsneopan.com

PARS PAPER INDUSTRIAL GROUP
Haft Tappeh, P&W / Pa / Pulp
http://parspaper.ir

RAHAN TAVAN CO.
Tehran, MDF / PB
www.rahantavan.com

SANAYE CHOOBE KHAZAR CO.
Amol City, MDF

SUGARCANE DEVELOPMENT AND COMMERCE DEVELOPMENT COMPANY
Shoeybieh, MDF
www.iran-sugar.com

ZARRIN BARG PERSIA CO
Saveh, Ti
www.bargezarrin.com

ISRAEL

HADERA PAPER GROUP
Hadera, Fi / Pa / P&W / Se
www.hadera-paper.co.il/en

HARTMANN-MAI LTD.
Nathanya, MP
www.hartmann.dk

MILOUBAN (M.C.P.) LTD.
Nahariya, Pu (cotton)
www.milouban.com

SHANIV PAPER INDUSTRIES LTD.
Ofakim, Ti
www.shaniv.com

TUT NEYAR
Zichron-Ya`akov, Hand
http://tutneyar.wix.com/tutneyar

JORDAN

AL-KEENA HYGIENIC PAPER MILL CO. LTD.
Amman, Ti
www.nuqultissue.com

AL-SNOBAR HYGIENIC PAPER MILL CO. LTD.
Amman, Ti
www.nuqulgroup.com

JORDAN PAPER AND CARDBOARD FACTORIES CO. LTD.
Awajan–Zarqa, Bo / Pa
www.jordanpaper.com

KUWAIT

AL OULA PAPER MANUFACTURING CO.
Shuaiba, Pa

GULF PAPER MANUFACTURING
Fahaheel, CB / Pa / Ti
www.gulfpaper.com

UNITED PAPER INDUSTRIES CO.
Shuaiba, Pa / Sa
www.upi.com.kw

LEBANON

SANITARY PAPER COMPANY - MIMOSA
Kaa El Rim, Pa / Ti
www.mimosa.com.lb

SICOMO
Kab-Elias, Bo / CB / Pa
www.sicomo.com.lb

SIPCO GANDOUR STE. INDUSTRIELLE DE PAPIER ET DE CARTON ONDULE
Kafarshima, Bo / Re / MP
http://sipco0.tripod.com

SOLICAR SOCIÉTÉ LIBANAISE DE CARTON
Sin El Fil, Bo / Pa
www.solicar.com

UNIPAK TISSUE MILL
Halat, Ti
www.indevcopapermaking.com

QATAR

AL SUWAIDI PAPER FACTORY
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www.alsuwaidipaper.com

ELITE PAPER RECYCLING
Doha, Pa
www.eprqatar.com

SAUDI ARABIA

AL-FARIS PAPER MILL
Jeddah, Ti
www.fpm.sa

ARAB PAPER MANUFACTURING (WARAQ)
Dammam, CB / Pa
www.waraq.com

GULF PAPER INDUSTRIES FACTORY CO.
Riyadh, Kr / Pa / Ti
www.alrajhigroup.com

MIDDLE EAST PAPER CO. (MEPCO)
Jeddah, Pa
www.mepco.biz

OBEIKAN PAPER INDUSTRIES
Riyadh, Bo
www.obeikan.com.sa

SAUDI PAPER MANUFACTURING CO.
Dammam, Ti
www.saudipaper.com

SYRIA

ARAB COMPANY FOR PAPER PRODUCTS J.S.C. (ARAPEPCO)
Aleppo, Bo / Pa / Re
www.arapepco.com

DINATEX PAPER MANUFACTURING
Damascus, Ti

ORIENTAL PAPER (LANATEX)
Damascus, Ti

PULP AND PAPER MILL
Dayr al-Zawr

SYROPAPER (AZZOUZ GROUP)
Damascus, Kr / Pa / Sa

MEDITERRANEAN CO. for TISSUE
Jableh, Ti

UNITED ARAB EMIRATES

ABU DHABI NATIONAL PAPER MILL (ADNIB)
Abu Dabi, Ti
www.adnpm.ae

AL NAKHEEL HYGIENIC PAPER MILL
Abu Dhabi, Ti
www.nuqultissue.com

AR RAGI PAPER IND.
Abu Dhabi, Hand

CROWN PAPER MILL LTD.
Industrial city of Abu Dhabi (ICAD), Ti
www.crownpapermill.com

GULF PAPER MANUFACTURING CO. K.S.C
Jebel Ali, CB / Pa / Ti
www.gulfpaper.com

ITTIHAD PAPER MILL LLC
Industrial City of Abu Dhabi, P&W
www.ittihadinvestment.ae

QUEENEX HYGIENE PAPER MFG L.L.C.
Abu Dhabi, Ti
http://qhpm.ae

STAR PAPER MILL LTD.
Abu Dhabi, Ti

UMM AL QUWAIN PAPER PRODUCTS
Uum Al Qwain, CB / Pa
www.uaqpaper.ae

UNION PAPER MILLS
Dubai, CB / Pa
www.upmuae.com

PRODUCT KEY – see p48

Mills in Norway

ARBOR-HATTFJELLDAL AS
8690 Hattfjelldal, Norway
Tel: +47 75 18 50 00
Website: https://www.arbor.no
Products: Particleboard

BORREGAARD
Hjalmar Wessels vei 6, 1721 Sarpsborg, Norway
Tel: +47 69 11 80 00
Website: www.borregaard.com
Products: Pulp and Speciality Chemicals

FORESTIA AS
Damvegen 31, 2435 Braskereidfoss, Norway
Tel: +47 38 13 71 00
Website: https://forestia.com
Products: Particleboard

HELLEFOSS AS
Hellefossveien 113, N-3300 Hokksund, Norway
Tel: +47 32 25 22 00
Website: www.hellefoss.com
Products: Book Papers

HUNTON FIBER AS (HOVEDKONTOR)
Niels Ødegaards gate 8, 2810 Gjøvik, Norway
Tel: +47 61 13 47 00
Website: www.hunton.no
Products: Fibre Insulation (Softboard)

MMK FOLLACELL A.S.
Industriveien 11, 7796 Follafoss, Norway
Tel: +47 74 12 36 00
Website: www.mm-karton.com
Products: TMP and CTMP Pulp

NORDIC PAPER GREÅKER
P.O. Box 155
NO-1720 Greåker, Norway
Fax: +47 69 13 85 00
Website: www.nordic-paper.com
Products: Greaseproof and Kraft Papers

NORSKE SKOG SAUGBRUGS
N-1772 Halden, Norway
Tel.: +47 69 17 40 00
Website: www.norskeskog.com
Products: SC Magazine Papers

NORSKE SKOG SKOGN
Sjøvegen 108, N-7620 Skogn, Norway
Tel.: +47 74 08 70 00
Website: www.norskeskog.com
Products: Newsprint and Improved Newsprint

RANHEIM PAPER & BOARD
Peder Myhres veg 19, 7055 Ranheim, Norway
Tel: +47 73 57 70 00
Website: https://ranheim-pb.com
Products: CCM and Solid Board Grades

RYGENE-SMITH & THOMMESEN A/S
Sandbergveien 3, N-4821 Rykene, Norway
Tel: +47 37 05 84 00
Website: https://rygene.no
Products: TMP and CTMP Pulp

VAJDA-PAPIR SCANDINAVIA AS
Nedre Eiker vei 48, N-3045 Drammen, Norway
Tel: +47 32 80 95 00
Website: https://vajdapapir.hu
Products: Tissue

Research Organisations/Departments in Norway

NORDIC FOREST RESEARCH (SNS)
c/o Jonas Rönnberg and Mimmi Blomquist
Southern Swedish Forest Research Centre
Swedish University of Agricultural Science (SLU)
Box 49, 230 53 Alnarp, Sweden
Website: www.nordicforestresearch.org

NORSK TRETEKNISK INSTITUTT
P.O Box 113 Blindern, N-0314 Oslo, Norway
Tel: +47 98 85 33 33
Website: www.treteknisk.no

NORWEGIAN UNIVERSITY OF LIFE SCIENCES
P.O.Box 5003, NO-1432 Ås, Norway
Tel: +47 67 23 00 00
Website: www.nmbu.no

NORWEGIAN INSTITUTE OF BIOECONOMY RESEARCH
P.O.Box 115, 1431 Ås, Norway
Tel: +47 40 60 41 00
Website: www.nibio.no

NORWEGIAN UNIVERSITY OF SCIENCE AND TECHNOLOGY (NTNU)
NO-7491 Trondheim, Norway
Tel: +47 73 59 50 00
Website: www.ntnu.edu

RISE PFI AS
Høgskoleringen 6b, NO-7491 Trondheim, Norway
Tel: +47 73 60 50 65
Website: www.rise-pfi.no

Mills in the Eastern European Region

Excluding Russian Federation; Including: Estonia, Greece, Latvia, Lithuania & Turkey.

ALBANIA

EDIPACK
Durrës, Pa
www.edipack.al

ARMENIA

BUMIZ PAPER MILL
Yerevan

TUKHTARD TARA LIMITED
Yerevan, Pa

AZERBAIJAN

AZERKARTON
Baku, Pa

AZERSUN
Sumgayit, Pa / Re / Ti
www.azersun.com

BELARUS

BOBRUISK FIBERBOARD FACTORY
Bobruisk, HB
www.renaissance.by

COOO "EXCLUSIVE"
Grondo, Ti
www.excl.by

DOBRUSH PAPER MILL GEROI TRUDA JSC
Dobrush, P&W / Pa / Pr
www.bellesbumprom.by

JSC BORISOVDREV
Minsk, MDF
www.borisovdrev.by

JSC GOMELDREV
Gomel, MDF
http://bellesbumprom.by

JSC PAPER MILL "KRASNAYA ZVEZDA"
Chashniki, Bo / Pa
www.1886red-star.by

JSC MOSTOVDREV
Mosty, MDF
www.mostovdrev.com

JSC RECHITSADREV
Rechitsa, PB
http://rechdrev.by

JSC SCPM "ALBERTIN"
Slonim, Bo / Pa / Ti
http://albertin.by

JSC SVETLOGORSKIY PULP AND PAPER INTEGRATED WORKS, OJSC
Svietlogorsk, Pa / Pu (wood)
www.sckk.by

KRONOSPAN FLLC
Smorgon, PB
www.kronospan-worldwide.com

KRONOSPAN OSB MOGILEV
Mogilev, OSB
www.kronospan-worldwide.com

MOZYRSKY DOK
Mozyr, Ins
http://bellesprom.com

OSJC RETCHIZADREV
Retchiza, PB

PAPER MILL OF GOZNAK
Borisov, Fi / P&W / Pa
www.goznakpaper.by

RUE ZAVOD GAZETNOY BUMAGI
Shklov, Ne / P&W / De
www.asnova.name/en/

SPARTAK PAPER MILL JSC
Shklov, Bo / Pa / Ti / Wa
www.bfs.by

BOSNIA AND HERZEGOVINA

NATRON-HAYAT D.O.O.
Maglaj, Kr / Pa / Pu (wood) / Re
www.natron-hayat.ba

SHP CELEX A.D.
Banja Luka, Hy / Ti
www.shpgroup.eu

BULGARIA

ALFA WOOD
Varna, PB
www.alfawood.gr

DS SMITH BULGARIA S.A.
Pazardzhik, Pa
www.dssmith.com

FAZERLES A.D.
Silistra, HB
http://fazerles.com

KASTAMONU BULGARIA A.D.
Pavel Banya, PB
www.kastamonuentegre.com.tr

ZERTIS GROUP
Belovo, Hy / Ti
www.zeritisgroup.com

KOSTENETS-HHI S.A.
Kostenets, Pa / Ti
www.hhi-bg.com

KRONOSPAN BULGARIA EOOD
Burgas, OSB
www.kronospan-worldwide.com

KRONOSPAN BULGARIA EOOD
Veliko Tarnovo, PB
www.kronospan-worldwide.com

MONDI STAMBOLIJSKI EAD
Stamboliyski, Pa
www.mondigroup.com

NOVA KNIZHNA FABRIKA
Sofia, Bo / Pa / Re / Sp
www.nkfabrika.com

SVILOCELL EAD
Svishtov, Pu (wood)
www.svilosa.bg

WELDE BULGARIA AD
Troyan, HB
http://welde.bg

CROATIA

CARDBOARD S.R.O.
Otrokovice, Bo
www.cardboard.cz

DS SMITH BELIŠĆE CROATIA D.O.O.
Belišće, Pa / Pu (wood)
www.dssmith.com

HARTMANN PAPIRNA AMBALAZA D.O.O.
Koprivnica, MP
www.hartmann.dk

KRONOSPAN CRO LTD.
Bjelovar, PB
www.kronospan-worldwide.com

PAN-PAPIRNA INDUSTRIJA D.O.O.
Donji Andrijevci, Pa
www.pan-paper.hr

PAN-PAPIRNA INDUSTRIJA D.O.O.
Zagreb, Bo / Pa
www.pan-paper.hr

CZECH REPUBLIC

BIOCEL PASKOV A.S.
Paskov, Pu (wood)
www.biocel.cz

CEREPA A.S.
Červená Řečice, Hy / Ti
www.cerepa.cz

EMBA S.R.O.
Paseky nad Jizerou, Bo / Sp
www.emba.cz

HUHTAMAKI CESKA REPUBLIKA A.S.
Okříšky, MP / Pa / Th
www.huhtamaki.com

JIP-PAPIRNY VETRNI A.S.
Větřní, Pa / P&W / Sp
www.jip.cz

KAVALIER TEC S.R.O.
Bělá pod Bezdězem, Bo / Pa
www.papirny-bela.cz

KORONA CZ S.R.O.
Lochovice, Bo
www.korona.cz

KRONOSPAN CR SPOL. SR. O.
Jihlava, OSB
www.kronospan-worldwide.com

KRPA HOLDING CZ, A.S.
Hostinné, Fi / Pa / P&W / Sp
www.krpa.cz

MONDI STETI A.S.
Štětí, Pa / Sa
www.mondigroup.com.

OP PAPIRNA S.R.O.
Olšany, Th / Sp
www.delfortgroup.com

PAPOS V.O.S.
Ostrov, Bo
www.papos.cz

SEVEROCESKA PAPIRNA S.R.O.
Novosedlice, Pa / Sp / Wa
www.sevpap.cz

SMURFIT KAPPA MORAVA PAPER
Zimrovice, Pa
www.smurfitkappa.com

SPM - SECURITY PAPER MILL, A.S.
Štětí, Se / Sp
www.spm.cz

TRIDAS PULP S.R.O.
Valašské Meziříčí, MP
www.tridas-pulp.cz

ESTONIA

EESTI VANAPABER OÜ
Tartu, MP
http://em.ee

ESTONIAN CELL AS
Kunda, Pu (BCTMP)
www.estoniancell.ee

HORIZON PULP & PAPER
Kehra, Kr / Sa / Sp / Ti
www.horizon.ee

RÄPINA PABERIVABRIK AS
Räpina, Fi / Pa
www.rappin.ee

SKANO FIBREBOARD
Pärnu, HB
http://fibreboard.skano.com

GREECE

AKRITAS S.A.
Alexandroupoli, PB
www.akritas.gr

ALFA WOOD
Grevena, MDF
www.alfawood.gr

ALFA WOOD
Larissa, MDF
www.alfawood.gr

ELINA KOMOTINI PAPER MILL
Komotini, Pa / Ti
www.komotinipaper.gr

FTHIOTIS PAPER MILL S.A.
Moskhatón, Bo
www.elpack.gr

MAXI PAPER MILL
Thessaloniki, TI
www.maxi.gr

MEL MACEDONIAN PAPER MILLS S.A.
Thessaloniki, Bo
www.melpaper.com

SOFIDEL GREECE S.A.
Katerini, Ti
www.sofidel.com

HUNGARY

ALBA PULP KFT.
Szekesfehervar, MP
www.albapulp.hu

DIPA ZRT.
Miskolc, Se
www.dipa.hu

DRENIK HUNGARY KFT.
Szolnok, Pu
http://drenik-zg.com

DUNAFIN KFT.
Dunaújváros, La / Pu (TMP)
www.delfortgroup.com

HAMBURGER HUNGARIA LTD.
Dunaújváros, Pa
www.hamburger-containerboard.com

HARTMANN HUNGARY KFT.
Ács, MP
www.hartmann.dk

KRONOSPAN MOFA
Mohács, MDF
www.kronospan-worldwide.com

KRONOSPAN MOFA
Szombathely, PB
www.kronospan-worldwide.com

PULP CONCEPT KFT.
Budapest, MP
http://pulpconcept.com

SWISS KRONO KFT.
Vásárosnaményi, OSB
www.swisskrono.hu

VAJDA PAPÍR KFT
Dunafoldvar, Ti
http://vajdapapir.hu

LATVIA

JELD-WEN
Aizkraukle, MDF
www.jeld-wen.lv

JUGLAS PAPIRS SIA
Riga, Bo / Pa / P&W
www.juglaspapirs.lv

KRONOSPAN RIGA
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www.kronospan-worldwide.com

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Klaipeda, Pa
www.grigeo.lt

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Klaipėda, MP
www.pack-klaipeda.lt

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PRODUCT KEY		
PANEL	HB (Hardboard)	MDF (Medium Density Fibreboard)
	HDF (High Density Fibreboard)	
	Ins (Insulation)	
	PB (Particle Board)	OSB (Oriented Strand Board)
PAPER	Bo (Board)	Pa (Packaging)
	CB (Core Board)	P&W (Printing & writings)
	Co (Coated)	Re (Recycled – various)
	De (Décor)	Sa (Sack)
	Fi (Fine)	Se (Security)
	Hand (Handmade)	Sp (Speciality)
	Kr (Kraft)	Th (Thin Papers)
	La (Label)	Ti (Tissue)
	MG (Machine Glazed)	Wa (Wallpaper)
	Ne (Newsprint)	
PULP	Pu (fibre)	
OTHER	Hy (Hygiene)	NW (Nonwoven)
	MP (Moulded Pulp)	

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