PITA ANNUAL REVIEW

2019-2020

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

Annual Review
2019-2020

Compiled by the PITA Office

PITA
Paper Industry Technical Association

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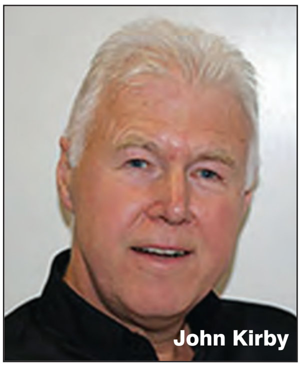
John Kirby

Almost exactly twelve months ago, I made my Report in an atmosphere of uncertainty as we approached the deadline for Brexit. Who could have believed that a year on we would be facing even greater uncertainty with both Brexit and a General Election? Whatever your views on the UK's impending departure from the EU, vast lakes of ink have been spilt describing the negative impact of uncertainty, which I see no value in repeating here. Our colleagues in the CPI have done sterling work in keeping us apprised of the situation, and it has been our pleasure to work with them to spread this information.

That said, the UK Paper Industry is nothing if it is not resilient, and the past year has passed without any significant losses; indeed we have seen positive signs as the former Arjowiggins operations in Stoneywood and Chartham have emerged from receivership by way of MBOs, and we are pleased to see our fellow papermakers given a new opportunity to secure their futures.

Paper has enjoyed a new lease of life as the packaging industry sought to reduce the use of plastic, and we have seen the emergence of a plethora of Cellulose Fibre-based hybrid items, with novel barrier films/coatings designed to reduce dependence on Fossil Fuel Derived Plastics. However, the 'road to hell is paved with good intentions' and not all of these products are as recyclable as we might hope. To guide packaging producers through a potential minefield, PITA has worked alongside the CPI to develop Guidelines for the design of new products and a practical Test Protocol that will allow their 'recyclability' to be quantified for the benefit of Recycling Mills. PITA also represents the UK's interests in moves to develop a European Standard Procedure in this field.

Indeed, PITA is committed to supporting the development of relevant international standards and represents the UK on several International Working Groups, and took the lead in development of a document to standardise the Sampling of Paper for Recycling (EN 17085:2019); now we are leading on the development of a standard to assess the Composition of Paper for Recycling – both topics of growing importance as we move towards a circular economy where one man's waste becomes another man's raw materials.

PITA continues to work with Government (in the form of BEIS) to shape a future direction for the UK Paper Industry with the ever-developing 2050 Roadmap Project, which feeds into the Government's overall industrial strategy.

Inevitably there has been some 'tightening of belts' over the past few years and your Association has been no exception. The PITA Office Team has worked tirelessly to drive down costs and increase income, and I am delighted to report that key performance indicators have improved significantly:

- Membership has increased with 20 New Members and 17 New Corporate Members;
- Income has increased faster than expenditure (but there is still much work to do);
- New Training Courses have been developed and delivered;
- The PITA Website continues to attract a growing number of visitors each month;
- PITA has continued to organise member visits, with two so far this year, in addition to today's visit.

Whilst it is always disappointing to see a continuation of the trend of net deficits in the year it is useful to dig a little under the surface to see the impact of the work being done. Total income has increased by just under 9%, with all areas (other than investment income) seeing improvements. This is against a backdrop of uncertainty in the economy as a whole and the sector in particular. It is heartening to see subscriptions increasing as well as training income.

Costs associated with the two principal activities of training and publications have also risen and to a greater extent than income; however, the efforts of the Association to promulgate good practice and innovation is a key element of its charitable objectives and is deemed by the trustees to be a prudent use of resources. There are projects underway at present that are aimed at further streamlining the publication process and increasing the commercialisation of the knowledge embedded within the Association.

The current year has followed a similar pattern, with similar uncertainties.

Looking to the future, 2020 marks PITA's Centennial Year and, as you would expect, we intend to mark this momentous occasion with a major conference event and some very special events, including:

- The return of **PAPER*matters!* 2020** to Lancaster;
- Proposals for some high profile visits to the UK's leading production sites to celebrate this landmark year;
- Significant changes to **Paper Technology *International*** as we consolidate our foothold in non-UK Markets;
- A plan for PITA to embark on a new challenge as we champion Industry Specific Research and Technology Transfer. The first of these initiatives, currently being finalised, would see exciting new Technology capable of producing noticeable energy savings in the Dryer Section being trialled in a UK Mill.

It is doubtful that the PITA Office has ever been as active in mainstream papermaking as it is today, and we hope our members scattered across the country will follow our lead and contribute to supporting our industry which has served us all so well.

I will curtail my report here and wish you all a very pleasant afternoon. Thanks to our hosts for their hospitality today; I look forward to seeing as many of you as is possible in Lancaster in July 2020 for a very special **PAPER*matters!* 2020** Conference.

John Kirby

PITA Board

2019-2020

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

2018-2019

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PITA Office/Paper Technology

Barry Read
Chief Executive
PITA Office

Helen Dolan
Company Secretary
PITA Office

Daven Chamberlain
Editor
Paper Technology

Nicolas Pelletier
European Representative
Paper Technology

PEFC Stakeholder Meeting Oct. 2019 (LONDON)

Daven Chamberlain
PITA Publications Editor

Each year PEFC runs stakeholder meetings around the world, highlighting the wide variety of topics in which they get involved. In addition to obvious subjects such as forestry, timber, paper and packaging, previous years have included fashion and textiles, animal conservation, and even hams derived from a forested environment. The joy of this annual meeting is that you can never be sure what new ground will be covered. This year the headline subjects were all 'mainstream': forestry, paper, and, with 2019 constituting their twentieth anniversary, PEFC 'past and present', but as will become obvious, some surprising subjects were touched upon in the course of the four presentations.

1. 'Healthy Forests for Healthy Human', Kai Lintunen, Finnish Forest Association.

Forests are often in the news for stories involving deforestation, illegal logging and fires. Media coverage is predominantly negative, and social media typically campaigns against cutting down trees. Therefore, the European Union commissioned a public perception study of what we (the general public) think about forestry, with the result that over half of the EU citizens surveyed thought the area of European forest was in decline (whereas it is actually growing), and forest utilisation is seen as a threat, whereas conservation is a public priority. So we as an industry need to update these perceptions, and a major challenge is to educate the public about an industrial future based around a 'bio-economy'.

Climate change provides opportunities to develop a bio-economy strategy, where sustainable raw materials derived from wood will not just provide timber, furniture and paper but also chemicals, medicines, clothing, tools, 3-D prints etc. Examples already a reality include:

a) Sawdust 'cast' materials to replace plaster – a completely renewable, remouldable and reusable material;
b) Ioncell – a new process that turns waste cloth and paper into a textile fibre, using a new ionic liquid as solvent, which is itself recyclable and much more environmentally friendly than 'standard' cellulose solvents. (The wife of the Prime Minister of Finland wore a dress made from this material at a high profile gathering – *Figure 1*);
c) Wooden bicycles;
d) Carbon fibre from lignin for advanced composite materials (used for aircraft and spaceships);
e) Bottles made from fibre;
f) Bio-diesel (e.g. BioVerno from UPM, which suits all diesel engines, unlike the Brazilian sugarcane derivative);
g) Cattle feed made from resin acids (which also has natural anti-bacterial properties);
h) 3-D printing materials (e.g. UPM Formi 3D);
i) Cross-Laminated Timber (CLT) – a laminate material similar in concept to plywood but with far thicker layers, used as a constructional building material.

Figure 1. Jenni Haukio, with President Sauli Niinistö, in the evening gown made of 100% birch-based Ioncell fabric at the Finnish Independence Day reception in 2018.

The bio-economy plan is that every material made currently from fossil raw materials can tomorrow be made from renewable resources.

2. 'Consigning Plastic to the Past', Tom Hallam, Billerud-Korsnäs.

This talk concentrated mainly upon packaging, and the role paper has in replacing single use plastics. In this fast moving environment, pressure is being brought upon retailers by consumers to reduce 'packaging' in general, and also to replace 'plastics' – with 'something'. [In fact there are two strands to this pressure, which are not wholly related; in the first, there is the problem of litter and the longevity of packaging materials remaining in the environment, causing hazards to wildlife; in the second there is the question of replacing materials made from fossil raw materials with those from sustainable feedstocks. Increasingly there is also a third strand, that of micro-plastics, their consumption by lower lifeforms and tendency to bio-accumulate and affect the endocrine system of higher animals – DC.]

So the scope of this presentation was how paper (and cellulose-derived materials) can be used to replace, in particular, single-use consumer and retail plastics, which constitute a group that the EU is currently looking to legislate against. Bottled water is an obvious place to start, with an estimated global consumption of one million bottles per minute! Glass and metal are possible substitutes for reusable bottles; meanwhile, an example of one way forward for a single-use bottle is the paper version designed by Will Smith (for his 'Just Water' company) with a waterproof liner and sugar-cane 'plastic' cap, which claims to be 100% recyclable, being made of 54% paper, 28% plant-derived plastic, 3% aluminium, and 15% plastic film. [Effectively a Tetra-Pak type arrangement, but with a screw lid – DC.]

A related product is the reCUP re-pulpable coffee cup designed by Huhtamaki. It uses 43% less plastic than a 'conventional' single-use beverage container, and claims to be reprocessable via conventional recycling systems. [The system put in by James Cropper was designed specially to process large volumes of these beverage containers; however DS Smith Kemsley have recently run trials, and their system is also able to cope with the conventional beverage container. In addition, there is a host of novel barrier-coated cupstocks that provide an alternative to plastic film laminates, but as Tom rightly pointed out, the difficulty is less that of processing, and more that of introducing a workable collection process for used cups – DC.]

Pouches are currently the fastest-growing food packaging method. However, the problem is that at present there is no clear recycling method for the conventional plastic pouches. So what we are seeing now is a proliferation of companies looking to produce 'sustainable' pouches. This is an area where 'green washing' is rife, with competing claims of compostability (whether home or industrial) and recyclability. One that does appear to be reprocessable via standard paper recycling streams is the Earthpouch made by Earth Packaging, which is made from paper with a bio-based 'plastic-free' moisture and grease heat-sealable inner barrier coating.

Turning to tray-type packaging, BillerudKorsnäs has patented FibreForm, a deformable paper (with up to 14% stretch) that can be thermoformed into trays which can replace conventional plastic trays. Typically this will use a polyethylene barrier on top, but this still constitutes a 90% reduction in plastic compared with a standard tray, with a 75% lower carbon footprint (according to the manufacturer). Again it can be recycled in the same way as a beverage cup. (FibreForm can also be used to make lids, where a snap-on plastic lid is currently used.)

Outside of packaging, Tom gave other examples of products made from renewable resources replacing plastic alternatives. For example, cardboard clothes hangers, which are currently more expensive than plastic varieties, but with a push (especially from the high-volume retail sector) the unit cost could plummet. With the increase in e-retailing, BillerudKorsnäs has designed the Xpression E-Com durable and resilient online retail mail bags, which offer an alternative to padded envelopes and single-use plastic bags. Meanwhile, moving away from cellulose-based products, Evoware has launched edible bags made from seaweed; seaweed is also the raw material used by Skipping Rocks Lab to produce small pouches for packaging of juices (*Figure 2*).

Figure 2. "Edible Water". Water packaged in an edible alginate casing.

Overall Tom gave a glimpse of how many of the packaging methods used today can continue to be produced from renewable resources. However, the problem of single-use design still remains – it is all good and well making sure items can be recycled or composted so that 'acceptable' disposal mechanisms exist, but the problem still remains that a lot of resource and energy was expended to produce products designed to be used only once. Going forwards, development of reusable products made from renewable resources is still an obvious gap that needs to be bridged.

3. 'Increasing and Improving access to Forest Certification', Remi Sournia, PEFC International.

PEFC is already the world's largest Global forest certification scheme (*Figure 3*). Going forward it is keen to expand Coverage (both area of forest and volume of timber); reduce Cost of certification; and enhance Credibility (especially in areas of the world where PEFC has at present low penetration). It is doing this both by influencing the supply chain ('push') and the consumer ('pull') with regards to the importance of purchasing and using certified products. To date there has been some success, with certain global consumer goods companies (who don't want to risk brand association with procurement of wood that could be tracked to sources of deforestation); with European energy utilities, who specify high volume biomass from certified forest; and Governments are being cagouled to have green procurement programs for both wood and paper products.

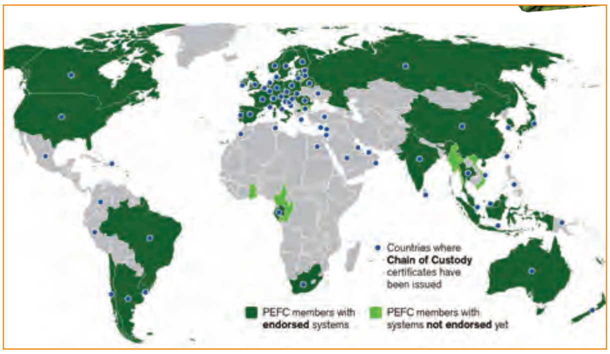


Figure 3. PEFC's global presence.

Currently, one major area of development sees PEFC moving from the Temperate to the Tropical areas. For example, they have been working with Malaysia since 2009. The country consists of two, similar-sized regions – Peninsula Malaysia and East Malaysia (the latter encompassing Sabah, Sarawak and Labuan). Much of Peninsula Malaysia is already certified, but progress on the East Malaysia holding has been very slow (see *Figure 4*). Now they have commitment by the Sarawak State Government to work towards certification of their timber by 2022.

Region	Natural Forest (MHa)	Certified (MHa)	Certified (%)
Peninsula	4.92	3.78	76.8
Sabah	3.54	0.15	4.2
Sarawak	4.32	0.42	9.7
MALAYSIA	12.78	4.35	34.0

Figure 4. Table showing forest coverage and certification in Malaysia, c.2019.

Also, to date, PEFC has focussed upon traditional 'forests'. Now they have launched the 'Trees Outside Forests' (ToF) project, because it is estimated that 43% of agricultural land worldwide has at least 10% tree crown-cover. A large number of productive trees are grown outside of forests, and providing certification solutions should have an impact on over 3.5MHa of land covered by ToFs. Previously these trees have not been covered by certification.

This is particularly important for India, where 100% of trees providing commercial fibre and timber come from this source. It is also significant for Thailand, where fast rotation trees such as Acacia and Eucalyptus are often found around rice fields. Similarly in Vietnam and East Africa, fast rotation ToF crops (sometimes as low as 5 years) are common. Moving into Europe, ToF is also of significance in Italy and Spain. In particular, this innovative approach addresses issues in these new regions and draws smallholders and farmers into sustainable timber development – it might also open up Cocoa and Coffee producers to forest certification.

4. 'PEFC – 20 Years of Caring for our Forests', Alun Watkins, PEFC UK.

Before 1999 there was only one international forestry certification scheme – FSC (Forest Stewardship Council). However, FSC's scheme was deemed by some unsuited to the European forestry ownership model, (e.g. in Finland where 350,000 owners control land of between 2 and 30Ha each, accounting for some 60% of the forested land). The cost of certifying individual forest smallholdings was deemed prohibitive, so Forestry professionals from five European countries (Austria, Finland, Germany, Norway and Sweden) banded together to form a new certification organisation – PEFC (Pan European Forest Certification).

The FSC approach was (and remains) very much top down: the Council decides upon what methods and measures are required, and imposes them upon land owners. PEFC decided that a bottom up approach would be more inclusive and better: the first stipulation being that each participating country had to have a national forestry scheme in place. PEFC acts as an umbrella organisation, joining together a number of national forestry schemes, all agreeing to a certain minimum standard of sustainability criteria, beyond which there are allowable differences, necessary to encompass the variations in forest practice that occur worldwide. So whereas FSC imposes a strict set of criteria, which means certified forests in different countries all abide by almost identical rules, the PEFC approach allows for divergence between countries, providing all member countries maintain a strict set of core suitability criteria.

As regards standards, PEFC is based upon ISO criteria, and the relevant national accreditation body (in the UK this is UKAS – the United Kingdom Accreditation Service) must be affiliated to the International Accreditation Forum (IAF). By contrast, FSC initially accredited its own certificates, but more recently has used Assurance Services International (ASI) to work on its behalf.

In 2002 the UK gained PEFC recognition; in 2003 PEFC changed its name (to Programme for the Endorsement of Forest Certification) in order to reflect that it was no longer purely a European programme; by 2005 PEFC achieved accreditation of 100MHa of forest; three years later this land coverage had doubled; and in 2009 the first scheme was endorsed in Asia. Most recently, in 2018, it achieved its first certification scheme in Africa (in Gabon).

Today, PEFC has achieved major recognition across the world: it is recognised by Belgian, British, Danish, Dutch, Finnish, French, German, Japanese and Swiss Timber Procurement Policies; it is recommended by the European Commission Guidelines on Green Public Procurement; is accepted under EU Ecolabel criteria; fulfils European Retail Environmental Sustainability Codes (EuroCommerce and European Retail Round Table); is approved by Green Building Councils, LEED, BREEAM (Netherlands, UK), and SKA rating (UK); is used in Green Building assessment Protocols for Commercial Buildings, National Green Building Standard, International Green Construction Code (US) and Built Green (Canada); and finally, partners with the World Business Council for Sustainable Development.

As of 2019, PEFC certified over 318MHa (as against 201MHa by FSC), as shown in *Figure 5*. So PEFC covers over 60% of certified forest; it encapsulates 45 endorsed national schemes, and covers over 20,000 certified companies in 71 countries. It is particularly strong in North and South America, Europe and Australasia; important and growing in Asia (to date covering China, India, Indonesia, Japan, Malaysia, Republic of Korea and Thailand); but is only at the starting point in Africa.

In the UK, the UK Woodland Assurance Standard (UKWAS) endorses both FSC and PEFC. PEFC certifies 1.5MHa of UK forest, (up 25kHa in just one year), and 95% of the suppliers of commercially-traded timber in the UK abide by PEFC guidelines.

Going forwards, PEFC wants to build on its already successful story. Starting with Sustainable Development Goals (SDGs), the United Nations (UN) lists 17 such goals, and it is easy to see that Forests (and therefore PEFC) should align with many of them, most specifically (1) No Poverty (forests are important for many local economies); (6) Clean Water and Sanitation (forested catchments supply 75% of fresh water); (8) Decent Work and Economic Growth (it is estimated that 14 million people worldwide are employed in forestry); (12) Responsible Consumption and Production (forests provide the single most important source of renewable energy); (13) Climate Action (forests provide natural carbon capture and storage); and (15) Life on Land (around 80% of earth land animals and plants live in forests).

Over the first two decades PEFC has concentrated mainly on forest-related products such as timber, furniture, pulp and paper and packaging. Green construction will continue to be an important subject, with a push in some sectors to increase use of wood in building projects [although we await the outcome of the Grenfell enquiry to see what effect, if any, that will have on this area of development – DC.] Fashion, and the use of wood as a raw material for textile fibre (via the viscose process and similar routes) is a growing topic, and one in which PEFC has only recently become involved. Also, as regards furniture, a lot of work has been done in the commercial and office furniture environment; this now needs to be transferred into the realm of domestic furniture production.

Climate change is another area in which PEFC needs to become more active. New approaches to woodland management are needed to address threats of drought and increased risk of damage from pests, diseases, wind and fire. New species of plant which can thrive in a warming climate with tolerance to drought or more variable rainfall are needed (which may include Genetically Modified Organisms – GMOs). Afforestation to increase carbon storage (e.g. Amazon's pledge of $100 million in reforestation projects around the world - September 2019, and also Ryanair's plans to plant trees to offset their carbon emissions) needs to be encouraged, and certified. They intend to look at certification of Eco-system services and landscapes as a whole – not just of products. Also, PEFC must look at technology (such as Blockchain) to simplify Chain of Custody (CoC) auditing and reduce costs.

Overall, there is still a lot to do! For instance, currently only 11% of the world's forest is certified. In order to remove confusion caused by certification labels giving percentage composition of certified material, it will probably be necessary to get to 20-25% of the world's forest as certified – and that is still a very long way off! In the meantime, everyone needs to encourage dual certification of products (badged by both FSC and PEFC) because exclusive procurement policies for just one scheme restricts growth of certified forest – and there is no sign that harmonisation of the two global schemes will happen any time soon. Finally, as was supported by all political parties in the recent UK election, we all need to plant more trees!

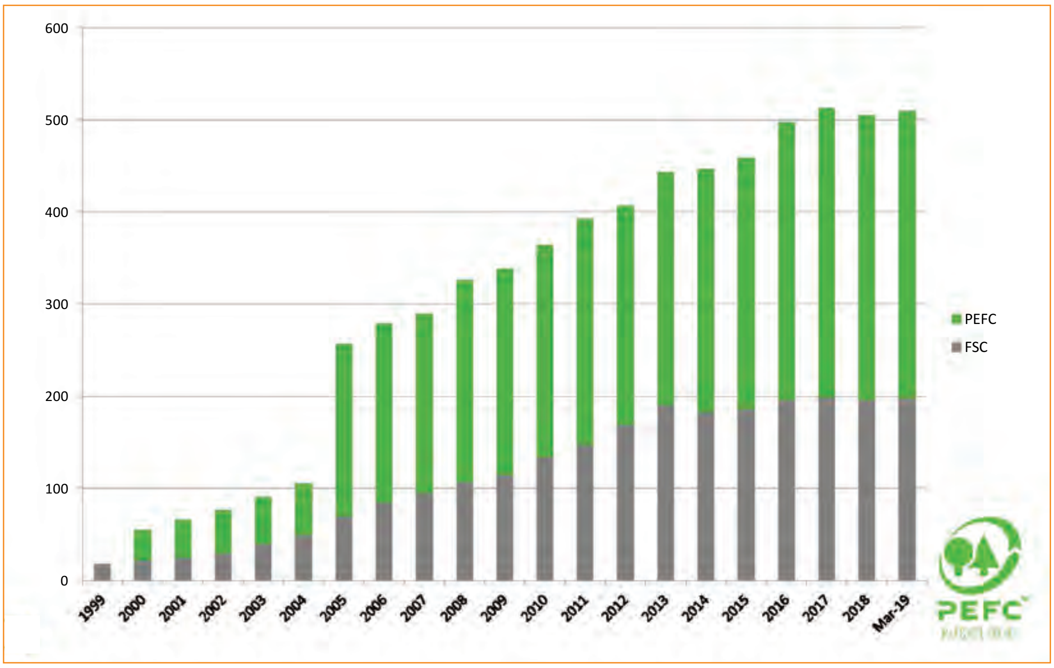


Figure 5. Graph showing level of forested area certified by both FSC and PEFC to March 2019.

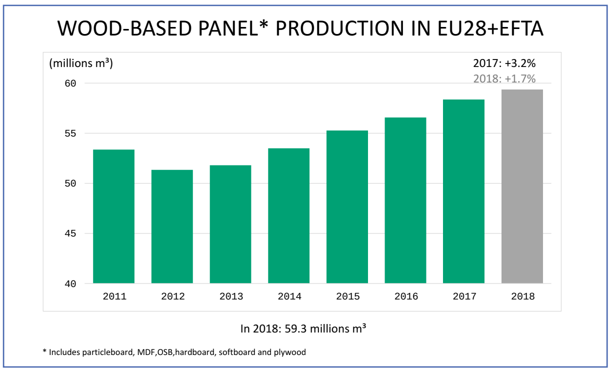
Wood-Based Panels Industry Review 2019

Orifjon Abidov
Economic Adviser,
European Panel Federation

Summary

According to the figures drawn from the EPF Annual Report published at the end of June 2019, an extensive compilation of industry statistics collected by the federation drawing on the direct input of member companies, the production of wood-based panels in the EU28 (+EFTA) grew by 1.7% in 2018 to 59.3 million cubic metres, posting the sixth consecutive year of growth. (Details are shown in the Table.)

Production (million m³)	Countries	2018	2017	2018 v 2017
Particleboard	EU28 + EFTA	32.0	31.2	2.6%
MDF	EU28 + EFTA	12.3	12.3	-0.5%
OSB	EU28 + EFTA	6.2	6.3	-1.6%
Hardboard	EU28 + EFTA	0.5	0.5	1.5%
Softboard	EU28 + EFTA	5.2	4.9	5.9%
Plywood	EU28	3.2	3.1	1.7%
Total Wood-Based Panels		**59.3**	**58.3**	**1.7%**



Development by sector

Following an upturn in 2015 and 2016, the European **particleboard** production in the EPF member countries increased by another 2.6% in 2018, exceeding expectations. Output amounted to 32 million m³. Germany remained the largest particleboard producing country in Europe with 5.76 million m³ in 2018, accounting for just under one fifth of the EU-EFTA production volume (18%).

The overall European particleboard production capacity increased by 3.1% in 2018 or 1.1 million m³, amounting to 37.8 million m³. The new capacity came online in Poland (500,000 m³), while capacity expansions took place in Portugal (105,000 m³) and Spain (45,000 m³). At the same time, there was a restart of an existing mill in Italy (up to 480,000 m³).

The overall European particleboard production capacity is foreseen to increase by maximum 1.5% in 2019 to reach almost 38.4 million m³. There are capacity expansion projects in Bulgaria, Germany and Spain. Overall, total particleboard capacity will likely remain substantially below the pre-crisis level of 43 million m³ by the end of 2019.

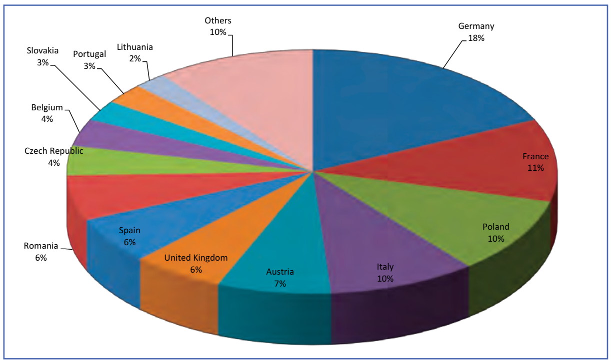
MDF production in Europe declined mildly by 0.5% in 2018 to nearly 12.3 million m³, excluding Turkish and Russian production. With a declining output of 4.6% to 3.6 million m³ in 2018, Germany is still the largest European MDF producer followed by Poland, Italy, France and the United Kingdom. The European production capacity of MDF continued to increase in 2018 by 400,000 m³, mainly as a result of the restart of one plant in Romania. The total capacity amounted to approximately 15.1 million m³ in 2018.

The European production of **OSB** declined by 1.6% in 2018 to nearly 6.2 million m³ largely as a result of force majeure at some plants in Europe. Germany and Romania continue to have the largest European OSB production capacities. Following an expansion in 2017, Poland now completes the Top 3 of OSB production countries, measured by capacity, followed by Czech Republic, Ireland and Latvia. The total European production capacity of OSB excluding Belarus, Russia and Turkey increased by 200,000 m³ in 2018 (or +3%) thanks to an expansion of capacity in Luxembourg.

After a second consecutive drop in 2017, the production of **hardboard** in Europe excluding Russia increased in 2018 by 1.5% to reach a total of 533,000 m³. Total EU28 and EFTA installed production capacity for hardboard amounted to 707,000 m³ in 2018, stable compared to the previous year. 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 stable compared to 2017.

For the seventh year in a row, the European production of **softboard** increased. In 2018, output rose by 5.9% compared to 2017, reaching nearly 5.2 million m³. Rigid softboard accounted for 62% (61% in 2017) of the output and flex softboard for remaining. The installed production capacity for rigid softboard remained stable at 3.5 million m³ in 2018. The production capacity for flex softboards increased by 100,000 m³ to 2.3 million m³ thanks to an expansion project in France. 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.

In 2018, the EU28 **plywood** production amounted to 3.2 million m³, representing an increase of 1.7 % compared to 2017. This increase slowed down from an impressive growth of 7.6% registered in 2017. The highest increase was recorded in the Baltic States with more than 10% growth, as a consequence of the development of new capacities. Italy also showed a significant increase (+6.7%). France and Spain registered growth too, although to a lesser extent, of 2.4% and 2.3% respectively. On the other hand, Finland (-0.9%) and Poland (-1.4%) posted a minor contraction in their plywood production in 2018. The overall European plywood output increased by 5.2 %. Russia, with an output growth of 7.6% in 2018, 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, Poland and France.



Breakdown of particleboard production by country in 2018

Energy Review 2019

Steve Freeman

Director of Environmental & Energy Affairs,

CPI

No major energy supply or weather issues during the year meant no panics and reasonably stable prices. The postponed Brexit deadlines had little effect on the energy market with the electricity and gas interconnectors linking the markets ever closer irrespective of political considerations. By contrast, the impact of capital cities being gridlocked through middle-class led civil disobedience was certainly effective in moving energy policy from the inside to the front pages – 2019 is likely to be remembered as the year that climate change concerns went mainstream.

While decarbonisation policies have dominated energy policy making for a number of years, it's only in recent months that political leaders have engaged with the detail of the issue rather than simplistic headlines. While there's been a political consensus over the issue since the 2008 Climate Change Act was passed with support from all the main parties, the general election has seen each of the parties outbidding each other on their embracing of green issues, while the new European Commission is placing a new Green Deal at the centre of policymaking.

Clearly the UK is one of the countries now embarked on decarbonising its economy with, it seems, cost being a secondary consideration. Advice from the Climate Change Committee resulted in the 80% decarbonisation by 2050 target being replaced by a far more challenging net zero target. This made the UK 'the first major economy in the world to pass laws to end its contribution to global warming by 2050', although the offshoring of emissions by swapping domestic production for imports remains a huge flaw in the policy.

For the electricity grid, policies such as the now closed Renewable Obligation and Feed-in-Tariffs, plus the current Contracts for Difference, have already made great progress in mandating that grid supplied electricity contains increasing amounts of renewable electricity. The old staple of coal generation is progressively closing, with only five stations still operational and all to be gone by 2025 at the latest, further increasing the role of low carbon alternatives. Huge strides have been made with the deployment cost of offshore wind and this technology looks set to be a major part of the UK electricity mix for the foreseeable future. However, the huge problem is what happens when the wind doesn't blow?

Currently nuclear plays an important role in providing dependable baseload and, hopefully, Hinkley C (and possibly other new sites) will ensure this continues although the contract price of £92.50/MWh (2012 price, inflation protected for 35 years) looks worryingly high. Alternatively, battery and storage technologies continue to quickly develop as does the number of interconnectors allowing imports and exports to better manage regional distribution grids.

The long-term role of natural gas looks likely to be a huge issue and in a net zero economy there's no space for using gas for electricity generation or for making heat. For industry, gas is the fuel of choice for heat and, for some sectors including of course papermaking, gas-fired CHP is an important technology. Finding alternatives to natural gas is likely to be a real challenge as none of the current proposals, essentially low carbon gas or hydrogen, look likely to be economic any time soon. A policy to reduce the use of gas by driving up cost would simply drive industry out of the UK unless all other countries do the same. This is not looking very likely, especially outside the EU.

In fairness to Government, there is recognition that Energy Intensive Industries act as a foundation for UK manufacturing and policies such as the Clean Growth Plan are delivering support programmes to help decarbonise industry and take advantage of economic and job opportunities from the Green Economy. PITA and CPI continue to work with Government to deliver the actions identified within the sector 2050 Decarbonisation Roadmap. Towards the end of the year the 'Transforming Foundation Industries' support programme was launched and 2020 will see the launch of the 'Industrial Energy Transformation Fund', both providing carrots to counterbalance the stick of quickly increasing carbon prices for those depending on fossil fuels.

With the UK hosting the next set of climate change negotiations at the end of 2020 in Glasgow (COP 26) these issues will remain high priority. The UK is determined to provide global leadership so it's likely that the Government will want to demonstrate leadership with new policies. By coincidence, the next phase of the Emissions Trading Scheme starts 1 January 2021, meaning target setting will be made in the run-up to the COP meeting. Prudent companies would be wise to refocus attention on energy and carbon efficiency!

Environment Review 2019:

Debbie Stringer
Environment Manager,
CPI

Notwithstanding the ramifications of Brexit on Environmental issues as negotiations rumble on, one area that showed tangible progress in 2019 and is likely to feature highly through 2020, is ***Water***, a subject close to the hearts of Papermakers. As a carrier in the process, a consistent supply of clean water is vital, for the time being at least, to every paper mill. Climate change scenarios in conjunction with an increasing population are predicting a reduction in water availability. At the same time, changes in weather patterns are giving rise to increasing incidents of flooding. This is driving change in water resource management, change which will impact us all.

Abstraction Licences to become Permits

The first area of progress in 2018 was on the move to incorporate Abstraction Licencing into Environmental Permitting. On the face of it a simple transition, in reality, it is slightly more complex. Not least of which is down to the difference in terminology defined in Environmental Permitting Regulations and that used in Abstraction. That's before you even start on the implications of applying Best Available Techniques (BAT)! A consultation, originally scheduled for 2019, will now take place in 2020 covering the mechanism and the timetable for moving licenses into permitting. Initially at least, your licence will become your permit with the ultimate option to merge into you site environmental permit.

Strategic Review of Charges; Water Resources

With the Environment Agency ever mindful of cost recovery along with an eye on the additional work involved in bringing abstraction into permitting and consequent ongoing monitory, it is unsurprising that a Strategic Review of Charges (SRoC) for Water Resources is proposed. Again, a consultation is due in 2020 making it a busy and important year. The consultation will propose a charging system in the same vein as that for existing permits, with a baseline charge and additional components. One of these components will be ***water availability.*** Details on how this will be assessed are expected in the Consultation along with a timeframe for implementation.

Management of Water Resources

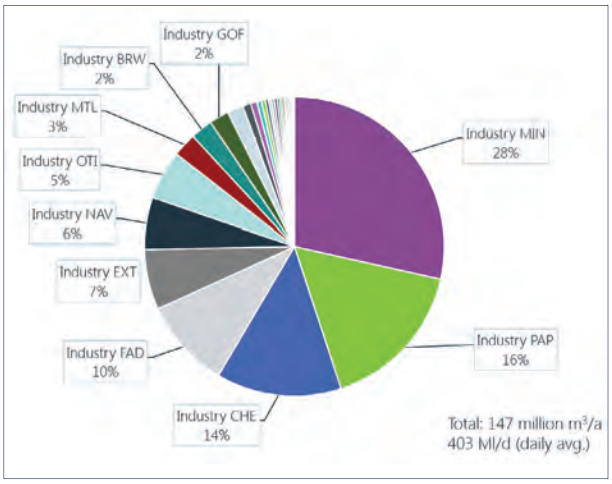
Defra, with the aim of building resilient water supplies, set out to establish a ***National Framework*** to articulate national and regional water needs. This includes demands outside the water industry. The intent is to set expectations for demand management, new resources, and water transfers with the aim of ensuring water is collected and moved to where it is needed. As such, the Framework involves cross sector regional planning. Water Companies have been mandated to lead this work through five regional Water Resources Groups (Water Resources West, Water Resources East, Water Resources South East, Water Resources North and West Country Water Resources). These groups now must take account of other sector needs and are actively looking to engage with those sectors. A Workshop, run by the Environment Agency in October 2019, was the start of this engagement process. It was well attended by CPI and several mill representatives. Mills will be encouraged to get involved with their regional group in 2020 to get their specific water needs understood in relation to the availability of water in each region and, ultimately, in each river catchment. The availability of water and the demands for that water vary considerably from catchment to catchment. It will be important to make your voice heard, particularly in areas of low availability / high demand.

Overview of current Abstraction

Defra commissioned a review of current abstraction and future demand in support of the National Framework work. This review shows that the Public Water Supply (PWS) is the largest abstractor. Outside of PWS, *Industry* is the largest abstractor. For the purposes of this review, *Industry,* when bracketed together, is defined as ***consumptive abstraction*** showing we still have some way to go in getting our point across on the issue on consumptiveness. Within the Industry grouping, the Paper Sector is the second largest abstractor group, highlighting, perhaps, both the importance of water to our industry but also the potential and the necessity for us to have a strong voice in the regional discussions. The overview goes on to highlight the variability in the breakdown by abstractor group from region to region, reinforcing the importance of water resources management by region and, ultimately, catchment.

Looking to the future

Water is under pressure now and will continue to be in the future. Public Water Supply future demand and planning is well understood but future industrial water needs are less clear. Regional planning through the Water Resource Groups presents an opportunity to engage with cross sector planning to look at how best to get the water in the right place at the right time and how to adapt to the availability of this vital resource.



Breakdown of Industrial Abstraction (PAP is Paper Sector). Source: Environment Agency.

Tissue Review 2019

Pirkko Petäjä
Principal Consultant,
AFRY Management Consulting

Sustainability is the hot topic of the year 2019

In year 2018 the record high pulp price was the main topic in tissue. About 2019 one can say that it has been the year of sustainability. In a little bit better market environment the environmental and sustainable developments are clearly more focused.

Sustainability is of utmost importance, and it has been a ticket to play especially in the developed tissue markets; recently even additional new points have come up.

Two topics have had the highest general attention; first is the climate change and another is the plastic waste, not only due to the fossil origin of plastics, but as the used plastic ends up to be discarded in the environment.

The fibre choice is the first sustainability point; many consider recovered fibre a more sustainable option than virgin pulp, but it is more complicated than that. Virgin pulp from a high technology resource efficient modern pulp mill/biorefinery can be an utmost ecological choice. The production is energy self-sufficient and the fibre raw material from certified, well managed forests is fully used. Recovered paper is made from de-inked pulp in the tissue mill and that production consumes electric energy and water and the sludge disposal has environmental impacts. Also the RCP collection process causes emissions and consumes energy. Regardless, some still consider that tissue is short-life and non-recyclable, so that virgin fibre would be wasted used in it. There is, however, not enough recovered fibre for all tissue and a balanced usage of both must be found.

Some consider unbleached pulp and non-wood pulp as the most ecological fibre. Unbleached bamboo based tissue has rapidly gained room in China; however, there it is not primarily promoted for ecological reasons, but most importantly it is seen as natural and local Chinese. If this tissue or pulp is introduced to the European market, the environmental issues would be a much more important selling point.

Water circulates in the tissue process and the fresh water consumption can be very low; energy efficiency is significantly developed and specific usage reduces continuously. The tissue carbon footprint is mostly impacted by the energy source in the tissue process. Gas, though fossil, is a rather clean alternative, and biogas and different gasification alternatives would be truly sustainable choices.

A new area where the sustainability is gaining ground is the plastic-free packaging of tissue. All the leading tissue producers and the main packaging line suppliers have been active in developing new solutions. Recycled plastics and paper packaging are the main trends. Many target degradable, recyclable paper packaging with a bioplastic surfacing. Year 2019 paper packaging of tissue has entered strongly and become an important marketing point.

In tissue the sustainability must be collected from small streams throughout the life-cycle of the products as nothing in tissue would have a revolutionary impact alone. The best tissue companies have been very diligent in this and their products can be considered much more environmentally friendly than many similar FMCG products.

Market trends enable a higher sustainability focus

The high pulp prices together with the low market growth made the previous year difficult for most tissue producers. When struggling with the economy, even the sustainability issues had less focus. Global market growth in 2018 was low, driven by the weak growth in China and Latin America; also Western Europe had slower growth than expected. North America had a fairly strong year due to the growing Private Label market and AfH segment.

Pulp prices started to drop 2019 and have continued downwards. This has been a relief for the tissue companies; and the North American tissue players have additionally benefitted somewhat from the duties for the finished product imports from China. Results have started to improve. Demand growth in most markets has been clearly better during 2019 than the previous year. Sustainability issues and increasing quality have been the main market drivers especially in the developed markets. Many have started to offer tissue in paper packaging and published impressive sustainability reports.

Going forward, growth is predicted to continue on the same level in 2020-21 though there are uncertainties in the future economic outlook. Pulp prices remain low and are estimated to start rising slowly only towards the end of 2020. Even 2021 pulp prices are expected to remain quite reasonable compared to the previous peaks. The year 2019 was a better year and the next years look good, if only overcapacity remains in control with reasonable new capacity investments. Focus on sustainability issues can continue.

European Containerboard and Corrugated Board Review 2019

Outti Juntti,
Partner,
Jay Partners oy

Chinese withdrawal and price pressure

During 2019 the European containerboard and corrugated packaging markets were characterised by two closely interrelated phenomena; namely the price pressure on containerboard and the Chinese waste ban. The ban originates to July 2017 when China notified the WTO on its plan to gradually ban 24 different waste categories including recovered paper (RCP). The total ban was announced to come into effect in 2019. The impact of this waste ban was indeed ruling the European RCP markets in 2019 and led to a significant oversupply. According to the European Recycling Industries' Confederation (EuRIC) the collection demand gap is 8 million tonnes and in 2019 these volumes remained in Europe. The impact on the RCP business has been drastic as decreasing prices have been reported throughout the year in all the main European markets, and traders and collectors have faced serious problems. This downward trend has also influenced the whole European containerboard sector, both testliner and kraftliner, producers. The joy of the lower production costs has been overshadowed by the pricing challenges as the sales prices have been slipping month by month. Furthermore, the capacity build-up that has been ongoing for years has created an imbalance between the supply and market demand. Fortunately, the demand for corrugated packaging has remained healthy, driven particularly by the e-commerce and industrial production development. Hence, many of the leading containerboard producers have managed to report around 2% organic growth figures.

Massive expansions in kraftliner, but slowdown in recycled grades

During the past nearly two decades new large testliner and fluting investments have been announced every year. However, the expansions in kraftliner have been limited to rebuilds of the existing machines with the exception of Stora Enso's Varkaus mill, which started in spring 2014. The year 2019 changed this trend and three new large kraftliner projects were confirmed. First in May Stora Enso published its decision to convert the coated woodfree machine, PM7, at the Oulu mill in Finland into kraftliner production, which would begin by end of 2020. The 350 million euros conversion investment aims at production of both white-top and unbleached kraftliner with annual capacity of 450,000 tonnes. Similar news spread from the other side of the Gulf of Bothnia in early September when SCA decided on an expansion at the Obbola mill. A new kraftliner machine will be built to boost the production from current 450,000 to 725,000 tonnes, and the investment will total SEK 7.5 billion (around 700 million euros). Start-up is scheduled at the beginning of 2023. Both Stora Enso and SCA have underlined the increasing need for sustainable packaging and retail development, including e-commerce, as the key drivers for these investment decisions. The third kraftliner announcement was made between these two projects as the leading Russian paper producer Ilim Group ordered a 600,000tpy machine from Voith in June. The new kraftliner machine will be placed in the Ust Ilimsk mill in Siberia and with this expansion the company targets to strengthen its position in the Chinese markets.

Investment activity in recovered fibre-based containerboard was significantly lower than what we have experienced for the past years. However, one large decision was made in April when Palm ordered a new 750,000 t/a lightweight testliner and fluting machine from Valmet. The machine will replace the three smaller and older machines producing currently some 350,000 tonnes at the Aalen mill in Germany.

Corrugated packaging companies at target

Industry consolidation continued also in 2019. Very large deals were not made, but the small and medium sized corrugated and packaging companies remain of interest to the large players. DS Smith finalised the Europac acquisition in January, but in April it sold a converting company in France and another in Portugal to International Paper in order to fulfil the commitment made to the European Commission in relation to the acquisition. Smurfit Kappa continued fortifying its position in South Eastern Europe by first completing the takeover of Bulgarian corrugated board and packaging company Balkanpac and then by acquiring another Bulgarian converting operator Vitavel in April. Besides the Aalen investment Palm was active in the corrugated front as well and acquired the remaining facility of REKA Packaging in Kitzingen close to Frankfurt. Another German company, Jass, expanded in Poland and acquired Covert Paper, a corrugated board and cartonboard producer, in October. Spanish SAICA entered to the Turkish markets in 2014 and has swiftly developed its position in there. In February it made an agreement with group Norm Ambalaj to acquire their corrugated plant in Sakaraya close to Istanbul. Prinzhorn in its turn made a strategic move in Russia and purchased 50% of the family owned SFT Group, which is one of the leading players in paper recycling, containerboard and corrugated board production in the Russian markets.

Company	Stora Enso	SCA	Ilim Group
Mill, country	Oulu, Finland	Obbola, Sweden	Ust-Ilimsk, Russia
Investment type	Conversion	New PM	New PM
Capacity	450 000 t/a	725 000 t/a	600 000 t/a
Product(s)	Unbleached and white-top kraftliner	Unbleached kraftliner	Unbleached kraftliner
Investment sum	350 MEUR	700 MEUR	900 MEUR including pulp mill upgrade
Start-up	By end of 2020	1Q 2023	By end of 2021

Kraftliner Projects Decided in 2019

Newsprint Review 2019

Gustav Ek
Consultant
AFRY Management Consulting

Printed publications (newspapers, magazines, books etc) are still an important media platform although speculation remains whether the demand will continue declining at the high rates seen in recent years or if/when demand saturation is expected. 2019 has been another tough year for the European newsprint industry. Demand continues to fall as pagination and circulation figures of printed newspapers experience ongoing decline. This is largely due to the continuing increase of news content via online digital platforms. In turn, the steady shift of advertising budgets to digital marketing continues to impact negatively the profitability of printed newspapers. Newsprint European demand decreased by 8-10% in 2018 and the figure for 2019 is expected to be between 6-8%.

The decline in newsprint demand which is expected to continue into 2020 has led in previous years to capacity reduction and paper machine shut downs. It has also made several producers reassess their assets with the aim of restructuring their production capacity. The conversion of paper machines from newsprint production to the production of packaging and even speciality grades is likely to continue. However, the conversions are often complex to implement and can come with high risks, meaning that closure is sometimes the only viable option. In the third quarter of 2019 Palm paper confirmed that newsprint production on PM2 at its Aalen mill in Germany had ceased and the previously swing paper machine was now only producing recycled containerboard. Although this was the only reduction in capacity in Europe in 2019 there were several announcements during the fourth quarter of the year which will likely lead to further capacity reductions in 2020: UPM has announced its intention to sell or shut down its newsprint mill, Chapelle Darblay in France, which currently has a capacity in the region of 250,000 tonnes pa. If the mill is sold it is highly unlikely that it will continue producing newsprint. It was also reported in the fourth quarter of 2019 that International Paper is considering discontinuing newsprint production on PM3 at its Kwidzyn mill in Poland due to unfavourable market conditions. This is also currently a swing paper machine producing newsprint and kraft paper.

The newsprint supply landscape in the UK did not change in 2019 with capacity stable at approximately 550,000 tonnes. The pound remained weak against the Euro throughout the year and the UK balance of trade continued to shift. We have in recent years seen a fall in net imports and this continued to a lesser extent in 2019. The weak pound has enabled domestic UK newsprint producers to benefit from export opportunities. Furthermore higher import prices has protected them somewhat in the home market. The result is that in 2019 average monthly net imports was just over 18,000 tonnes with some months the figure falling to just over 10,000 tonnes. This is illustrated in *Figure 1*.

We saw newsprint prices increase in 2018 as pulp prices and recovered paper prices increased, and this continued into the first quarter of 2019. In the second quarter prices remained stable. The second half of the year has seen newsprint prices decrease in the UK by on average £55-£70 per tonne and in Germany by on average Euro 25-30 per tonne. This is illustrated in *Figure 2*.

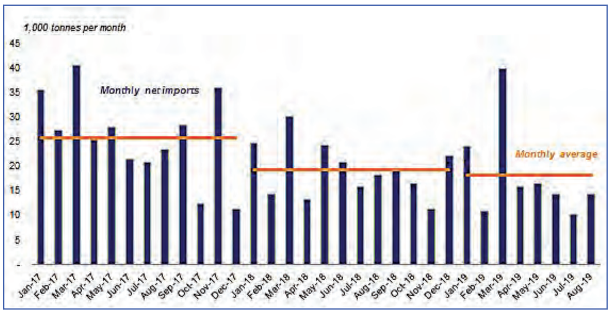


Figure 1. The UK Newsprint Trade Balance

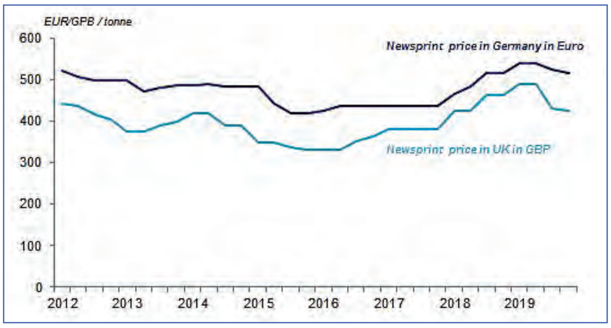


Figure 2: Newsprint Price Development

Recent indicators show that paper prices will continue to fall into 2020 amidst overcapacity and ongoing market challenges as demand continues to decline. However, in the latter part of the year, cost inflation (pulp) may also bring better pricing dynamics, largely depending on the level of demand and the industry response to the expected demand decline. Falling prices will inevitably impact further the profitability of newsprint mills in a negative way and as demand declines it is inevitable that further capacity reductions are needed in the form of closures or conversions – most likely both.

Part 1: Birth of the Technical Association

Daven Chamberlain
PITA Publications Editor

The year 2020 marks the Centenary of the Paper Industry Technical Association. During the next twelve months a number of events are being planned, including our Centenary **PAPER*matters!* 2020 Conference** *and some high profile visits. Also, in the publications throughout the year, the story of the first 100 years will be charted in a series of articles. This initial article sets the scene, and deals with the pre-history that led ultimately to the formation of the Technical Association.*

Prehistory[1]

The traditional date and place given for the development of paper is 105AD in China. In fact earlier samples of 'proto-paper' have been unearthed by archaeologists, and indeed dating the commencement of a craft like paper manufacture is not an exact science. Nevertheless, first century China will do. What is more certain is that for almost a thousand years it stayed in the Far and Middle East, only reaching the shores of Europe in the eleventh or twelfth centuries when it was brought to Spain by the Moors. It then limped across Christian Europe at a slow pace, crossing the English Chanel at the end of the fifteenth century.

The process of inculcation commenced with introduction of the material by an outside agency, followed by assimilation through imports, before indigenous manufacture commenced. So for the UK, the earliest paper found in the Public Record Office dates from about 1220, yet the first mill commenced in the 1490s. In some ways the UK was a 'special case' because at this period it was a major producer and exporter of wool, and sheepskin parchment was therefore readily available and the medium of choice for written communication and record keeping.

The first paper mill, in Sele, Hertfordshire, did not last long, and although a few examples did crop up at various sites in the sixteenth century, it was not until the 1600s that a native UK industry took hold properly. Throughout this time start-ups were based largely in England, and spread only slowly to Ireland and Scotland (both by 1590), and finally to Wales (possibly 1650s, certainly by 1706). Ironically, given that the first English mill made white printing paper, the vast majority of that produced by the burgeoning industry was the much simpler brown grades used for wrapping purposes; the country imported the majority of high quality white grades from France, Italy and the Netherlands until well into the eighteenth century.

Notable UK Inventions and Achievements[2]

Although it was rather 'late to the table', the inventiveness of the UK populous did take hold of the craft eventually. Notable achievements were the development of a smooth (wove) surface by James Whatman in the 1750s, which gave much-improved print quality over the more textured laid sheet that had hitherto been made. Then, although the outline design for a mechanised method of paper manufacture had been produced in Revolutionary France, it was brought to fruition and commercialised (in Frogmore Mill, Hertfordshire, 1804) thanks to English engineering skill in the form of John Hall and Bryan Donkin, along with finance from the Fourdrinier family, who added their name to the first design.

Just along the way from Frogmore lay Apsley Mill, owned by John Dickinson, and in 1809 he patented his rival design, the cylinder mould; together these two machines were to revolutionise the industry, although neither as yet offered the potential to form a dry web; in both designs the wet web, after pressing, was reeled on a drum, then slit with a sharp knife to yield sheets that could be hung in a loft, as per the standard hand-manufacturing process. This was changed with the development of steam-heated cylinders, by Thomas Bonsor Compton in 1821, followed by introduction of the dandy roll in 1825 (patented by John and Christopher Phipps, although a rival patent by John Marshall also dates from around this time). The necessary components for a machine to produce a continuous, dry web of paper which could, if necessary, be watermarked, were now in evidence all thanks to UK engineers, and the industry could therefore develop … except for the minor problem of raw materials.

Although papermakers in the East used trees and plants as their raw fibrous material for paper manufacture, in the West textile rags had been the source of choice from the start. However, availability of rags (made originally from hemp or linen, with cotton being introduced much later) proved a brake on development of the industry. Even when papers were made solely by hand, the UK had to import much of the raw materials from mainland Europe. Now that a machine had been produced, that had the potential to ramp up production significantly, the lack of high volumes of a reliable fibre source became a major problem.

At various times in the eighteenth century, scientists in several countries experimented with different plant materials, including reeds, straw and nettles, but none were particularly successful until a method for pulping Esparto (Spanish Reed) was developed around the 1840s, before being perfected by Routledge in the 1850s at Eynsham Mill in Oxfordshire. Turning to wood, although groundwood pulp was developed in Germany during the 1840s by Keller, it wasn't until the 1860s that the first chemical wood pulp was made, via the soda process (developed at Boxmoor Mill in Hertfordshire by Burgess and Watt in 1851, but commercialised properly the following decade in America). In subsequent decades the sulphite then sulphate (Kraft) processes were developed, ultimately leading to the pulp industry we know today.

Combinations and Associations

So far the text has concentrated upon the major technical developments in the industry, many of them stemming from the UK. However, an equally important factor in this story is that of social conditions, caused by the Industrial Revolution that took place in the United Kingdom from about 1760 onwards. Prior to this, manufacture was performed by artisans, often in their own homes; volumes were small and articles expensive. With the development of steam power (which was first applied to papermaking at Wilmington Mill in Yorkshire, around 1786) it became possible to mechanise production in larger premises, and the factory was born. This in turn caused major social upheavals as families moved from rural to urban locations, and thus towns and cities swelled and working conditions deteriorated.

In order to protect themselves, workers banded together in Combinations (early forms of Unions), and demanded political reform. Although these gatherings were illegal, and were often put down violently (one of the most famous instances being the Peterloo Massacre of 1819 in Manchester), nevertheless the brave workers did eventually gain the right to form unions. In the UK the earliest example was the Original Society of Papermakers (1800), followed later on by the United Brotherhood of Paper Makers (1854) and the Modern Society of Paper Makers (1869) – two unions open to machine paper operators.[3]

The Manufacturers were wary of the strength that Combinations gave their workers, so themselves banded together to present a common front. However, just as in the case for workers, it was also illegal for Manufacturers to operate in this fashion, yet they did so, albeit their efforts were not always that efficient or long-lasting. (Yet they did have the advantage of not having their meetings disrupted by violence.)

Trade Bodies[4]

The earliest of these Trade Bodies was the Paper Makers of Great Britain (1764). This was followed by the Master Paper Makers of England, and a possible break-away unit, the Master Paper Makers of Kent, at the turn of the nineteenth century. The Manufacturers of Paper and Pasteboard in England and Wales was formed by John Dickinson in 1831; the Paper Makers' Association in the 1850s; and the Lancashire and Yorkshire Paper Makers' Association in 1863. A feature of all these Associations was their short duration; they were generally formed for a purpose (such as to fight for reforms to Excise duty) yet they never gained much traction, membership was disparate with only a limited number of manufacturers in any one region showing support, and all failed.

Until, that is, 1872, when the Paper Makers' Association of Great Britain & Ireland (hereafter PMA), was formed. This was the first truly national body, although note the absence of Scotland – makers there formed their own Association, which remained separate until incorporated in 1912. In turn this became the British Paper & Board Makers Association (BPBMA) in 1949, the British Paper & Board Industry Federation (BPBIF) in 1974, the Paper Federation (1994) and, most recently, the Confederation of Paper Industries (CPI) in 1999.

Over the years the various Trade Associations have collated statistics, lobbied Government and provided a voice for the industry as a whole. However, it was during the aftermath of World War I that the PMA conceived the need for a Technical arm to their work. Almost certainly this is because they had seen how the industry has fared during the war – prior to WWI the UK as a whole had imported huge amounts of chemicals and special papers, primarily from Germany, and following the outbreak of hostilities this trade ceased and indigenous companies had to develop the technical expertise needed to plug gaps, especially for such specialities as photographic and tracing paper grades. Technology was seen as vital to the future prosperity and development of the Industry, and so we come to the start of the PITA story, with the inauguration of the PMA Technical Section as an adjunct of the national Trade Association – a story which will be described in subsequent articles throughout the coming year.

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Industry Statistics 2018

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

2018 – Summary

According to CPI figures, total UK production in 2018 increased relative to 2017; newsprint saw a 4.7% rise in output (relative to a capacity outage in 2017), tissue a 0.5% increase (Tawd came online during the year), and the speciality sector grew by 7.5% - however the largest volume product by far, corrugated, declined by 3.2% in this time period, which limited the total rise to just under 1%.

The recovered paper market saw a 3% decrease in collections against 2017, totalling 7.55Mt. The destination of this recovered paper continued to show major changes. While UK consumption remained similar to 2017 at 40%, there was another sharp decline in exports to China, down to under 27% of the total collected (against 37% in 2017 and 47% in 2016). Operation National Sword has caused major changes to our recovered paper exports, with India being the major beneficiary, and a significantly wider diversification to smaller countries than had hitherto been the case.

2019 – Preliminary Assessment

No new capacity came on stream during 2019. However, other investments were made, most notably at DS Smith Kemsley mill, which announced plans to partner with E.ON and build a new CHP, due online in 2021. Also, Palm Paper officially opened their new CHP plant and MRF, to coincide with their 10th Anniversary celebrations.

In terms of ownership changes, it has been a fraught year for my old colleagues in Arjowiggins, whose parent company (Sequana) filed for insolvency (and was subsequently liquidated), leaving them in Administration. Fortunately, by October a deal was put together, resulting in an MBO and the new company, Arjowiggins Group Ltd, was born.

Finally, it is worth highlighting two awards, ironically both to the two smallest mills in the UK. The Paper Trail received a Heritage Award from IMechE, and Jim Patterson, proprietor of Pitt Mill (the only mill in the UK dedicated solely to hand papermaking) was recognised as the 'Maker of the Year' by the Heritage Crafts Association.

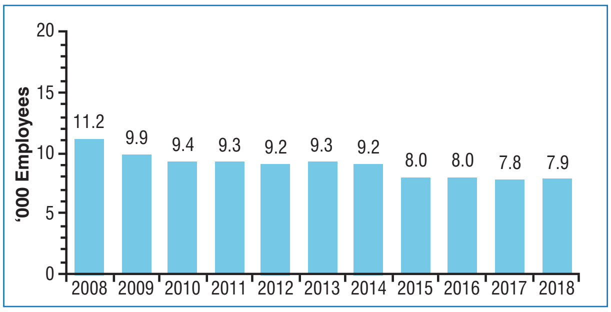
2020 – Preview

In the last three editions of this Annual Review I have highlighted the 'B' word (Brexit) as being a major determinant on how future progress in the UK industry will fare. In 2016 I did not anticipate that we would still be in limbo this far on. However, we now have a new Government with a significant majority, that won an election on a pledge to get Part One of the process completed during 2020, so I now anticipate a more decisive approach to the problems hitherto caused by the political stalemate. Aside from Brexit, the Leicester Tissue Company has expressed plans to invest in a tissue mill, to be sited 'in the North' sometime in the early 2020s, and the new machine at the Ahlstrom-Munksjo Chirnside mill should come online in 2020, doubling mill capacity for tea and coffee filter products. Also, in November, WEPA announced proposals that, if approved, could see a second tissue machine installed at the Bridgend site (start date as yet unspecified).

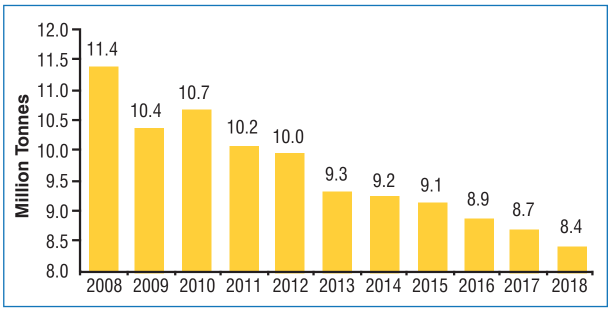
Daven Chamberlain,
Editor, Paper Technology *International*

UK Data (CPI/HM Revenue & Customs)

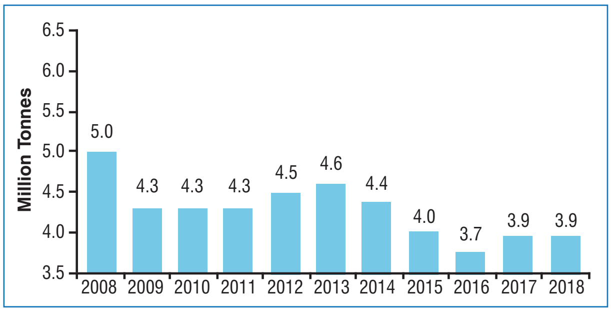
Numbers Employed in UK Paper & Pulp Mills 2008-2018



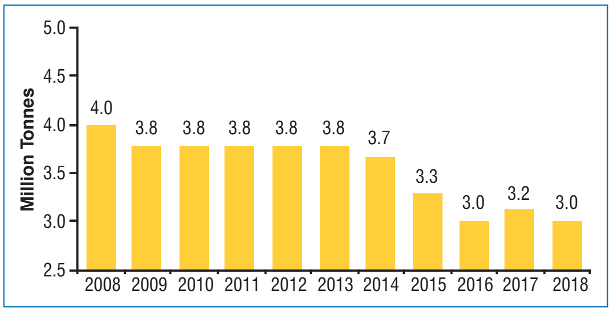
UK Consumption of Paper and Board 2008-2018



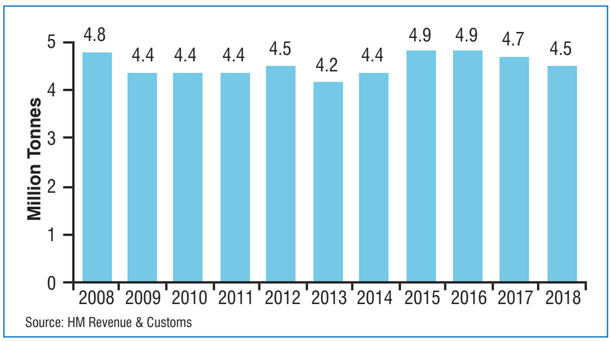
UK Production of Paper and Board 2008-2018



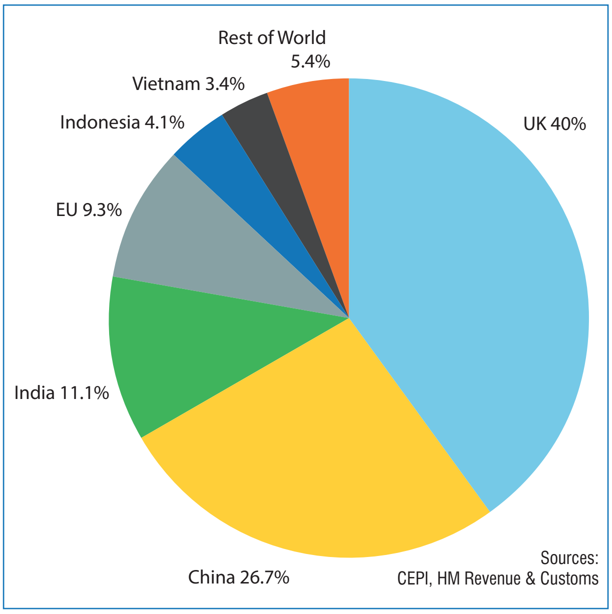
Recovered Paper Usage in UK Papermaking 2008-2018



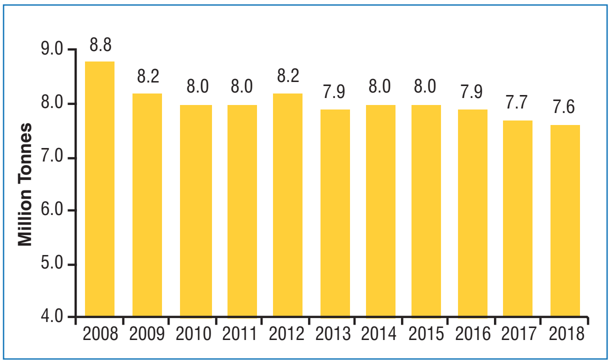
Recovered Paper Exports 2008-2018



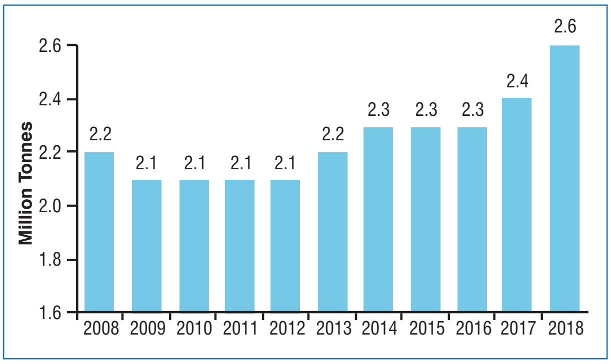
Recovered Paper Markets 2018



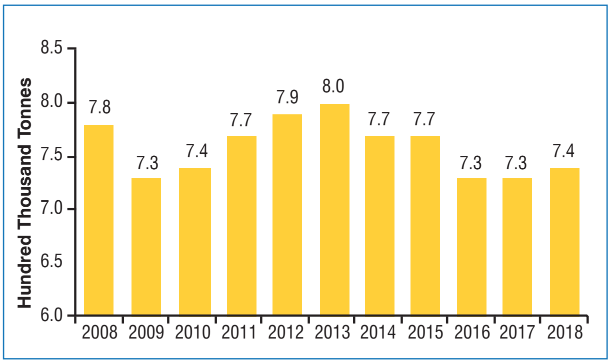
Recovered Paper Collection 2008-2018



Consumption of Paper by Corrugators 2008-2018



Production of Tissue Parent Reels 2008-2018



UK Paper and Board Facts & Figures 2018

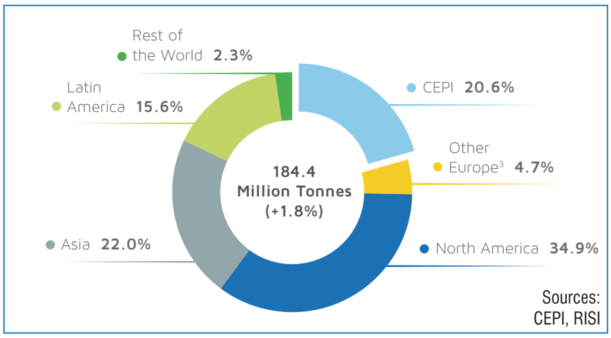
KEY FIGURES OF THE UK'S PAPER-BASED INDUSTRIES

56,000	*56,000 people are employed in the UK manufacturing paper and paper products*	Jobs
1,490	*1,490 UK enterprises are engaged in the manufacture of paper products*	Companies
£11 billion	*UK companies manufacturing paper have a turnover of £10,954 million*	Turnover
£3.5 billion	*UK manufacture of paper has a Gross Value Added of £3,503 million*	GVA

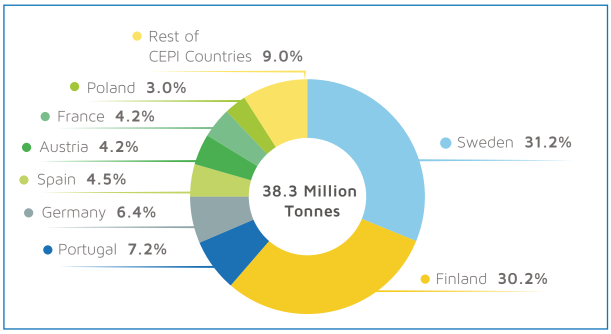
Source: ONS, Annual Business Survey 2018, SIC 17

European Data (CEPI)
Pulp – Global View

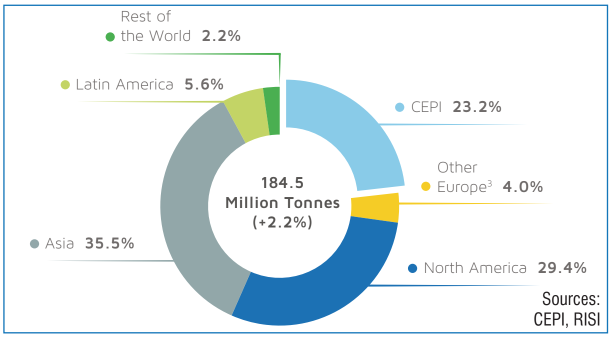
Pulp Production by Region in 2017



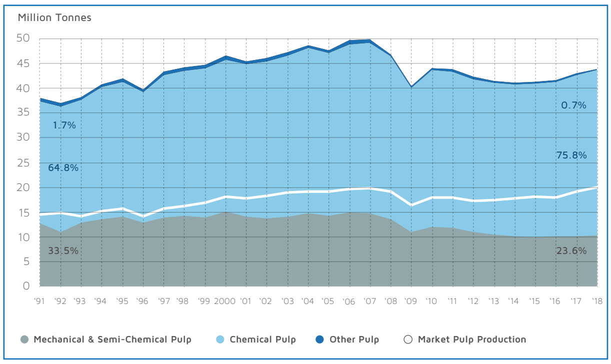
Pulp Production by CEPI Country in 2018



Pulp Consumption by Region in 2017



Pulp Consumption by Grade CEPI Countries in 1991-2018



Pulp

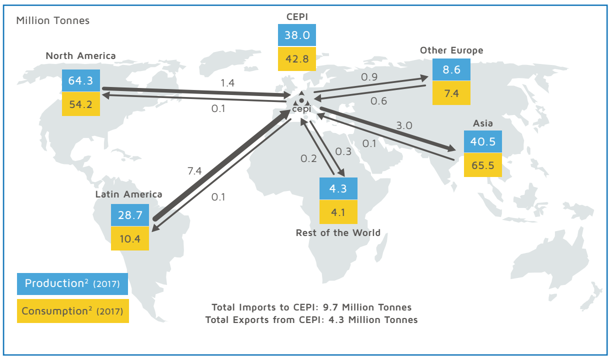
CEPI Exports of Pulp to Other Regions 2000-2018

000 Tonnes	2000	2005	2010	2017	2018	% Share of Total	% Change 2018/2017
Other Europe	724	674	719	927	**921**	21.3	-0.6
North America	104	187	62	45	**58**	1.3	28.8
Latin America	6	20	49	50	**62**	1.4	24.1
Asia	412	1,076	1,595	3,189	**2,989**	69.1	-6.3
Rest of the World	86	114	142	254	**298**	6.9	17.4
Total	**1,332**	**2,071**	**2,567**	**4,466**	**4,329**	**100.0**	**-3.1**

CEPI Imports of Pulp from Other Regions 2000-2018

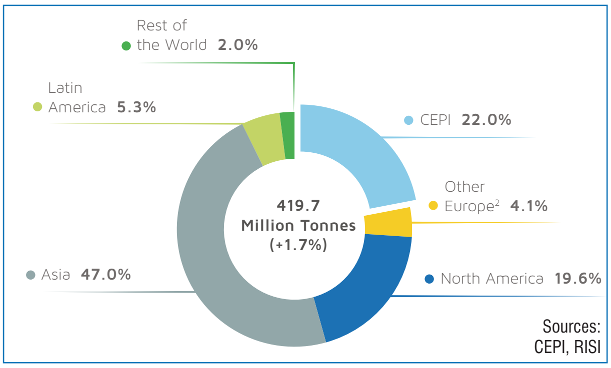
000 Tonnes	2000	2005	2010	2017	2018	% Share of Total	% Change 2018/2017
Other Europe	657	615	480	740	**639**	6.6	-13.7
North America	4,623	3,891	2,292	1,439	**1,441**	14.8	0.2
Latin America	1,916	2,825	4,733	6,803	**7,354**	75.5	8.1
Asia	272	197	134	80	**81**	0.8	1.4
Rest of the World	456	433	81	185	**230**	2.4	24.5
Total	**7,924**	**7,961**	**7,721**	**9,247**	**9,746**	**100.0**	**5.4**

Trade Flows of Pulp to and from CEPI Countries in 2018

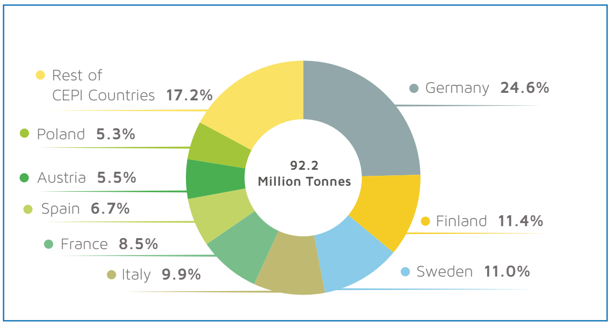


Paper – Global View

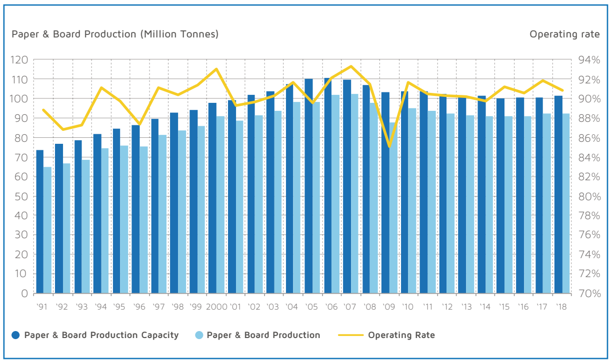
Paper & Board Production by Region in 2017



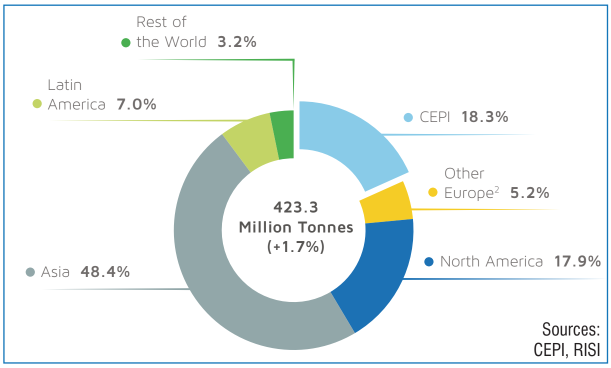
Paper & Board Production by CEPI Country in 2018



Paper & Board Production and Consumption in CEPI Countries 1991-2018



Paper & Board Consumption by Region in 2017



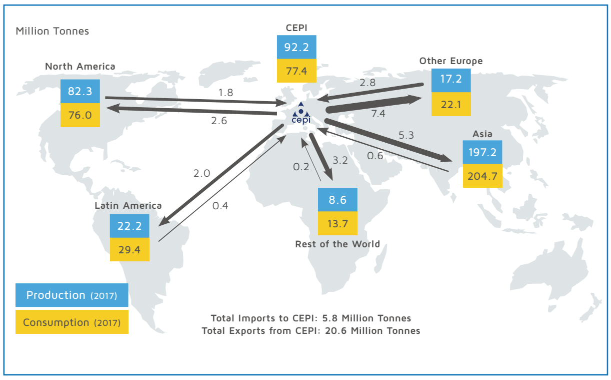
CEPI Exports of Paper & Board to Other Regions 2000-2018

000 Tonnes	2000	2005	2010	2017	2018	% Share of Total	% Change 2018/2017
Other Europe	6,090	6,825	7,349	7,458	**7,426**	36.1	-0.4
North America	2,283	2,802	2,055	2,294	**2,620**	12.7	14.2
Latin America	874	1,194	1,879	1,845	**2,040**	9.9	10.6
Asia	2,933	4,742	5,099	5,691	**5,274**	25.6	-7.3
Rest of the World	1,707	2,229	2,783	3,082	**3,222**	15.7	4.6
Total	**13,887**	**17,793**	**19,164**	**20,369**	**20,583**	**100.0**	**1.1**

CEPI Imports of Paper & Board from Other Regions 2000-2018

000 Tonnes	2000	2005	2010	2017	2018	% Share of Total	% Change 2018/2017
Other Europe	3,318	2,727	2,525	2,637	**2,774**	48.2	5.2
North America	2,191	1,915	1,829	1,610	**1,762**	30.6	9.4
Latin America	198	498	498	316	**368**	6.4	16.3
Asia	332	394	625	662	**635**	11.0	-4.1
Rest of the World	344	369	307	348	**218**	3.8	-37.3
Total	**6,383**	**5,903**	**5,783**	**5,574**	**5,756**	**100.0**	**3.3**

Trade Flows of Paper & Board to and from CEPI Countries in 2018



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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.

***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)

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President: Christian Skilich
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Year of Foundation: 1969
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Year of Foundation: 1920
Chairman: John Kirby
Chief Executive: Barry Read

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Web: www.ptf.no
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Administrative Secretary: Irene Skjefstad

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e.mail: info@tecnicelpa.com
Web: www.tecnicelpa.com
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General Assembly President: Carlos Fernando Pedro dos Santos
Directive Board President: Pedro Miguel Costa Matos Silva

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e.mail: ditp@icp-lj.si
Web: www.icp-lj.si
Year and Place of Foundation: 1971, Ljubljana
President: Marko Jagodič
Secretary: Tea Kapun

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e.mail: info@spci.se
Web: www.spci.se
Year of Foundation: 1908
Chairman: Kristina Enander
Executive Director: Marina Asp

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The 'EUCEPA Student Grant' is intended to assist young people (such as students, apprentices and trainees) involved in the field of pulp & paper manufacture and related industries sectors to develop a greater understanding of the European pulp, paper & fibrous forest products industries and to assist in the early development of a network of International contacts.

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e.mail: afcparg@afcparg.org.ar
Web: www.afcparg.org.ar
Manager: Néstor Nisnik

Australia

APPITA
Australasian Pulp and Paper Technical Association
P.O. Box 816, Macleod, Vic 3085, Australia
Tel: +61-3-9467-9722.
e.mail: admin@appita.com.au
Web: https://appita.com
Year of Foundation: 1946
Executive Director: Adele Elice-Invaso

Brazil

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

Chile

ATCP
Asociación Técnica de la Celulosa y el Papel
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Tel: +56-41-2-88-81-30.
e.mail: atcpchile@atcp.cl
Web: www.atcp.cl
Year of Foundation: 1972
General Secretary: Handel Tapia

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

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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
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Executive Director: Isabel Cristina Cardona Ruiz

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Web: https://pnyme.hu
Year and Place of Foundation: 1948, Budapest
Executive Director: Sándor Pesti

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IPPTA
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Saharanpur - 247001, India
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e.mail: info@ippta.co
Web: www.ippta.co
Year of Foundation: 1964
Chief Operating Officer: Neehar Aggarwal

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104-8139, Japan.
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e.mail: matsumoto@japantappi.org
Web: www.japantappi.org/e/
Year of Foundation: 1947
Executive Director: Mr. Terunobu Fukui

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Web: www.ktappi.or.kr
Year of Foundation: 1967
President: Hak Lae Lee

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Web: www.spp.pl
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Secretary General: Zhang Qingbia

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Website: www.imerys.com
Contact: Andrew Findlay

IMERYS KAOLIN & TALC
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Tel: +33 561 502065 Fax: +33 561 502045
Email: yannick.rabot@imerys.com
Website: www.imerys.com
Contact: Yannick Rabot

INGREDION UK LTD
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Manchester, M22 5LW
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Email: catherine.cooper@ingredion.com
Website: www.ingredion.com
Contact: Catherine Cooper

J

JAMES CROPPER PLC
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Contact: Patrick Willink

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Website: www.jarshire.co.uk
Contact: David Jobson

K

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Website: www.kemira.com
Contact: James Atkinson

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Contact: Paul Bartlett

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Contact: Kieran Rafferty

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Contact: S. Gregory

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Contact: John Williams

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Contact: Andrew Nash

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Contact: Mark Ransom

Q

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Website: www.qclscientific.com
Contact: Mark Whatton

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Website: www.raumasterpaper.fi
Contact: Kaarlo Talvinen

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Contact: Adrian Stoll

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Contact: Nigel Pontin

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Contact: Giuseppe Munari

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Mobile: 07986 044134 Email: richard.saunders@test-tech.co.uk

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www.kimberly-clark.com
Products: Tissue

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www.northwood.co.uk
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www.sofidel.com
Products: Tissue

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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 & World 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	https://papergoldmedal.org.uk
Programme for the Endorsement of Forest Certification (PEFC) UK	www.pefc.co.uk
Recycling Association	www.therecyclingassociation.com
Sheet Plant Association (SPA)	www.sheetplantassociation.com
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Rue de la Forêt 2, 6690 Vielsalm
Tel: +32 (0)80 - 29 27 10
www.unilinpanels.com

UNILIN (particle)
Ingelmunstersteenweg 229, 8780 Oostrozebeke
Tel: +32 (0)56 - 66 70 21
www.unilinpanels.com

UNILIN (particle)
Breestraat 4, 8710 Wielsbeke
Tel: +32 56 66 70 21
www.unilinpanels.com

VPK PAPER N.V.
Oude Baan 120, B-9200 Dendermonde
Tel: +32 (0)52 - 26 19 11
www.vpkgroup.com

LUXEMBURG

KRONOSPAN LUXEMBOURG S.A. (OSB, MDF)
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 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, 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.
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Tel: +31 (0)50 - 30 33 000
https://solidus-solutions.com

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Tel: +31 (0)50 - 30 33 000
https://solidus-solutions.com

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https://solidus-solutions.com

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https://solidus-solutions.com

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Tel: +31 (0)55 - 505 82 22
www.smart-packaging-solutions.com

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Tel: +31 (0)495 - 45 83 58
www.trespa.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 Recycling Industries' Confederation (EuRIC)	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

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 PAPYRUS CO. LTD.
Saveh, Bo

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

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

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

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

IRANIAN WOOD PANEL MILLS

Arian Sina Inc., Sari, MDF
www.ariansina.com

Artapan, Ardebil, HDF / MDF / PB
www.artagroup.com

Caspian, MDF

Iran OSB, Tehran, OSB
www.iranosb.com

Isofam, MDF / PB
www.isofam.ir

Melamin Saze Tabriz Co., Tabriz, MDF

Meka Choub, MDF

Neopan Barfor, MDF

Noghteh Company, Semnan Province, MDF
http://noghteh-co.com

Pars Neopan, Boshehr, MDF / PB

Pars Neopan, Kazeroon, MDF / PB

Pars Neopan, Nashtaroud, MDF / PB

Pars Neopan, Soumeasara, MDF / PB
http://parsneopan.com

Rahan Tavan Co., Tehran, MDF / PB
www.rahantavan.com

Sanaye Choobe Khazar Co., Amol City, MDF
http://www.khazarchoob.ir

Sugarcane By-Products, Shoeybieh, MDF
www.iran-sugar.com

Takhteh Feshordah, MDF

ISRAEL

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

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

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
http://www.finehh.com

AL-SNOBAR HYGIENIC PAPER MILL CO. LTD.
Amman, Ti
http://www.finehh.com

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

KARAK STAR RECYCLING
Karak, MP
https://karakstar.com

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AL OULA PAPER MANUFACTURING CO.
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GULF PAPER MANUFACTURING
Fahaheel, CB / Pa / Ti
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www.upi.com.kw

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SANITARY PAPER COMPANY - MIMOSA
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www.mimosa.com.lb

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www.sicomo.com.lb

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http://sipco0.tripod.com

SOLICAR SOCIÉTÉ LIBANAISE DE CARTON
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www.solicar.com

UNIPAK TISSUE MILL
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www.alsuwaidipaper.com

ELITE PAPER RECYCLING
Doha, Pa
http://www.epr.qa

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
http://www.finehh.com

AR RAGI PAPER IND.
Abu Dhabi, Hand

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

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
http://starpapermill.com

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, 1701 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)

MM KARTON FOLLACELL AS
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
Tel: +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
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, Speciality 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, NO-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

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EDIPACK
Durrës, Pa
www.edipack.al

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TUKHTARD TARA LIMITED
Yerevan, Pa

AZERBAIJAN

AZERSUN
Sumgayit, Pa / Re
www.akkik.az

BELARUS

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
https://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

VITEBSKDREV JSC
Vitebsk, HD
https://vitebskdrev.com

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.eu

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-packaging.com

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

CZECH REPUBLIC

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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

KAVALIERGLASS A.S.
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

LENZING
Paskov, Pu (wood)
www.lenzing.com

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

MUZEUM PAPIRU
Velké Losiny, Hand

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

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

GEORGIA

STARWOOD ORMAN ÜRÜNLERI SANAYI A.S
Batumi, PB
www.starwood.com.trr

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

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

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www.kronospan-worldwide.com

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Szombathely, PB
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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
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Riga, Bo / Pa / P&W
www.juglaspapirs.lv

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	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)
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	MG (Machine Glazed)	Wa (Wallpaper)
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