PITA ANNUAL REVIEW

2013-2014

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

Annual Review & Membership Directory*

2013-2014

Compiled by the PITA Office

PITA

Paper Industry Technical Association

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Paper Industry Technical Association

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Chairman's Message

Welcome to the end of yet another challenging year. Last year my predecessor touched on the challenges facing business in general and particularly the paper sector. The falling demand for printings and writings grades and the surge of tissue and packaging grades.

Little has changed and I expect to report a similar situation next year. We will continue to address long-standing business issues in the papermaking and allied trades in order to secure our future prosperity. The facts remain that we continue to seek to manufacture our products as efficiently and as cost effectively as possible. This will never change. The industry as a whole seems to be continuing its migration East with all our member companies dealing with the challenges and indeed opportunities that this brings. We at PITA continue to do all that we can to support these goals by publishing new and interesting developments and trends in *Paper Technology* and the *PITA Affairs* newsletter.

Our attempts to engage the membership have seen some significant changes in recent times. The time constraints placed on our membership by ever pressurised working environments has led to decreasing attendances in District Meetings and events with only the Northern District formally hanging on. PITA has centralised the organisation of events with the aim of holding new events in each region during the year. Obviously this has led to an increase in the workload of the PITA office but they have, as always, coped remarkably well. This change has led to a mixed response with a successful event staged in Kent, a less well attended event in Lancashire and postponement of an event in Scotland. Overall, getting members out from the mills and various service companies is still a major challenge for us. Only the quality and relevance of topics are within our control.

On a brighter note we have embraced the challenge of seeking to improve the quality of training available to our industry. Since the demise of UMIST and before that Bury College the availability of quality, relevant training to our industry has been in decline with a number of companies forced to look either in house or elsewhere to meet this lack of resource. Once again, in response to a mandate from the membership we have collaborated with PapierZentrum Gernsbach to introduce the Fundamentals of Papermaking course. Clearly this time the quality and relevance was spot on! The initial course was fully taken up within a week. This development was described by one HR Manager as a 'Quantum Leap' in the training offered to UK Paper Mills. Indeed, not just the UK Mills benefited, with delegates from as far afield as Asia and South America. PITA is delighted by this response and is working with PapierZentrum Gernsbach (and key UK Trainers) to provide more high quality courses, based on the needs of our members, in the New Year.

On an even brighter note we can report that the overall financial position of your association continues to recover from the crisis situation we found ourselves in some years ago. This year we will record another positive result. In fact the emphasis of the Board is now moving away from a position of recovery to one of planning and shaping your association for the future and where we want to go from here. If I am honest, I am delighted to say we have arrived at this position somewhat earlier than I anticipated. In light of this we have begun to implement the PITA Development Forum, as detailed in Paper Technology, where we aim to shape the Association of the future. On this matter we would welcome your input so please feel free to tell us where you want your Association to go? However, please do keep it clean!

Finally I would like to extend my thanks to Helen, Daven, Colin and Barry in your PITA Office who collectively keep many of our plates spinning. May I also take the opportunity to wish you all a Happy New Year!

Martin Wroe

PITA Board

2013-2014

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Review of the year

Hawkins Wright Symposium 2013

by Daven Chamberlain
Editor, Paper Technology

On a cold November morning I arrived at a new London venue – Freemasons' Hall - the usual site of Savoy Place being unavailable due to restoration. I was ushered in by a doorman to different world, along with a record number of delegates (almost 230), for another packed morning of lectures by leading experts. Yes, the **Hawkins Wright** Symposium is once again with us!

As always, before summarising the proceedings it would be remiss of me not to mention the ever-growing list of companies who sponsor this major event, many of whom have done so for a considerable number of years. The quality of the Symposium is a testament to why so many of them continue to be associated. So the following should all be noted: **AkzoNobel** (who once again sponsored the lunch)**; Altri; April; Cenibra, CMPC Pulp; Energia y Celulosa; Fibria; FMS; Gearbulk; Ilim; Mercer Pulp; Metsä; Metso; Nordea; Norexeco; Omya; Södra;** and **Stora Enso**.

Diego Iscaro (HIS Global Insight)

The Symposium always starts with a top-notch economist, and this year was no exception. As I sat awaiting the presentation it occurred to me how I must be getting older, because this year's opening act looked so young; however, regardless of his relative lack of years he was fully in control of his subject, and held the audience spellbound for fully 50 minutes. Indeed, no-one dared speak because of the need for concentration, for what we got, in effect, was two presentations: a visual set of slides, and a verbal circumlocution of the subject containing a mass of extra detail. Diego was in the extremely unfortunate position of having to present a forecast an hour before a key economic indicator (Eurozone GDP figures) was due to be released – a thankless task. Nevertheless he did a sterling (no pun intended) job, in which he noted the following:

1. At a global level the world economy seems to have picked-up, thanks largely to the 'old and dull economies' - USA, Japan, Germany and UK - although as regards the UK he did not predict the current level of growth would be maintained.

2. The emerging market 'boom' seems to be over, and is unlikely to be repeated, although more measured growth in these markets is still expected.

3. Chinese growth has stabilised, with the 'real' GDP estimated at +7.8% for 2013 Q3. However, over-capacity in 19 industries (including Paper) is leading to consolidation and closure of older plant. Yet further growth is still anticipated, as the new government aims both to increase private consumption and to develop the poorer West side of the country.

Overall the global economic forecast can be summarised as positive – for the first time in years!

Heikki Vappula (UPM)

This talk closed the first half of the Symposium, and was given under the title 'Pulp & Bioenergy – strategic opportunity or risk?'

Heikki didn't really need to answer the question, since, from a company perspective, UPM has already laid all their cards on the table and, following a company re-organisation, added both biorefining and (bio)energy divisions to their new corporate structure. In the first three-quarters of this year alone estimates suggest these two divisions accounted for around 20% of sales.

In discussing the main drivers for sustainable pulp manufacture, Heikki presented a graph showing the energy cost per tonne of pulp produced from a wide selection of pulp mills. The obvious message – some mills (generally the most modern) make and sell energy in addition to pulp (negative energy cost), while others are net consumers (positive energy cost). The differential between the best and worst mills in the group (US$350/t) is vast, making the long-term profitability of the older mills, which are based purely upon manufacturing paper-grade pulp, questionable. They may be limited in what they can do to offset the energy costs, but investigating the production of higher value-added products in addition to pulp is one possibility.

In light of this, UPM are building what will be Europe's first biorefinery, at the Kaukas Mill in Finland (which, on the graph alluded to earlier, has a low positive energy cost.) In 2014 this will take tall oil from the pulp mill and transform it into biodiesel. The project is entirely self-financed, and should contribute approximately 25% of Finland's total biofuel when fully operational.

In conclusion, UPM view the future as one in which wood is to be used as a raw material from which ever great amounts of value-added materials need to be extracted to gain maximum profitability (*Figure 1.*)

Figure 1: A hierarchical view on how to make money out of woody biomass – *Source UPM*

Hani Nuqul (Nuqul Group)

As we have been told for many years since, tissue is a major growth sector; as I reported in my overview of MENA (*Paper Technology*, September 2013) the region contains major pockets of growth; so put the two together and the result has much potential. The speaker, who is Chief Officer of the family tissue business, is in a perfect position to know whether this hypothesis is indeed true or not.

Hani started by defining MENA – much as I did – except he made a point of excluding Israel on the basis that: (a) it is not a Nuqul customer; (b) with the current political situation and closed borders, Israel does not trade with the surrounding countries; and (c) the consumption trends in Israel are anomalous (*Figure 2*).

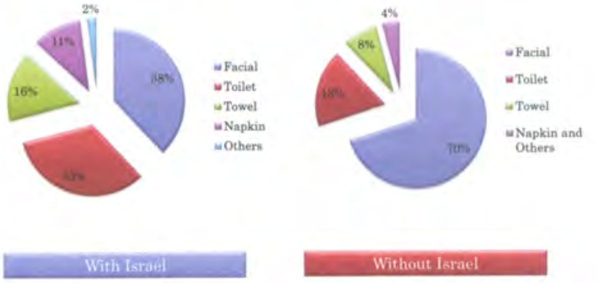


Figure 2: The grade mix in MENA, with and without inclusion of Israel – *Source Nuqul Group*

Looking at the current consumption of tissue in MENA, there is sufficient installed capacity to produce 786ktpy, yet demand is only 677ktpy, meaning an over-capacity in excess of 100ktpy. Why, then, is the growth rate so high? (It averaged 9%/a between 1991 and 2011, and the prediction for the rest of this decade (*Figure 3*) remains remarkably buoyant.) The answer is two-fold:

1. The growth rates vary, and in many countries there is still very significant room for further improvement, not least because of the high population growth rate of 3%/a; and

2. Companies in the area are gaining success in exporting outside of MENA.

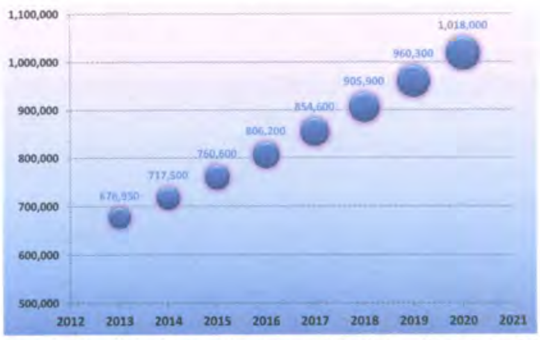


Figure 3: Predicted growth demand(tpy) for tissue in MENA (without Israel) – *Source Nuqul Group*

To maintain the predicted growth rate, over 250,000t of new tissue capacity is currently planned for installation over the next two years, including Algeria (30kt), Egypt (30kt), Iran (70kt), KSA (25kt), Tunisia (25kt) and UAE (25kt).

As Roger Wright, the Chairman, noted after the session, this speaker delivered a presentation which **Hawkins Wright** could easily have used as the basis for a report. Overall a fascinating insight into the tissue sector of this region, with a lot of valuable information imparted to those present – exactly what the HW Symposium is noted for!

João Cordeiro (Pöyry)

This penultimate talk took us into the world of wood pulp, specifically looking at trends in Asia and Latin America, mainly regarding the construction of new pulp mills and the supply models used by them.

FAO data give the global wood supply used annually as 3.5 billion m^3, of which pulpwood constitutes 665 million m^3, or about 20% - most of which comes from developed countries (*Figure 4*.) (In underdeveloped countries the main use is as fuel – something which consumes over half of the wood harvested each year – a fact many environmentalists choose to ignore!)

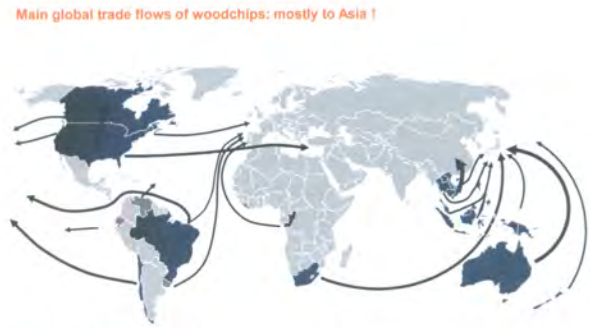


Figure 4: Main global trade flows of woodchips - *Source Pöyry Consulting*

Currently, only around 170 million m^3 (ca. 25%) of pulp wood comes from Emerging Asia and Latin America; this has increased from 10% in 1995, and is forecast to reach 35% by 2025 – in other words the market pulp sector is set to be dominated by what happens in these regions in coming years. For this to come true will require an estimated 4 million hectares of new plantation; however, in Asia most new forest plantations are not dedicated to pulpwood - instead they focus upon plywood, wood panels and composite wood materials (MDF, etc.) or energy, with only a minority going to paper. Furthermore, farmers get more money by leasing land for other crops, such as sugar cane, so very often only poorer quality and less accessible land is set aside for wood. All this is likely to limit the extent to which the region is able to reach the forecast values for 2025.

As an example of what can be achieved, over the last decade there has been a major increase in woodchip exports from Vietnam and Thailand, mainly to Japan and more recently China (*Figure 5*.) Vietnam in particular has very low entry costs, with excellent growing conditions where the trees can be harvested by hand, driven a short distance and chipped in large, but cheap, mills sited near ports.

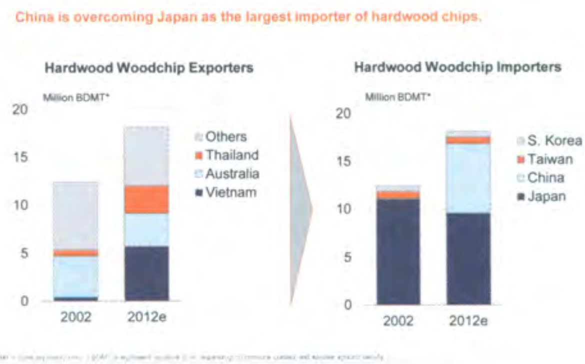


Figure 5: Hardwood chips trade flows to Asia – *Source Pöyry Consulting*

Looking at the models used by modern pulp mills, there are two main approaches: pulp local indigenous plantation (i.e. the 'South American' model), or import woodchips (the 'Japanese' model.) The engineering cost is the same in each case. The differences relate to 'wood' costs – a catchall that includes land, labour, harvesting, transport, and increasingly - biotechnology - modern silviculture is very high-tech (and expensive)! 'Wood' costs are typically the difference between a successful and unsuccessful venture, and with land and labour costs in particular increasing, all things being equal, pulp costs will appreciate. (Of course all things are not necessarily equal; as will be mentioned next, there is a huge new volume of pulp capacity coming on line in the next two years, which will tend to depress prices and / or drive older, less efficient competition out of the market.)

In conclusion, demand for plantation wood is set to increase both for pulp and other industrial uses, causing greater competition for land and labour. Knowledge (and luck) will be key drivers to determine how the Emerging Asia and South American producers are able to ramp up supply to meet forecast demand.

Oliver Lansdell (Hawkins Wright)

So to the final presentation - a review of the world pulp market by the ever reliable Oliver Lansdell - which this year was extended to cover developments in the field of dissolving pulp.

The initial preamble described the general fluctuations in the pulp price through the year caused by demand, currency fluctuations and exchange rates. Surprising though it may seem, a high pulp price is no guarantee of 'safety' for the pulp industry; as an example, Oliver showed a slide where the pulp price rose from US$500 to US$900 per tonne in a little over 18 months (Jan 2009 to June 2010), yet in the same period 4.5Mt of pulp capacity was closed.

That said, over the last year almost 3Mt of bleached chemical paper-grade pulp has been removed from the market, either through closure or conversion (*Figure 6.*) However, the volume of market pulp has actually increased over the same period, due in part to expansion of production in Brazil, Europe, Indonesia, Russia and the US, and also to other pulp being dumped on the spot market. (For example, Chinese machines have been running at poor efficiency rates this year, and much Indonesian tonnage that was previously 'tied' to China has been offered as spot tonnage, so depressing prices.)

	Country	Company	Mill	Closure date	Grade	Capaity
2013	Austria	Schweighofer Group	Hallein	Q1-2013	Sulphite	-160
	Czech Republic	Lenzing	Paskov	Q1-2013	Sulphite	-280
	USA	Buckeye	Perry	Q1-2013	Fluff	-40
	South Africa	SAPPI	Ngodwana	Q1-2013	BSKP	-200
	Brazil	Jari	Monte Dourado	Q1-2013	BHKP	-420
	Canada	Domtar	Kamloops	Q1-2013	BSKP	-120
	USA	SAPPI	Cloquet	Q1-2013	BHKP	-450
	Russia	Solombalsky	Arkhangelsk	Q2-2013	UKP	-230
	Norway	Sodra	Tofte	Q3-2013	BSKP/BHKP	-430
	USA	Rayonier	Jesup	Q3-2013	Fluff	-260
	Russia	Ilim	Bratsk	Q4-2013	BSKP	-230
	TOTAL					**-2,820**

Offset by: Ilim, Indonesia, Eldorado, UPM, Metsa Fibre, IP + others

Figure 6: Closures and conversions of bleached chemical paper-grade pulp mills in 2013 – *Source Hawkins Wright*

Turning to dissolving pulp, following a major switch to this higher priced grade by a number of paper-grade pulp mills, notably in North America and Brazil, the Chinese have recently imposed swingeing import duties varying from around 10% to 50%. (Rumour has it all pulp arriving from Brazil, Canada and the US is being treated as 'dissolving' unless the end user can prove otherwise!) This has been done to help the higher-cost dissolving mills in China compete; yet it undermines local viscose fibre production, which is a far bigger industry than that of pulp production. We will have to wait and see how long they can maintain such duties; in the meantime, three US mills are said to be considering switching back to fluff and paper-grade pulp. By contrast, several paper pulp mills in China and Indonesia are considering conversion to dissolving product – although this is likely to require a rise in dissolving-grade prices before a definite change occurs. In the meantime, this behaviour by the Chinese authorities is likely to place a brake on further conversion to dissolving grades by Canadian and American producers.

As regards the market performance to date, data show that softwood and hardwood supplies have become decoupled, with softwood stabilised in a region where price is controlled by supply; it is therefore rising. Hardwood, on the other hand, is plentiful, not least because of the new capacity that has been brought online recently, with the effect that price is controlled by demand, making it a buyers' marker. Should the price differential (now over US$100 per tonne) continue to rise it will push the trend for substitution of expensive softwood by cheaper hardwood.

Looking at demand in 2014, China is expected to add around 8Mt more paper capacity, split relatively evenly between liner, tissue and carton, with only a small amount of graphic product being added. Meanwhile, next year the forecast is for around 2.5Mt of extra market pulp capacity as three new mills - Montes Del Plata, Suzano Maranhão and Oji Nantong - come online. (Note: this assumes all mills start-up smoothly, ramp up production successfully throughout the year, and takes no account of closures.) Similarly, in 2015, around 1.5Mt extra capacity is anticipated (CMPC Guaiba). All of this new capacity is hardwood.

China itself has invested heavily in recent years in new pulping capacity, but the Chinese model is based upon importing woodchips. On a weighted cost basis, the new Brazilian mills have a much lower cost base (nominally around US$350/t); at the other end of the scale are some European, Japanese, Canadian and Swedish mills, which are significantly more expensive. Most Chinese mills sit in the middle, although there are some higher cost producers there also – at around US$600/t. It is forecast that if the South American mills start up well, the Chinese pulp producers could take downtime due to the significantly lower cost of imported product.

In conclusion, the continued oversupply of hardwood is likely to keep prices low, and favour substitution of higher priced softwood with this lower cost fibre. If there is to be downtime by pulp mills next year it is likely to be shared between China, North America and Europe, with China being critical, and with the quantity of downtime being dependent on global economic growth and the successful start-up of the new lines outlined above.

Moulded Pulp Review
by Joseph Grygny
Executive Director,
International Molded Fiber Association

IMFA

The international market for renewable moulded fibre products, including those used for food and protective packaging, has seen significant growth in the past eighteen months. One principal driver is the interest in replacing non-renewable plastics with more sustainable natural materials. Most moulded fibre manufacturers, worldwide, have added or upgraded equipment and machinery, providing increased capacity and higher quality products. Some European examples include the Moulded Fibre Products Co. Ltd. in North Lincolnshire, UK, installed new pressing equipment, CDL in Allaire, France, is now producing a variety of moulded pulp products, and Buhl Paperform in Neunkerchen, Sieigerl, Germany has added new products in their production schedules. Meanwhile, across the Atlantic, Berkley Packaging in Carson, California, USA has installed new machines and Henry Molded Products in Lebanon, Pennsylvania, USA, with a facility in the UK, has added a new factory in Greenville, North Carolina, USA.

As a result of the increased demand for moulded fibre products, new and improved manufacturing equipment has followed, with new machinery and processes capable of higher productivity and increased product quality.

New mould design and production methods using rapid prototyping (Fused Deposit Manufacturing – FDM) concepts are now in use allowing product moulds to be produced, in some cases, in one day, along with mould cost reduction.

Examples of moulded pulp items: (l) a rough-finished corner protector; (m) a smooth-finished high quality packaging tray that housed a tablet computer; (r) an egg box. The middle example in particular is a growth area, as it encroaches upon the territory of injection-moulded plastic trays. Increasingly this most environmentally-friendly form of packaging is being used for high-grade applications.

IMFA has scheduled its **"17th International Molded Fiber Seminar" for April 2-3-4, 2014, at the Hyatt Regency - Coral Gables Hotel in Miami, Fl, USA.** This once a year event is the only exclusively, "moulded fibre" seminar, regularly attended by most major manufacturers of moulded fibre products and representatives from a dozen countries. For more seminar information, contact **IMFA** at **info@imfa.org**

Energy Matters
by Steve Freeman
Director of Environmental & Energy Affairs,
CPI

cpi confederation of paper industries

Well what a pickle; energy costs at the top of the political agenda as politicians bicker with each other, while in the real world, power stations are closing down and the country nearly runs out of gas. Decades of under-investment in the electricity sector meant the UK enjoyed relatively low energy prices, but the consequences are coming home to roost with an estimated investment of £110 billion required to replace outdated power stations. Meanwhile, the distribution companies have achieved the seemingly impossible in replacing bankers at the top of the public hate list. How to make sense of it all?

Fundamental to understanding what is happening to Government policies is the commitment, enshrined in the 2008 Climate Act, to effectively decarbonise the economy by 2050. The UK is unique in this legal requirement and, in the absence of a genuine global carbon reduction deal, the policy is proving to be more and more problematic. If carbon costs were increasing everywhere, then the UK would not be alone in driving up energy costs through carbon policies.

It is this long-term decarbonisation goal and the interim targets set by the Climate Change Committee, together with no realistic prospect of economic carbon storage, that is driving coal out of the UK as well as questioning the long-term role of gas. Meanwhile, North American gas prices have fallen so far that re-industrialisation is underway, as American installations benefit from far lower energy costs than those experienced elsewhere. The forthcoming free trade deal should be a real concern.

Another effect of the American shale gas revolution has been to displace coal in local electricity production. This coal is now being exported, driving down global prices and leading to a renaissance of coal power generation outside North America. Even in the UK, we are seeing a short-term increase in coal power generation as closing power stations use their allowed running hours, further damaging the economics of gas generation. This at a time when the Government accepts the case that gas does have a role to play in new Combined Heat and Power (CHP) plants.

For papermakers making very long-term investment decisions, these policy issues are key as they are likely to differentiate energy costs between different locations. It can be argued that, in the long term and if the market works properly, the underlying costs of energy will level out. Though of course, the choice between the relative future cost of different energy types, is another matter altogether. The varying approaches to energy being taken by companies, sometimes operating in the same sectors, show the difficulties in making projections and the different conclusions being reached.

At a Government level, policy cost impacts assume both a major increase in the future price of gas and the total cost impact being reduced by increased energy efficiency; while the expected increasing role for biomass is predicated on sufficient supplies of sustainable materials being imported to the UK at an economically viable cost.

In 2013, we began to see evidence that the Government is finally getting the message that the costs of UK-only policies cannot be loaded onto energy-intensive installations if they are to retain their competitiveness. During 2013, the sector Climate Change Agreement was renewed and the discount on Climate Change Levy taxation was actually increased for grid electricity. Of equal importance, the Government delivered on its promise to compensate the most electro-intensive sites for the cost impact of the EU Emissions Trading System on electricity prices, with the majority of mills receiving substantial amounts of compensation until at least 2016.

Looking ahead, the need for a massive programme of investment in new power generation equipment is inevitable. The challenge is to keep the lights on, as well as deliver energy at a competitive price. While the anticipated signing of the contracts for the new nuclear plant in Somerset is a positive indicator, the long timescale for delivery and the very high guaranteed price the generator will be paid, do not bode well for retail prices; nor do the cost projections for offshore wind and other low carbon generation technologies.

In the light of these impacts, and a promised CHP support strategy, 2014 may be the year that more mills consider the possibility of generating their own power to isolate themselves from an ever increasing cost of grid electricity. And of course, those energy efficiency projects become ever more attractive as prices go up!

CEPI Energy facts:

Energy is required for all industrial production and the paper industry is no exception: it requires energy to operate its machines and to dry the paper web. You would expect that, being a large scale undertaking, the paper industry consumes huge amounts of energy, yet it doesn't. For economical and environmental reasons the paper industry works continuously to optimise its processes by becoming more self-sufficient. The mix of fuel it uses has continued to evolve, with most mills producing much of their electricity and most of their heat on site. More and more electricity is supplied to the national grid too.

Around 500 kWh of energy are required in Europe to make 200 kg of paper[1], which is more or less the average annual per capita consumption in the countries of the European Union.

500 kWh is equivalent to:

- powering one computer continuously for five months;
- burning a 60Watt light bulb continuously for one year;
- The energy consumed by a typical household leaving its electronic equipment on stand-by for a year.

Overall, more than half of the EU pulp and paper industry total primary energy consumption is based on biomass[2], which corresponds to one fifth of the bio-energy produced in Europe. Biomass is produced by the pulp and paper industry by using residues and waste materials from the pulping process to provide energy for the manufacturing process itself. Often excess heat and power is produced which is sold to the grid or used by the local community. Using wood for paper first and energy last creates more value.

1. paper & the environment, ATS consulting 2007
2. CEPI sustainability report 2011

The Revised Pulp & Paper BREF – The story so far....

by Debbie Stringer
Environment Manager,
CPI

cpi confederation of paper industries

During 2013, the Pulp & Paper BREF has been galloping up the final straight towards the conclusion of the revision process; a process which began way back in 2006 having had not one, two or three but four different authors along the way.

The original BREF - ***BAT Reference Document*** - was published by the European Commission in 2001 as guidance for setting permits under Integrated Pollution Prevention and Control (IPPC). In the meantime, the "Rules of the Game" have changed with the introduction of the Industrial Emissions Directive (IED) which gives a much greater significance to the BREF. The BREF defines what is considered to be Best Available Techniques (BAT) for the industry – ***BAT Conclusions,*** as well as specifying emission limit values expected when BAT is implemented – ***BAT AELs.*** Significantly, under IED whilst BAT is not prescriptive, in that you could make the case for an equivalent alternative, the ***BAT AELs are legally binding*** and will be incorporated into mill permits.

Much of 2013 has been spent with CEPI and CPI gathering evidence and presenting the case to the IPPC Bureau (the BREF Authors) for more realistic BAT AELs. The original proposals were based on data supplied by mills across Europe in 2009; data that was not representative as less than 20% of UK mills submitted – a lesson to be learned for future revisions of the BREF!

By the time of the Technical Working Group (TWG) meeting in April 2013, the majority of the outstanding issues were related to Kraft and Sulphite pulping. One set of BAT AELs did however present a significant issue for many UK mills - those fitting into the *Speciality Mills* classification. This is a hugely diverse group, with equally varying processes. The proposed emission limit values were based on limited data and took no account of this diversity. An ultimately successful campaign was mounted, led in the final stages by the Environment Agency (EA), to bring about an understanding of the Speciality Mill issue and propose criteria for inclusion in the BREF when the BAT AELs would not apply. The TWG met to finalise the draft BREF and agreed to the Speciality Mill proposal along with a number of other changes, including the exclusion of small combustion plant from the scope of the BREF. CEPI's view at the conclusion of the TWG was that the outcome was successful, with the resultant BREF as good as could be expected.

The resultant Final Draft (July) of the BREF then progressed through the formal IED approval process and translation. Publication of the BREF is expected mid-2014.

Looking forward to 2014 and beyond, responsibility for BREF implementation moves to the Regulators in the UK. The EA will, as CPI understands, continue to take the lead following their involvement in the TWG, but "translation" into Permit emission limit values and conditions will be by the appropriate regulator, i.e. EA, National Resources Wales (NRW) or the Scottish Environment Protection Agency (SEPA).

The first phase of implementation has been to classify all mills, as different BAT AEL tables apply depending upon such things as Speciality, Recovered fibre with or without deinking, or mechanical pulping. Mills will then be formally asked by the Regulator to confirm how they operate to BAT and how they will meet the BAT AELs. Some time ago, during the inception of IED, CEPI and CPI, amongst others, successfully argued for the inclusion of an option for ***derogation*** from the BAT AELS. This is an option that could be available to mills but any justification must be robust and based on certain criteria. Any derogation granted would be time limited to allow for, say, an investment cycle.

CPI understands that following the response to the formal information request, the Regulators intend to carry out a full Permit Review in 2014 to incorporate conditions and emission limit values leading up to the revised BREF; by no means a small undertaking! For clarification, legal compliance with the revised BREF is required four years from publication, so mid-2018 is the expected date for the revised BREF requirements to be enforced.

CPI will work closely with the Regulators and mills in what could prove to be a very interesting year ahead of the permit review....

....and as a footnote, working with both CEPI and the Environment Agency to collate robust data ahead of a proposed BREF for medium combustion plant as well as the next BREF revision in 2022!

CPI's Biennial Health & Safety Conference a Resounding Success!

confederation of paper industries

Confederation of Paper Industries (CPI) held its Biennial Health & Safety Conference at The St Johns Hotel, Solihull on Tuesday 5 November.

The conference, run by CPI for over 10 years, has gone from strength to strength due in part to the support from speakers and CPI Members, and it has become one of the 'must-attend' conferences in the Industry calendar.

Sponsored by **PILZ Automation Technology**, the 2013 conference saw over 200 delegates in attendance including CEOs, Managing Directors, Safety Practitioners and Safety Representatives from all sectors of the Paper-based Industries. As in previous years, delegates were treated to a unique day of inspirational presentations from a wide variety of speakers.

The theme of this year's event was 'Working Together: Making the Paper Industry SAFER... today, tomorrow and for the future', and one of CPI's headline speakers was Lawrence Waterman OBE, Head of Health & Safety for the Olympic Delivery Authority and Head of Health & Safety for the London Legacy Development Corporation speaking about the "Big Build".

Nick Ratty, Head of the Manufacturing, Transportation and Utilities sector (HSE) opened the seminar programme with a presentation reflecting on the industry's progress and achievements

to date, and covered some of the 'Big Ticket' items currently being progressed through HSE. He went on to commend the professionalism and enthusiasm of the Paper and Board Industry Advisory Committee (PABIAC) and the role of the industry in shaping its future. He encouraged delegates to put in extra effort over the next year to achieve the targets that have been set.

Paul Mahoney's presentation 'Accidents Happen to Other People' provided a 'real life' and shocking reminder of what can happen when a series of events conclude with a life changing accident, and the potential impact of complacency in the workplace. With admirable levels of humour, Paul recalled the story of his consultant insisting he sign the authorisation for the operation to reattach his arm, despite him being left handed and having lost his left arm!

David Collier, Safety Specialist, Chairperson at Machinery Safety Alliance and Business Development Manager with sponsor **PILZ Automation Technology**, emphasised the importance of a structured approach to machinery procurement, including having the necessary skills and competence to operate and maintain equipment.

Melodie Gilbert, Head of Ill Health Prevention London 2012 and Senior Partner, Park Health and Safety Partnership presented some of the 'Health' lessons learned from the London 2012 Olympic project and how a simple yet cost effective integrated occupational health service provision can be achieved in any industry. Melodie asked delegates to consider "Given the ratio of Health to Safety incidents (81% v 19% internationally) do we allocate resources in the same or similar proportions?" Outlining the '3Ws' strategy, - workplace, worker and wellbeing, put in place for the Olympic project, Melodie emphasised the strategy that worked was "making health more like safety".

Nigel Bryson OBE, Director of BRYSON Consulting delivered an energetic presentation on the benefits of 'Working Together'. Using extracts from published academic papers and examples also from the Olympic Park project, he illustrated that through engagement with employees you can bring about real improvements. He outlined a critical component in the success of H&S strategies as being the ability of the supervisor or line manager to motivate the people around them to embrace good practice.

David Ingham, General Manager at **UPM Shotton** provided a case study on the mill's achievement of over two years without a lost time accident. David encapsulated the theme of the conference with his presentation on how with the right vision, determination and commitment from everyone you can achieve your goal, stating "senior managers lead behavioural change, the workforce judge us on our behaviours." David also outlined the usefulness of benchmarking against other industries, and the application of "you get the safety you inspect, not the safety to expect". It had taken Shotton paper mill 12 years to achieve ZERO accident status, but as David stated "Achieving zero status was hard, sustaining it will be harder".

Bernie Catterall, Director of Human Applications provided delegates with useful approaches to ensuring senior managers have the knowledge and tools to truly influence safety performance and to lead effectively. He challenged delegates to see beyond their current status and visualise "what good looks like", and then think about how they could reach it.

In an informative and thought provoking presentation, Lawrence Waterman OBE, Head of Health & Safety for the Olympic Delivery Authority and Head of Health & Safety for the London Legacy Development Corporation provided an overview of the creation of the Olympic Park and the Health and Safety risks that were involved. Through practical examples, Lawrence showed how the workforce was engaged in making the work safe and healthy.

Lawrence recounted how the first KPI set for the project became 'No fatalities' following a statement at one of the first meetings of the Board "We don't want to talk about blood on the carpet, so which director is going to come with me to visit the widow?". Also focusing on leadership, Lawrence highlighted how the lessons learnt from the project can be attributed to teams working together and the ways this can be applied within the Paper Industry. "If you lead people, the best behaviour you can expect from them is the worst behaviour you display".

One delegate commented, "Olympic legacy presentations were superb!"

The closing address was provided by Chris Brereton, Managing Director UK Packaging, **DS Smith Packaging**. In his role as a Member of the PABIAC Strategic Committee, Chris commended the industry on its achievement to date, but emphasised the need to continually develop. He encouraged the industry to continue to work together towards achieving the objectives set out in the current PABIAC strategy 'Being the Difference Together'.

Delegate feedback emphasised the value of the day, with one commenting, "What an excellent example of how to conceive, organise and deliver a winning conference" and another "Enjoyed the Conference on Tuesday, it is always a powerful message listening to someone who has been sadly affected by a serious accident".

The strength of the agenda in highlighting real-life examples was also appreciated by delegates with one commenting, "Another good Conference – keep the real life examples of accidents in the Agenda - they deliver a powerful message!"

To provide additional value to delegates, the conference also hosted an exhibition with five organisations taking part in addition to the event sponsor, **PILZ Automation Technology.** Exhibitors this year were **Rolpex Limited**, **Essential Health & Safety Training**, **Swan Multimedia Ltd**, **Procter Machine Guarding** and **EMSAS Ltd**.

Exhibitors agreed that the conference offered them a prime opportunity to speak directly with key industry contacts and to demonstrate how their respective organisations support Health and Safety programmes in the industry.


Speaking after the event, Andrew Braund, CPI Director of Health, Safety and Social Affairs, deemed the conference a resounding success:

"If health and safety is a burden on businesses, then the paper industry showed by its visible presence at this year's event that health and safety continues to remain a core value and an integral part of our industry. As the industry's accident performance continues to improve, we are looking further afield for ideas and inspiration, and there can be no better example of how to manage all aspects of 'HEALTH' and safety, than those achieved by the Olympic Delivery Authority. This is a great example of what you can achieve by setting clear standards and targets, and everyone working together towards a common goal. I was delighted that so many people were at this event to hear 'first hand' how the Olympic Park project can be applied across any industry."

Tissue Review

by Pirkko Petäjä
Principal Consultant,
Pöyry Management Consulting Oy

Tissue industry's importance is increasing

The tissue industry has been relatively resilient to the global economic factors and has not significantly felt the global recession. There are differences between regions, but there are still areas where tissue consumption is strongly growing and investments are on-going. For the whole pulp and paper industry and its suppliers tissue seems as an opportunity area while many other paper grades, especially publication, printing and writing papers, are facing global decline of demand, closures of capacity and lack of new investments. Existing paper players are looking for new opportunities and some have indicated increasing interest on tissue. Also suppliers for the paper industry are focusing on tissue more and more.

Especially for the producers of market pulp, tissue has become an increasingly important client group. Hardwood market pulp (for instance BEKP that is especially suitable for tissue) producers sell most of their pulp to the tissue industry; for example, of Fibria's pulp 55% is going to tissue. Meanwhile, on the softwood side, Södra sells some 30% to tissue clients and Mercer/Stendahl up to 50%.

The same applies for machine suppliers; new tissue machines and converting machinery are sold worldwide, however projects and activity concentrate on areas with significant growth, especially China.

In Western Europe the capacity increases and investments are modest while activity is rather lively in Eastern Europe. Consolidation and mergers and acquisitions are the typical feature shaping the European tissue industry.

Western Europe

In Western Europe the overall demand growth in the recent years has typically not been very strong. Since 2000 until the great recession in 2009 the annual growth averaged at some 2.5% level. After the decline in 2009 the market has slowly recovered, but is currently still in a quiet phase at low, below 2% annual average growth level.

Countries differ; Germany has a very stagnant tissue market and as the biggest economic power in Europe it has impact on the surrounding markets. Population growth does not support tissue growth, and per capita growth seems also to be stagnant. A typical feature is the high and increasing private label share impacted by the German type of retail landscape; the hard discounter origin retailer groups like Aldi and Lidl dominate the grocery channel.

Elsewhere, some other countries have been hit by economic distress and increasing competition (Spain, France).

New investments are limited in Western Europe; in 2013 MP Papeis started a new AfH segment machine in France, SCA is starting a new machine in Kostheim, Germany also in the AfH segment and in Italy a small MG machine has been converted to tissue by Cartiera Partenope.

M & A activity characterises the market; as aftermath of SCA's acquisition of G-P, Drammen was sold to Vajda Papir, former G-P branded business in UK to Sofidel and private label business including Bridgend mill to Northwood/Wepa joint venture. Wepa sold Piano della Rocca to Roto-Cart, and Van Houtum bought the mill in Swalmen back to family ownership.

Eastern Europe

The Eastern European market is growing briskly. Since 2000 until today the annual growth rate averages to some 8%. Growth is expected to continue at almost 7%/a level. Markets differ; Russian demand is growing faster than the average, as it is in Poland. Of the relatively large markets Romania, Ukraine and Belarus also show strong growth, while the Czech Republic and especially Hungary seem to suffer more from the economic distress. The Hungarian demand growth is only at some 2.5%/a level.

The strong growth has attracted investments in new paper machines: during 2013 in Russia LLC Pulp invest, in Romania SC Petrocart, in Poland Metsä Tissue and Hanke Tissue while for the next year 2014 even larger machines are anticipated: SCA Tula, second new machine, Hayatt in Tatarstan, and a smaller machine for Syktyvkar Tissue Group, all in Russia. The newcomer, CIDC in Azerbaijan, also plans to start 2014. Finally, the Lithuanian Grikiskes has announced a new machine in Vilnus for the next year.

Ownership changes include K-C sale of the Klucze mill in Poland. Characteristic has been the strengthening of foreign investors - Metsä Tissue, SCA, Hayatt - and also increasing activity of local investors especially in Russia.

Americas

The North American tissue market is remaining down in rather modest growth rates at slightly over 1%/a level. New investments are characterised by quality upgrades. Several new TAD machines have come on stream, as well as projects involving alternative advanced tissue making technologies. Also in the private label segment premium quality, TAD and similar products are requested.

Growth prospects for Latin American tissue are promising after slow recovery from recession. Especially Brazil shows large expansion potential. New investments and capacity increases are taking place.

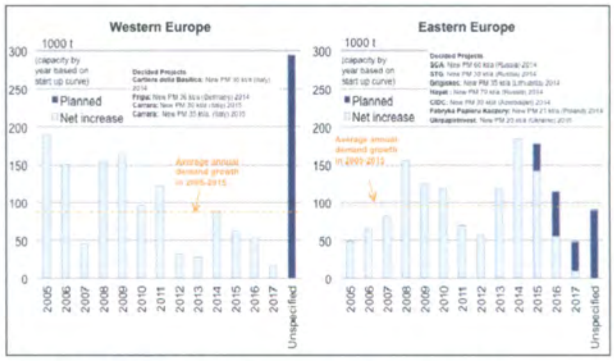
China and the rest of Asia

In China the consumption growth is globally most promising and the industry is also expanding very rapidly. Characteristic is expansion from the Coastal areas to other provinces, though projects are delayed and old capacity is continuously shutting down as over capacity is threatening.

In China most of the leading tissue companies are local. Therefore notable is SCA's recent acquisition of the third largest player, Vinda.

In other Far East Asian countries (excluding Japan) the growth averages to the global average level. South Korea and Indonesia expand capacity; the latter is often fibre integrated. India is slowly rising as a tissue market.

In conclusion, the global tissue market is clearly driven by China; Western Europe is growing slower than predicted, but Eastern Europe is promising.



Net Capacity Change of Tissue Paper in Europe
Investment activity was high in Western Europe between 2008 and 2011 but has slowed down. Similar trend was seen in Eastern Europe but investment activity has picked up again, especially in Russia.

Newsprint Review

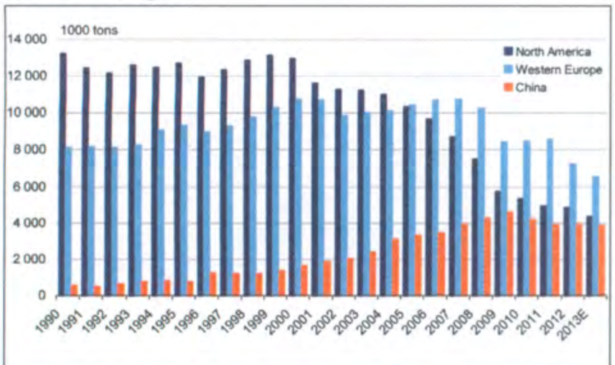
by Otto Leskijärvi
Senior Consultant,
Pöyry Management Consulting Oy

Europe catching up with North America

The economic development in Western Europe has been dismal during 2013, as e.g. in EU area a year of zero growth is expected. One of the most alarming factors in the European economy is the rising unemployment, which in EU is currently touching 11%. The European consumers' high insecurity regarding their income development, combined with electronic media substitution, can be witnessed in the newsprint demand development, which for the second year in a row is close to negative double-digit figures.

North American newsprint demand seems also to decline some 10% during the current year, after a year or two of more modest decline. The North American newsprint demand has shed 2/3 of its volume since the turn of the Millennium. In Western Europe the overall drop in the same period reaches "only" 40%. However, during the last two years in Western Europe the decline has accelerated, and it seems that the region is catching up with North America.

A couple of years ago, it seemed that newsprint demand in China would surpass North America in absolute volume, but that has not materialised, as the demand in China has also stabilised and a small decline is expected for the current year. The per capita demand levels in China are still of course just a fraction of those in North America and Western Europe.



Newsprint demand development (including news specialties)

Decline expected to continue

The newspaper publishing industry has in the past year or two been rather active in putting up paywalls in their online newspapers. According to *newsonomics.com* some 41% of US dailies have currently a paywall. Also in Europe the paywalls are becoming more commonplace. However, the consumer attitudes towards paywalls are still quite negative, being used to free content for a decade. According to *emarketer.com* 80% of internet users in UK consider newspaper paywalls either "a bad idea" or "pointless." However for many publishers the adoption of the paywall has been a necessity as they have witnessed their revenues falter. It can also be expected that paying for online content, especially for tablet versions of newspapers, will become more acceptable in time. Consumers who grow accustomed to reading the news online, and paying for it, are likely to not need the paper version at all.

It is not only the online news content that is drawing people away from traditional media. Social media has in the past couple of years taken a large share of consumers' time and attention. Traditional media, such as newspapers, are losing their importance, as people are spending more and more time with content created by their social groups, instead of professional journalists.

Given the dismal economic development and electronic and social media growth the demand decline for newspapers, and thus newsprint is expected to continue in Western Europe and North America, which should come as no surprise to anyone. Also it can be safely assessed that the newsprint demand in China cannot really be expected to grow in the coming years. However, the demand in China should prove to be a bit more resilient to decline than in North America and Western Europe, as a large part of the population does not have sufficient income levels to adopt devices needed for electronic media. In general, due to "phase skipping" the rising income in China will not lead to per capita demand levels similar to those in Western Europe and North America, as the consumers are likely to shift directly to electronic media.

Industry is trying to keep up with the decline

In North America and Western Europe, the newsprint producers have in the past couple of years tried to adjust the capacity to keep a healthier supply demand balance, and thus keep market prices from eroding too rapidly. Despite numerous mill and machine closures, the industry seems to come a few steps behind. Since 2008, in Western Europe the newsprint demand has declined by some 3.7 million tons, whereas the production capacity has declined by 1.7 million tons, thus it is no wonder that the companies in the business are having financial difficulties. In North America the industry has kept stronger pace with shutdowns, which at 3.6 million tons since 2008 surpass the demand decline of 3.1 million tons. With continuing demand decline, the newsprint machine shut downs will be common also in the coming years.

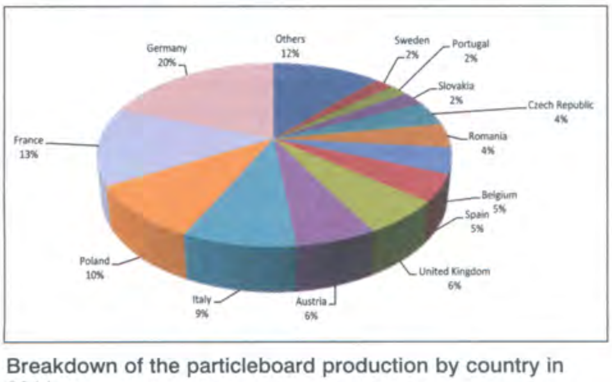
Wood-Based Panels Industry Review

by Isabelle Brose
Economic Adviser,
European Panel Federation

Slowly, the wood-based panels industry is trying to get out of the economic downturn though it stagnated at low level during the year 2012 and continues to face significant challenges such as the limited availability of wood and increases in production costs, especially resins and energy.

The European particleboard production shrunk further by 5.5% in 2012 and amounted to 28.7 million m^3. This production level thus remains far below the output peak at 37.8 million m^3 observed in 2007. The furniture industry and the construction sector are the two main drivers behind particleboard activity. Both remained subdued in 2012, reflecting the European economic context and the stagnant consumption especially for durable goods. In 2012, downward variations of national particleboard productions were larger than the less numerous upward variations. Countries such as Finland, the United Kingdom, Norway, Spain and Portugal suffered from larger falls in output. For Spain and the United Kingdom, these decreases were the result of reductions in production capacities. Italy and Estonia also experienced significant decreases in capacity and production while an important fall in production was once again observed in Greece. Countries such as Sweden and Romania on the other hand, experienced significant increases in output which can be explained by a rise in production capacity for the latter. Germany remained the largest particleboard producer in Europe in 2012, with a stable output accounting for nearly one fifth of the EU-EFTA production volume. France and Poland completed the particleboard producers' podium despite decreases in their production. Poland took the third place at the expense of Italy where production decreased by almost 15%. These four countries were the only ones to produce more than 2 million m^3 of particleboard in 2012. Together, they accounted for 51.7% of the total EU-EFTA production.

The expectations for the year 2013 are rather positive. The rise in production in the EU-EFTA area as a whole is estimated at +1.5% for 2013. This should result in a particleboard production slightly above 29 million m^3 in 2013.



Breakdown of the particleboard production by country in 2011

The overall European particleboard production capacity declined by 578,000 m^3 in 2012 and amounted to 39.9 million m^3. The largest declines in production capacity took place in the United Kingdom, Italy and Spain. In Romania, on the contrary, production capacity increased significantly further. The overall European particleboard production capacity is foreseen to remain stable in 2013.

Following two years of moderate growth in 2010 and 2011, MDF production in Europe contracted by 6% in 2012, reaching almost 11 million m^3, excluding Turkish and Russian production. This production level is significantly lower than the peak of 2007 at 13.3 million m^3. Despite a decline by 17% of its output, Germany remained the larger European MDF producer in 2012. Poland consolidated further its second position while Italy, France and Spain, which fell from the third to the fifth position, completed the top five of the European MDF producers. Their outputs accounted for an increasing share, 78% of the overall European MDF production in 2012.

The production capacity of MDF in Europe decreased to a little over 15 million m^3 in 2012. Although Germany has finished its reduction of excess capacity, Italy, Spain and Sweden experienced temporary halts of production and/or permanent closures.

In 2012, European production of OSB contracted moderately by 2.3% and still exceeded 3.5 million m^3. This level remains somewhat below the production peak at 3.7 million m^3 in 2007. Germany is still the largest European OSB producer, followed by Poland and Romania. Thanks to a large investment in this last country which became operational in 2012, the European production capacity of OSB increased and exceeded the 5 million m^3 threshold. In 2013, further production capacities are forecast to be launched in Italy and Poland.

Overall production of Particleboard, MDF and OSB in Europe (1,000 m^3), 2002-2012

Last but not least, EPF has started developing statistics on the activities of its new members, i.e. the wet process fibreboard producers. In 2012, production of hardboard in Europe increased moderately by 1% compared to 2011, reaching 1.2 million m^3. This relatively good performance took place during the first half of the year, especially in Scandinavia, Baltic States and South-Western Europe. Following a decrease by 5% in 2011, the European production of softboard upturned slightly by 2.1% in 2012.

The general economic situation in Europe continues to be sluggish also in 2013, thereby negatively affecting consumer confidence and thus not helping panels business which wishes that the EU policy makers will soon take concrete decisions to soften the austerity measures, to promote harvested wood products, to stop the subsidies for the direct burning of wood and to encourage the substitution of energy intensive materials with carbon positive wood products.

Containerboard and Corrugated Board Market Review

by Outi Juntti
Principal Consultant
Pöyry Management Consulting Oy

Corrugated – Not just brown boxes any more

The role of corrugated board as packaging material has changed quite significantly during the past ten to fifteen years. Today, all kind consumer goods from mobile phones to wine are found packed in shiny, colourful cases, which have no resembles with those brown boxes. All carefully designed not only for protection but for attracting consumers and thus functioning as an essential part of sales strategy and product positioning.

This development of corrugated packaging status is partially originating from increasing requirements of retail, consumers and brand owners. Corrugated and containerboard industry itself has also been actively upraising the image by introducing new packaging solutions. As a result European containerboard and corrugated board industry and market have faced several trends affecting the product and product construction as well as production process and technology, the key ones being:

- Light-weighting, which has extended to both containerboard and corrugated board
- Small flutes and multiwall constructions are partly related to the light-weighting as introduction of lower basis weight fluting, today even down to 60-70 g/m^2 has enabled the microflute concept and use in consumer packages as well as increasing need in heavy duty applications
- Retail ready packaging has promoted the use of die-cuts and trays
- White-top liners and high quality printing are promoted in consumer packages and shelf ready packaging
- Wider corrugators have been introduced in order to improve the efficiency at corrugated plants.

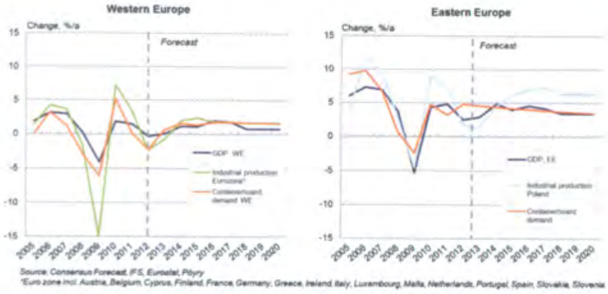
All these trends have been key drivers for the market growth as well for industry development. Here some highlights of the development in European containerboard and corrugated board demand since 2000:

- Share of white-top linerboards has grown to nearly 15% and the demand of these grades, especially coated ones, is forecast to continue increasing
- Average basis weight of corrugated board has declined from 550 to 520 g/m^2. In Germany and Poland the change has been even more substantial and the average is now close to 500 g/m^2.

Steady growth in Europe continues

In general, the growth of the world economy, industrial production and merchandise trade are the main demand drivers for containerboards and corrugated board packaging. This correlation has been very visible in Europe as shown in the graph below.

Year 2013 has been fairly good for the whole European containerboard industry with steady growth in all markets and grades. According to CEPI's statistics the market has been picking up increasingly towards the year end and in



GDP and Industrial Production vs. Containerboard Demand in Europe

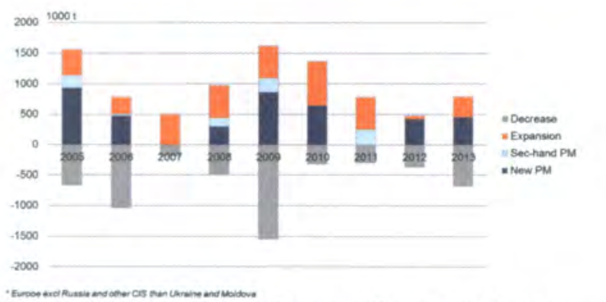
3Q containerboard production was already 3.7% higher than the same quarter in 2012. The deliveries within Europe have grown at the same pace and the producers have reported high operating rates and low inventory levels, particularly after summer. This has led to consistently high OCC prices, but the producers have been able to improve their profitability with prices increases – some of them even twice between August and November.

Growth has been robust in the "new" EU countries, particularly in Poland and Hungary where corrugated shipments were over 6% higher between January and September than during the same period last year. Containerboard and corrugated board demand in Russia has also continue to grow throughout the year. An interesting feature in the Russian markets has been a rapid increase of testliner imports, mainly from Poland and Ukraine. They were up by over 40% during the first half year compared to the respective period in 2012. The imported volumes have kept increasing since July. At the same time kraftliner production was stagnating mainly due to investment/maintenance shutdowns at Arkhangelsk and Kotlas. It remains to be seen whether corrugated plants will go back to kraftliner, which has been the dominating grade in Russia, or will the substitution to cheaper testliner be permanent.

Investment activity slowing down in Europe

In addition to positive market development, the improving capacity situation has been contributing to industry performance and operating rates. During 2013 over 700ktpy containerboard capacity has been shut down, all in recycled grades. Investment activity has been slowing down; StoraEnso's Ostroleka is the only start-up this year while Blue Paper's new PM in France is scheduled to begin production soon. For 2014 the only decided project is the Townsend Hook PM9 with which SmurfitKappa Group will replace PM7 and PM8 closed earlier this year. After that there are few plans, but no finally decided investments.

This means that supply demand balance is improving Europe. When demand outlook for 2014 seems, at least at the moment, positive, the European containerboard industry can move on to the next year with hopeful prospects.



Recycled Containerboard Capacity Changes in Europe

Industry Statistics 2012

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

2012 - Summary

This was another relatively stable year, the highlight of which was the start-up of Saica PM11 in January, which, even though it did not run at full capacity throughout the year, more than made up the shortfall caused by the closure of a machine at Arjowiggins' Chartham Mill and the loss of DS Smith's Hollins Mill. That explains the slight upturn in the production statistics.

2013 – Preliminary Assessment

Early in 2013, following consultation with the staff, a decision was made to close Whatman's historic Springfield Mill. Initially this was planned for the end of 2013, but since then we learn it has been put back until late 2014; it is likely that parts of the mill will close sequentially throughout the year, as products are moved to other manufacturing sites. Conversely, the closure of Arjowiggins' Stowford Mill, which was planned to occur during Q1 2014, has been brought forward and, we understand, will have occurred by the time this is published. Neither mill is large since together they only account for around 14,000tpy; however, both make highly technical products which we will miss in the overall UK portfolio, since once they are lost they seldom return.

Elsewhere, Smurfit Kappa closed the two machines at their Snodland Mill earlier than expected, in July, in preparation for their removal and replacement by a single, larger machine of similar total capacity (250,000tpy). The loss of six months' capacity from this mill should cause a downturn in the total production statistics for 2013 when they are published next year. Finally, plans for a new 30,000tpy tissue mill were announced by Sidcot Investments, the owner of Matryx, a successful tissue converting business, and Negociar, a trading company supplying the independent converters with jumbo tissue reels, to be installed at their site in Royton, Oldham, although no date was given for installation.

Further consolidation occurred in the UK tissue sector during 2013: Sofidel purchased Northern Tissue Group, and Northwood Paper Sales Ltd. took over Connect Hygiene Tissues Ltd (with Disley Mill) and Peter Grant Papers, whose mill is in Lancaster. Meanwhile, following a ruling which required SCA to sell certain assets following their purchase of the Georgia-Pacific European tissue operation, Bridgend Mill was sold to Northwood & Wepa.

In related areas to paper, Phoenix Green Resources Ltd was progressing, finally, with their proposed pulp mill in Rotherham, until a fire disrupted the venture. Currently their equipment has been moved to another site very near, and they propose to commence building soon. Meanwhile, in the area of moulded pulp, Erin Horticulture was purchased by FGW Fasergusswerk Polenz GmbH and their site in Ireland was closed; E2P Ltd also seem to have closed their site in Leicestershire; however, a new operation, run by Moulded Fibre Products Ltd., opened in Lincolnshire.

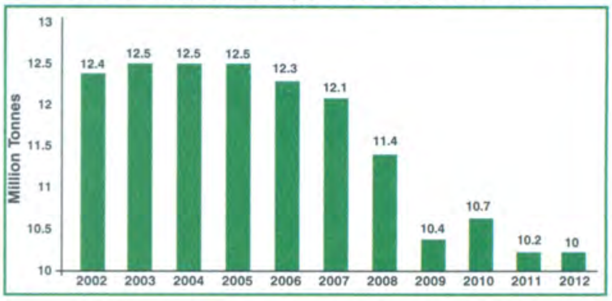
2014 - Preview

Aside from the loss of around 3,000tpy due to the closure of Whatman's mill, we will benefit from the re-start of operations at Smurfit Kappa Snodland Mill, where the re-conditioned Cadidavid machine is due to be commissioned near the end of the year. Aside from these changes, no other information about mill capacity in the UK was available at the time of writing.

Daven Chamberlain,
Editor, Paper Technology

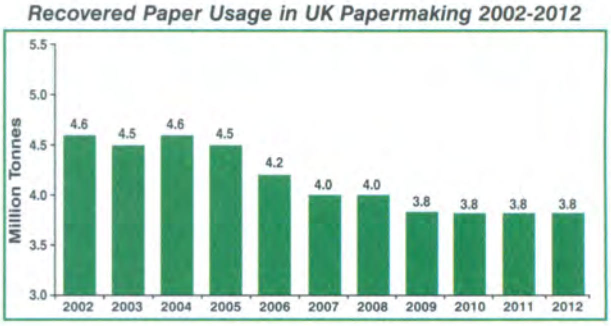
Numbers Employed in the Paper Industry 2002-2012

UK Consumption of Paper and Board 2002-2012

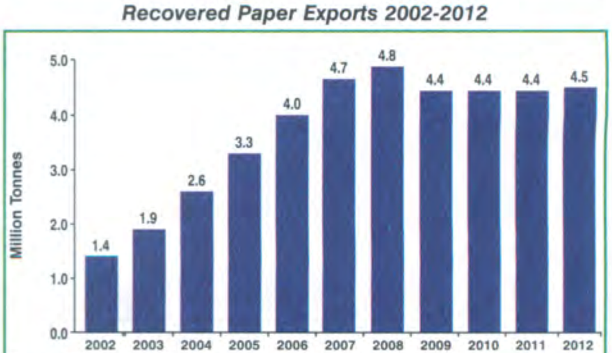


UK Production of Paper and Board 2002-2012

Recovered Paper Usage in UK Papermaking 2002-2012

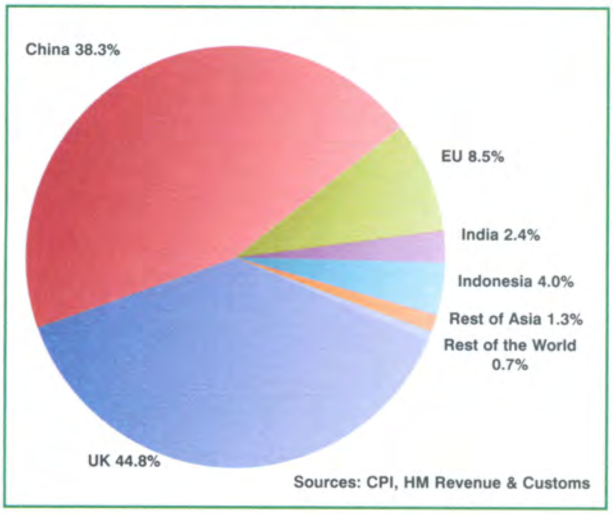


Recovered Paper Exports 2002-2012



Source: HM Revenue & Customs

Recovered Paper Markets



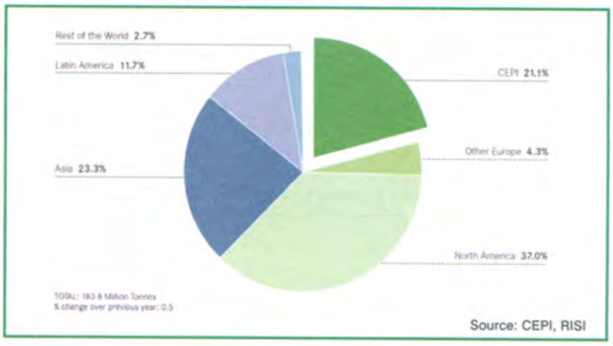
Industry Facts 2012

CPI Member Companies	67
CPI Member Employees	19,000
Paper & Board Production* ('000 Tonnes)	4,416
Corrugated Production (Million Sq. Metres)	3,513.2
Recovered Paper Collection ('000 Tonnes)	8,153.9
Tissue Parent Reel Production ('000 Tonnes)	786.2

** includes parent reel production*

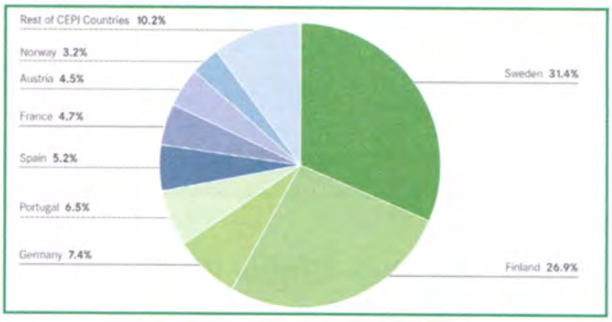
Pulp – Global View

Pulp Production by Region in 2011

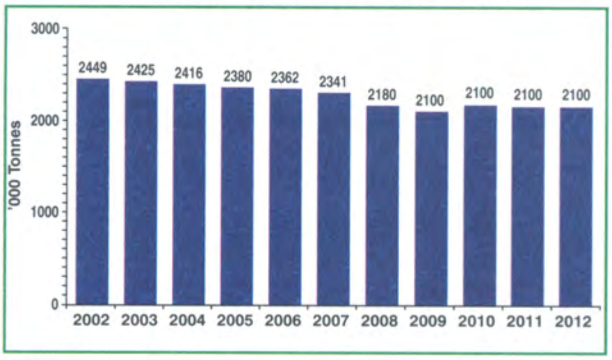


Recovered Paper Collection 1993-2012

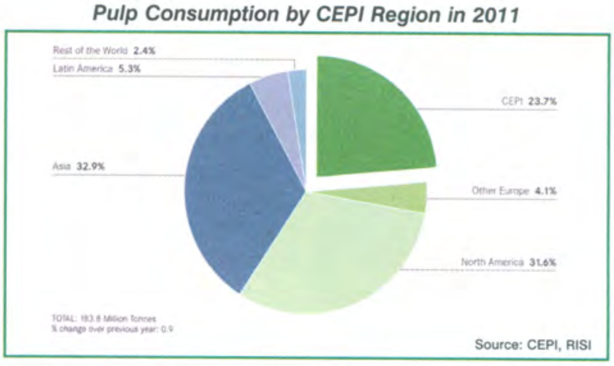
Pulp Production by CEPI Country in 2012



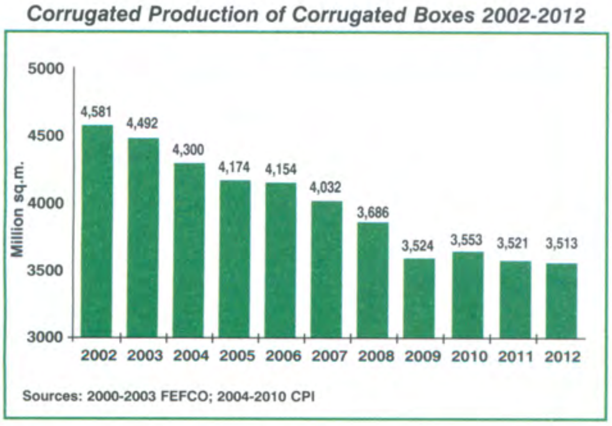
Consumption of Paper by Corrugators 2002-2012



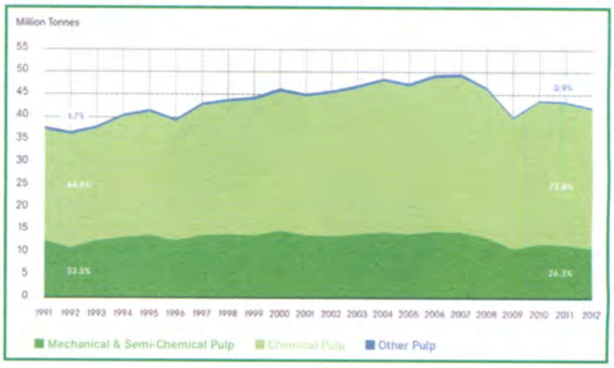
Pulp Consumption by CEPI Region in 2011



Corrugated Production of Corrugated Boxes 2002-2012



Pulp Consumption by Grade in CEPI Countries 1991-2012



Pulp

CEPI Exports of Pulp to Other Regions 2000–2012

000 Tonnes	2000	2005	2010	2011	2012	Share of Total %	% Change 2012/2011
Other Europe	724	674	719	728	769	19.6	5.6
North America	104	187	62	33	43	1.1	28.2
Latin America	6	20	49	56	64	1.6	14.3
Asia	412	1,076	1,595	2,224	2,873	73.2	29.2
Rest of the World	86	114	142	136	174	4.4	28.3
Total	1,332	2,071	2,567	3,177	3,922	100.0	23.5

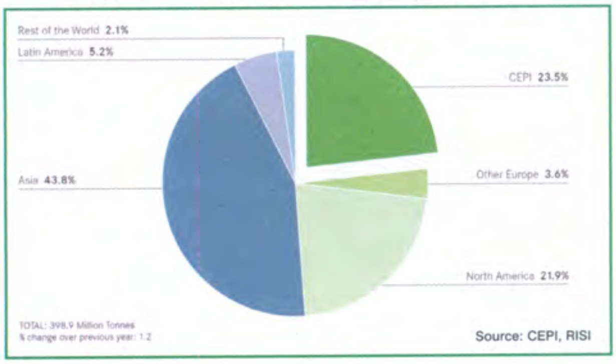
CEPI Imports of Pulp from Other Regions 2000–2012

000 Tonnes	2000	2005	2010	2011	2012	Share of Total %	% Change 2012/2011
Other Europe	657	615	480	573	649	8.3	13.2
North America	4,623	3,891	2,292	2,198	2,041	26.1	-7.1
Latin America	1,916	2,825	4,733	4,989	4,997	63.9	0.2
Asia	272	197	134	176	54	0.7	-69.6
Rest of the World	456	433	81	78	79	1.0	1.6
Total	7,924	7,961	7,721	8,014	7,820	100.0	-2.4

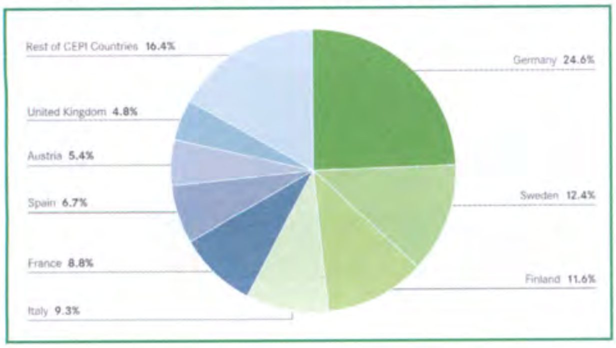
Trade Flows of Pulp to and from CEPI Countries in 2012

Paper – Global View

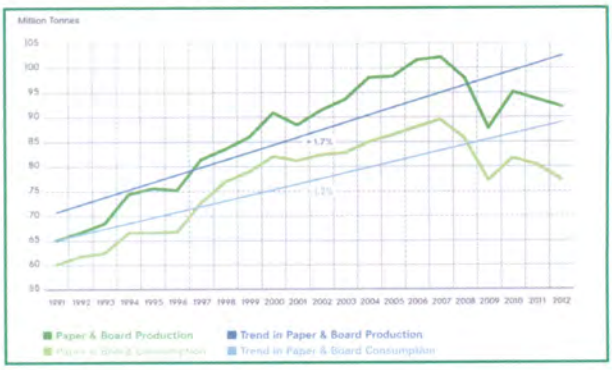
Paper & Board Production by Region in 2011



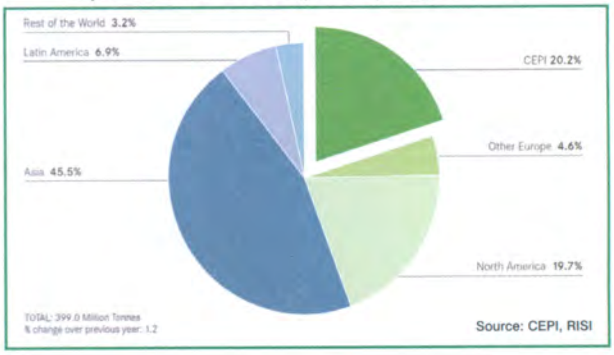
Paper & Board Production by CEPI Country in 2012



Paper & Board Production and Consumption in CEPI Countries 1991–2012



Paper & Board Consumption by Region in 2011



CEPI Exports of Paper & Board to Other Regions 2000–2012

000 Tonnes	2000	2005	2010	2011	2012	Share of Total %	% Change 2012/2011
Other Europe	6,090	6,825	7,394	7,027	7,288	36.6	3.7
North America	2,283	2,802	2,055	1,932	1,994	10.0	3.2
Latin America	874	1,194	1,879	1,782	1,909	9.6	7.2
Asia	2,933	4,742	5,099	5,431	5,483	27.6	0.9
Rest of the World	1,707	2,229	2,783	2,722	3,214	16.2	18.1
Total	13,887	17,793	19,164	18,894	19,888	100.0	5.3

CEPI Imports of Paper & Board from Other Regions 2000–2012

000 Tonnes	2000	2005	2010	2011	2012	Share of Total %	% Change 2012/2011
Other Europe	3,318	2,727	2,525	2,429	2,313	44.7	-4.8
North America	2,191	1,915	1,829	1,752	1,598	30.9	-8.8
Latin America	198	498	498	477	421	8.1	-11.7
Asia	332	394	625	527	453	8.8	-14.0
Rest of the World	344	369	307	544	385	7.4	-29.3
Total	6,383	5,903	5,783	5,729	5,171	100.0	-9.7

Trade Flows of Paper & Board to and from CEPI Countries in 2012

Conferences for 2014

3 – 7 February
PaperWeek Canada 2014
Montreal, Canada
www.paptac.ca

12 February
INGEDE Symposium
Munich, Germany
www.ingede.org

26 - 27 March
MIAC Tissue Business Point
Lucca, Italy
www.miactissue.com

23 - 30 April
TAPPI PaperCon 2014
Nashville, TN, USA
www.tappi.org

3 - 5 June
PulPaper Exhibition & Conference / IMPC 2014
Helsinki, Finland
www.pulpaperevent.com

24 - 26 June
Zellcheming 2014
Frankfurt, Germany
www.zellcheming-expo.de

10 - 11 September
3rd Pulp & Paper Asia Conference & Exhibition
Surabaya, Indonesia
www.pulppaperasia.com

15 - 17 September
China Paper 2014
Shanghai, China
www.adforumworld.com

15 - 17 October
MIAC
Lucca, Italy
www.miac.info

28 - 31 October
Pap-For Russia
St Petersburg, Russia
www.papfor.com

6 - 8 November
3rd Paper+
Chennai, India
www.paperplus.in

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e.mail:zettl@austropapier.at
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Secretary: Ludmila Belicova

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e.mail:pirkko.molkentin-matilainen@papereng.fi
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Chairman: L. Lanat *General Secretary:* D. Gomez

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website: www.pita.co.uk
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Chairman: Martin Wroe *Chief Executive:* Barry Read

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Managing Director: Alexander Pest
President: Fabio Andrew

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e.mail: aticelca@iol.it
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Chairman: Rolf Hauge
General Secretary: Ole Sommerfelt

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e.mail: info@spp.pl
Year of Foundation: 1946
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Chairman: Maria Isolete da Silva Torres Matos
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Website: www.imerys.com
Contact: Graham Pring

IMERYS KAOLIN & TALC
Mineral Producer
2 Place E Bouillieres, F-31036, Cedex 1, France
Tel: +33 561 502065 Fax: +33 561 502045
Email: yannick.rabot@imerys.com
Contact: Yannick Rabot

INGREDION UK LTD
Ingredient Solutions
Prestbury Court, Greencourts Business Park, 333 Styal Road,
Manchester, M22 5LW
Tel: 0161 435 3346 Fax: 0161 435 3341
Email: catherine.cooper@nstarch.com
Website: www.ingredion.com
Contact: Catherine Cooper

INTERTEK PAPER TECHNOLOGY GROUP
Testing and Development Service for the paper industry
Unit 7, St George's Industrial Estate, White Lion Road,
Amersham, Bucks, HP7 9JQ
Tel: 01494 544811 Fax: 01494 766798
Email: nick.kite@intertek.com
Website: www.intertek.com
Contact: Nick Kite

INTERTISSUE LTD
Tissue
Brunel Way, Baglan Energy Park, Briton Ferry,
Neath, SA11 2HZ
Fax: 01639 825 381
Email: giuseppe.munari@sofidel.it
Contact: Giuseppe Munari

INVISTA LTD
Manufacture of process and environmental sensors for the paper industry
23 Murrell Green Business Park, London Road, Basingstoke,
Hampshire, RG27 9GE
Tel: 01256 766 716
Email: john.middleton@invista-sensors.com
Website: www.invista-sensors.com
Contact: John Middleton

J

JAMES CROPPER PLC
Papermakers
Burneside Mills, Kendal, Cumbria, LA9 6PZ
Tel: 01539 722002 Fax: 01539 728088
Website: www.cropper.com
Contact: Patrick Willink

JARSHIRE LTD
Equipment for Paper, Board and Converting Industries
Levels House, 4 Bristol Way, Slough, Berkshire, SL1 3QE
Tel: 01753 825122 Fax: 01753 694653
Email: davidjobson@jarshire.co.uk
Website: www.jarshire.co.uk
Contact: David Jobson

K

KADANT UK LTD
Papermaking Engineers
Woodhill Road, Bury, Lancashire, BL8 1BD
Tel: 0161 764 9111 Fax: 0161 762 7192
Email: philip.drury@kadant.com
Website: www.kadant.com
Contact: Philip Drury

KEMIRA PULP & PAPER CHEMICALS
Specialty paper chemicals
Bowling Park Drive, Bradford, Yorkshire, BD4 7TT
Tel: 01274 762242 Fax: 01274 762288
Email: james.atkinson@kemira.com
Website: www.kemira.com
Contact: James Atkinson

KONECRANES UK LTD
Electric Overhead Travelling Cranes
Industrial Crane Division, Peel Park Place, College Milton,
East Kilbride, Glasgow, G74 5LR
Tel: 01355 220591 Fax: 01355 263654
Email: gordon.adie@konecranes.com
Contact: Gordon Adie

KWI (UK) LTD
Specialist in DAF technology and filtration for effluent & white water clarification
Units 8/9, Cambrian Business Park, Bromfield Industial Estate,
Mold, Flintshire, CH7 1NJ
Tel: 01352 700224 Fax: 01352 700396
Email: office-uk@kwi-intl.com
Website: www.kwi-intl.com
Contact: Phil Woollen

M

MP FILTRI
Manufacturers and Suppliers of Hydraulic Filtration and Oil Analysis Products
Bourton Industrial Park, Bourton on the Water,
Gloucestershire, GL54 2HQ
Tel: 07831 538364
Email: cdurkin@mpfiltri.co.uk
Website: www.mpfiltri.com
Contact: Chris Durkin

O

OMNIA-CHEM
Speciality Chemicals for the Paper Industry
Waterside Business Park, Hadfield, Glossop,
Derbyshire, SK13 1BE
Tel: 01457 858777 Fax: 01457 858785
Email: s.finch@omnia-chem.co.uk
Website: www.omnia-chem.co.uk
Contact: Steve Finch

P

PAQUES BV
Anaerobic & Aerobic Effluent Treatment Systems, Biogas Desulphurization
P O Box 52, T. De Boerstraat 24, Balk, 8560 AB,
The Netherlands
Tel: +31 514 608500 Fax: +31 514 603342
Email: w.driessen@paques.nl
Website: www.paques.nl
Contact: Willie Driessen

PARSONS REISS
Paper Machinery Engineers
Eton Way South, Eton Hill Road, Radcliffe,
Manchester, M26 2ZT
Tel: 0161 724 6634 Fax: 0161 723 1661
Email: chriswright@parsonsreiss.com
Email: alanmorley@parsonsreiss.com
Website: www.parsonsreiss.com
Contact: Christopher Wright/Alan Morley

PILZ AUTOMATION TECHNOLOGY
Machinery Safety Automation Products, Training and Services to ensure the safety of plant or personnel in the Paper Industry
Pilz House, Little Colliers Field, Corby, North Hants, NN18 8TJ
Tel: 01536 460766 Fax: 01536 460886
Email: d.bromme@pilz.co.uk
Website: www.pilz.co.uk
Contact: David Bromme

PROCAL LTD
Calibration and maintenance of paper test equipment
Glebe House, Glebe Road, Ashtead, Surrey, KT21 2NU
Tel: 01372 271313 Fax: 01372 270100
Email: mark@procal.co.uk
Website: www.procal.co.uk
Contact: Mark Ransom

Q

QISOFT LIMITED
Product and Process Information Software
Alexander House, Station Brow, Leyland, Lancs, PR25 3NZ
Tel: 01772 641133 Fax: 01772 641155
Email: graeme@qisoft.com
Website: www.qisoft.com
Contact: Graeme Parkinson

R

RAKEM LTD
Pigments, Fillers, Kaolin Clay, PCC, Talc, Additives
Wellington Street, Bury, Lancashire, BL8 2BD
Tel: 0161 762 0044 Fax: 0161 762 0033
Email: sales@rakem.co.uk
Website: www.rakem.co.uk
Contact: Kieran Rafferty

RAUMASTER PAPER OY
Finishing systems for Paper Mills (winding, core & broke handling, roll handling & wrapping, warehousing and shipping)
Sahankatu 2, Rauma, 26100, Finland
Email: Kaarlo.Talvinen@raumaster.fi
Website: www.raumasterpaper.fi
Contact: Kaarlo Talvinen

RENAISSANCE CHEMICALS LTD
Silver Biocide, Aloe Vera, Natural Oils, Specialty Dyes and Fluorescers, Bespoke products for special applications
Unit 1, Blackwood Hall Business Park, North Duffield, Selby, Yorkshire, YO8 5DD
Tel: 01757 282101
Website: www.renchem.co.uk
Contact: Howard Weaver

ROQUETTE UK LTD
Suppliers of native and modified starches and starch derivatives
Sallow Road, Corby, Northants, NN17 5JX
Tel: 01536 273096
Email: martin.georgeson@roquette.com
Website: www.roquette.com
Contact: Martin Georgeson

S

SKF (UK) LTD
Rolling bearings, seals, mechatronics, lubrication systems and services
Sundon Park Road, Luton, Bedfordshire, LU3 3BL
Tel: 01582 490049 Fax: 01582 848091
Email: marketing.uk@skf.com
Website: www.skf.com
Contact: Samantha Tonge

SMITHERS PIRA
Research, Consultancy, Training and Information
Cleeve Road, Leatherhead, Surrey, KT22 7RU
Tel: 01372 802127 Fax: 01372 802249
Email: gmoore@smithers.com
Website: www.smitherspira.com
Contact: Graham Moore

SMURFIT KAPPA SSK
Paper Manufacturers
Mount Street, Nechells, Birmingham, West Midlands, B7 5RE
Tel: 0121 327 1381 Fax: 0121 322 6300
Email: paul.freeman@smurfitkappa.co.uk
Website: www.smurfitkappa.com
Contact: Paul Freeman

Smurfit Kappa

SONOCO ALCORE
Paper Manufacturer
Stainland Board Mills, Holywell Green, Halifax, Yorkshire, HX4 9PY
Tel: 01422 374741 Fax: 01422 371495
Email: tim.colbeck@sonoco-alcore.net
Website: www.sonoco.com
Contact: Tim Colbeck

SONOCO

SPRAYING SYSTEMS LTD
Spray Nozzles
Farnham Business Park, Weydon Lane, Farnham, Surrey, GU10 8QT
Tel: 01252 727200
Email: david.yates@spray.com
Website: www.spray.com
Contact: David Yates

Spraying Systems Co.
Experts in Spray Technology

STEPHENSON RECYCLING CHEMICALS
Chemical Manufacturers
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Tel: 0113 205 0900 Fax: 0113 205 0901
Email: src@stephensongroup.co.uk
Website: www.stephensongroupuk.com
Contact: Ramesh GB Patel

T

TULLIS RUSSELL
Premium Paper & Board
Markinch, Glenrothes, Fife, KY7 6PB
Tel: 01592 753311 Fax: 01592 755872
Email: angus.mollison@tullisrussell.com
Website: www.tullisrussell.com
Contact: Angus Mollison

Tullis Russell
Employee owned, partnership driven.

TWA PEOPLE DEVELOPMENT LTD
Paper, Tissue and Board solutions - Technical know-how training; Leadership and Management; Cultural Safety
122 New Dover Road, Canterbury, Kent, CT1 3EH
Tel: 01227 379 920
Fax: 01227 379 920
Email: tw@twapd.com
Website: www.timwattsassociates.com

U

UPM-KYMMENE (UK) LTD
Newsprint Manufacturer
Shotton Paper, Weighbridge Road, Shotton, Deeside, Flintshire, CH5 2LL
Tel: 01244 280000 Fax: 01244 280363
Email: andrew.bronnert@upm.com
Website: www.upm-kymmene.com
Contact: Andrew Bronnert

UPM

V

VALMET LTD
Manufacturing and Refurbishment Engineers for the Paper Industry
Waterside Business Park, Johnson Road, Eccleshill, Darwen, Lancashire BB3 3BA
Tel: 01254 819078
Email: jorma.jarvinen@valmet.com
Website: www.valmet.com
Contact: Jorma Järvinen

Valmet

W

WEIDMANN WHITELEY LTD
Papermakers
Pool Paper Mills, Pool in Wharfedale, Otley, West Yorkshire, LS21 1RP
Tel: 0113 202 7018 Fax: 0113 284 2272

WEIDMANN

Papierzentrum Gernsbach

Paper Industry Technical Association

5 Frecheville Court, Bury, Lancashire BL9 0UF, United Kingdom
Tel: +44 (0)300 3020 150 Fax: +44 (0)300 3020 160
Email: info@pita.org.uk Website: www.pita.org.uk

P I T A

PITA Training Events 2014

Introductory Courses:

The range of PITA's Introductory Courses has now been extended to cover many aspects of Papermaking and now includes:

- **The Paper Appreciation Course**
- **Understanding Your Effluent Treatment Process**
- **Pump Efficiency & Optimisation**
- **Introduction to Leadership & Supervision**
- **Introduction to Wet End Chemistry**
- **An Appreciation of Tissue & Tissue Manufacture**
- **An Appreciation of Papermaking** ***(NEW for 2014)***
  (with Practical Papermaking, courtesy of the Paper Trail)

Fundamentals of Papermaking Courses (Intermediate):

For **2014**, we have arranged, with **PapierZentrum Gernsbach,** to run the hugely successful **'Fundamentals of Papermaking Course' (w/c 10th March 2014 and w/c 8th September 2014)**. This one week (4½ day) course provides a fast track introduction to papermaking (limited to operations between 'Mixing Chest' and 'Reel Up'). The intention is to raise the knowledge of process, technician and support staff to an intermediate level of shared understanding regarding modern Paper Machine operations. In addition to being valid as a standalone course, the course content also provides an introduction to the **'Operator Development Programme'** (ODP).

Operator Development Programme (Advanced):

For 2014, we are launching the next phase of the Operator Development Programme, a series of Advanced, Focussed Modules dealing with specific aspects of Modern Papermaking Operations. The 2014 Programme includes:

- **Stock Preparation (& Deinking)** - w/c 3rd March
- **Pressing & Drying Operations** - w/c 15th September
- **Wet End Operations & Chemistry** - w/c 2nd June
- **Finishing & Converting Operations** - *TBC*

Full details of all of these courses are available from the PITA Office

Paper, Pulp & Coating Mills in the UK

AHLSTROM CHIRNSIDE LTD

1
CHIRNSIDE PAPER MILL
Chirnside, Duns, Berwickshire, TD11 3JW
Tel: 01890-818303
www.ahlstrom.com
Products: Teabag, Speciality

2
MOUNT SION WORKS
Sion Street, Manchester, M26 3SB
Tel: 0161 725 5320
www.ahlstrom.com
Products: Pulp mill (10,000tpy)

3
APSLEY PAPER TRAIL
Frogmore Paper Mill & Visitor Centre
Apsley, Hemel Hempstead, Herts, HP3 9RY
Tel: 01442-234600
www.thepapertrail.org.uk
Products: Fine, Speciality, Artist / Watercolour

4
ARJOWIGGINS CHARTHAM LTD
Chartham Paper Mill
Station Road, Chartham, Canterbury, CT4 7JA
Tel: 01227-813500
www.arjowiggins-tracingpapers.com
Products: Tracing

5
ARJOWIGGINS FINE PAPERS LTD
Stoneywood Mill
Bucksburn, Aberdeen, AB21 9AB
Tel: 01224-802200
www.arjowiggins.com
Products: Fine, Industrial (Casting)

6
ASIA FILE CORPORATION BHD
Higher Kings Mill
Cullompton, Devon, EX15 1QJ
Tel: 01884-863600
www.higherkings.co.uk
Products: Recycled coloured paper and board

7
AYLESFORD NEWSPRINT LTD
Newsprint House, Bellingham Way,
Aylesford, ME20 7DL
Tel: 01622-796000
aylesford-newsprint.co.uk
Products: Standard Newsprint (100% RCF)

8
BILLERUD BEETHAM LTD
Waterhouse Mills
Beetham, Milnthorpe, Cumbria, LA7 7AR
Tel: 01539-565000
www.billerud.com
Products: Speciality (food, health care, industrial)

9
CARLSON FILTRATION LTD
Butts Mill
Barnoldswick, Lancs, BB18 5HP
Tel: 01282-811000
www.carlson.co.uk
Products: Speciality Filter

10
DE LA RUE INTERNATIONAL LTD
Overton Mill
Overton, Hampshire, RG25 3JG
Tel: 01256-117990
www.delarue.com
Products: Banknote, Security

11
DE LA RUE SECURITY PAPERS
Bathford Paper Mills
Bathford, Bath, BA1 7QG
Tel: 01225-859903
www.delarue.com
Products: Security (not Banknote)

DS SMITH PAPER

12
KEMSLEY PAPER MILL
Sittingbourne, Kent, ME10 2TD
Tel: 01795-518900
www.dssmithpaper.com
Products: Fluting, Testliner, Plasterboard and DIP (all from 100% RCF)

13
WANSBROUGH PAPER MILL
Watchet, Somerset, TA23 0AY
Tel: 01984-631456
www.dssmithpaper.com
Products: Coreboard, Testliner 3, Envelope, Wrappings

FOURSTONES PAPER MILL CO LTD

14
SAPPHIRE MILL
Leslie, Glenrothes, Fife, KY6 3AB
Tel: 01592-328652
www.fourstonespapermill.co.uk
Products: Tissue

15
SOUTH TYNE MILL
Fourstones, Hexham, Northumberland, NE46 3SD
Tel: 01434-602444
www.fourstonespapermill.co.uk
Products: Creped grades

16
GLATFELTER UK LTD
Lydney Paper Mill
Church Road, Lydney, Gloucestershire, GL15 5EJ
Tel: 01594-842235
www.glatfelter.com
Products: Teabag

17
HOLLINGSWORTH & VOSE COMPANY LTD
Postlip Mills
Winchcombe, Cheltenham,
Gloucestershire, GL54 5BB
Tel: 01242-602227
www.hollingsworth-vose.com
Products: Speciality Filter, Battery Separator

18
IGGESUND PAPERBOARD (WORKINGTON) LTD
Siddick, Workington, Cumbria, CA14 1JX
Tel: 01900-601000
www.iggesund.com
Products: Folding Boxboard

19
INNOVIA FILMS LTD
Wigton, Cumbria, CA7 9BG
Tel: 01697-342281
www.innoviafilms.com
Products: Regenerated Cellulose Film

20
JAMES CROPPER PLC
Burneside Mills
Kendal, Cumbria, LA9 6PZ
Tel: 01539-722002
www.cropper.com
Products: Fine, Industrial

KIMBERLY CLARK LTD

21
BARROW MILL
Barrow-in-Furness, Cumbria, LA14 4WZ
Tel: 01229-495000
www.kimberly-clark.com
Products: Tissue

22
COLESHILL MILL
Aber Road, Flint, Flintshire, CH6 5EX
Tel: 01352-805000
www.kimberly-clark.com
Products: Tissue

23
DELYN MILL
Aber Road, Flint, Flintshire, CH6 5EX
Tel: 01352-805000
www.kimberly-clark.com
Products: Hand Towel

24
NORTHFLEET MILL
Crete Hall Road, Gravesend, DA11 9AD
Tel: 01474-336000
www.kimberly-clark.com
Products: Tissue

25
LENZING FIBERS GRIMSBY LTD
Energy Park Way, Grimsby, DN31 2TT
Tel: 01472-244700
www.lenzing.com
Products: Lyocell fibre (40,000tpy) from wood pulp

NORTHWOOD PAPER SALES LTD

26
CONNECT HYGIENE PRODUCTS LTD
Disley Mill
Waterside, Disley, Cheshire, SK12 2HW
Tel: 01663-762701
www.connecthygiene.co.uk
Products: Tissue

27
PETER GRANT PAPERS LTD
Lansil Way, Caton Road, Lancaster, LA1 3PQ
Tel: 01524-843678
www.petergrantpapers.com
Products: Tissue

28
NORTHWOOD & WEPA
Bridgend Paper Mills
Llangynwyd, Nr Bridgend,
Mid Glamorgan, CF34 9RS
Tel: 01656-684500
Products: Tissue

29
PALM PAPER LTD
King's Lynn, Norfolk, PE34 3AL
Tel: 01553-782222
www.palmpaper.co.uk
Products: Standard Newsprint (from 100% RCF)

30
PHOENIX GREEN RESOURCES LTD
Rotherham, South Yorkshire
(New site under constuction)
www.phoenixgreenresources.com
Products: Wood pulp (approx. 10,000tpy)

31
POOL PAPER MILLS
Weidmann Whitely Ltd
Pool-in-Wharfedale, Otley,
West Yorkshire, LS21 1RP
Tel: 01132-027000
www.weidmann-whitely.com
Products: Insulation, Pressboard

32
PRESTON BOARD & PACKAGING LTD
Romiley Board Mill
Oakwood Road, Romiley, Cheshire, SK6 4DZ
Tel: 0161-430-6061
www.romileyboard.co.uk
Products: Unlined Chipboard, Cardboard (tubes, edge protection, layer pad, sheets)

PURICO GROUP LTD

33
DEVON VALLEY MILL LTD
Hele, Exeter, Devon, EX5 4RF
Tel: 01392-881731
www.purico.co.uk
Products: Teabag, Overlay, Sausage Casing.

34
UNION PAPERTECH LTD
Simpson Clough Mill, Ashworth Road, Heywood,
Lancashire, OL10 4BE
Tel: 01706-364121
www.purico.co.uk
Products: Teabag, Coffee Filter

35
SAICA CONTAINERBOARD
144 Manchester Road, Carrington
Manchester, M31 4QN
Tel: 0161-7767000
www.saica.com
Products: Fluting & testliner

SCA HYGIENE PRODUCTS LTD

36
CHESTERFIELD PAPER MILL
Walton, Chesterfield, S40 2PH
Tel: 01246-558557
www.sca.com
Products: Tissue

37 **OAKENHOLT MILL**
Oakenholt, Nr Flint, Flintshire, CH6 5PU
Tel: 01352-732101
www.sca.com
Products: Tissue

38 **PRUDHOE MILL**
Prudhoe, Northumberland, NE42 6HE
Tel: 01661-806000
www.sca.com
Products: Tissue

39 **STUBBINS MILL**
Stubbins Lane, Ramsbottom,
Bury, Lancs, BL0 0NH
Tel: 01706-283000
www.sca.com
Products: Tissue

40 **TRAFFORD MILL**
Trafford Park Road, Trafford Park,
Manchester, M17 1EQ
Tel: 0161-888-6002
www.sca.com
Products: Tissue

SMURFIT KAPPA GROUP

41 **SMURFIT KAPPA SSK**
Mount Street, Nechells, Birmingham, B7 5RE
Tel: 0121-327-1381
www.smurfitkappa.com
Products: Corrugated Case Medium (Recycled Fluting, Testliner 2 & 3)

42 **SMURFIT KAPPA TOWNSEND HOOK**
Mill Street, Snodland, Kent, ME6 5AX
Tel: 01634-240205
www.smurfitkappa.com
Products: Corrugating Medium, Testliner 2 & 3

SOFIDEL GROUP

43 **INTERTISSUE**
Brunel Way, Neath, SA11 2HZ
Tel: 01639-825380
www.sofidel.it
Products: Tissue

44 **NORTHERN TISSUE GROUP LTD**
Lansil Way, Lancaster, LA1 3QY
Tel: 01524-844600
tissue.co.uk
Products: Tissue

45 **SOFIDEL UK LTD**
Waterside Road, Hamilton Industrial Park
Leicester, LE5 1TZ
Tel: 01162-460888
www.sodifel.it
Products: Tissue

46 **SONOCO BOARD MILLS LTD**
Stainland Mills
Holywell Green, Halifax, West Yorkshire, HX4 9PY
Tel: 01422-374741
www.sonoco.com
Products: Coreboard, Laminate Board, Display Board Middles, Chipboard

47 **ST CUTHBERTS MILL LTD**
Wells, Somerset, BA5 1AG
Tel: 01749-672015
www.stcuthbertsmill.com
Products: Artist / Watercolour

TULLIS RUSSELL GROUP

48 **TULLIS RUSSELL PAPER & BOARD**
Markinch, Glenrothes, Fife, KY7 6PB
Tel: 01592-761212
www.tullisrussell.com
Products: Fine

49 **TULLIS RUSSELL COATERS LTD**
Church Street, Bollington
Macclesfield, Cheshire, SK10 5QF
Tel: 01625 573 051
www.tullisrussell.com
Products: Coating plant

50 **TWO RIVERS PAPER COMPANY**
Pitt Mill, Roadwater, Watchet, Somerset, TA23 0QS
Tel: 01984-641028
www.tworiverspaper.co
Products: Artist / Watercolour

UPM KYMMENE (UK) LTD

51 **CALEDONIAN PAPER**
Meadowhead Road, Shewalton, Irvine, KA11 5AT
Tel: 01294-312020
www.upm.com
Products: Coated Magazine

52 **SHOTTON PAPER,**
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Tel: 01244-280000
www.upm.com
Products: Standard Newsprint (from 100% RCF)

53 **WHATMAN PLC**
Springfield Mill
Maidstone, Kent, ME14 2LE
Tel: 01622-676670
www.whatman.com
Products: Speciality Filter, Blotting, Diagnostic grades

Panel Board Mills in UK & Ireland

54 **EGGER BARONY LTD (particle)**
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www.egger.com

55 **EGGER (UK) LTD (particle)**
Anick Grange Road, Hexham,
Northumberland, NE46 4JS
Tel: 01434-602191
www.egger.com

56 **KRONOSPAN LTD (particle & MDF)**
Holyhead Road, Chirk, Wrexham, LL14 5NT
Tel: 01691-773361
www.kronospan.co.uk

57 **MEDITE EUROPE LTD (MDF)**
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Co. Tipperary, Ireland
Tel: +353 526 182 300
www.medite-europe.com

58 **NORBORD COWIE (particle & MDF)**
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Tel: 01786-812921
www.norbord.co.uk

59 **NORBORD INVERNESS (OSB)**
Morayhill, Dalcross, Inverness, IV2 7JQ
Tel: 01463-792424
www.norbord.co.uk

60 **NORBORD SOUTH MOLTON (particle)**
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www.norbord.co.uk

61 **SMARTPLY EUROPE LTD (OSB)**
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Tel: +353 51 851 233
www.smartply.com

62 **SUNDEALA LTD (softboard-type material)**
Middle Mill
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www.sundeala.co.uk

Moulded Pulp Mills in the UK & Ireland

In cooperation with the International Molded Fiber Association. www.imfa.org

63 **ROBERT CULLEN LTD**
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Glasgow, G20 0TS
Tel: 0141 945 2222
www.cullen.co.uk

64 **ENVIROPULP**
Newbridge Road, Pontllanfraith,
Blackwood, NP12 2AN
Tel: 01495 228838
enviropulp.co.uk

65 **GREENBOTTLE LTD**
3B Delph Court, Sullivan's Way, St Helens,
Merseyside, WA9 5GL
Tel: 01744 455 190
www.greenbottle.com

66 **HUHTAMAKI (LURGAN) LTD**
41 Inn Road, Dollinsgtown, Lurgan,
Co. Armagh, BT66 7JN
Tel: 02838 327 711
www2.huhtamaki.com

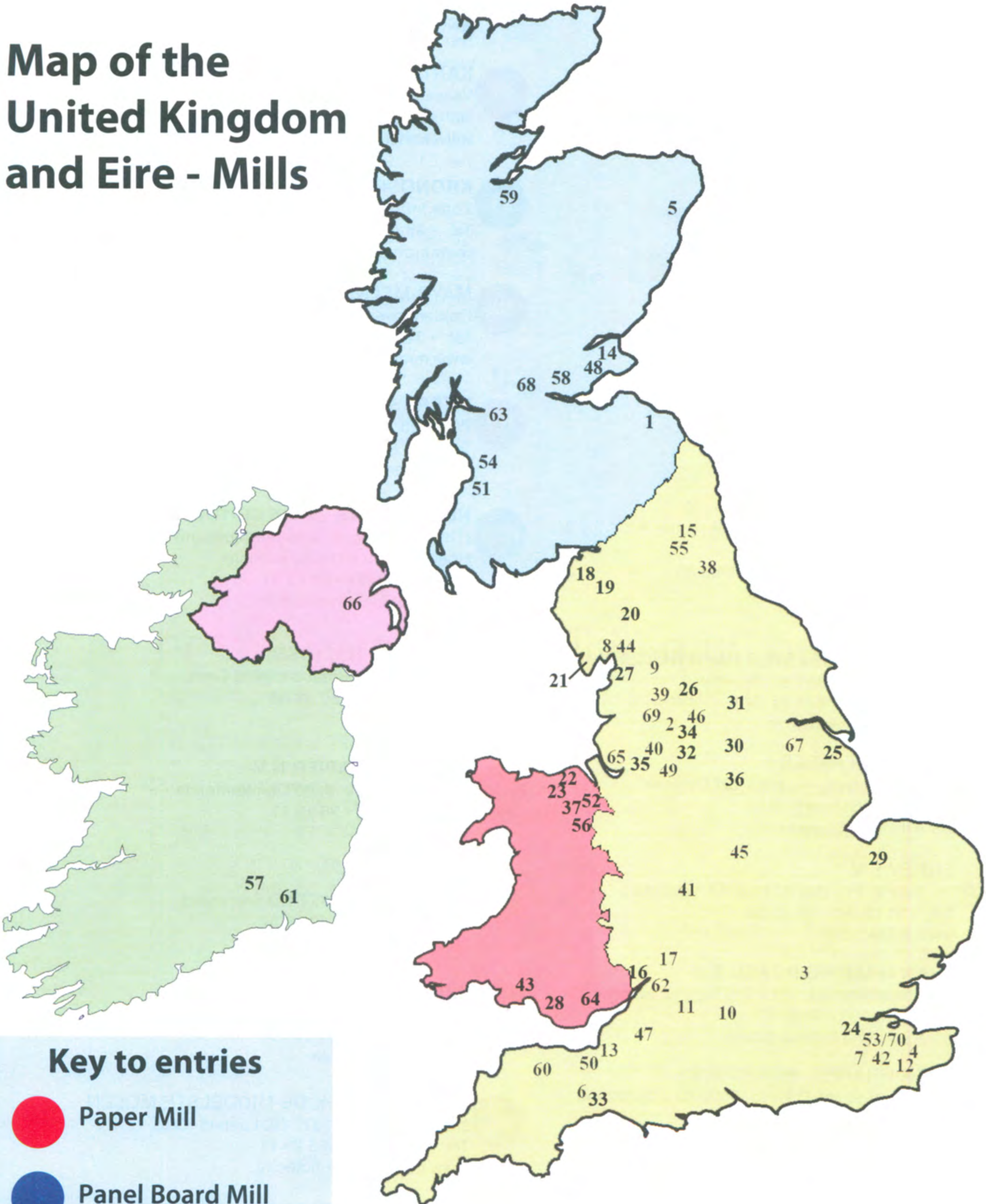
67 **MOULDED FIBRE PRODUCTS LTD**
Flixborough Industrial Estate
Scunthorpe, Lincolnshire, DN15 8SD
Tel: 01724 847 207
www.mouldedfibreproducts.com

68 **PAPER PULP SOLUTIONS**
Pulp Mill House, Banton Road,
Glasgow, G65 0QG
Tel: 01236 829 052
www.paperpulpsolutions.co.uk

69 **VERNACARE LTD**
Folds Road, Bolton, Lancashire, BL1 2TX
Tel: 01204 529 494
www.vernacare.com

70 **WHATMAN PLC**
Springfield Mill, Maidstone, Kent, ME14 2LE
Tel: 01622 676 670
www.whatman.com

Map of the United Kingdom and Eire - Mills



Key to entries

- Paper Mill
- Panel Board Mill
- Moulded Pulp Mill

Mills in the Benelux Region

B1
AHLSTROM MALMEDY S.A.
Av. Du Pont de Warche, B-4960 Malmedy
Tel: +32 (0) 80 79 54 14
www.ahlstrom.com

N22
ARJOWIGGINS SECURITY B.V.
Postbus 648, 7300 AP Apeldoorn
Tel: +31 (0)55 - 533 21 32
www.security.arjowiggins.com

B2
BURGO ARDENNES S.A.
Rue de la Papeterie 1, B-6760 Virton
Tel: +32 (0)63 - 58 71 11
www.burgo.com

B4
CATALA S.A.
Grand Route 302, 1620 Drogenbos
Tel: +32 (0)23 - 34 06 11
www.catala.be

N1
COLDENHOVE PAPIER B.V.
D.W. van Vreeswijklaan 9
6961 LG Eerbeek
Tel: +31 (0)313 - 67 06 70
www.coldenhove.com

N2
CROWN VAN GELDER N.V.
Eendrachtsstraat 30
1951 AZ Velsen-Noord, Postbus 30
Tel: +31 (0)251 - 26 22 33
www.cvg.nl

N23
DE SCHOOLMEESTER PAPIERMOLEN
Guispad 3, NL-1551 SX Zaandijk
Tel: +31 (0)75 - 621 44 65
www.zannschemolen.nl

N18
D.S. SMITH PAPER
Harderwijkerweg 41, 6961 GH Eerbeek
Tel: +31 (0)313 - 67 79 22
www.dssmith-paper.com

N26
ENKEV B.V.
De Toek 2, P.O. Box 3, 1130 AA Volendam
Tel: +31 (0)299 - 36 43 55
www.enkev.com

N4
ESKA GRAPHIC BOARD B.V.
Noorderstraat 394, 9611 AW Sappemeer
Tel.: 31 (0)598 - 31 89 11
www.eskagraphicboard.com

N5
ESKA GRAPHIC BOARD B.V.
M. Veningastraat 114-116, 9601 KJ Hoogezand
Tel: 31 (0)598 - 31 89 11
www.eskagraphicboard.com

N27
HUHTAMAKI NEDERLAND B.V.
Zuidelijke Industrieweg 3-7, 8801 JB Franeker,
Tel: +31 (0)517 - 39 93 99
www2.huhtamaki.com

B6
IDEM PAPERS S.A.
Rue d'Asquempont 2, 1460 Virginal-Samme
Tel: +32 (0)67 - 64 42 11
www.idempapers.com

B5
KARTONFABRIEK ST.-LEONARD N.V.
Vaucampslaan 84, 1654 Huizingen
Tel: +32 (0)23 - 56 57 89
www.kartonfabriek.be

L1
KRONOSPAN SANEM S.A. (OSB, MDF)
Zone Industrielle, 4901 Sanem
Tel: +35 (0)25 - 90 31 11
www.kronospan.lu

N8
MAYR-MELNHOF EERBEEK B.V.
Coldenhovenseweg 12, 6961 ED Eerbeek
Tel: +31 (0)313 - 67 51 11
www.mm-karton.com

N9
MEERSSEN PAPIER B.V.
Weert 78, 6231 SB Meerssen
Tel: +31 (0)433 - 66 35 00
www.meerssen-papier.com

N24
NEDERLANDS OPENLUCHTMUSEUM
(The Netherlands Open Air Museum)
Hoeferlaan 4, 6816 SJ Arnhem
Tel: +31 (0)263 - 57 61 11
www.openluchtmuseum.nl

B13
NORBORD N.V. (OSB)
Genk, Eikelaarstraat 33, 3600 Genk
Tel: +32 (0)89 - 50 03 00
norbord.be

B8
OUDEGEM PAPIER N.V.
Oude Baan 120, 9200 Dendermonde
Tel: +32 (0)52 - 26 19 11
www.vpk.be

N28
PAPER FOAM
Hermesweg 22, 3771 ND Barneveld
Tel: +31 (0)342 - 40 16 67
www.paperfoam.com

B12
PAPER MILL HERISEM
Fabriekstraat 20, B-1652 Alsemberg, Brussels
Tel: +32 (0)23 - 81 07 70
www.herisem.be/en

N25
PAPIERFABRIEK DE MIDDELSTE MOLEN
Kanaal Zuid 497 7371 GL Loenen (Gld)
Tel: +31 (0)55 - 505 29 11
www.demiddelstemolen.nl

N3
PAPIERFABRIEK DOETINCHEM B.V.
Terborgseweg 52, 7005 BB Doetinchem
Tel: +31 (0)314 - 34 79 11
www.papierfabriekdoetinchem.nl


100km
Key to entries
Paper Mill
Panel Board Mill
Moulded Pulp Mill
Working Museum
Amsterdam
N27 N17 N13 N4 N5 N11 N14
N12
N26 N2 N23
N29
N1 N8 N10
N18 N19 N21
N22 N24 N25 N28
N16 N3
N6
Arnhem
Nijmegen
N30
N20 N7
B11 B8 B7
B14 B16
B17 B18
B13
B4 B5
B3 B12
B6
B9
N9 N15
Maastricht
B10
B1
B15
Brussels
Ardennes
B2
L1
Luxembourg

N19 **PAPIERFABRIEK SCHUT B.V.**
Kabeljauw 2, 6866 NE Heelsum
Tel: +31 (0)317 - 31 91 10
www.schutpapier.nl

N10 **PARENCO B.V.**
Industrieterrein Veerweg 1, 6871 AV Renkum
Tel: +31 (0)317 - 36 19 11
www.parenco.com

N29 **PRESSWOOD INTERNATIONAL B.V.** (particle)
Lokhorstweg 13a-27, 3851 SE Ermelo
Tel: +31 (0)341 - 55 33 79
www.presswood.org

B9 **SAPPI LANAKEN N.V.**
Montaigneweg 2, 3620 Lanaken
Tel: +32 (0)89 - 71 97 19
www.sappi.com

N15 **SAPPI MAASTRICHT B.V.**
Biesenweg 16, 6211 AA Maastricht
Tel: +31 (0)433 82 22 22
www.sappi.com

N16 **SAPPI NIJMEGEN B.V.**
Ambachtsweg 2, 6541 DB Nijmegen
Tel: +31 (0)243 - 71 06 01
www.sappi.com

B10 **SCA HYGIENE PRODUCTS S.A./N.V.**
Rue de la Papeterie 2, 4801 Stembert
Tel: +32 (0)87 - 30 66 11
www.sca.com

N17 **SCA HYGIENE PRODUCTS SUAMEER B.V.**
Solcamastraat 24, 9262 ND Suameer
Tel: +31 (0)511 - 46 66 66
www.sca.com

N6 **SCA NEDERLAND B.V.**
Lange Linden 22, 5433 NC Katwijk (NB)
Tel: +31 (0)485 - 33 93 39
www.sca.com

N20 **SMURFIT KAPPA ROERMOND PAPIER B.V.**
Mijnheerkensweg 18, 6041 TA Roermond
Tel: +31 (0)475 - 38 44 44
www.smurfitkappa.com

N11 **SMURFIT KAPPA SOLID BOARD B.V.**
Hoofdstraat 34, 9693 ZG Bad Nieuweschans
Tel: +31 (0)50 - 30 33 000
www.smurfitkappa.com

N12 **SMURFIT KAPPA SOLID BOARD B.V.**
Robertweg 2, 7741 KX Coevorden
Tel: +31 (0)50 - 30 33 000
www.smurfitkappa.com

N13 **SMURFIT KAPPA SOLID BOARD B.V.**
Halmstraat 1-3, 9745 BC Groningen-Hoogkerk
Tel: +31 (0)50 - 30 33 000
www.smurfitkappa.com

N14 **SMURFIT KAPPA SOLID BOARD B.V.**
W.H. Bosgrastraat 82, 9665 PH Oude-Pekela
Tel: +31 (0)50 - 30 33 000
www.smurfitkappa.com

B7 **SOFIDEL BENELUX N.V.**
Adolf Stocletlaan 3, 2570 Duffel
Tel: +32 (0)15 - 30 06 11
www.sofidel.it

N21 **SOLIDPACK B.V.**
Voorsterweg 38, 7371 GC Loenen
Tel: +31 (0)55 - 505 82 22
www.solidpack.eu

B14 **SPANO N.V. (PARTICLE)**
Ingelmunstersteenweg 229, 8780 Oostrozebeke
Tel: +32 (0)56 - 66 70 21
www.spanogroup.be

B15 **SPANOLUX S.A. (MDF)**
Zoning Industriel de Burtonville,
Rue de la Forêt 2, 6690 Vielsalm
Tel: +32 (0)80 - 29 27 10
www.spanolux.com

B11 **STORA ENSO LANGERBRUGGE PAPER**
Wondelgemkaai 200, 9000 Gent
Tel: +32 (0)92 - 57 72 11
www.storaenso.com

N30 **TRESPA INTERNATIONAL B.V. (MDF)**
Wetering 20, 6002 SM Weert
Tel: +31 (0)495 - 45 83 58
www.trespa.com

B16 **UNILIN BOSPAN N.V. (PARTICLE)**
Breestraat 4, B - 8710, Wielsbeke
Tel: +32 (0)56 - 67 27 11
www.unilin.com

B17 **UNILIN BOARDS (PARTICLE & MDF)**
Schaapdreef 36, 8710 Ooigem
Tel: +32 (0)56 67 25 11
www.unilin.com

B18 **UNILIN WIELSBEKE N.V. (PARTICLE)**
Ooigemstraat 3, 8710 Wielsbeke
Tel: +32 (0)56 - 67 52 11
www.unilin.com

N7 **VAN HOUTUM B.V.**
Boutestraat 125, 6071 JR Swalmen
Tel: +31 (0)475 - 50 73 00
www.vanhoutum.nl

Mills in the Middle East Region

BAHRAIN

OLAYAN KIMBERLY-CLARK (BAHRAIN) W.L.L.
Askar, Ti
www.olayan.com

IRAN

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

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

HAYAT KIMYA
Zencan, Ti

IRAN OSB
Tehran, OSB
www.iranosb.com

IRAN PAPYRUS CO. LTD.
Saveh, Bo
www.iranpapyrus.com

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

LATIF PAPER CO.
Hashtgerd, Ti

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

PARS PAPER INDUSTRIAL GROUP
Haft Tappeh, P&W
www.icerli.com/parspaper.htm

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

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

SANAYE CHOOBE KHAZAR CO.
Amol City, MDF
www.choobekhazar.com

SUGAR CANE & BY-PRODUCTS DEVELOPMENT COMMERCIAL CO.
Shoeybieh, MDF
www.iran-sugar.com

IRAQ

STATE COMPANY FOR PAPER INDUSTRIES
Basra, Pa / P&W / Ti
www.paperiraq.com

STATE COMPANY FOR PAPER INDUSTRIES
Mesan, Bo / Pa / Sa / MP
www.paperiraq.com

ISRAEL

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

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

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

JORDAN

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

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

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

MILLENIUM PAPER
Al Zarka, Ti

SPECIALIZED INDUSTRIES GROUP
Amman, NW
www.spic-nonwovens.com

KUWAIT

AL OULA PAPER MANUFACTURING CO.
Shuaiba, Pa

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

UNITED PAPER
Shuaiba, Pa / Sa

LEBANON

HENRY MOLDED PRODUCTS INC.
Lebanon, MP
http://molded-fiber.henrymolded.com

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

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

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

SOLICAR SOCIETE LIBANAISE DE CARTON S.A.L.
Sin El Fil, Bo / Pa

UNIPAK TISSUE MILL
Halat, Ti
www.unipak-tissue-mill.com

QATAR

AL SUWIDI PAPER FACTORY
Doha, Pa

SAUDI ARABIA

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

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

MIDDLE EAST PAPER CO. (MEPCO)
Jeddah, Pa
www.middleeastpaper.com

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

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

SYRIA

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

ORIENTAL PAPER
Lanatex, Damascus

PULP AND PAPER MILL
Dayr az Zawr

SAFFOURY PAPER INDUSTRIES CO.
Damascus, Ti
www.saffoury.com

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

THE MEDITERRANEAN MILLS
Jableh, Ti

THE SYRIAN CARTON FACTORY
Charife Bross, Damascus

UNITED ARAB EMIRATES

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

AL JAZEERA PAPER MILL L.L.C.
Uum Al Qwain, Pa

CROWN PAPER MILLS
Ajman, Ti
www.crownpapermill.com

EMIRATES PAPER MILL
Jebel Ali Dubai, Ti

GULF PAPER MANUFACTURING FREE ZONE CO. (GPMFZCO)
Jebel Ali, CB / Pa
www.gulfpaper.com/GPMFZCO.htm

PREMIER PAPER MILL L.L.C.
Uum Al Qwain, Pa

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

UNION PAPER MILL
Dubai, CB / Pa
www.upm.ae

PRODUCT KEY	
PANEL	OSB (Oriented Strand Board)
	PB (Particle Board)
	MDF (Medium Density Fibreboard)
PAPER	Bo (Board)
	CB (Core Board)
	Fi (Fine)
	Kr (Kraft)
	Ne (Newsprint)
	Pa (Packaging)
	P&W (Printing & Writings)
	Re (Recycled – various)
	Sa (Sack)
	Se (Security)
	Ti (Tissue)
PULP	Pu (fibre)
OTHER	MP (Moulded Pulp)
	NW (Nonwoven)